



**Site Investigation Report/
Targeted Brownfields Assessment
Site Name: Sunnyside Avenue
RFA# 19072**

**92 Sunnyside Avenue
Woonsocket, Rhode Island**

Prepared for

Rhode Island Department of Environmental Management
Office of Waste Management/Site Remediation
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LIST OF ACRONYMS AND ABBREVIATIONS

AEG	Alliance Environmental Group, Inc.
AST	Aboveground storage tank
AOC	Area of Concern
BETA	BETA Group Inc.
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene and total xylenes
DEC	RIDEM Direct Exposure Criteria
DNAPL	Dense non-aqueous phase liquid
DRO	Diesel Range Organics
EA	EA Engineering, Science, and Technology, Inc., PBC
EPA	U.S. Environmental Protection Agency
ELUR	Environmental Land Use Restriction
ERNS	Emergency Response Notification System
ESA	Environmental site assessment
ESS	ESS Laboratories
Eurofins	Eurofins Lancaster Laboratories Environmental
F&O	Fuss & O'Neill
ft	Foot (feet)
gal	Gallon
GB-LC	RIDEM GB Leachability Criteria
Generic QAPP	EA 2019 Generic QAPP
Geologic	Geologic – Earth Exploration, Inc.
GO	Groundwater Objective
GPR	Ground penetrating radar
GRO	Gasoline Range Organics
I/C DEC	Method I Industrial/Commercial Direct Exposure Criteria
IDW	Investigative derived waste
LDI	Limited design investigation
LFR	Levine-Fricke
LNAPL	Light non-aqueous phase liquid
Microbac	Microbac Laboratories, Inc.
MS	Matrix spike
MSD	Matrix spike duplicate
NAPL	non-aqueous phase liquid

NE Geotech No.	NE Geotech Number
PAH	Polycyclic Aromatic Compounds
PCB	Polychlorinated biphenyl
PID	Photoionization detector
ppm	Part(s) per million
PP13	13 Priority Pollutant Metals
P&WRR	Providence and Worcester Railroad
QA	Quality assurance
QAPP	Quality Assurance Project Plan
QC	Quality control
RDEC	Method I Residential Direct Exposure Criteria
REC	Recognized Environmental Condition
Remediation Regulation	<i>Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases</i>
RIDEM	Rhode Island Department of Environmental Management
RL	Reporting Limit
RNF	Release Notification Form
SIR	Site Investigation Report
Subject Site	Plat 3/Lots 97 at 92 Sunnyside Avenue in Woonsocket, Rhode Island
SVOC	Semivolatile organic compound
TBA	Targeted Brownfields Assessment
TCLP	Total Characteristic Leaching Profile
TPH	Total petroleum hydrocarbon
TPI	TPI Environmental
UST	Underground storage tank
VOC	Volatile organic compound

1. INTRODUCTION AND OBJECTIVES

§1.8.3(A)(1). List specific objectives of the Site Investigation Report (SIR) related to characterization of the Release, impacts of the Release, and remedy.

EA Engineering, Science, and Technology, Inc., PBC (EA) is pleased to submit this SIR to the Rhode Island Department of Environmental Management (RIDEM) for the former industrial site located at 92 Sunnyside Avenue in Woonsocket, Rhode Island, also identified by the Woonsocket Tax Assessor's office as Plat 3/Lot 97 (the Site). The property is 3.51 acres in size. The property is being investigated by RIDEM as part of a Phase II Environmental Site Assessment (ESA)/SIR/Targeted Brownfields Assessment (TBA) program under their FY2016 Environmental Protection Agency (EPA) Assessment Grant and 2020 EPA 128(a) Funding. EA was contracted to complete the project scope under the RIDEM Technical Assistance Contractor Master Purchase Agreement Number (No.) 309.

This analysis is being completed in accordance with applicable standards in the RIDEM *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases* (Remediation Regulations), as re-codified April 2020. Two site-specific addendums to the 2019 EA Quality Assurance Project Plan (QAPP) for New England Brownfields Redevelopment Initiatives (EA Generic QAPP) were prepared in May 2019 and in February 2020. The QAPP Addendum included site-specific Work Plans and outlined the scope, specific goals, analytical procedures, analytical laboratory, sampling locations and methods, and other information pertinent to the success of the project in accordance with EA's Generic QAPP. The site-specific QAPP Addendums were approved by RIDEM and EPA on 30 July 2019 and 27 February 2020 (EA 2019, EA 2020). This SIR was prepared to summarize the outcome of field activities performed in accordance with the approved QAPP Addendums. This SIR was prepared in accordance with Sections §1.8 and §1.20 of the Remediation Regulations as specified in the SIR Checklist included in Appendix A. This SIR is subject to the limitations presented in Appendix B.

Several subcontractors were used to complete the project scope. Geologic Earth Exploration, Inc. (Geologic) supported EA as a drilling subcontractor in 2019, and New England Geotech (NE Geotech) supported EA as a drilling subcontractor in 2020. TPI Environmental (TPI) conducted utility and subsurface structure location. Microbac Laboratories, Inc (Microbac) and ESS Laboratories (ESS) analyzed environmental samples associated with this project as RIDEM Laboratory Contractors. Eurofins Lancaster Laboratories Environmental (Eurofins) was also subcontracted by EA to conduct a light non-aqueous phase liquid (LNAPL) analysis of a groundwater sample from a well exhibiting petroleum impacts.

1.1 SITE DESCRIPTION

The investigation site is a former industrial property bounded by Sunnyside Avenue to the northwest and a railroad track embankment to the southeast. The property is currently developed with three dilapidated, vacant buildings and a paved driveway/parking area on the street-side (western) of the property. Foundation remnants from at least three other buildings are present on

the interior/back side of the property (eastern). An approximately 10,000-gallon (gal) aboveground storage tank (AST) is present in the interior/back side (eastern) of the property.

Between five and six underground storage tanks (USTs) were also identified as present, mostly on the street-side of the property. The remaining areas consist mainly of undeveloped wooded areas. Lot 97 extends northeast to Mason Street; residential homes are located adjacent to the northern end of the parcel. Lot 97 has had a long history of prior industrial use including a hide & tallow company and a chemical manufacturing company. A 2018 Phase I ESA completed by BETA Group Inc. (BETA) indicates two fuel oil companies were formally present at 110 Sunnyside Avenue and 140 Sunnyside Avenue which appear to be physically part of the current subject site. A fire in April 1998 destroyed the largest of the former buildings at the property. It appears this parcel has been vacant since circa 1995 (BETA 2018).

The property is bounded to the south by Plat 3/Lot 7 (176 Sunnyside Avenue), a property also under investigation for soil and groundwater impacts from former industrial use. A site location map and site plan are included as Figure 1 and Figure 2 in Appendix C.

1.2 OBJECTIVES

The purpose of this investigation was to identify and determine the extent of soil and/or groundwater contamination associated with past manufacturing operations at the Site. The site investigation was designed to sample for a wide range of potential contaminants associated with previously identified Recognized Environmental Conditions (RECs) to determine if additional investigation and/or remediation are warranted. Known and potential contamination sources, as identified by previous investigations completed by others, include the use of oil and chemicals on the property, and the historical and current presence of an AST and underground storage tanks (USTs) containing petroleum products.

The objective of the investigation was to determine the extent of jurisdictional soils (above RIDEM Direct Exposure Criteria [DEC]), delineate any areas considered compliant (below DEC), and quantify soil and groundwater impacts due to historical industrial uses of the site. Five groups of chemical constituents were analyzed as part of this Phase II ESA /Site Investigation/ TBA: total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), 13 Priority Pollutant (PP13) Metals, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). These constituents were selected as directed by RIDEM based on historical industrial activities and previous environmental assessments.

To achieve the objective on Lot 97, EA collected soil samples in areas identified as RECs by the 2018 Phase I ESA and in a general grid pattern across the remainder of the property. EA also collected groundwater samples from six newly installed monitoring wells on Lot 97 to determine the presence and possible transport of contaminants across and/or off the site. Prior to EA's investigation, no known investigation for contaminants of concern had occurred on Lot 97.

The information obtained in the investigation will be used to identify an appropriate remedy to allow future use of the site. The objectives of the remedy are to reduce human and

environmental risk of the contaminants on the Site through an engineered solution that is financially feasible and RIDEM approved.

2. RELEASE NOTIFICATION

§1.8.3(A)(2). Include information reported in the Notification of Release. A copy of the Release notification form should be included in the SIR. Include information relating to short-term response, if applicable.

This investigation was completed as requested by RIDEM as summarized in Chapter 1. A release notification form (RNF) for Lot 97 was prepared by EA, signed by a representative of the property owner (City of Woonsocket), and submitted to RIDEM on 12 March 2020. The RNF was combined with the RNF for the adjacent lot (Lot 7/176 Sunnyside Avenue) as the two lots were initially investigated in concert; however, due to the complexity of the environmental conditions at Lot 97, the projects were later split at the request of RIDEM. A copy of the RNF is included in Appendix D.

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3. INCIDENT AND RELEASE HISTORY

§1.8.3(A)(2). Include documentation of any past incidents, releases, or investigations.

§1.8.3(A)(5). Include previously existing environmental information which characterizes the Contaminated-Site and all information that led to the discovery of the Contaminated-Site.

The only environmental investigations identified to have occurred previously were a Phase I ESA prepared in 2003 by Levine-Fricke (LFR) and a Phase I ESA prepared in 2018 by BETA Group, Inc (BETA). The information contained in the previous report reviewed by EA is summarized below.

- *A Phase I ESA was completed for Mackatz, Keefer, and Kirby, a law firm representing the former [Plat 3 Lot 7] property owner CKG Development Co., LLC, by LFR in 2003. Although the 2003 LFR Phase I report was completed for Lot 7, LFR gained additional information on Lot 97 pertinent to this SIR:*
 - LFR discovered that Lot 97 is listed on the EPA’s Emergency Response Notification System which stores information on sudden or accidental releases of hazardous substances into the environment. LFR discovered that a fire occurred at Cavedon Chemical, located at 92 Sunnyside Avenue, in April 1998 and chemicals such as hydrochloric acid, acetone, isopropyl alcohol, and methanol may have been burned in the process. Water and air samples collected once the fire was extinguished indicated that all laboratory chemicals, raw products, and waste drums were destroyed in the fire. The results of these samples were not available.
 - LFR reviewed the RIDEM UST file registered under Charles O’Donnell, the owner of C. & J. O’D., Inc. (formerly referred to as P.J. O’D) and Lot 97; the file indicated that as of June 1998 the remaining building foundation had been sampled and was not hazardous, diesel and gasoline tanks remained onsite, and an AST with asbestos insulation was located at the property. A large amount of solid waste generated during the fire also remained onsite.
 - LFR also obtained RIDEM interoffice memos dated 1998, 1999 and 2000 regarding the disposal of chemicals remaining onsite following the fire, USTs observed on the property, and a wooden shack west of “the building” that appeared to be an old fueling rack and possibly connected to several more tanks. RIDEM notified Fontaine & Croll Ltd, the attorney representing C. & J. O’D., Inc., that the tanks must be removed or they would be in violation of federal regulations. RIDEM noted that the USTs had not been removed by the deadline; a Notice of Violation was issued to C. & J., O’D., Inc. on 16 November 2000 regarding two 500-gal gasoline USTs and one 8,000-gal gasoline UST. LFR indicated that the tanks contained petroleum product though EA reviewed the RIDEM notification letter which indicated that the USTs were “unused”. No record of tank removal or closure has been located to date (LFR 2003).

- A Phase I ESA was prepared by BETA for RIDEM in 2018. BETA completed the Phase I ESA for both Lot 7 and Lot 92; multiple RECs related to Lot 92 were identified. BETA identified RECs as:
 - The historical industrial use of the subject site by a chemical company, a hide and tallow factory, and oil companies.
 - The former fire(s) which destroyed buildings may have caused releases of oil and/or hazardous material to the environment.
 - An AST which may have leaked.
 - Three USTs which may have leaked.
 - Various solid waste and fill material in surficial soil which could introduce contaminants.
 - Abutting railroad tracks due to various contamination they may have introduced (combustion of coal and diesel fuel).

BETA also indicated that due to the age of the structures at 92 Sunnyside Avenue, it is possible that hazardous building materials such as asbestos and lead-based paint are present. BETA recommended additional visual inspection of the site during the winter when vegetation was more clear, performing a subsurface utility survey to determine the extents of the three identified USTs, and installation of soil borings/monitoring wells with associated sampling in the areas of the RECs. Hazardous building materials surveys were also indicated as necessary prior to any renovation or demolition activities (BETA 2018).

4. OWNERS, OPERATORS, AND PROPERTY TRANSFERS

§1.8.3(A)(4). Include list of prior property Owners and Operators as well as sequencing of property transfers and time periods of occupancy.

4.1 HISTORICAL USE INFORMATION

Topographic maps from 1889, 1893, and 1894 do not depict Sunnyside Avenue and no development is depicted on the property as of those maps (BETA 2018). Sometime between 1894 and 1911, the parcel was developed. The property appears to have previously been comprised of three lots, as depicted on Sanborn Fire Insurance Maps 1911 through 1970. Two of the lots may have been extensions of the ‘back yards’ of two residential properties located on Mason Street, numbers 248/236 and 198, as depicted on the Sanborn Fire Insurance Maps (Appendix E). The main portion of the parcel was developed since 1911 by P.J. O’Donnell & Sons Hides & Tallow. The EDR City Directory Report identifies other addresses used for the parcel may have been 110 Sunnyside Avenue and 140 Sunnyside Avenue. No ownership/deed information was found for these parcels/addresses beyond the Sanborn and city directory listings as documented in the 2018 Phase I ESA and summarized below. Copies of the Sanborn and City Directory reports are included in Appendix E (Historical Documentation).

- **1911 (Sanborn):** This map depicts the 92 Sunnyside Avenue parcel as occupied by two buildings in the central portion of this parcel. These buildings are labeled as “P.J. O’Donnell & Son, Hides & Tallow.” It also depicts several outbuildings in the northern portion of the property that appear to be associated with dwellings along Mason Street.
- **1938 (City Directory):** 92 Sunnyside Avenue: O’Donnell P J & Sons, Hides and Tallow and Woonsocket Color and Chemical Co.; 110 Sunnyside Avenue: Diamond Oil Co Inc. fuel oil; 140 Sunnyside Avenue: Blackstone Oil Co. Blackstone Oil Co. is not listed in any subsequent city directories.
- **1942, 1942, 1951: (City Directory):** 92 and 140 Sunnyside Avenue: O’Donnell P J & Sons, Hides and Tallow, and Woonsocket Color and Chemical Co.; 110 Sunnyside Avenue: Diamond Oil Co Inc. fuel oil.
- **1950 (Sanborn):** This map depicts the 92 Sunnyside Avenue parcel as occupied by four buildings in the central portion of this parcel. These buildings are labeled as “P.J. O’Donnell & Son, Hides & Tallow.” It also depicts several outbuildings in the northern portion of the property that appear to be associated with dwellings on Mason Street. This map depicts a small building labeled as “Off” (Office) at 110 Sunnyside Avenue. At this date, the 176 Sunnyside Avenue parcel adjacent to the south is depicted as “Woonsocket Color and Chemical Co.”
- **1955 (Sanborn) :** This map depicts the Site and vicinity as similar to the 1950 map except a new building appears on the 92 Sunnyside Avenue parcel north of the existing

buildings. This building is labeled as “A” for an automotive garage. Additionally, fewer outbuildings appear in the northern portion of the Site.

- **1958 (City Directory):** 92 Sunnyside Avenue: O’Donnell P J & Sons, Hides and Tallow, and Nitro-Form Agricultural Chemical Co.; 110 Sunnyside Avenue: Diamond Oil Co Inc. fuel oil.
- **1963, 1965, 1967, 1970 (Sanborn):** These maps depict the Site and vicinity as similar to the 1955 map.
- **1963, 1968, 1973 (City Directory):** 92 Sunnyside Avenue: O’Donnell P J & Sons, Hides and Skins; 110 Sunnyside Avenue: Diamond Oil Co Inc. fuel oil.
- **1977, 1982 (City Directory):** 92 Sunnyside Avenue: O’Donnell P J & Sons; 110 Sunnyside Avenue: Diamond Oil Co Inc. Diamond Oil Co Inc. is not listed in any subsequent city directories.
- **1987, 1992 (City Directory):** 92 Sunnyside Avenue: O’Donnell P J & Sons; 110 Sunnyside Avenue: No listing.
- **1995 (City Directory):** 92 Sunnyside Avenue: Cavedon Joseph Chemical Co.; 110 Sunnyside Avenue: No listing.
- **2000 to present:** no listings for 92 or 100 Sunnyside Avenue.

EA contacted the City of Woonsocket Tax Assessor’s Office on 21 April 2020 regarding the former division of Lot 97 in three smaller parcels; however, no response was received. It is also unknown when the additional land on the northern side of the property, formerly associated with the ‘back yards’ of Mason Street residences was added to the 92 Sunnyside Avenue lot. As described in Section 4.2, the property was consolidated prior to 1999.

4.2 OWNERSHIP INFORMATION

EA reviewed deeds and other recorded documents on the City of Woonsocket Registry of Deeds website. These ownership records are for the parcel in its current orientation/extent (3.51 acres). A deed recorded on 7/7/1999 on Book 1104, Page 584 states that the property was delinquent in taxes and was attempted to be auctioned; however, no bids were received. Therefore the City of Woonsocket obtained the parcel from O’DONNELL P J + Sons Inc. by Foreclosure/Auction by way of the City Treasurer and Collector of Taxes. However, several conflicting records sources exist:

1. The City of Woonsocket GIS and the City of Woonsocket Property Card both list the current property owner as O’DONNELL P J + SONS INC. The City of Woonsocket GIS

also cites the same book/page as the deed where the City obtained the parcel in 1999 (City of Woonsocket 2020). See records in Appendix F (Ownership Documentation).

2. The RIDEM Notice of Violation (NOV), filed 11/21/2000 (after the City obtained the parcel) and recorded in the City of Woonsocket Registry of Deeds Book 1141, Page 268, states that the property owner is C. & J. O'D., Inc. since P.J. O'Donnell and Sons, Inc. changed its name to C. & J. O'D., Inc. on 3 January 1992. This NOV states that RIDEM issued four warning letters between June and December 1998 and a Notice of Intent to Enforce in January 1999.
3. A Notice of Lien filed on Book 1742, Page 1 by the City of Woonsocket against Lot 97 on 5/14/08 states that the property owner is O'Donnell PJ & Sons, Inc. The lien states that the buildings onsite had to be secured and costs were incurred.
4. A "Collector's Deed" recorded in Book 2328, Page 327 by the City of Woonsocket against Lot 97 on 12/14/2017 states that the property owner was O'Donnell PJ & Sons, Inc. until the date of this deed.

O'Donnell PJ & Sons, Inc. (also known as C. & J. O'D., Inc) appears to have owned the parcel since its initial development in the early 1900s (Section 4.1) until the parcel was transferred to the City of Woonsocket. As of the date of this report, the City of Woonsocket has a lien on the property and can legally foreclose at any time.

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5. CURRENT USE OF THE SITE

§1.8.3(A)(6). Include current uses and zoning of the Contaminated-Site, including brief statements of operations, processes employed, waste generated, Hazardous Materials handled, and any residential activities on the site, if applicable. (This section should be linked to the specific objectives section demonstrating how the compounds of concern in the investigation are those that are used or may have been used on the site or are those that may have impacted the site from an offsite source.)

5.1 CURRENT OPERATIONS

The site is currently vacant. The only potential operations or processes ongoing are trespassing and potential dumping by trespassers. There are underground natural gas and water lines entering the property. Sanitary waste disposal methods are unknown. Overhead electric and phone lines enter the parcel.

The City of Woonsocket Tax Assessors Property Card indicates the parcel is 3.51 acres and zoned R2. R2 zoning is for single and two-family residential dwellings, community residences, religious residences, and bed and breakfasts. Nursing or assisted care homes and certain municipal or federal uses of the property would be permitted under special use permits (City of Woonsocket 1994). The property is within an Environmental Justice focus area as defined by RIDEM.

5.2 CURRENT IMPROVEMENTS

Improvements on the property include:

- Three buildings located on the western part of the property adjacent to Sunnyside Avenue:
 - The main building, approximately 100 ft by 30 ft, is constructed of two parts: a two-story office portion and a one-story garage portion. The building is set into the hillside such that only the second story of the office portion is above the grade of Sunnyside Avenue. The building is partially wrapped in weatherproofing plastic and has boarded up windows and doors. The garage door on the eastern side of the building is open and the interior is charred. Debris, tires, and car parts are located inside the building. The garage had a concrete floor and field stone/concrete walls. The City of Woonsocket Tax Assessors Property Card indicated this building was constructed in 1920 (City of Woonsocket 2020).
 - A brick garage building, approximately 25 ft by 40 ft, is situated to the north of the main building. It is at street elevation and has one story. The three garage doors were not opened. According to the City of Woonsocket Tax Assessors Property Card, this building was constructed in 1995, though a building at this location marked “A” (automotive garage) is depicted as early as 1955 on the Sanborn maps.

- A small shed, approximately 8 ft by 10 ft, is located immediately south of the main building. It is at street elevation and has one story. The shed is in poor condition and the floor has collapsed into a void located below. The void houses piping which appears to be connected to adjacent USTs. This shed is not noted on the City of Woonsocket Tax Assessors Property Card. The Sanborn maps depict it as developed between 1911 and 1950. It is believed to be a pump house. EA personnel detected a petroleum odor within the shed.
- An AST, approximately 10,000 gallons in size, located on the southeastern side of the parcel. The AST is a horizontal cylindrical tank mounted on a concrete pad and is wrapped in insulation which is peeling off in sheets. The underlying tank appears to be steel. The tank is covered in graffiti.
- Five USTs and one suspected UST. For ease of discussion, these USTs will be referred to as they were identified by TPI in the GPR report. The locations of the USTs are depicted on Figure 2 (Site Plan). Three USTs were documented in the 2018 Phase I ESA as previously registered with RIDEM: two 500-gallon gasoline USTs installed in “1950 est” and one 8,000-gallon gasoline UST installed in 1974. It is unknown which of the below USTs correspond to these previously registered USTs.
 - A1 UST: 9 ft by 19 ft, possibly longer if extends under shed in an unpaved area. Located to the east of the shed/partially under the shed. Contents and fill status are unknown.
 - A2 UST: 7 ft by 19 ft, possibly longer if extends under shed in an unpaved area. Located to the east of the shed/partially under the shed. Fill port is visible above the tank. Contents and fill status are unknown.
 - A3 UST: 9 ft by 33 ft, located to the north of the pump house/shed in an unpaved area. Fill port is visible above the tank, end of the bare steel UST is visible in the hillside to the east. Contents and fill status are unknown.
 - A4 UST: 11 ft by 21 ft, located to the east of the garage portion of the main building. UST has one fill port/access port in the overlying concrete pad. It is piped into the building. It contains at least 1 ft deep of gasoline and water mixture as gauged by EA in March 2020.
 - A5 UST: 7 ft by 8 ft, located in the ‘elbow’ of the main building (where it transitions from garage to office). A small, likely waste oil UST is located in the elbow of the large building onsite. It has a fill port and underground piping into the garage portion of the building. Contents and fill status are unknown.

- A6 UST: This is a suspected 18 ft by 10 ft UST located to the south of the AST and of similar dimensions. Its dimensions are approximate as it is partially located below a large pile of bricks. Two underground pipes lead from the UST to the AST and one underground pipe headed west toward the building foundation.
- Three building foundation ruins/remains in the interior and eastern sides of the property:
 - Large building foundation, likely the former “P.J. O’Donnell & Sons Hides & Tallow” factory. This foundation appeared to be a two-story building; the lower story set into the hillside below the parking lot. The upper level was level with the eastern side of the paved parking lot (lower than Sunnyside Avenue). The Sanborn maps indicate this building was built prior to 1911 and expanded prior to 1950. This is believed to be the “warehouse building” housing hazardous waste drums which exploded in 1998 (BETA 2018). EA observed several open pipes protruding from the floor and sidewalls of this foundation ruin in March 2020.
 - One subsurface foundation (A9) identified during GPR on the central/eastern portion of the property. This is possibly associated with a building located in this vicinity circa 1950 shown on the Sanborn maps or from auxiliary functions off the northern end of the former “P.J. O’Donnell & Sons Hides & Tallow” factory.
 - One foundation/side retaining wall structure located in the hillside below the northeastern side of the parking area. It is unknown what this foundation was used for.
 - Rubble and building debris are located throughout the property, though no other complete foundations were located for the approximately 5 other buildings depicted on the parcel in the Sanborn maps.
- Paved parking area to the east and north of the main building. An approximately 10 inch diameter gas line runs through the parking lot and is visible protruding out the hillside to the east before returning below ground.

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6. SURROUNDING AREA CHARACTERIZATION

§1.8.3(A)(9). Include a general characterization of the property surrounding the area including, but not limited to: location and distance to any surface water bodies within 500 ft of the site; location and distance to any Environmentally Sensitive Areas within 500 ft of the site; actual sources of potable water for all properties immediately abutting the site; location and distance to all public water supplies, which have been active within the previous 2 years and within one mile of the site; determination as to whether the Release impacts any offsite area utilized for residential or industrial/commercial property or both; determination of the underlying groundwater classification and, if the classification is GB, the distance to the nearest GA area.

§1.8.3(A)(10). Include classifications of surface and ground water at and surrounding the site that could be impacted by a Release.

§1.8.3(A)(15). Include a characterization of the topography, surface water and run-off flow-patterns including the flooding potential of the site.

6.1 CURRENT USE OF SURROUNDING AREAS

The Site is located in a mixed-use area. The property is bordered by residential properties to the west and north. The abutting parcel to the east is developed with the railroad, on the far side of which are industrial properties. The vacant 176 Sunnyside Avenue parcel is located to the south.

6.2 ENVIRONMENTAL SETTING

The Site is located on the Georgiaville, Rhode Island Quadrangle, 7.5-minute U.S. Geological Survey topographic map. The Site is located approximately 1.25 miles from the Rhode Island – Massachusetts state border.

6.2.1 Physiography

The site is located within the Emerson Brook-Blackstone River Watershed which encompasses most of Woonsocket. The River originates in adjacent Massachusetts and flows into Narragansett Bay to the south. The Blackstone River is visible on the Site Locus Map (Figure 1). The regional topography slopes downward to the northeast, toward the Blackstone River.

Topography on the property is extremely varied. The highest points of the site are along Sunnyside Avenue and the southern property border, which are relatively level. The property slopes down to the east and north, with the lowest points located in the northeastern corner of the property. The property slopes back up slightly as it approaches Mason Street, and along the embankment for the railroad.

6.2.2 Surface Water Quality

The nearest surface water body to the site is Cherry Brook, located approximately 500 ft to the east of the site. Cherry Brook flows into the Blackstone River, located approximately 1,200 ft to the north of the subject site.

Cherry Brook is identified by RIDEM Water Quality Regulations and the RIDEM Environmental Resource Map as having a water use classification of Class B. Class B is defined as a freshwater designated for fish and wildlife habitat and primary and secondary contact recreational activities; that are suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses; and having good aesthetic value. However, the portion of the Branch River located adjacent to the site is also listed in the State of Rhode Island 2016 Impaired Waters Report (dated 2018) as an impaired waterway. The listed impairments are copper, enterococcus, fecal coliform, and benthic-macroinvertebrate bioassessments. Cherry Brook has Total Daily Maximum Loads established for copper, enterococcus, and fecal coliform (RIDEM 2020).

6.2.3 Geology

Surficial material at the site is mapped as Merrimac Urban Land Complex, which is described as well drained sandy loam and soil covered by streets, parking lots, buildings, and other urban structures (RIDEM 2020). Subsurface soil encountered during the field investigations performed by EA in 2019 and 2020 consisted of sandy fill material with varying amounts of silt, clay, gravel, and cobbles, underlain by grey silty sands. Fill materials consisted of brick, wood and concrete, with traces of coal and coal ash.

Bedrock beneath the site is mapped as metasedimentary rocks of the Esmond-Dedham Subterranean (Hermes, et al, 1994). Depth to bedrock was not documented in files reviewed as part of this investigation. Refusal was not encountered at most borings during soil boring activities conducted during the field investigations performed by EA in 2019 and 2020. The majority of borings had 25 to 35 ft of overburden. The borings EA-8, EA-18, and EA-19 met refusal on dense material at depths between 13.5 and 20 ft below grade. However, the cause of refusal was not confirmed as competent bedrock.

6.2.4 Hydrogeology

The groundwater beneath the site was classified by the RIDEM as GB (RIDEM 2020). GB groundwater is designated to be not suitable for public or private drinking water use. GB groundwater areas are typically located beneath highly urbanized areas, permanent waste disposal areas, and the area immediately surrounding the permanent waste disposal areas (RIDEM 2010a). The nearest GA groundwater area (where groundwater was designated to be suitable for potable use) is located approximately 0.3 miles to the west of the site and the nearest GAA groundwater area is located approximately 0.8 miles west of the site.

Depth to groundwater ranged from approximately 14 to 25 feet below grade across the site. Based on groundwater measurements collected at the site during the SI/TBA, the groundwater flow direction beneath the site was observed to be to the northeast, toward the Blackstone River.

6.2.5 Environmentally Sensitive Areas

There are no RIDEM-mapped wetlands or RIDEM Natural Heritage areas within the subject site. The closest wetlands are adjacent to Cherry Brook to the east (see Section 6.2.2) and the closest RIDEM Natural Heritage area is located approximately 500 ft to the west.

6.2.6 Nearby Public Water Supplies

There are no Community or Non-Community Wellhead Protection Areas mapped within 0.5 miles of the site. The closest drinking water supply watershed/recharge area, a Non-Community Wellhead Protection Area, is located 0.9 miles to the west of the site.

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7. INVESTIGATION AND DESCRIPTION OF IMPACTS

§1.8.3(A)(11). Include a description of the contamination from the Release, including: Free liquids on the surface; Light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL); concentrations of Hazardous Substances which can be shown to present an actual or potential threat to human health and any concentrations in excess of any of the remedial objectives; (reference Section 1.13 for requirements related to arsenic in soil); impact to Environmentally Sensitive Areas; contamination of man-made structures; odors or stained soil; stressed vegetation; presence of excavated or stockpiled material and an estimate of its total volume; environmental sampling locations, procedures and copies of the results of any analytical testing at the site; list of Hazardous Substances at the site; discuss if the contamination falls outside of the jurisdiction of the Remediation Regulations, including but not limited to USTs, underground injection controls, and wetlands.

§1.8.3(A)(19). Include a complete list of all samples taken, the location of all samples, parameters tested for and analytical methods used during the Site Investigation. (Be sure to include the samples locations and analytical results on a site figure)

EA developed a soil and groundwater investigation for the Site that is summarized in the following sections. Site investigation activities were conducted in accordance with the two site-specific QAPP addendums approved by RIDEM and EPA in May 2019 and February 2020. Two drilling subcontractors supported EA for drilling activities: Geologic in 2019 and NE Geotech in 2020. Microbac analyzed environmental samples collected in 2019, and ESS analyzed environmental samples collected in 2020.

A public notice was prepared and distributed in August 2019 in accordance with the Remediation Regulations and the notification requirements for sites located within Environmental Justice Areas. A site-specific Health and Safety Plan was prepared in September 2019, and all onsite personnel were briefed on safety hazards at the site prior to conducting work in both September 2019 and March 2020. A summary of all investigative activities and sampling conducted by EA during field events is included in Table 7-1.

Table 7-1 Field Events Summary

Field Event	Date	Field Work Summary	Samples Collected ^b
1	9/19/2019	Advanced soil borings EA-1 – EA-4 Installed monitoring wells MW-EA-1 and MW-EA-2 ^a	8 soil samples
	9/20/2019	Developed MW-EA-1	None
	9/24/2019	Groundwater sampling at MW-EA-1	1 groundwater sample
2	3/3/2020	LNAPL sampling (fingerprint analysis) at MW-EA-1	1 product sample
	3/13/2020	Geophysical Survey by TPI	None
	3/18/2020	Advanced soil borings EA-11 and EA-12	4 soil samples
	3/19/2020	Advanced soil borings EA-9, EA-10, EA-13 – EA-15, EA-17 Installed MW-EA-9, MW-EA-10, MW-EA-13, MW-EA-17	12 soil samples
	3/20/2020	Advanced soil borings EA-7, EA-8, EA-16, EA-18 – EA-21 Installed MW-EA-20	14 soil samples

Field Event	Date	Field Work Summary	Samples Collected ^b
	3/26/20	Developed MW-EA-2, MW-EA-9, MW-EA-10, MW-EA-13, MW-EA-17, and MW-EA-20 Conducted monitoring well elevation survey	None
	4/1/2020	Groundwater sampling at MW-EA-2, MW-EA-9, MW-EA-13, MW-EA-17, MW-EA-20	5 groundwater samples
^a MW-EA-2 was dry and could not be developed or sampled in September 2020. ^b Quality assurance/quality control samples are not included in sample counts. NOTES: TPI = TPI Environmental			

7.1 SOIL SAMPLING LOCATIONS

A total of 19 soil borings were advanced as part of this investigation; 4 borings were advanced in September 2019 and 15 soil borings were advanced in March 2020. Six borings were advanced in the western, developed portion of the site, and 13 borings were advanced on the eastern, wooded portion of the site. DigSafe was notified to mark underground utilities on the site prior to commencement of field events in both September 2019 and March 2020.

A geophysical survey using ground penetrating radar (GPR) technology was conducted by TPI prior to initiating soil boring activities in March 2020. The goal of the survey was to identify subsurface constraints to the placement of soil borings. Specifically, the accessible portions of the entire parcel were scanned to confirm or deny the presence of USTs and/or significant metallic structures (ex. piping). The results of the geophysical survey revealed that five anomalies (A1-A5) were likely associated with USTs, one anomaly (A6) was potentially associated with a UST, three anomalies (A7, A8, A9) were metallic objects or concrete structures with low likelihoods of being USTs. Metallic piping was detected extending east from the main building, through the demolished building, and down to anomaly A6 and the AST. The anomalies are discussed in detail in the TPI Geophysical Report, included in Appendix G. The concrete and metallic anomalies detected by TPI are shown on the Site Plan (Figure 2) in Appendix C.

Soil boring placement in March 2020 (soil borings EA-7 through EA-21) was based on the RECs identified by BETA in 2018, the findings of the 2019 field event, and the results of the March 2020 geophysical survey. A list of the 19 soil borings advanced during the investigation and their objectives are summarized in Table 7-2 below. A site plan showing the soil boring locations is included as Figure 2.

Table 7-2 Soil Boring Location Objectives

Soil Boring Identification	Location	Objective
EA-1	Low-lying wooded area between the AST and railroad	Investigate potential impacts from petroleum storage tanks, hazardous waste storage, former industrial operations
EA-2	Pavement at eastern edge of gasoline UST	Investigate potential impacts from petroleum storage tanks, hazardous waste storage, former industrial operations
EA-3	Central paved area west of the main building and north of foundation remnants	Investigate potential impacts from petroleum storage tanks, hazardous waste storage, former industrial operations
EA-4	Grassed area northeast of garage building	Investigate potential presence of impacted soils
EA-7	Low-lying wooded area between MW-EA-1 and the toe slope of the southern hill	Investigate potential impacts from petroleum storage tanks and lateral extent of fuel oil release
EA-8	Low-lying wooded area northwest of the AST	Investigate potential impacts from petroleum storage tanks
EA-9	East of shed/exposed piping and south of gasoline UST	Investigate potential impacts from petroleum storage tanks
EA-10	Downhill (east) from building foundation remnants and west of the AST	Investigate potential impacts from petroleum storage tanks
EA-11	Central paved area between the main building and the foundation remnants	Investigate potential impacts from petroleum storage tanks, hazardous waste storage, former industrial operations
EA-12	Proximal to Sunnyside Ave in grassed area north of garage building	Investigate potential presence of impacted soils
EA-13	Downhill (east) from the garage building	Investigate potential presence of impacted soils
EA-14	Downhill (east) from residences along Sunnyside Ave	Investigate potential presence of impacted soils
EA-15	Northwestern corner of the site, behind residences along Mason St	Investigate potential presence of impacted soils
EA-16	Northeastern corner of the site between residences on Mason St and the railroad	Investigate potential presence of impacted soils
EA-17	Low-lying wooded area west of railroad tracks	Investigate potential presence of impacted soils and lateral extent of fuel oil release
EA-18	Low-lying wooded area west of railroad tracks	Investigate potential presence of impacted soils and lateral extent of fuel oil release
EA-19	Low-lying wooded area west of railroad tracks	Investigate potential presence of impacted soils and lateral extent of fuel oil release
EA-20	Low-lying wooded area between the AST and geophysical anomaly A9	Investigate potential presence of impacted soils and lateral extent of fuel oil release
EA-21	Southeastern corner of the site at the top of the hill	Investigate upgradient subsurface conditions and potential presence of impacted soils

7.2 SOIL SAMPLING PROCEDURES AND ANALYTICAL DATA

All soil borings were advanced using Geoprobe® direct push drilling techniques with a track mounted rig. All samples were continuously logged and visually classified for characterization purposes. Each soil sample was screened for the presence of volatile organic vapors with a

calibrated photoionization detector (PID), calibrated to 100 parts per million (ppm) isobutylene standard, using the jar headspace method. All non-dedicated tools were decontaminated between borings using a Liquinox wash followed by a deionized water rinse. Descriptions of the subsurface soils encountered during both field events are detailed in the boring logs provided as Appendix H.

7.2.1 September 2019

EA oversaw the advancement of four soil borings at the project site on 19 September 2019. The four borings consisted of two deep borings (EA-1, EA-2) and two shallow soil borings (EA-3, EA-4). Specific sampling locations and boring depths were chosen based on accessibility and proximity to the areas of potential contamination identified as RECs by BETA. One 10-ft deep soil boring (EA-3) was located in the pavement between the main building and the garage, and one 10-ft deep soil boring (EA-4) was located in a grassed area north of the garage building. Two deep soil borings were advanced near former oil and/or hazardous material storage areas; a potential fill port for a suspected UST east of the main building (soil boring EA-2), and near the AST in the low-lying eastern portion of the parcel (soil boring EA-1). EA-2 was completed to a depth of 28 ft below ground surface (bgs) and EA-1 was completed to a depth of 24 ft bgs. Both of the deep soil borings were converted to groundwater monitoring wells. Locations of the soil borings are depicted on Figure 2 (Site Plan).

The soils at soil borings EA-2 through EA-4 generally consisted of dry, tan, uniform medium and fine sand. No visual or olfactory evidence of impacted soil, significant PID readings, or anthropogenic fill was observed in borings EA-2 through EA-4. Soils at soil boring EA-1 consisted of brown fine sand with trace silt with heavy petroleum stained soil beginning at approximately 15 ft bgs. Evidence of petroleum impacts (stained soil, strong petroleum odor, elevated PID readings) was observed at EA-1 from approximately 15 ft bgs to 24 ft bgs. No evidence of the groundwater table was encountered in EA-3 or EA-4 during drilling, though groundwater later infiltrated into both monitoring wells. No bedrock or drilling refusal was encountered at any of the soil borings.

Surface soil samples from the 0-2 ft bgs interval were collected from each boring for laboratory analyses. One deep soil sample was collected from the terminus of soil borings EA-3 and EA-4; at the water table interface at EA-2; and at the interval with the highest PID reading (156 ppm at 20-24 ft bgs) at EA-1.

All of the collected soil samples, a VOC trip blank (for quality control purposes), and quality assurance (QA)/quality control (QC) were placed in laboratory prepared sample jars, stored on ice, and transferred under chain-of-custody protocol to Microbac Labs of Dayville, Connecticut for analysis. Each sample was analyzed for: VOCs by EPA Method 8260C, PAHs by EPA Method 8270D, polychlorinated biphenyls (PCBs) by EPA Method 8082A, 13 Priority Pollutant (PP13) metals by EPA Methods 7471B and 6010C, and TPH by EPA Method 8100.

7.2.2 March 2020

EA oversaw the advancement of 15 soil borings with target depths of 25 ft bgs on 18 through 20 March 2020. Boring IDs and placements are detailed in Table 7-2. Five soil borings (EA-9, EA-10, EA-13, EA-17, and EA-20) were converted to monitoring wells. Locations of the soil borings are depicted on Figure 2 (Site Plan).

The soils throughout the site generally consisted of uniform medium and fine sand. Soils in the developed western portions of the site soil were tan, dense and dry, and bedrock was encountered either at depths greater than 25 feet or not encountered based on boring termination depth. In the low-lying eastern and central portions of the site, soils had a higher organic content (brown sand, silt, and organics) and the groundwater table was encountered at approximately 10-15 ft bgs. Drilling refusal was met at two drilling locations, EA-18 and EA-19, at depths of 14.5 and 13.5 ft bgs, respectively, due to potential bedrock or subsurface till.

Petroleum impacts consisting of oil stained or saturated soil, petroleum odor, and/or elevated PID readings were observed at soil borings EA-17 through EA-20, EA-7, EA-8, and EA-10; soil staining and odors are described in detail in Section 7.4.6. Additionally, evidence of crushed asphalt/burnt rubble/coal slag, or anthropogenic fill was observed within the top 1 or 2 ft of soil borings EA-7 through EA-10, EA-15, and EA-17 through EA-20. No visual or olfactory evidence of impacted soil or significant PID readings were observed in the remaining soil borings. Surface soil samples from the 0 to 2 ft bgs interval were collected from each boring for laboratory analyses. One deep soil sample was collected from each boring at either the water table interface or at the interval with the highest PID reading. The boring logs indicating sample locations and soil characteristics are included in Appendix H. The locations of each soil boring are depicted on Figure 2 in Appendix C.

Laboratory analysis at each boring was assigned based on the soil boring's location relative to known or suspected areas of concern (AOCs): petroleum-targeted constituents in the area of the USTs and the fuel oil release detected at soil boring EA-1, and hazardous materials-targeted constituents in areas that had not been sampled in September 2019. Samples collected at soil borings EA-7 through EA-9 were analyzed for petroleum-targeted constituents to inform the UST removal scope and provide additional information on the extent petroleum impacts in the subsurface. Petroleum-targeted samples were submitted for analysis of TPH-Gasoline Range Organics (GRO) (carbon fractions C₆-C₁₀), TPH-Diesel Range Organics (DRO) (carbon fractions C₁₀-C₂₈), the VOCs benzene, toluene, ethylbenzene and total xylenes (BTEX), and lead. Samples collected from the remaining soil borings (EA-10 – EA-21) were analyzed for general indicators of hazardous-materials to determine if former industrial use on the remainder of the site and/or filling operations have adversely impacted environmental media. These samples were submitted for analysis of VOCs, SVOCs, TPH, and PP13 metals. One randomly selected soil boring (EA-19) was sampled for hexavalent chromium. The locations of the petroleum-targeted soil samples and the locations of the hazardous materials-targeted samples are depicted on Figure 2 (Site Plan) in Appendix C.

All of the collected soil samples and QA/QC samples were placed in laboratory prepared sample jars, stored on ice, and transferred under chain-of-custody protocol to ESS of Cranston, Rhode Island for analysis. Samples from EA-7 through EA-9 were submitted for analysis of TPH-GRO and TPH- DRO by EPA Method 8015, BTEX by EPA Method 8260B, and lead by EPA Method 6010C. Soil samples from soil borings EA-10 – EA-21 were submitted for analysis of VOCs by EPA Method 8260C, SVOCs by EPA Method 8270, PP13 metals by EPA Methods 7471B and 6010C, and TPH by EPA Method 8100. Quality control samples consisted of one field duplicate, one matrix spike (MS), and one matrix spike duplicate (MSD) for petroleum targeted constituents, and one field duplicate, one MS, and one MSD for hazardous material targeted constituents. One QA/QC trip blank (for VOCs analysis only) was submitted for each cooler storing VOC samples.

7.3 GROUNDWATER SAMPLING LOCATIONS, PROCEDURES, AND ANALYTICAL DATA

§1.8.3(A)(20). Include construction plans and development procedures for all monitoring wells. Well construction shall be consistent with the requirements of the Groundwater Quality Rules.

A total of seven groundwater monitoring wells were installed at the site. The well locations are depicted on Figure 2 (Site Plan) and described in Table 7-3.

Table 7-3 Groundwater Monitoring Well Locations

Monitoring Well Identification	Installation Date	Total Well Depth (ft)	Location
MW-EA-1	9/19/2019	24	Low-lying wooded area between the AST and railroad
MW-EA-2	9/19/2019	28	Pavement at eastern edge of gasoline UST
MW-EA-9	3/19/2020	33	East of shed/exposed piping and south of gasoline UST
MW-EA-10	3/19/2020	25	Downhill (east) from building foundation remnants and west of the AST
MW-EA-13	3/19/2020	25	Downhill (east) from the garage building
MW-EA-17	3/19/2020	20	Low-lying wooded area west of railroad tracks
MW-EA-20	3/20/2020	20	Low-lying wooded area west of railroad tracks, between the AST and geophysical anomaly A9

7.3.1 Monitoring Well Installation

Groundwater monitoring wells were constructed according to the well installation methods detailed in the *RIDEM Rules & Regulations Part 250-RICR-150-05-3* Section 3.22. Each groundwater monitoring well was constructed of clean, 2-in. inner-diameter, 0.010-in. slotted schedule 40 polyvinyl chloride and connected to the well casing with flush threads. A 10 ft length of slotted screen was placed in the shallow overburden at the intersection with the field observed water table at all monitoring wells except for MW-EA-10. Monitoring well MW-EA-10 was screened from 25 ft bgs to 5 ft bgs due to the depth of petroleum impacts observed during soil boring activities. The filter pack installed in the soil boring annulus at all monitoring wells

consisted of clean silica sand. The filter pack extended to a minimum of 1 ft above the screened interval of each monitoring well, and was isolated from the surface with bentonite clay seal to prevent short circuiting of surface water into the boreholes. Each monitoring well was protected with a concrete surface seal and a water-tight gripper cap. Monitoring well MW-EA-2 was completed as a flush-mounted well on pavement whereas the remaining monitoring wells were completed with steel standpipes. Well construction is depicted on the boring logs included in Appendix H.

Groundwater monitoring well MW-EA-1 was developed on 20 September 2019 following installation. EA attempted to develop monitoring well MW-EA-2 in September following installation; however, the well was dry. MW-EA-2 was gauged in March 2020 and discovered to have water. MW-EA-2 and all groundwater wells installed in March 2020 were developed on 26 March 2020. Each monitoring well was gauged using an oil/water interface probe to determine the presence or absence of free phase petroleum on the groundwater table. Each monitoring well was developed by EA prior to sampling by over-pumping using either a submersible whale pump with dedicated polyethylene tubing, or a disposable bailer. Development continued until sediment has been removed from the well and water clarity improved. Development water was drummed for characterization and disposal.

Evidence of petroleum was observed at groundwater monitoring wells MW-EA-1 and MW-EA-10 during well development; strong petroleum odors were detected and development equipment (submersible whale pump and disposable plastic bailer) were coated with black, viscous oil by the end of the development process at each well. Development water from monitoring well MW-EA-17 was gray at the end of development and a slight non-organic chemical odor was detected. Purge water from well development at groundwater monitoring wells MW-EA-2, MW-EA-13, MW-EA-9, and MW-EA-20 was relatively clear and generally odor-free. Well development logs describing initial depths to water and purge water characteristics are included in Appendix I.

A relative engineering elevation survey of the seven newly installed monitoring wells was conducted by EA to determine the elevation of the top of casing of each well. The elevation of each monitoring well was established for groundwater measurements which were used to determine the flow direction of the shallow groundwater aquifer. The groundwater contour map is included as Figure 4 in Appendix C and surveyed elevations are in Table 7-4.

Table 7-4 Groundwater Monitoring Well Elevations

Monitoring Well Identification	Feature	Elevation (ft)
MW-EA-1	Ground	96.22
	Top of casing (TOC)	100
MW-EA-2	Ground	97.87
	TOC	101.17
MW-EA-9	Ground	93.65
	TOC	96.77
MW-EA-10	Ground	110.64
	TOC	110.51
MW-EA-13	Ground	111.24
	TOC	114.43
MW-EA-17	Ground	89.32
	TOC	92.68
MW-EA-20	Ground	94.66
	TOC	97.97

7.3.2 Groundwater Sampling

Groundwater monitoring well MW-EA-1 was sampled on 24 September 2019 using a disposable bailer. Groundwater monitoring wells MW-EA-2, MW-EA-9, MW-EA-13, MW-EA-17, and MW-EA-20 were sampled on 1 April 2020 using either a peristaltic pump with dedicated polyethylene tubing, or a disposable bailer depending on depth to groundwater. Monitoring well MW-EA-10 was not sampled due to the substantial presence of petroleum product observed during well development. All groundwater sampling activities were conducted in accordance with the EA standard operating procedures, as presented in the QAPP Addendum, and EPA low-flow purging and sampling techniques. All equipment was calibrated prior to collection of data. Water quality parameters including dissolved oxygen, oxygen reduction potential, temperature, conductivity, and pH were monitored during purging until the groundwater parameters met EPA low-flow stability thresholds of stability. Samples were collected once groundwater parameters had stabilized or once a minimum of three well volumes had been purged.

Groundwater samples were collected at monitoring well MW-EA-1 on 24 September 2020 and were submitted for analysis of VOCs by EPA Method 8260C, PAHs by EPA Method 8270, PP13 metals by EPA Methods 7471B and 6010C, and TPH by EPA Method 8100. All groundwater samples were collected in laboratory clean bottles, placed in a cooler with ice and delivered to Microbac, per accepted industry standard chain-of-custody protocols and EA standard operating procedures.

Groundwater samples were collected at monitoring wells MW-EA-2, MW-EA-9, MW-EA-13, MW-EA-17, and MW-EA-20 on 1 April 2020. Monitoring well MW-EA-10 was not sampled due to the presence of LNAPL in the well. Monitoring well MW-EA-9 was sampled for petroleum-targeted constituents; samples from MW-EA-9 were submitted to ESS for analysis of

TPH-GRO and TPH DRO by EPA Method 8015, BTEX by EPA Method 8260, and dissolved lead (field filtered) by EPA Method 6010C. Monitoring wells MW-EA-2, MW-EA-13, MW-EA-17 and MW-EA-20 were sampled for hazardous material-targeted constituent; samples were submitted to ESS for analysis of VOCs by EPA Method 8260C, SVOCs by EPA Method 8270, PP13 metals by EPA Methods 7471B and 6010C, and TPH by EPA Method 8100.

Two field duplicates were collected for QA/QC purposes; one field duplicate was collected at MW-EA-9 and submitted for petroleum-targeted sample analysis, and one field duplicate was collected at MW-EA-17 and submitted for hazardous material-targeted sample analysis. Extra volume for an MS/MSD was collected at MW-EA-20. Two trip blanks, for VOCs only, was collected in both September 2019 and March 2020. A rinsate blank was collected from the interface probe used during groundwater well gauging and sampling activities in September 2019. A sample was collected from the investigative derived waste (IDW) drum containing purge water from monitoring well purge water. All preservation techniques and holding times presented in the QAPP were achieved. The groundwater sampling log sheets are provided in Appendix J.

7.3.3 Petroleum Fingerprint

A sample of the LNAPL from MW-EA-1 was collected on 3 March 2020 to determine the type of petroleum. The sample was scraped off of a decontaminated metal tape measure which was used to gauge the depth of product. The sample was submitted to Eurofins of Lancaster, Pennsylvania for analysis via EPA Method SW-846/8015B. The sample was collected in an unpreserved, 40-ml vial with a Teflon-lined cap as provided by the laboratory, cooled to 4°C, and submitted to Eurofins laboratory using standard chain-of-custody protocols.

7.4 DESCRIPTIONS OF IMPACTS

7.4.1 Free Liquids on the Surface

EA did not identify any free liquids on the surface of the Site during this investigation.

7.4.2 Presence of Light Non-Aqueous Phase Liquid or Dense Non-Aqueous Phase Liquid

Groundwater monitoring wells MW-EA-2, MW-EA-9, MW-EA-13, MW-EA-17, MW-EA-20 were gauged with an oil/ water probe prior to development and sampling. Neither LNAPL nor DNAPL were detected by the probe during well development and sampling at these locations. Thick, black LNAPL was detected in both monitoring wells MW-EA-1 and MW-EA-10 during well development and/or gauging. Monitoring well MW-EA-10 had a heavy sheen and globules of product. Monitoring well MW-EA-1 was not able to be gauged using an interface probe due to immediate fouling/coating of the probe. Additionally, a weighted polyethylene bailer did not fully sink into the product and did not fully penetrate the layer of LNAPL.

EA conducted follow up sampling at groundwater monitoring well MW-EA-1 in response to the September 2019 LNAPL detection. The LNAPL was gauged using a solid tape measure with water-finding paste. A sample of LNAPL was collected for fingerprint analysis during the gauging

event. The gauging discovered a 7 to 8 ft thick layer of oily water overlying the viscous LNAPL. LNAPL was detected at approximately 17.5 ft below top of casing (approximately 13.75 ft bgs) extending to the base of the monitoring well. The layer of product was at least 10-11 ft thick. The product thickness extended above the top of the well screen, essentially fouling it for any future use. It is hypothesized that the water above the product (present much shallower than the ambient groundwater table) entered the monitoring well prior to fouling of the screen and was displaced once the oil entered and blocked the screen.

Eurofins analyzed the oil sample using the quantitative gas chromatograph method SW-846 8015C and calculated total sample area in the C₈-C₄₀ normal hydrocarbon range. Eurofins reported that the LNAPL sample was most similar to the No. 6 fuel oil reference standard. It is likely that the LNAPL observed at monitoring well MW-EA-10 is from the same No. 6 fuel oil release detected at monitoring well MW-EA-1 based on field observations and the wells' proximity to one another. EA did not submit a MW-EA-10 groundwater sample for laboratory analysis in March 2020 due to the likelihood of LNAPL matrix interference during laboratory analysis. The laboratory analytical report prepared by Eurofins is included in Appendix K (Laboratory Analytical Reports).

Indications of LNAPL impacts were also observed at several soil borings in the vicinity of monitoring wells MW-EA-1 and MW-EA-10; samples collected from soil borings EA-7 and EA-8 exhibited elevated PID readings, strong petroleum odors, and black, petroleum-saturated soils. Evidence of pure-phase oil product at these locations is described in subsequent sections 7.4.3 and 7.4.6.

7.4.3 Hazardous Substances in Excess of Regulatory Criteria

The following sections present the findings of the laboratory analyses. A complete copy of the laboratory data sheets is included in Appendix K. Summary tables presenting regulatory exceedances detected in the soils (Tables 1 and 2) and groundwater (Tables 3 and 4) are included in Appendix L. The locations of the impacts discussed below are presented on Figure 3 (Soil Exceedance Map) in Appendix C.

7.4.3.1 Soil Impacts

There were multiple SVOCs, metals, TPH, and VOC constituents in the site soil samples at concentrations in excess of one or more RIDEM Remediation Regulation standards. The exceedances are summarized below:

- C₉-C₃₆ TPH was detected in the EA-2 (0-2') and EA-20 (0-2.5') samples in excess of the RIDEM Method I Residential Direct Exposure Criteria (RDEC), and in the EA-1 (20-24'), EA-10 (15-17.5'), EA-18 (0-2.5'), EA-18 (7.5-10'), EA-19 (0-2.5'), and EA-19 (2.5-5') samples in excess of the RIDEM Method I Industrial/Commercial Direct Exposure Criteria (I/C DEC). The concentration at EA-18 also exceeded the RIDEM Upper Concentration Limit (UCL) of 30,000 milligrams per kilogram.
- C₁₀-C₂₈ TPH DRO was detected in the EA-7 (0-2.5') in excess of the TPH RDEC.

- C₁₀-C₂₈ TPH DRO and C₆-C₁₀ TPH GRO were detected in the EA-8 (15-20') duplicate sample in excess of the TPH RDEC, and in the EA-7 (10-15') and EA-8 (15-20') samples in excess of the TPH I/C DEC. The concentration at EA-7 also exceeded the RIDEM UCL of 30,000 milligrams per kilogram.
- Lead was detected in the EA-19 (2.5-5') and EA-20 (0-2.5') samples in excess of the RIDEM RDEC, and in the EA-9 (0-2.5') sample in excess of the RIDEM I/C DEC.
- Arsenic was detected in the EA-4 (0-2') sample in excess of the I/C DEC.
- Ethylbenzene and xylenes were detected in the EA-18 (7.5-10') sample in excess of the RDEC.
- P,m-xylene and total xylenes were detected in the EA-7 (10-15') and EA-18 (7.5-10') samples in excess of the RDEC.
- 1,1-Biphenyl was detected in the EA-10 (15-17.5') and EA-18 (7.5-10') samples in excess of the RDEC.
- Acenaphthylene was detected in the EA-19 (0-2.5) sample in excess of the RDEC.
- Benzo(a)anthracene was detected in the EA-1 (0-2'), EA-3 (0-2'), EA-3 (6-10'), and EA-18 (7.5-10') samples in excess of the RDEC, and in EA-19 (0-2.5') sample in excess of the I/C DEC.
- Benzo(a)pyrene was detected in the EA-2 (18-20') and EA-17 (0-2.5') samples in excess of the RDEC, and in the EA-1 (0-2), EA-3 (0-2), EA-3 (6-10'), and EA-19 (0-2.5) samples in excess of the I/C DEC.
- Benzo(b)fluoranthene was detected in the EA-1 (0-2'), EA-3 (0-2'), EA-3 (6-10'), EA-18 (7.5-10'), and EA-20 (0-2.5') samples in excess of the RDEC, and in the EA-19 (0-2.5') sample in excess of the I/C DEC.
- Benzo(g,h,i)perylene was detected in the EA-3 (6-10') and EA-19 (0-2.5') samples in excess of the RDEC.
- Benzo(k)fluoranthene was detected in the EA-3 (6-10'), EA-18 (7.5-10') and EA-19 (0-2.5') samples in excess of the RDEC.
- Chrysene was detected in the EA-1 (0-2'), EA-2 (18-20'), EA-3 (0-2'), EA-3 (6-10'), EA-10 (15-17.5'), EA-17 (0-2.5'), EA-18 (7.5-10'), EA-19 (0-2.5'), and EA-20 (0-2.5') samples in excess of the RDEC.

- Dibenzo(a,h)Anthracene and indeno(1,2,3-cd)-pyrene were detected in sample EA-3 (6-10') in excess of the RDEC, and in the EA-19 (0-2.5') sample in excess of the I/C DEC
- Fluoranthene and pyrene were detected in sample EA-19 (0-2.5') in excess of the RDEC.

Remaining TPH, VOCs, SVOCs, PP13 metals, PCBs, and hexavalent chromium were either not detected above laboratory reporting limits or were detected at concentrations below applicable RIDEM criteria in all other samples. All analytes for samples analyzed by ESS in March 2020 had laboratory RLs below the RDEC and I/C DEC. Multiple analytes in the samples analyzed by Microbac in September 2019 had laboratory RLs above the Remediation Regulations DEC for one or more samples:

- The laboratory RLs for the VOCs benzene, bromomethane, carbon tetrachloride, 1,2-dibromo-3-chloropropane, 1,2-dichloroethane, 1,2-dichloropropane, benzo[a]pyrene, chrysene, and dibenz(a,h)anthracene were above the RDEC in sample EA-1 (20-24').
- The laboratory RLs for the VOCs 1,2-dibromoethane, 1,1-Dichloroethene, and vinyl chloride were above the RDEC for all samples collected in September 2019.

The soil analytical summary tables are included in Appendix K. The September 2019 sampling results from soil borings EA-1 through EA-4 is included as Table 1, and the March 2020 sampling results from borings EA-7 through EA-21 is included as Table 2. The locations of the impacted soils are presented on Figure 3 (Soil Exceedances Map) in Appendix C.

7.4.3.2 Groundwater Impacts

TPHs, VOCs, SVOCs, PCBs, and PP13 metals were not detected above laboratory RLs or were detected at concentrations below applicable RIDEM objectives in the groundwater samples. All analytes had laboratory RLs that were below GB Groundwater Objectives (GOs). The laboratory analytical reports from Microbac, ESS, and Eurofins are included in Appendix K. The groundwater analytical summary tables (Tables 3 and 4) are included in Appendix L. Monitoring well locations are depicted on Figure 2 in Appendix C.

7.4.4 Impact to Environmentally Sensitive Areas

EA did not identify any impacts to environmentally sensitive areas proximate to the Site during this investigation.

7.4.5 Contamination of Manmade Structures

EA did not identify contamination of manmade structures (i.e., buildings, sewer lines, water lines, catch basins, manholes, etc.) as a result of this investigation. However, LNAPL and petroleum impacted soils appear to extend below the large building foundation remnant.

7.4.6 Odors or Stained Soil

Signs of staining or odor were not observed directly on the surface; however, subsurface soil samples from multiple soil borings in the low-lying, eastern portion of the property did exhibit signs of impacts within the direct push sampling sleeves. Soil borings EA-1, EA-10, EA-7, and EA-8 are located in the vicinity to the AST and the No. 6 fuel oil release. Soil samples at these locations appeared impacted by petroleum product; black, petroleum saturated or stained soils, petroleum odors, and elevated PID readings were observed at these locations. Odors and staining were first detected at soil boring depths of approximately 10 ft bgs at EA-10 and EA-8, 9 ft bgs at EA-7, at 15 ft bgs at EA-1. Staining and odors continued to the bottom of each boring. A potential confining layer was observed at 23.5 ft bgs at soil boring EA-7. Odors and staining graded from dark black to light gray with reduced visual evidence of petroleum in the soil.

Soil borings EA-20, EA-19, EA-18, and EA-17 are located proximal to the railroad and downgradient (north) of the No. 6 fuel oil release detected in the vicinity of soil boring EA-1. Soil boring EA-20 exhibited stained soils and petroleum odors at 20 ft bgs. Black stained soils and solvent/paint-like odor was observed at soil boring EA-18 at approximately 9 ft bgs. Black stained soils and faint petroleum odors were observed on the water table interface at 15 ft bgs at soil boring EA-17.

7.4.7 Stressed Vegetation

EA did not identify any stressed vegetation during this investigation.

7.4.8 Excavated or Stockpiled Material

There were no excavated or stockpiled soils observed at the Site at the time of this investigation.

7.4.9 Regulatory Jurisdiction

In addition to the jurisdiction of the Remediation Regulations, 250-RICR-140-30-1, the site is also anticipated to need to consider the following regulations/stakeholders in determination of applicable remedies:

- RIDEM Office of Compliance and Inspection
 - Previous Notice of Violation
 - Solid waste dumping
 - Potential hazardous waste non-compliance and/or dumping.
- RIDEM Underground Storage Tank Management Program / Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials (250-RICR-140-25-1)

- Closure and assessment of USTs.
- RIDEM Office of Site Remediation, Oil Pollution Control Regulations (250-RICR-140-25-2)
- AST compliance.

8. QUALITY ASSURANCE AND QUALITY CONTROL

§1.8.3(A)(22). Include a QA and QC evaluation summary report for sample handling and analytical procedures, including, but not limited to, chain-of-custody procedures and sample preservation techniques.

Each soil and groundwater sample were collected into pre-labeled, laboratory cleaned and preserved glassware, logged on a chain-of-custody, and cooled to 4 degrees Celsius. All soil and groundwater samples submitted for BTEX, TPH, VOCs, SVOCs, PP13 Metals, and hexavalent chromium analysis in March 2020 were transported to ESS Laboratory of Cranston, Rhode Island. All soil and groundwater samples submitted for TPH, VOCs, SVOCs and PP13 Metals analysis in September 2019 were transported to Microbac Laboratory of Dayville, Connecticut. The single sample collected for LNAPL fingerprinting was transported to Eurofins in Lancaster, Pennsylvania. All samples were handled, transported, and submitted per accepted industry standard chain-of-custody protocols, EA SOPs, and laboratory SOPs for each analysis and matrix.

The soil sampling results were compared to RIDEM GB Leachability Criteria and RIDEM DEC. Groundwater sampling results were compared to RIDEM GB GOs. Both Microbac and ESS are RIDEM approved laboratory contractors. Microbac and ESS preliminary detection limits were compliant with RIDEM DEC and GB Leachability Criteria for soil, and with RIDEM GOs for aqueous samples.

8.1 SEPTEMBER 2019

The September 2019 field event conducted at 92 Sunnyside Avenue (the subject site) was performed in conjunction with soil and groundwater sampling at the southern adjacent property (176 Sunnyside Avenue), which was investigated as part of a separate SIR/ESA/TBA project. The groundwater QA/QC samples and the soil MS/MSD sample associated with the September 2019 field event were collected on the adjacent parcel. Soil borings EA-1 through EA-4 were located on 92 Sunnyside Avenue and soil borings EA-5 and EA-6 were located on 176 Sunnyside Avenue; groundwater monitoring wells MW-210 and MW-206 were located on 176 Sunnyside Avenue. All samples were collected by EA and submitted to Microbac. The QA/QC sample locations and analytical results are described below:

- One duplicate soil sample was collected from soil boring EA-4 (2-6'). Concentrations of analytes detected in sample EA-4 (2-6') and its duplicate sample differed by an average of 19 percent. This metric is within the accepted usability standard range of 0 to 20 percent.
- One duplicate groundwater sample was collected from groundwater monitoring well MW-210. Concentrations of analytes detected in sample MW-210 and its duplicate sample differed by an average of 18 percent. This metric is within the accepted usability standard range of 0 to 20 percent.

- MS/MSD soil samples were collected from soil boring EA-5 (6-10'). Acceptable recovery from laboratory analyses is 70-130 percent. The following four analytes had matrix spike recovery below acceptance limits: carbon disulfide, chloroethane, diethyl ether, and 1,4-dioxane.
- MS/MSD groundwater samples were collected from MW-210. Acceptable recovery from laboratory analyses is 70-130 percent. The following five analytes had matrix spike recovery below acceptance limits: trans-1,4-dichloro-2-butene, 2,2-dichloropropane, ethylbenzene, m,p-xylene, and o-xylene. One analyte, naphthalene, had matrix spike recovery above acceptance limits.
- A rinsate blank was collected from the interface probe used during groundwater well gauging and sampling activities. Four analytes were detected in the rinsate blank, zinc, PCB-1248, naphthalene, and TPH. The interface probe utilized during groundwater sampling activities was only in use at the groundwater wells located on 176 Sunnyside Avenue. The interface probe was not used at groundwater monitoring well MW-EA-1 at the time of sample collection due to the presence of viscous NAPL observed during well installation activities. Therefore, these detections in the rinsate blank sample do not impact the overall conclusions of this report. It is suspected that these compounds constitute laboratory contamination as they do not correspond to site COCs.
- There were no detections of target analytes in the laboratory trip blank samples from both the soil and groundwater sampling events. This is an indication that cross-contamination did not occur during travel to and from the laboratory.

The following quality issues were noted in the Microbac laboratory reports for soil samples collected at soil borings EA-1 through EA-4, and groundwater samples collected at groundwater monitoring wells MW-EA-1, MW-210, and MW-206 in September 2019:

- Many of the lab data in the soil and groundwater reports were marked with Y or Y1, indicating that the analyte is not on the laboratory's current scope of accreditation or accreditation is not offered by the accrediting body for this analyte. Microbac confirmed that Rhode Island does not offer certification for many 8000/6000 series methods that were used for these samples. Additionally, they confirmed that Rhode Island also does not offer certification for soil samples which also use these methods. The Y and Y1 flags indicated this condition.
- The internal laboratory standard was below QC acceptance limits for the SVOC analytes benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, dibenz(a,h)anthracene, and ideno(1,2,3-cd) in the EA-1 (0-2') and EA-3 (6-10') soil samples. This condition presents potential low bias in these sample results. Benzo[a]pyrene concentrations exceeded the I/C DEC in both the EA-1 (0-2') and EA-3 (6-10') soil samples. Benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, dibenz(a,h)anthracene, and ideno(1,2,3-cd) concentrations exceeded the RDEC in the EA-

3 (6-10') sample. Benzo[b]fluoranthene concentrations exceeded the RDEC in the EA-1 (0-1') sample. The low bias condition does not affect the usability of data reported above the RDEC by Microbac. Benzo[g,h,i]perylene, benzo[k]fluoranthene, dibenzo(a,h)anthracene, and ideno(1,2,3-cd) concentrations were detected above the laboratory detection limits but below the RDEC in the EA-1 (0-2') sample. These analytes may have actually exceeded the RDEC; however, the condition is not reflected in the analytical results due to the laboratory induced low bias. A note was added in the data table indicating potential low bias.

- The recovery for the closing low-level check standard was outside of the established quality control range, though the initial low level check standard was within range for the analyte antimony in the EA-1 (0-2') and EA-4 (0-2') soil samples. The Q10 flag indicated this condition. Antimony is not a contaminant of concern at the site.
- The matrix spike recovery was below acceptance limits for the VOCs trans-1,4-dichloro-2-butene, 2,2-dichloropropane, ethylbenzene, m,p-xylene, and o-xylene in the groundwater sample collected at MW-210. A potential low-bias exists for these analytes, however the concentration of ethylbenzene was already above the GB GO, and there are no GB GO's for the remaining analytes.
- The laboratory RLs for the VOCs benzene, bromomethane, carbon tetrachloride, 1,2-dibromo-3-chloropropane, 1,2-dichloroethane, 1,2-dichloropropane, benzo[a]pyrene, chrysene, and dibenzo(a,h)anthracene were above the RDEC in sample EA-1 (20-24'). The laboratory RLs for most analytes in the EA-1 (20-24') soil sample were elevated compared to the other soil sample at EA-1 (0-2'), and all remaining borings (EA-2 through EA-4). The elevated RLs are most likely due to matrix interference from the petroleum product encountered at depths below 15 ft bgs and field observed in the sample.
- The laboratory RLs for the VOCs 1,2-dibromoethane, 1,1-dichloroethene, and vinyl chloride were above the RDEC for all samples collected in September 2019. Chlorinated solvents are not site COCs.
- Four analytes in the MW-210 duplicate groundwater sample had elevated laboratory reporting limits exceeding the GB GOs for vinyl chloride, 1,1 dichloroethane, 1,1-dichloroethene, and 1,2-dibromo-3-chloropropane. These analytes had laboratory reporting limits that were below regulatory standards in the duplicate parent sample (MW-210); therefore, this deficiency does not affect data usability.
- Minor discrepancies in sample preservatives and labeling of samples were found by EA in the original Microbac reports. These issues were called to the attention of Microbac and were corrected as indicated in red lettering on the revised laboratory reports issued by Microbac.

8.2 MARCH/APRIL 2020

The QA/QC sample locations and analytical results for samples collected at the subject site and submitted to ESS in March 2020 are described below:

- Three duplicate soil samples were collected: one duplicate for petroleum-targeted sampling parameters and two duplicates for hazardous materials sampling parameters.
 - The petroleum-targeted duplicate sample was collected from boring EA-8 (15-20'). Concentrations of TPH-DRO detected from EA-8 (15-20') and the duplicate differed by 175 percent. The concentration of TPH-DRO and TPH-GRO exceeded the TPH I/C DEC in the EA-8 (15-20'), and exceeded the TPH RDEC in the duplicate sample. As DEC is exceeded in both samples, and future land use of the site is uncertain, this discrepancy does not impact the overall conclusions of the report.
 - The hazardous materials duplicate samples were collected from EA-12 (0-2.5') and EA-13 (20-22.5'). Concentrations of analytes detected in from EA-12 (0-2.5') and EA-13 (20-22.5') and their duplicate sample differed by an average of 9% and 4%, respectively. This metric is within the accepted usability standard range of 0 to 20 percent.

Two duplicate groundwater samples were collected, one for petroleum-targeted sampling parameters and one for hazardous materials sampling parameters. Concentrations of analytes detected in the hazardous materials duplicate sample differed by an average of 8 percent; this metric is within the accepted usability standard range. The petroleum-targeted duplicate sample was collected at groundwater monitoring well EA-MW-9 and the concentrations of lead had a relative percent difference of 28 percent. There is no GB-GO for lead; therefore, this discrepancy does not impact the overall conclusions of the report. However, EA recommends resampling of this monitoring well for lead to confirm concentrations.

- MS/MSD soil samples were collected from soil boring EA-7 (10-15 ft). The following SVOC analytes had MS recovery below the lower control limit: benzoic acid, hexachlorocyclopentadiene, n-nitrosodimethylene, and 4,6-dinitro 2-methylphenol. The following analytes had relative percent differences for duplicate samples that were outside of laboratory criteria: pyridine, hexachlorocyclopentadiene, hexachloroethane, benzoic acid, 4-chlorophenol, and the VOCs 1,4-dichlorobenzene, 1,2-dichlorobenzene, and 1,4-dioxane. The following analytes had blank spike recovery below the lower control limit: aniline, 4-chloroaniline, and hexachlorocyclopentadiene. These analytes are not the site COCs.
- MS/MSD groundwater samples were collected from groundwater monitoring well EA-MW-20. All analytes in MS/MSD samples were within acceptable laboratory ranges for percent recovery and relative percent difference.

- There were no detections of target analytes in the laboratory trip blank samples from both the soil and groundwater sampling events. This is an indication that cross-contamination did not occur during travel to and from the laboratory.
- No other quality issues were noted in the ESS laboratory reports for soil samples collected at soil borings EA-7 – EA-21, and groundwater samples collected at groundwater monitoring wells MW-EA-2, MW-EA-9, and MW-EA-13, MW-EA-17, and MW-EA-20 in March 2020:

The overall analytical data set reported for soil and groundwater samples collected during the investigation activities was considered to be usable for the intended purpose of evaluating the environmental condition of the site and compliance with applicable RIDEM criteria.

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9. DISCUSSION OF ANALYTICAL RESULTS

§1.8.3(A)(12). Include the concentration gradients of Hazardous Substances throughout the site for each medium impacted by the Release.

§1.8.3(A)(13). Include the methodology and results of any investigation conducted to determine background concentrations of Hazardous Substances identified at the Contaminated-Site.

9.1 LOCATION OF IMPACTED MEDIA AND DISSCUSSION

Impacts were categorized into AOCs based on location, type of impact, and inferred sources. The finding based on this site investigation for each of these areas is described below. All USTs and suspect USTs are included in AOCs due to their age and unknown fill status. AOCs are discussed in Table 9-1.

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Table 9-1. Areas of Concern

AOC ID	AOC Description	Location onsite	AOC COCs	Vertical extent	Lateral Extent
AOC-1	<p><u>Leachable lead in soil/groundwater.</u> Possibly attributable to black ash and burnt debris at 1.5 ft bgs and/or leaded gasoline releases to the subsurface from nearby USTs. This lead hot spot has the potential to be hazardous waste if removed from the ground.</p>	<p>EA-MW-9, located east of the former pump shed</p>	<p>Lead in soil which has impacted underlying groundwater.</p>	<p>Soil: 0-2 ft soil interval exceeds the I/C DEC. Vertical extent requires delineation.</p>	<p>Not delineated. Using surface features (paving and steep hillside) and other borings as delineation, approximately 2,500 sq. ft.</p>
AOC-2	<p><u>No. 6 oil release to subsurface.</u> Petroleum-saturated soils and LNAPL on groundwater. This AOC includes the suspect UST (A6) located under the brick pile, subsurface piping, and the AST. TPH in soil in excess of 35,000 mg/kg, which is over the Upper Concentration Limit for TPH in soil (30,000 mg/kg).</p>	<p>Shallowest oil saturated soils were encountered at EA-7, adjacent to the suspect UST. Oil plume appears to originate near this boring.</p>	<p>Soil: TPH, various other exceedances in soil including xylenes, ethylbenzene, and some SVOC. Groundwater: LNAPL. Despite LNAPL presence, dissolved constituents in groundwater in MW-EA-1 did not exceed GB GOs. Various constituents exceeded the GA GOs which do not currently apply (benzene, lead, arsenic, xylenes).</p>	<p>Soil: 7 ft bgs to over 25 ft bgs. Confining layer of silt reached at EA-MW-1 (24 ft) and EA-7 (23 ft). Nearby borings EA-8 had refusal on dense material at 20 ft bgs and EA-MW-10 had no confining layer reached by 25 ft bgs.</p>	<p>Not delineated. Appears to extend below building foundation and AST. Likely extends offsite (railroad parcel). Over 25,000 sq. ft., with half of that being highly oil-saturated soils. Oil saturated soil was encountered in borings EA-1, EA-10, EA-7, and EA-8. Staining and TPH exceedances continued to downgradient borings EA-20, EA-19, and EA-18. No TPH exceedances were found the further downgradient at EA-17, but staining was still observed at 14-20 ft bgs. A6 UST is estimated at 10 ft by 18 ft with piping to the AST and the building foundation.</p>

AOC ID	AOC Description	Location onsite	AOC COCs	Vertical extent	Lateral Extent
AOC-3	<p><u>Fill contaminants in soil in downslope side of parking lot:</u> Potentially attributable to fill used to stabilize the steep slope.</p>	<p>In level grassy area to the north of the northern onsite garage, downslope side of mid and southern parking areas.</p>	<p>Varies per boring. – EA-4: Arsenic RDEC and I/C DEC exceedance. – EA-3: Most PAH exceeded RDEC, benzo(a)pyrene also exceeded I/C DEC. – EA-2: TPH, benzo(a)pyrene, and chrysene RDEC exceedances.</p>	<p>Soil: Varies per boring. – EA-4: surficial (0-2 ft bgs). – EA-3: surface and 6-10 ft bgs soils. – EA-2: TPH surficially and PAH at depth (18-20 ft bgs)</p>	<p>Not delineated. Using surface features (steep hillside) and other borings as delineation, approximately 5000 sq. ft. Arsenic could be a hot spot. Impacts appear only on the downgradient (eastern) side of parking lot, not closer to the road.</p>
AOC-4	<p><u>VOC hot spot:</u> "Paint/solvent odor" in soils, PIDs highest of anywhere onsite (>500 ppm) and DEC exceedances at EA-18 of TPH, ethylbenzene, xylenes, and 1,1-biphenyl. Other VOC detections in excess of standards (toluene, chlorotoluene, butylbenzene). Likely attributable to dumping.</p>	<p>EA-18, central/eastern forested portion of the site</p>	<p>VOC</p>	<p>Soil: Elevated PID readings extend from 5-14.5 ft bgs in EA-18. Refusal at 14.5 ft bgs on till/silt/bedrock. Groundwater: No sample at EA-18 (boring only), and no groundwater encountered just damp soil prior to refusal. Downgradient well EA-MW-17 had detections of VOC, but no GB exceedances.</p>	<p>Not delineated. Using surface features and other borings as delineation, approximately 5000 sq. ft. However, could just be a hot spot. No other exceedances onsite for these VOC.</p>

AOC ID	AOC Description	Location onsite	AOC COCs	Vertical extent	Lateral Extent
AOC-5	<u>Coal ash/slag; PAHs and TPH in surface soils:</u> Coal slag was visible on the ground surface along the eastern property line abutting the railroad embankment. There were I/C and/or RDEC exceedances for PAH, TPH, and lead in 0-2 ft soil at six EA borings along the eastern property line.	Along railroad embankment, eastern side of property. Does not extend to far southern (EA-21) or far northern (EA-16) ends of the eastern property line.	TPH, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene	Soil: mostly 0-2 ft, some impacts extending to 5 ft (lead, EA-19). Grey staining continues to base of some borings (EA-19).	Includes areas around borings EA-20, EA-19, EA-18, EA-17, EA-1, and EA-7. Does not extend up the hill on the southern side of the site (EA-21). From visual extent on surface, approximately 31,000 sq ft. Extends offsite to the east.
AOC-6	<u>3 USTs (A1, A2, and A3) and Pump Shed Piping:</u> Three USTs are present under/adjacent to the pump shed. Piping/fill ports are visible on the surface. Contents unknown, fill level unknown.	Under/next to pump shed, western side of site adjacent to Sunnyside Avenue	Petroleum	Soil: Unknown Groundwater: No petroleum impacts seen in MW-EA-9, approximately 10 ft away downgradient.	See Section 5.2 for UST dimensions.
AOC-7	<u>Gasoline UST (A4) and piping into garage:</u> A gasoline UST with fill ports and a concrete pad is present to the east of the main building. It is piped into the building. It contains at least 1 ft deep of gasoline and water.	East of building	Gasoline, possibly leaded	Soil: Unknown. Tank is approximately 7-8 ft in diameter. Groundwater: No impacts seen in MW-EA-2, approximately 10 ft away cross/down gradient.	See Section 5.2 for UST dimensions.

AOC ID	AOC Description	Location onsite	AOC COCs	Vertical extent	Lateral Extent
AOC-8	<u>Small UST (A5) in building elbow:</u> A small, likely waste oil UST is located in the elbow of the large building onsite. It has a fill port and piping into the building.	East and immediately adjacent to main building	Petroleum, possibly waste oil contaminants including metals and PCB	Unknown	See Section 5.2 for UST dimensions.
AOC-9	<u>Solid waste throughout the property</u> including clothing, mattresses, paint cans, at least 1 drum, car parts, metal/concrete/brick rubble, etc. Large pile of 6+ ft diameter tree stumps encompasses wooded part of site, possibly trees cleared from railroad installation.	Throughout	Solid waste	Mostly surficial, some within near surface (0-2 ft)	Site-wide

9.2 CONCENTRATION GRADIENTS OF HAZARDOUS SUBSTANCES

Concentration gradients were developed for AOC-2, the No. 6 fuel oil release area, showing where soil TPH concentrations exceeded the UCL, I/C DEC, and RDEC. Gradients are depicted on Figure 6. These gradients help visualize the source area and downgradient impacts from the release. Concentration gradients for the remainder of the site contaminants of concern are not a useful tool based on the distribution of detections across the site and the dispersed nature of the majority of locations of the impacted soils detected throughout the site. However, estimated location maps of the lateral extent of each AOC are included as Figure 5.

9.3 EVALUATION OF BACKGROUND

A background evaluation was not conducted at this property.

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10. FATE AND TRANSPORT OF CONTAMINANTS

The following sections discuss the mobility of the impacts discovered through investigation and characterization at the Site.

10.1 GROUNDWATER MOBILITY

§1.8.3(A)(14). Include a listing and evaluation of the site specific hydrogeological properties which could influence the migration of Hazardous Substances throughout and away from the site, including but not limited to, where appropriate: depth to groundwater; presence and effects of both the natural and man-made barriers to and conduits for contaminant migration; characterization of bedrock; groundwater contours, and flow rates and gradients throughout the site.

10.1.1 Surficial and Bedrock Characteristics Affecting Groundwater Flow

The majority of overburden soil encountered at the site was well-graded medium sand, which is extremely transmissive. While ground surface elevation between the six onsite monitoring wells varied over 21 ft, the groundwater elevation at those same monitoring wells varied only by 7.7 ft. Depths to groundwater under the developed portions of the site adjacent to Sunnyside Avenue is much deeper than the remainder of the site. Micro-topography at the site does not necessarily match the groundwater direction or perceived gradient.

Drilling refusal was met at two drilling locations, EA-18 and EA-19, at depths of 14.5 and 13.5 ft bgs, respectively. There was pulverized rock in the drill shoe, indicating potential bedrock or till in the subsurface at this depth. No groundwater was encountered prior to refusal. These borings were located along the eastern property boundary, downgradient of the No. 6 oil release area. This potential bedrock feature could be influencing the extent of downgradient No. 6 oil impacts.

10.1.2 Barriers and Conduits for Contaminant Migration

EA encountered a dense grey silt layer underlying site sandy soils at several locations, including in borings EA-11 at 29 ft bgs, EA-12 at 18 ft bgs, EA-MW-1 at 24 ft bgs, and EA-7 at 23 ft bgs. The silt layer and below exhibited lower PID readings when compared to petroleum-impacted sandy soils overlying it (EA-MW-1 and EA-7) which had PID readings in the 150 to 300 ppm range. The silt layer is likely a confining layer.

The presence of the extremely viscous No. 6 oil in the subsurface in AOC 2 potentially displaces water in those soils. Material observed in borings was petroleum-saturated and nearly the consistency of hot-mix asphalt. No. 6 oil may be depressing the water table in the highly oil-saturated areas and preventing or limiting infiltration of water through these soils.

The GPR survey identified underground piping in the vicinity of the No. 6 oil release and boring/monitoring well EA-MW-10 demonstrated petroleum impacts in an up/cross gradient direction from the suspected release (UST A6). This may indicate that the pipe bedding is acting

as a conduit for oil migration in the subsurface. However, there could have been additional releases occurring from the piping itself. Monitoring well EA-MW-10 is within close (approximately 3-4 ft) proximity to the edge of the building foundation remnant; therefore, it is possible there is other abandoned/out of use piping, foundations, bedding, or other structures below the visible foundation/slab which are conveying oil in the subsurface.

10.1.3 Water Table Elevation and Groundwater Flow Parameters

Groundwater flow was determined to flow to the north, roughly mimicking the surface topography at the site (Appendix C, Figure 4). Flow gradients were faster on the area of the site with higher topographic relief. Water table elevation varied from approximately 85.5 ft to 77 ft relative to a site standard elevation of 100 ft. Depths to water ranged from approximately 14 to 25 ft below grade.

10.2 CONTAMINANT VOLATILIZATION POTENTIAL

§1.8.3(A)(16). Include the potential for Hazardous Substances from the site to volatilize and any and all potential impacts of the volatilization to structures within the site. Indoor air and/or soil gas analysis is required if appropriate

Potential for contaminant volatilization into structures at the Site is considered to be low. VOC laboratory analytical results of groundwater samples collected from the onsite monitoring wells indicated that all substances are below GB GOs and most are also compliant with GA GOs.

There would be potential volatilization concerns if future buildings were constructed in the eastern portion of the site proximal to AOCs 2 and 4, where VOC and petroleum-saturated soils and LNAPL have been identified.

10.3 SOIL EROSION POTENTIAL

§1.8.3(A)(17). Include the potential for entrainment of Hazardous Substances from the site by wind or erosion actions.

The majority of the site is either paved, wooded, located below a building, or well-vegetated below a dense mat of brush/grass. Therefore, the potential for soil erosion is low and is not anticipated to be a concern.

10.4 FATE AND TRANSPORT MODELING

§1.8.3(A)(18). Include detailed protocols for all fate and transport models used in the Site Investigation.

No fate and transport modeling has been conducted for the Site. Fate and transport modeling may be necessary following collection of additional data to inform the proposed FFS for AOC 2

(fuel oil release). Given the contaminant types and concentrations, EA does not believe that fate and transport modeling is necessary for the other AOCs.

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11. INVESTIGATION-DERIVED WASTE DISPOSAL

§1.8.3(A)(21). Include procedures for the handling, storage and disposal of wastes derived from and during the investigation.

Soil cuttings were backfilled into their respective boreholes where space allowed; excess soil cuttings were drummed where petroleum impacts were apparent and/or monitoring wells were installed. One 55-gallon drum (approximately 1/3 full) was generated. As potentially hazardous levels of lead were detected in soil from one boring, the drill cuttings in the drum were sampled for corrosivity, reactivity, flashpoint, and Total Characteristic Leaching Profile (TCLP) lead. No hazardous characteristics were identified. The results of sampling are within the ESS laboratory analytical reports in Appendix K.

Purge water collected from developing and sampling monitoring wells was containerized in two 55-gallon drums until analytical results of the groundwater sampling were received. The purge water was analyzed by Microbac Laboratories for corrosivity, reactivity, and flashpoint. No hazardous characteristics were identified. The results of sampling are within the Microbac laboratory analytical reports in Appendix K.

All three drums of IDW were picked up by U.S. Ecology on *18 June 2020* for offsite disposal as non-hazardous petroleum impacted material. Bills of Lading were signed by EA on behalf of the property owner (City of Woonsocket). Copies of disposal documentation are included in Appendix M.

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12. PUBLIC INVOLVEMENT AND NOTICE

§1.8.7. Public Involvement and Notice: Be prepared to implement public notice requirements per Section §1.8.7 and §1.8.9 of the Remediation Regulations when the Department deems the SIR to be complete.

EA completed Pre-Site Investigation public notice as specified in the Remediation Regulations Section 1.8.7. In addition to the general requirements of Section 1.8.7, the pre-investigation notice also included special provisions as required for sites located within a designated Environmental Justice Focus Area. The notice was prepared in both Spanish and English and included a site-specific fact sheet presenting the known history of the site, the known/suspected contamination, the point in the process where the contaminated-site is, the expected path moving forward, and RIDEM's contact information.

EA prepared a sign to be posted at the site. The sign was 4 ft by 6 ft in size and was posted for at least 30 days from a date one week prior to the initiation of field work. The sign will remain in place to a date at least one week following the issuance of either an Interim Letter of Compliance, a Letter of Compliance, or other official communication from RIDEM that no further action is necessary, or for a twelve-month maximum period.

The draft Pre-Site Investigation public notification letters were prepared by EA and approved by the RIDEM. Final letters were mailed to all abutting property owners and tenants with information pertaining to the upcoming site investigation activities. A copy of the list of abutters, the Pre-Site Investigation notification letter, and a copy of the sign posted at the site are included in Appendix N. A Post-Site Investigation public notice will be prepared upon final agency approval of this ESA/SIR/TBA.

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13. REMEDIAL ALTERNATIVES

§1.8.4. Include Remedial Alternatives. The SIR shall contain a minimum of 2 remedial alternatives other than no action/natural attenuation alternative, unless this requirement is waived by the Department. It should be clear which of these alternatives is most preferable. All alternatives shall be supported by relevant data contained in the SIR and consistent with the current and reasonably foreseeable land usage, and documentation of the following: Compliance with Section 1.9 (Risk Management); technical feasibility of the preferred remedial alternative; compliance with Federal, State and local laws or other public concerns; and the ability of the Performing Party to perform the preferred remedial alternative.

§1.8.3(A)(23). Include any other site-specific factor, that the Director believes, is necessary to make an accurate decision as to the appropriate Remedial Action to be taken at the site.

The investigations conducted by EA in 2019 and 2020 served to screen the property for AOCs and further define their extent. However, due to the nine AOCs identified at the site spanning approximately 1.5 acres of impacted area, and the complexity of the large No. 6 oil release area, there is further refinement to be completed prior to implementation of any remedial alternative. The following chart defines the AOCs where additional investigation will be required, and in what format it is recommended. Recommended formats include limited design investigation (LDI) and a more intensive Focused Feasibility Study (FFS). The chart also summarizes the remedial alternatives (in addition to no action) considered for each AOC in the subsequent sections. Several AOCs do not require multiple alternatives due to their jurisdiction under alternative programs (Solid Waste and UST). For these AOCs, there is only one option to return the site to compliance.

Table 13-1 Remedial Alternative Summary

AOC ID	AOC Name	Further Investigation Required, Format	Remedial Alternative(s) Considered
AOC-1	Leachable lead in soil	Yes; LDI and hazardous waste determination	1) Excavation 2) Capping and ELUR
AOC-2	No. 6 oil release to subsurface	Yes; LDI to delineate impacts then FFS to assess treatability	1) AST, UST and Piping Closure, plus one of the following: 2) Source area excavation and surfactant- or steam-enhanced dual-phase extraction 3) Large-scale excavation and monitored natural attenuation
AOC-3	Fill contaminants in soil in downslope side of parking lot	No; entire AOC assumed contaminated. Optional LDI.	1) Excavation 2) Capping and ELUR
AOC-4	VOC hot spot	Yes; LDI	1) Excavation 2) Capping and ELUR
AOC-5	Coal ash/slag; PAHs and TPH in surface soils	No; entire AOC assumed contaminated. Optional LDI.	1) Excavation 2) Capping and ELUR
AOC-6	3 USTs (A1, A2, and A3) and Pump Shed Piping	No	UST Closure, Removal of Shed
AOC-7	Gasoline UST (A4) and piping into garage	No	UST Closure

AOC-8	Small UST (A5) in building elbow	No	UST Closure
AOC-9	Solid waste throughout the property	No	Solid Waste Removal

13.1 PROPOSED REMEDIAL ALTERNATIVES

13.1.1 Remedial Alternative No. 1 – Natural Attenuation/No Action

No action would not return the site to compliance with UST and Solid Waste Program regulations.

Natural attenuation can be a viable alternative at many regulated sites. However, the risks associated with impacted soils at the site, specifically metals and PAHs, would be through direct contact by humans. The findings of this investigation indicate the presence of these contaminants in the surface layers the site soils. Natural attenuation would not provide any protection to prevent exposure of the public to impacted soils.

Additionally, monitored natural attenuation is typically not applied to source areas such as the No. 6 oil release area in AOC-2. The time required for natural attenuation to decrease the petroleum concentrations could be on the order of hundreds of years and not compatible with site redevelopment.

13.1.2 Remedial Alternative No. 2 – Excavation and Disposal of Soil in Areas where Surface Soils Exceed the Residential Direct Exposure Criteria

This remedial alternative would require that soils be excavated for offsite disposal to address exceedances of the RIDEM RDEC for PAHs, TPH, lead, and arsenic in soils at various locations throughout site. Confirmatory sampling would need to be conducted following excavation to ensure that all soil with contaminants in excess of the criteria was removed.

The soil impacted above RDEC would be removed and transported offsite to an approved and licensed disposal facility. Upon receipt of compliant analytical results, the excavations would be backfilled with certified clean fill material and the surface material restored. Paved areas would be restored to asphalt surface and pervious areas would be seeded, mulched, and/or planted. The advantages of this alternative would be that potential exposure to impacted soils would be eliminated and no limitation on future use of the property would be required. This would represent a long-term solution.

The disadvantages to this alternative include having to remove overlying material to access subsurface contamination, deep/complicated excavations potentially requiring removal of groundwater from the excavation and/or shoring for sidewalls, and the costs for offsite disposal of contaminated material.

This alternative was evaluated for AOCs 1 through 5. The following were considered:

- AOC-1: The lead impacts require delineation, but are likely from a surface source (burnt ash/debris at 0-2 ft bgs) and decrease with depth. A surface excavation in this area would be feasible. Groundwater depth is approximately 25 ft bgs in this area and would not hinder excavation.
- AOC-2: The impacts associated with the No. 6 oil release extended beyond 20 ft bgs in some locations and are not encountered until approximately 7 ft bgs at the shallowest. Groundwater depth in this vicinity is approximately 15 ft bgs. Additionally, the TPH impacts appear to extend below the embankment for the railroad and under the approximately 4,000 square ft concrete foundation. These conditions would require the use of shoring along the railroad embankment, groundwater removal and treatment from the base of the excavation, and significant removal of concrete foundations in addition to substantial soil handling to remove overlying non-TPH impacted soils. Even with these controls, it is unlikely that all soils with concentrations over the criteria could be removed due to the railroad presence. The costs of this approach would be very high.
- AOC-3: These impacts range from surficial to 18-20 ft bgs and most are already located under an impermeable concrete parking area. Excavation of these impacts would require pulling back all soil on the steep hillside which is supported with rubble and a retaining/foundation wall. Removal of soils in AOC-3 would affect usability of the property due to removal of approximately half of the existing parking area. Restoration to this area would require construction of a retaining wall/approximately 250 ft of slope stabilization, or loss of critical parking. The costs of this approach would be very high.
- AOC-4: Soil exceedances are located at least to 10 ft bgs in this VOC hot spot and may continue to the inferred bedrock depth at 14 ft bgs. The area of this hot spot is inferred to be limited and no groundwater was encountered in the boring it is centered around (EA-18). The surrounding area is relatively flat except for the rail embankment nearby. Benching of the excavation sidewalls would likely be feasible. LDI in this area will yield more details about the proposed extent of excavation.
- AOC-5: Soil exceedances from coal ash/slag are surficial in nature and easily accessible for excavation. There is an approximately 30,000 square ft area requiring at least 2 ft deep excavations for coal ash. Some of this area is located where excavations would also occur for AOC-2 and AOC-4; a portion of the costs would be offset if these occurred in tandem.

13.1.3 Remedial Alternative No. 3 – Engineered Cap and Environmental Land Use Restriction

This remedy would involve the construction or maintenance of an engineered cap throughout the areas of the property exhibiting soil concentrations over the RDEC (for potential future residential or municipal use).

This area would first need to be professionally surveyed to facilitate the cap design. The survey would be paired with an as-built survey performed post-construction to document the exact boundaries of the engineered cap to record on the deed. The cap would be designed in conformance with RIDEM standards and would be at least 1 foot in depth. Potential caps could include building foundations, one (1) foot of clean over a geotextile fabric, two (2) feet of clean fill, and/or four (4) inches of pavement (concrete or asphalt) over six (6) inches of clean fill, or similar equivalent. Cap types could be designed to match desired redevelopment or current conditions. Some excavation of existing soil may be required to meet existing grades. Installation of the cap would require removal of the AST, and removal of surface debris/building materials and vegetation. Any soil removed would be disposed of off-site at a licensed disposal facility. The cap would not address any groundwater or vapor intrusion remedies or concerns.

An Environmental Land Use Restriction (ELUR) would be established the capped portions of the Site, which would require annual inspections and maintenance of the engineered cap. This ELUR would be recorded in the land evidence records for the Site with the City of Woonsocket. As part of the ELUR, a Soil Management Plan will be prepared for the Site to provide procedures to be followed during any future site development that would affect the cap.

The cap would need to cover the surface areas of AOCs-1 through -5, or approximately 62,000 square ft, pending LDIs. The extent of this cap would be more feasible if paired with site redevelopment, where building foundations and parking areas could serve both as surface completion and as an engineered cap.

A subset of the site, namely AOC-3, is nearly entirely located below existing asphalt. AOC-3 is an ideal capping area due to the existing asphalt, limited vegetation, and impacts present at depth. Only a small area of asphalt parking area/cap would need to be added on the northern side of the northern site building, and potentially riprap to stabilize any exposed soils in the steep slope beyond the parking area. An ELUR would need to be established to maintain the existing and proposed cap materials.

13.1.4 Remedial Alternative No. 4 – UST Removals

Removal of the five confirmed and one suspect UST with associated piping is critical for preventing further/future petroleum releases to the subsurface and returning the site to regulatory compliance. No remedial action should proceed at AOC-2 until the suspect UST (A6) has been evaluated for ongoing release and/or removed. All USTs are located in areas where removal is feasible and are unlikely to require closure-in-place.

UST removals require submittal of a Permanent Closure Application for USTs to the RIDEM UST Program. There are fees per tank and an additional fee for unregistered tanks (applies at this site). It is also anticipated that a Work Plan for UST Closure Assessments would be required with field screening and sampling for petroleum releases due to the age of these tanks.

UST removals generally involve the following sequence:

- Gauge tanks and sample contents for hazardous characteristics/oil type for disposal.
- Obtain access to tank areas (limited clearing/grubbing or removal of the pump house shed may be required for access/mobility around the tank areas).
- Remove product (if present) with a vacuum truck and properly dispose offsite
- Remove and dispose of asphalt/concrete pad materials (above USTs)
- Uncover tanks and provide opening for cleaning, sludge removal, and purging (as appropriate)
- Remove tanks and piping, inspect conditions, and properly dispose of offsite
- Collect confirmation samples below tanks and piping
- Excavate petroleum contaminated material from tank grave and/or sidewalls if discovered
- Stockpile contaminated soil onsite on/covered with poly or within covered roll-off container until pre-approved for transport and disposal at a licensed facility.
- Backfill excavations with non-contaminated excavated material and common fill and compact in lifts.
- Restore surface finishing.

A UST Closure Assessment Report would document the results of all screening and sampling conducted onsite, as well as the waste disposal practices. The A6 UST is expected to be surrounded by petroleum impacted soils. The extent of additional excavation would need to be defined prior to groundbreaking. Removal of the USTs (excepting extensive excavation in the A6 vicinity) is estimated at \$100,000.

13.1.5 Remedial Alternative No. 5 – Solid Waste Removal

Substantial volumes of solid waste (municipal type trash), industrial debris (cans, drums), and construction/demolition debris is present at the site. Removal of this material should be required in concert with other remedies. Debris will need to be removed carefully due to the potential for drums or containers with liquids to be present. Any liquid wastes should be placed in secondary containment and sampled for offsite disposal. Soil sampling may be required below/around any discovered materials to confirm a release has not occurred. EA estimates approximately one 30-yard roll-off of municipal wastes and two 30-yard roll-offs of construction/demolition debris. Solid waste should be disposed of at offsite permitted facilities.

13.1.6 Remedial Alternative No. 6 – No. 6 Oil Source Area Excavation and Surfactant- or Steam-Enhanced Dual-Phase Extraction

AOC-2 will require a FFS to fully characterize the depth, extent, and characteristics of the No. 6 oil release. However, two alternatives are being screened here for general information purposes. These alternatives should not be applied without further investigation.

This alternative would include a limited amount of excavation of the most highly impacted soils, likely in the immediate vicinity of the source area (suspected to be UST A6). Quantities are unknown at this time, but it is likely that depth and groundwater presence would limit the extent of soil excavation. A combination of remedies could be implemented including application of a

granular biodegradation enhancement media into the excavation, chemical injections, and/or installation of an oil sump/extraction well in the excavation to remove LNAPL which drains from surrounding soils to remediate source area soils unable to be excavated. The foundation remnant, construction/demolition debris, and possibly the ACM-wrapped AST would need to be removed to allow for access to soil.

For downgradient soil impacts, which were deeper in nature and spanned the water table, an enhanced dual-phase extraction system could be used to remove petroleum mass from the subsurface. The 'enhancement', either steam or surfactant, serves to mobilize the viscous No. 6 oil allowing it to be pumped out as pure phase product or captured as volatilized petroleum components. A system of groundwater extraction wells with pumps/skimers, soil vapor extraction wells, steam or surfactant injection wells, and associated piping, pumps, blowers, etc. would be installed. The system would require frequent operations and maintenance as well as collection and offsite disposal of collected oil and spent vapor treatment media. Groundwater and soil vapor would be monitored around the periphery and downgradient of the extraction system to ensure contaminants were not mobilized to sensitive receptors. The system would need to operate until LNAPL recover is minimal, at which point remediation could likely shift to monitored natural attenuation. The UST division has indicated groundwater remediation should continue until the GA GOs are achieved.

13.1.7 Remedial Alternative No. 7 – No. 6 Oil Large Scale Excavation and Monitored Natural Attenuation

AOC-2 will require a FFS to fully characterize the depth, extent, and characteristics of the No. 6 oil release. However, two alternatives are being screened here for general information purposes. These alternatives should not be applied without further investigation.

This alternative would involve a large-scale excavation of all accessible petroleum-impacted soils exceeding the RDEC (500 mg/kg) for the most time-effective removal of petroleum mass from the subsurface. These soils could be disposed of offsite or treated onsite using a variety of methods such as biopiles or a mobile incineration unit. Cost efficiency of on- versus offsite treatment would be evaluated in the FFS. If soil was treated onsite, it could likely be used as excavation backfill. Excavation stability/control measures such as sheet pile shoring, benching, fencing, and groundwater dewatering would likely be required based on the depth of impacts.

Additional measures, such as chemical injections, would be needed if soils in excess of the TPH RDEC extend under the railroad embankment which is considered likely. Following short-term mass removal efforts, a long term monitored natural attenuation program would be implemented to monitor the residual and dissolved petroleum components in groundwater. The UST division has indicated groundwater remediation should continue until the GA GOs are achieved.

13.2 RECOMMENDED REMEDIAL ALTERNATIVE(S)

EA recommends the following remedial alternatives for each AOC:

- AOCs 1, 4: Excavation with offsite disposal.
- AOC 3, 5: Excavation and/or capping with ELUR for maintenance of cap.
- AOC 2: To be determined after FFS, likely a combination of AST removal, and some soil removal with ongoing downgradient mass removal/treatment for residual LNAPL and dissolved constituents.
- AOC 2 (UST only), 6, 7, and 8: Closure of USTs and Closure Assessments as needed.
- AOC 9: Removal of solid waste.

13.3 COMPLIANCE WITH RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT RISK MANAGEMENT PROVISIONS

The recommended remedial options will meet the Method 1 Standards of Risk Management outlined in Section §1.9 of the RIDEM *Remediation Regulations* by eliminating the exposure pathways.

13.4 TECHNICAL FEASIBILITY

The remedial alternatives selected are not innovative or unproven remedial technologies. These are well-established approaches to site management and to eliminate risk to human health associated with direct exposure to TPH, PAHs, and metals present in site soils. Feasibility of the remedy for AOC-2 must be evaluated in the FFS.

13.5 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

The proposed remedial alternatives will be designed and constructed in accordance with applicable federal, state and local regulations. Coordination with the RIDEM UST Division will be necessary for designing and implementing Alternative No. 4. Additional permits may be needed for injection of remedial chemicals, larger scale excavation projects, projects adjacent to the rail line, and projects disturbing more than 1 acre.

13.6 FEASIBILITY OF IMPLEMENTATION

Implementation of the proposed remedial alternatives would be feasible given the current vacant status of the site use and condition of the property. No disruption of current activities or undue public exposure to possible contaminated media would result. All areas within the AOCs are accessible by construction equipment. Staging, stockpile, and equipment storage areas are present onsite.

13.7 REMEDIAL COSTS

Remedial costs are not able to be determined at this time due to the unknown size of the majority of the AOCs pending LDIs. LDI Summary Reports should specify volumes of contaminated soil once the AOCs are delineated and provide estimates for implementation of the respective alternatives.

- AOCs 1, 4: Excavation with offsite disposal.
- AOCs 3, 5: Excavation and/or capping with ELUR for maintenance of cap. Optional LDI to determine limit of excavation with offsite disposal.
- AOC 2: To be determined after FFS, likely a combination of AST removal, and some soil removal with ongoing downgradient mass removal/treatment for residual LNAPL and dissolved constituents.
- AOC 2 (UST only), 6, 7, and 8: Closure of USTs and Closure Assessments as needed. Estimated at \$100,000.
- AOC 9: Removal of solid waste. Estimated at \$10,000.

14. CERTIFICATIONS

§1.8.5 Certification Requirements: The SIR and all associated progress reports shall include the following statements signed by an authorized representative of the party specified: A statement signed by an authorized representative of the Person who prepared the SIR certifying the completeness and accuracy of the information contained in that report to the best of their knowledge; and a statement signed by the Performing Party responsible for the submittal of the SIR certifying that the report is a complete and accurate representation of the site and the Release and contains all known facts surrounding the Release to the best of their knowledge.

The undersigned certify that this SIR is a complete and accurate representation of the activities that took place at the Site and contains all known facts surrounding the Site to the best of their knowledge.



6.-18-2020

Jonathan D. Alvarez, CPG
EA Engineering, Science, and Technology, Inc., PBC
Project Manager

Date



Scott A. Gibbs
Department of Planning and Development
City of Woonsocket
Interim Director

6-18-20
Date

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15. PROGRESS REPORTS

§1.8.6. Progress Reports: If the Site Investigation is not complete, include a schedule for the submission of periodic progress reports on the status of the investigation and interim reports on any milestones achieved in the project

Progress reporting is required and will be completed based on funding availability. The following progress reporting should be completed prior to or submitted concurrently with the RAWP(s):

- LDI Work Plan(s)
- LDI Summary Report(s)
- FFS Work Plan
- FFS Summary Report

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16. REFERENCES

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Appendix A

Site Investigation Report Checklist

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VP	Vapor Pressure	mm Hg	Chemical Specific
MW	Molecular Weight	g/mole	Chemical Specific

B. Permissible Exposure Limit (PEL)

1. The time-weighted average concentration in air that shall not be exceeded during any 8-hour shift of a 40-hour work week.

C. The PELs were developed by the Occupational Safety and Health Administration (OSHA) to protect workers from "a wide variety of health effects that could cause material impairment of health or functional capacity. This includes protection against catastrophic effects such as cancer, cardiovascular, liver, and kidney damage; lung diseases, as well as more subtle effects resulting in central nervous system damage, narcosis, respiratory effects, and sensory irritation".

D. The Upper Concentration Limits for GB areas were calculated using the above algorithm and an air concentration C_a set equal to 10% of the Lower Explosive Limit (10% LEL) which is defined as ten percent (10%) of the concentration of a compound in air below which a flame will not propagate if the mixture is ignited.

1.20 Site Investigation Report (SIR) Checklist

A. The following information shall be completed and submitted with the SIR

1. Contact Name [Jonathan Alvarez](#)
2. Contact Address [301 Metro Center Blvd Suite 102, Warwick, Rhode Island 02886](#)
3. Contact Telephone [\(401\) 287-0364](#)
4. Site Name [92 Sunnyside Avenue Site Investigation](#)
5. Site Address [92 Sunnyside Avenue, Woonsocket, Rhode Island](#)

B. Office Use Only

1. Site Investigation Report (SIR) Site
2. Project Code

3. SIR Submittal Date
4. Checklist Submittal Date

C. Directions: The box to the left of each item listed below is for the administrative review of the SIR submission and is for RIDEM Use Only. Under each item listed below, cross-reference the specific sections and pages in the SIR that provide detailed information that addresses each stated requirement. Failure to include cross-references shall delay review and approval. If an item is not applicable, simply state that it is not applicable and provide an explanation in the SIR.

1. § 1.8.3(A)(1) of this Part - List specific objectives of the SIR related to characterization of the Release, impacts of the Release and remedy. [Section 1.2](#)
2. § 1.8.3(A)(2) of this Part - Include information reported in the Notification of Release. A copy of the Release notification form should be included in the SIR. Include information relating to short-term response, if applicable. [Appendix D](#)
3. § 1.8.3(A)(3) of this Part - Include documentation of any past incidents or Releases. [Section 3](#)
4. § 1.8.3(A)(4) of this Part - Include list of prior property Owners and Operators, as well as sequencing of property transfers and time periods of occupancy. [Section 4.1](#)
5. § 1.8.3(A)(5) of this Part - Include previously existing environmental information which characterizes the Contaminated-Site and all information that led to the discovery of the Contaminated-Site. [Section 3](#)
6. § 1.8.3(A)(6) of this Part - Include current uses and zoning of the Contaminated-Site, including brief statements of operations, processes employed, waste generated, Hazardous Materials handled, and any residential activities on the site, if applicable. (This section should be linked to the specific objectives section demonstrating how the compounds of concern in the investigation are those that are used or may have been used on the site or are those that may have impacted the site from an off-site source.) [Section 5](#)
7. § 1.8.3(A)(7) of this Part - Include a locus map showing the location of the site using US Geological Survey 7.5-min quadrangle map or a copy of a section of that USGS map. [Figure 1](#)
8. § 1.8.3(A)(8) of this Part - Include a site plan, to scale, showing: [Figure 2](#)
 - a. Buildings

- b. Activities
 - c. Structures
 - d. North Arrow
 - e. Wells
 - f. UIC Systems, septic tanks, UST, piping and other underground structures
 - g. Outdoor Hazardous Materials storage and handling areas
 - h. Extent of paved areas
 - i. Location of environmental samples previously taken with analytical results
 - j. Waste management and disposal areas
 - k. Property Lines
9. § 1.8.3(A)(9) of this Part - Include a general characterization of the property surrounding the area including, but not limited to: [Section 6.2](#)
- a. Location and distance to any surface water bodies within 500 ft of the site.
 - b. Location and distance to any Environmentally Sensitive Areas within 500 ft. of the site.
 - c. Actual sources of potable water for all properties immediately abutting the site.
 - d. Location and distance to all public water supplies, which have been active within the previous 2 years and within one mile of the site.
 - e. Determination as to whether the Release impacts any off-site area utilized for residential or industrial/commercial property or both.
 - f. Determination of the underlying groundwater classification and if the classification is GB, the distance to the nearest GA area.
10. § 1.8.3(A)(10) of this Part - Include classifications of surface and ground water at and surrounding the site that could be impacted by a Release.

11. § 1.8.3(A)(11) of this Part - Include a description of the contamination from the Release, including: [Section 7.2](#) and [Section 7.3](#)
 - a. Free liquids on the surface [Section 7.4](#)
 - b. LNAPL and DNAPL [Section 7.4](#)
 - c. Concentrations of Hazardous Substances which can be shown to present an actual or potential threat to human health and any concentrations in excess of any of the remedial objectives; (reference § 1.13 of this Part). [Section 7.4](#)
 - d. Impact to Environmentally Sensitive Areas [Section 7.4](#)
 - e. Contamination of man-made structures [Section 7.4](#)
 - f. Odors or stained soil [Section 7.4](#)
 - g. Stressed vegetation [Section 7.4](#)
 - h. Presence of excavated or stockpiled material and an estimate of its total volume [Section 7.4](#)
 - i. Environmental sampling locations, procedures and copies of the results of any analytical testing at the site [Section 7.1, 7.2, 7.3](#)
 - j. List of Hazardous Substances at the site [Section 7.4](#)
 - k. Discuss if the contamination falls outside of the jurisdiction of the Remediation Regulations, including but not limited to USTs, UICs, and wetlands. [Section 7.4](#)
12. § 1.8.3(A)(12) of this Part - Include the concentration gradients of Hazardous Substances throughout the site for each media impacted by the Release. [Section 9.2](#)
13. § 1.8.3(A)(13) of this Part - Include the methodology and results of any investigation conducted to determine background concentrations of Hazardous Substances identified at the Contaminated-Site (see § 1.13 of this Part). [Section 9.3](#)
14. § 1.8.3(A)(14) of this Part. Include a listing and evaluation of the site specific hydrogeological properties which could influence the migration of Hazardous Substances throughout and away from the site, including but not limited to, where appropriate:

- a. Depth to GW [Section 10.1](#)
 - b. Presence and effects of both the natural and man-made barriers to and conduits for contaminant migration. [Section 10.1](#)
 - c. Characterization of bedrock [Section 10.1](#)
 - d. Groundwater contours, flow rates and gradients throughout the site. [Section 10.1](#)
15. § 1.8.3(A)(15) of this Part - Include a characterization of the topography, surface water and run-off flow patterns, including the flooding potential, of the site. [Section 6.2](#)
 16. § 1.8.3(A)(16) of this Part - Include the potential for Hazardous Substances from the site to volatilize and any and all potential impacts of the volatilization to structures within the site. [Section 10.2](#)
 17. § 1.8.3(A)(17) of this Part - Include the potential for entrainment of Hazardous Substances from the site by wind or erosion actions. [Section 10.3](#)
 18. § 1.8.3(A)(18) of this Part - Include detailed protocols for all fate and transport models used in the Site Investigation. [Section 10.4](#)
 19. § 1.8.3(A)(19) of this Part - Include a complete list of all samples taken, the location of all samples, parameters tested for and analytical methods used during the Site Investigation. (Be sure to include the samples locations and analytical results on a site figure). [Section 7.1, 7.2, 7.3](#)
 20. § 1.8.3(A)(20) of this Part - Include construction plans and development procedures for all monitoring wells. Well construction shall be consistent with the requirements of the Groundwater Quality Rules. [Section 7.3](#)
 21. § 1.8.3(A)(21) of this Part - Include procedures for the handling, storage and disposal of wastes derived from and during the investigation. [Section 11](#)
 22. § 1.8.3(A)(22) of this Part - Include a quality assurance and quality control evaluation summary report for sample handling and analytical procedures, including, but not limited to, chain-of-custody procedures and sample preservation techniques. [Section 8](#)
 23. § 1.8.3(A)(23) of this Part - Include any other site-specific factor, that the Director believes, is necessary to make an accurate decision as to the appropriate Remedial Action to be taken at the site. [Section 13](#)
 24. § 1.8.4 of this Part - Include Remedial Alternatives. The Site Investigation Report shall contain a minimum of 2 remedial alternatives other than no

action/natural attenuation alternative, unless this requirement is waived by the Department. It should be clear which of these alternatives is most preferable. All alternatives shall be supported by relevant data contained in the Site Investigation Report and consistent with the current and reasonably foreseeable land usage, and documentation of the following:

- a. Compliance with § 1.9 of this Part; [Section 13.3](#)
 - b. Technical feasibility of the preferred remedial alternative; [Section 13.4](#)
 - c. Compliance with federal, state and local laws or other public concerns; and [Section 13.5](#)
 - d. The ability of the Performing Party to perform the preferred remedial alternative. [Section 13.6](#)
25. § 1.8.5 of this Part - The Site Investigation Report and all associated progress reports shall include the following statements signed by an authorized representative of the party specified:
- a. A statement signed by an authorized representative of the Person who prepared the Site Investigation Report certifying the completeness and accuracy of the information contained in that report to the best of their knowledge; and [Section 14](#)
 - b. A statement signed by the Performing Party responsible for the submittal of the Site Investigation Report certifying that the report is a complete and accurate representation of the site and the Release and contains all known facts surrounding the Release to the best of their knowledge. [Section 14](#)
26. § 1.8.6 of this Part - If the Site Investigation is not complete, include a schedule for the submission of periodic progress reports on the status of the investigation and interim reports on any milestones achieved in the project. [N/A](#)
27. § 1.8.7 of this Part - Be prepared to implement public notice requirements per §§ 1.8.7 and 1.8.9 of this Part when the Department deems the Site Investigation Report to be complete. [Appendix M](#)

Appendix B

Limitations Statement

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Limitations of Work Product

This document was prepared for the sole use of the Rhode Island Department of Environmental Protection, the only intended beneficiaries of our work. Those who may use or rely upon the report and the services (hereafter “work product”) performed by EA Engineering, Science, and Technology, Inc., PBC and/or its subsidiaries, affiliates, independent professional associates, subconsultants and subcontractors (collectively the “Consultant”) expressly accept the work product upon the following specific conditions.

1. Consultant represents that it prepared the work product in accordance with the professional and industry standards prevailing at the time such services were rendered.
2. The work product may contain information that is time sensitive. The work product was prepared by Consultant subject to the particular scope limitations, budgetary and time constraints and business objectives of the Client which are detailed therein or in the contract between Consultant and Client. Changes in use, tenants, work practices, or storage, may affect this work product. In view of the rapidly changing status of environmental laws, regulations, and guidelines, EA cannot be responsible for changes in laws, regulations, or guidelines that occur after the study has been completed and that may affect the subject site.
3. The observations described and upon which the work product was based were made under the conditions stated therein. Any conclusions presented in the work product were based solely upon the services described therein, and not on scientific or engineering tasks or procedures beyond the scope of described services.
4. In preparing its work product, Consultant may have relied on certain information provided by state and local officials and information and representations made by other parties referenced therein, and on information contained in the files of state and/or local agencies made available at the time of the project. Consultant is not responsible in the event that such files, which may affect the conclusions of the work product, are missing, incomplete, inaccurate or were not provided. Consultant did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this project and although there may have been some degree of overlap in the information provided by these various sources, Consultant assumes no responsibility or liability to discover or determine any defects in such information, which could result in failure to identify contamination or other defect in, at or near the site. Unless specifically stated in the work product, Consultant assumes no responsibility or liability for the accuracy of drawings and reports obtained, received or reviewed.
5. If the purpose of this project was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous substances, waste or petroleum and chemical products and wastes as defined in the work product, unless otherwise noted, no specific attempt was made to check the compliance of present or past owners or operators of the subject site with Federal, state, or local laws and regulations, environmental or otherwise.
6. If water level readings have been made, these observations were made at the times and under the conditions stated in the report. However, it must be noted that fluctuations in water levels

may occur due to variations in rainfall, passage of time and other factors and such fluctuations may affect the conclusions and recommendations presented herein.

7. Except as noted in the work product, no quantitative laboratory testing was performed as part of the project. Where such analyses have been conducted by an outside laboratory, Consultant has relied upon the data provided, and unless otherwise described in the work product has not conducted an independent evaluation of the reliability of these tests.
8. If the conclusions and recommendations contained in the work product are based, in part, upon various types of chemical data, then the conclusions and recommendations are contingent upon the validity of such data. These data (if obtained) have been reviewed and interpretations made by Consultant. If indicated in the work product, some of these data may be preliminary or screening-level data and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time and other factors.
9. Chemical analyses may have been performed for specific parameters during the course of this project, as described in the work product. However, it should be noted that additional chemical constituents not included in the analyses conducted for the project may be present in soil, groundwater, surface water, sediments or building materials at the subject site.
10. EA does not warrant that there are no toxic or hazardous materials or contamination, nor does EA accept any liability if such are found at some future time, or could have been found if sampling or additional studies were conducted. EA does not assume responsibility for other environmental issues that may be associated with this subject site.
11. Ownership and property interests of all documents, including reports, electronic media, drawings and specifications, prepared or furnished by Consultant pursuant to this project are subject to the terms and conditions specified in the contract between the Consultant and Client, whether or not the project is completed.
12. Unless otherwise specifically noted in the work product or as may otherwise be provided for in the contract between the Consultant and Client, any reuse, modification or disbursement of documents to third parties will be at the sole risk of the Client and/or any third party and Consultant accepts no and rejects all liability or legal exposure for any such reuse.
13. In the event that any questions arise with respect to the scope or meaning of Consultant's work product, immediately contact Consultant for clarification, explanation or to update the work product. In addition, Consultant has the right to verify, at the party's expense, the accuracy of the information contained in the work product, as deemed necessary by Consultant, based upon the passage of time or other material change in conditions since conducting the work.
14. Any use of or reliance on the work product shall constitute acceptance of the terms hereof.

Appendix C

Figures

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\\warwick\p\Projects\1525815 - Sunnyside Ave - RIDEM TAC\GIS\MXD\Figure 1 - Site Locus.mxd jmorrissey

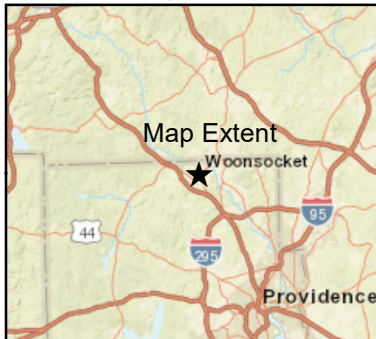
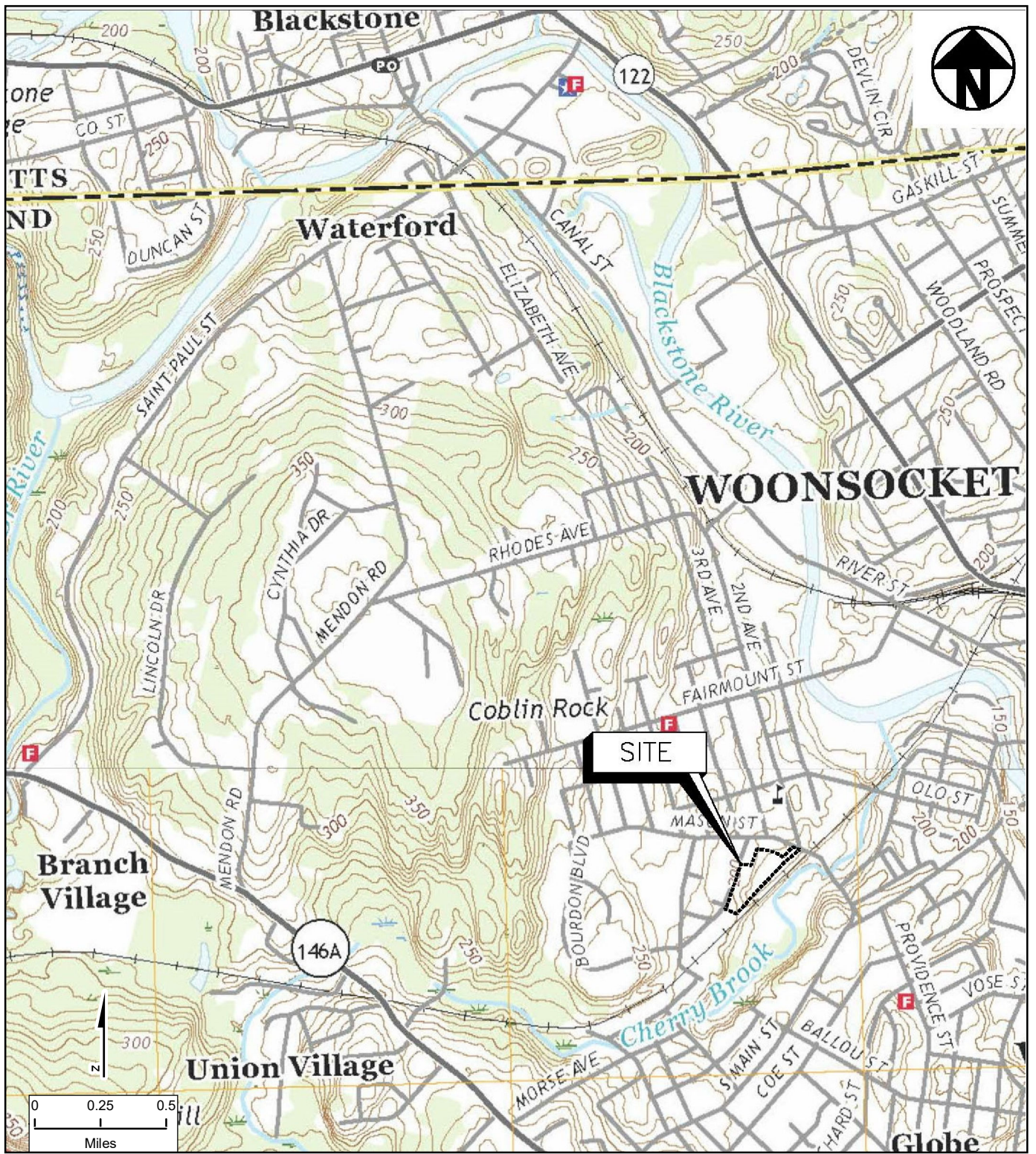


Figure 1
Site Locus

92 Sunnyside SIR
 Woonsocket, Rhode Island
 Site Investigation Report/
 Targeted Brownfields Assessment
 EA Project Number 15258.15 and .17

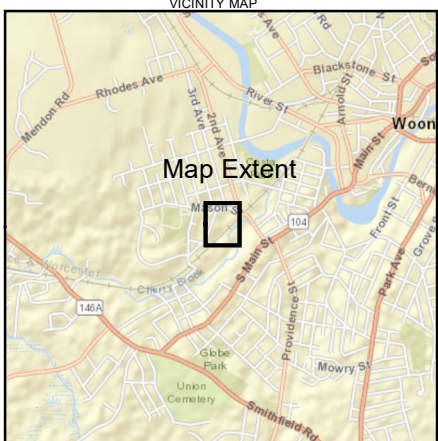
Map Date: 5/14/2020
 Source: USGS 2020
 Projection: NAD 1983 CORS96 StatePlane
 Illinois East FIPS 1201 Ft US



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\\warwick\p\Projects\1525815 - Sunnyside Ave - RIDEM TAC\GIS\MXD\Figure 2 - Site Plan.mxd imorrissey



- Legend**
- | | | |
|---|---|--|
| <p>Monitoring Wells</p> <ul style="list-style-type: none"> ● Haz Mat Monitoring Well ● Petroleum Monitoring Well ● Installed EA Monitoring Well <p>Soil Borings</p> <ul style="list-style-type: none"> ○ Haz Mat Soil Boring ○ Petroleum Soil Boring ○ Installed EA Soil Boring | <ul style="list-style-type: none"> + Debris Concrete Anomaly Metallic Anomaly UST AST Buildings --- Foundation Remnants --- National Grid Utility — Water | <ul style="list-style-type: none"> — Grid — Pipes — Railroad — Path and Asphalt --- Property Line |
|---|---|--|

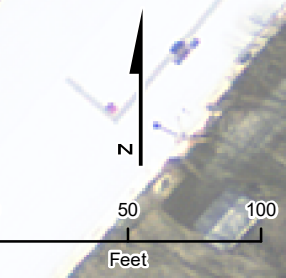
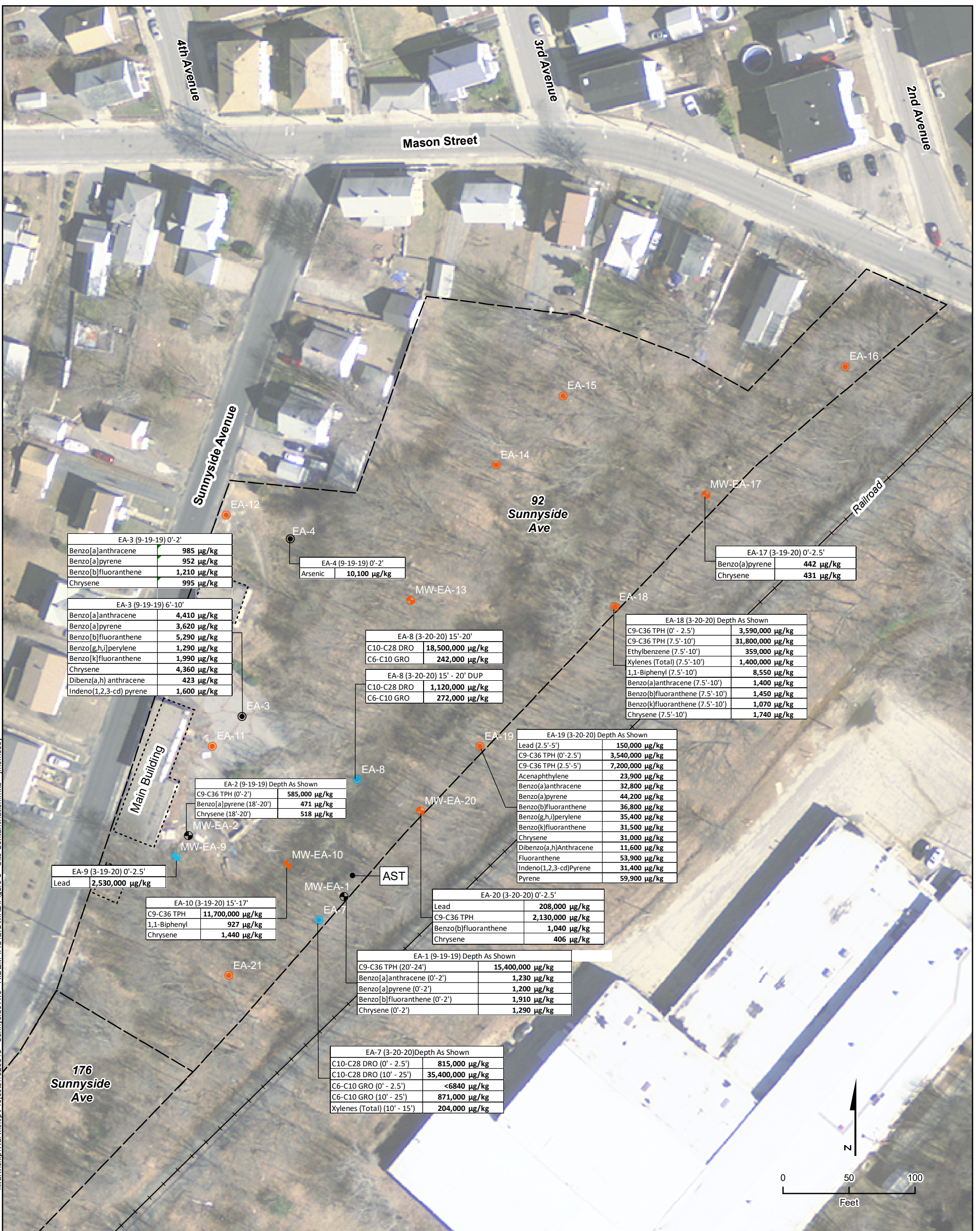


Figure 2
Site Features
 92 Sunnyside SIR
 Woonsocket, Rhode Island
 Site Investigation Report/
 Targeted Brownfields Assessment
 EA Project Number 15258.15 and .17

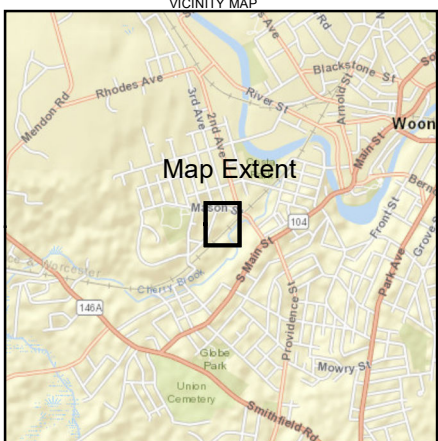
Map Date: 5/18/2020
 Source: ESRI, 2011
 Projection: NAD 1983 2011 State
 Plane Rhode Island FIPS 3800 Ft US



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I:\warwick\p\Projects\1525815 - Sunnyside Ave - RIDEM TAC\GIS\MXD\Figure 3 - Site Contamination.mxd - inorissay



- Legend**
- Haz Mat Monitoring Well
 - Petroleum Monitoring Well
 - Installed EA Monitoring Well
 - Haz Mat Soil Boring
 - Petroleum Soil Boring
 - Installed EA Soil Boring
 - Property Line
 - - - Buildings
 - Railroad

Notes:

Acronyms:
 AST = Above Ground Storage Tank
 TPH = Total Petroleum Hydrocarbons
 ug/kg = micrograms per kilograms
 GRO = Gasoline Range Organics
 DRO = Diesel Range Organics
 RDEC = Residential Direct Exposure Criteria
 I/C DEC = Industrial/Commercial Exposure Criteria

Only analytical results which exceeded either the RDEC or I/C DEC are shown on this figure

Depths are in feet below ground surface

Figure 3
Site Soil Exceedances Map
 92 Sunnyside SIR
 Woonsocket, Rhode Island
 Site Investigation Report/
 Targeted Brownfields Assessment
 EA Project Number 15258.15 and .17

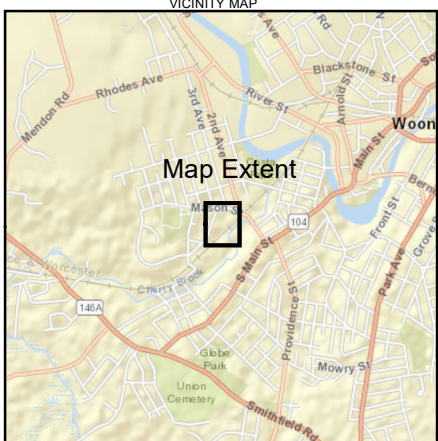
Map Date: 5/22/2020
 Source: ESRI, 2011
 Projection: NAD 1983 2011 State
 Plane Rhode Island FIPS 3800 Ft US



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\\warwick\p\Warwick\Projects\1525815 - Sunnyside Ave - RIDEM TAC\GIS\MXD\Figure 4 - GW Contours .mxd_jmorrissey



- Legend**
- Monitoring Well
 - Soil Boring
 - Property Line
 - Buildings
 - Railroad
 - Path and Asphalt
 - Groundwater Contour
 - Groundwater Flow Direction

Note:

Acronyms:
AST= Aboveground Storage Tank

Well elevations were surveyed by EA Engineering on 26 March 2020 relative to a 100 ft onsite reference point.

Depths to water were gauged on 1 April 2020

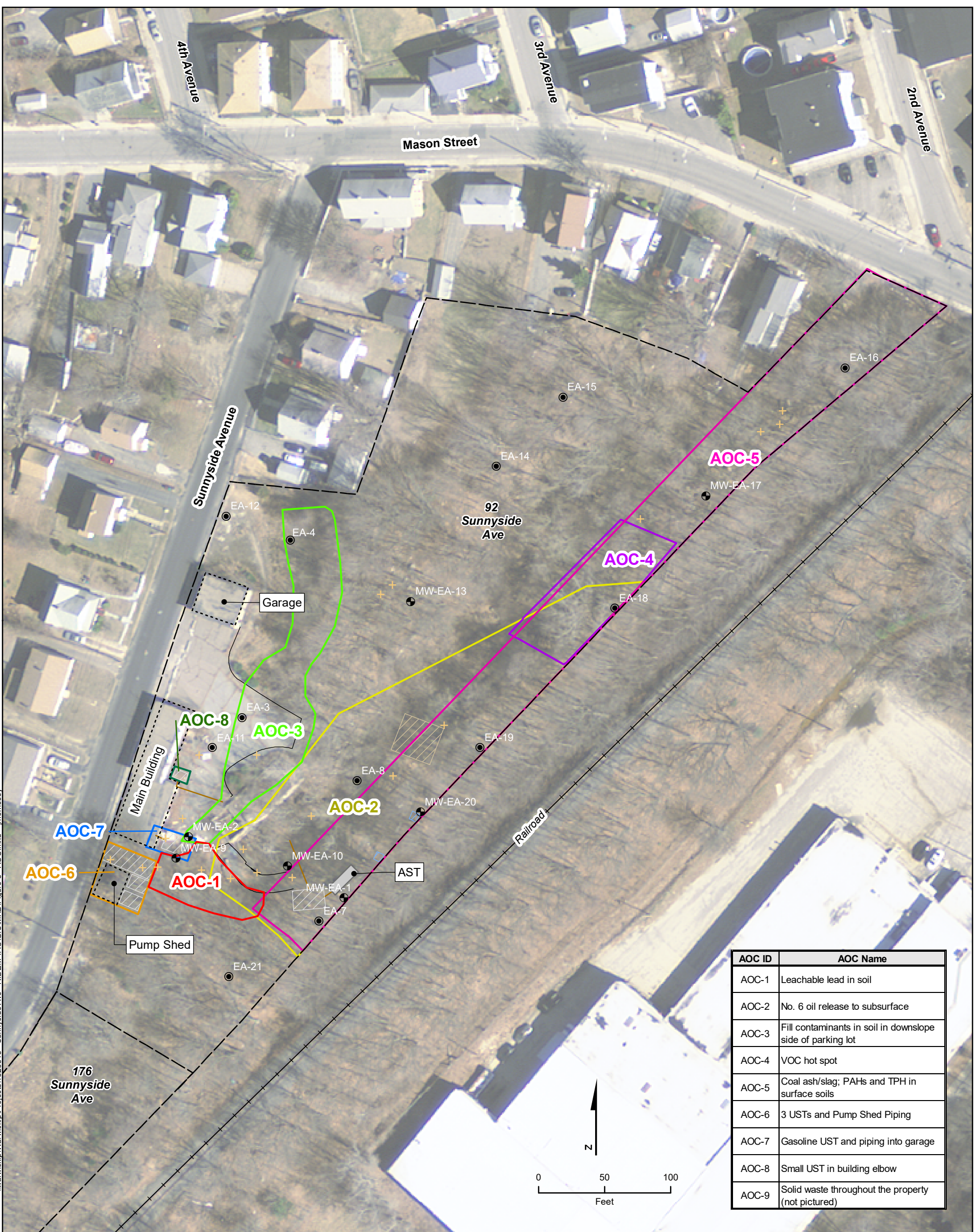
MW-EA-1 was not included in the groundwater countour as light non-aqueous phase liquid presence was potentially depressing water table

Figure 4
Groundwater Contour Map
92 Sunnyside SIR
Woonsocket, Rhode Island
Site Investigation Report/
Targeted Brownfields Assessment
EA Project Number 15258.15 and .17

Map Date: 5/18/2020
Source: ESRI, 2011
Projection: NAD 1983 2011 State
Plane Rhode Island FIPS 3800 Ft US

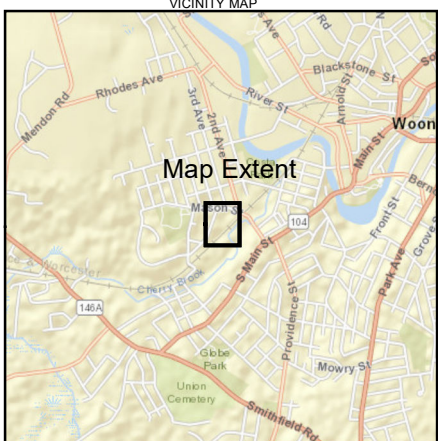


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AOC ID	AOC Name
AOC-1	Leachable lead in soil
AOC-2	No. 6 oil release to subsurface
AOC-3	Fill contaminants in soil in downslope side of parking lot
AOC-4	VOC hot spot
AOC-5	Coal ash/slag; PAHs and TPH in surface soils
AOC-6	3 USTs and Pump Shed Piping
AOC-7	Gasoline UST and piping into garage
AOC-8	Small UST in building elbow
AOC-9	Solid waste throughout the property (not pictured)

\\warwick\p\Warwick\p\Projects\1525815 - Sunnyside Ave - RIDEM TAC\GIS\MXD\Figure 5 - AOC.mxd inorisssey



- Legend**
- Monitoring Well
 - Soil Boring
 - Debris
 - Concrete Anomaly
 - Metallic Anomaly
 - UST
 - AST
 - Property Line
 - Buildings
 - Pipes
 - Railroad
 - Path and Asphalt

Notes:

Acronyms:
 AST = Aboveground Storage Tank
 UST = Underground Storage Tank
 VOC = Volatile Organic Compounds
 AOC = Area of Concern
 TPH = Total Petroleum Hydrocarbons
 PAH = Polycyclic Aromatic Hydrocarbons

AOC Depictions are approximate

Figure 5
Areas of Concern
 92 Sunnyside SIR
 Woonsocket, Rhode Island
 Site Investigation Report/
 Targeted Brownfields Assessment
 EA Project Number 15258.15 and .17

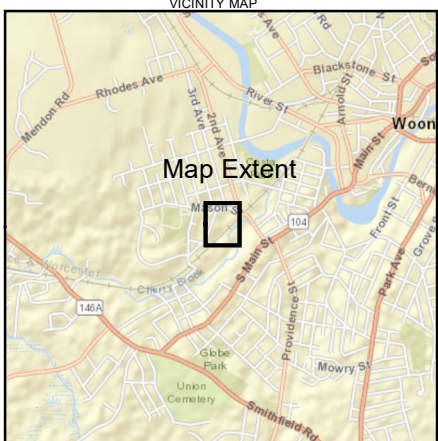
Map Date: 5/18/2020
 Source: ESRI, 2011
 Projection: NAD 1983 2011 State
 Plane Rhode Island FIPS 3800 Ft US



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\\warwick\p\Projects\1525815 - Sunnyside Ave - RIDEM TAC\GIS\MXD\Figure 6 - AOC2 Concentration Gradient.mxd imorrissey



- Legend**
- Monitoring Well
 - Soil Boring
 - Property Line
 - Buildings
 - Railroad

Total Petroleum Hydrocarbons (TPH) Concentration

- Red = > 30,000 ppm (Upper Concentration Limit)
- Darker Orange = Between 15,000 and 30,000 ppm
- Orange = Between 2,500 ppm (I/C DEC) and 15,000 ppm
- Yellow = Between 500 ppm (RDEC) and 2,500 ppm (I/C DEC)
- Green = <500 ppm (RDEC)

Notes:
 Acronyms:
 AST = Aboveground Storage Tank
 AOC = Area of Concern
 ppm = Parts Per Million
 RDEC = Residential Direct Exposure Criteria
 I/C DEC = Industrial/Commercial Direct Exposure Criteria

Concentration gradients are approximate based on TPH concentrations detected in soil samples, surface topography, and groundwater flow direction.

Figure 6
AOC2 Soil Concentration Gradient
 92 Sunnyside SIR
 Woonsocket, Rhode Island
 Site Investigation Report/
 Targeted Brownfields Assessment
 EA Project Number 15258.15 and .17

Map Date: 5/22/2020
 Source: ESRI, 2011
 Projection: NAD 1983 2011 State
 Plane Rhode Island FIPS 3800 Ft US



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Appendix D

Release Notification Form

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Appendix C
OFFICE OF WASTE MANAGEMENT –
SITE REMEDIATION SECTION
HAZARDOUS MATERIAL RELEASE NOTIFICATION FORM

THIS FORM IS NOT TO BE USED TO REPORT AN IMMINENT HAZARD

1. Notifier Information

Name: Ron Mack, PE, EA Engineering, Science, and Technology, Inc., PBC
Address: 301 Metro Center Blvd., Suite 102, Warwick, RI 02886

Phone: (401) 287-3069

Email: rmack@eaest.com

Status: Environmental Professional Owner Operator Secured Creditor Voluntary

If Environmental Professional is selected, please supply the follow information for your client below:

Name: City of Woonsocket
Address: 169 Main Street, Woonsocket, RI 02895

Phone: Kevin Proft, City Planner, City of Woonsocket : (401) 767-1418 kproft@WoonsocketRI.org

Email:

Status: Owner Operator Secured Creditor Voluntary

2. Property Information

Name of Site: Former Woonsocket Color & Chemical Co. (176 Sunnyside Ave); Cavedon Chemical (92 Sunnyside Ave)
Site Address: 176 Sunnyside Avenue, and 92 Sunnyside Avenue, Woonsocket, RI 02895

Plat/Lot Numbers: Plat 3/Lot 7 (176 Sunnyside Ave); Plat 3/Lot 97 (92 Sunnyside Ave)

Approximate Acreage of Property: 1.5 acres (176 Sunnyside Ave); 3.5 acres (92 Sunnyside Ave)

Latitude/Longitude: 41.995879, -71.528449 (176 Sunnyside Ave); 41.997126, -71.527571 (92 Sunnyside Ave)

Site Land Usage Type: Residential Industrial/Commercial

Location of Release: **176 Sunnyside Ave:** Ethylbenzene detected at MW-210 during the 2019 investigation, and at nearby wells sampled by other parties in 2003 and 2011.
92 Sunnyside Ave: Surficial soils (0-2 ft bgs) at EA-1, EA-2, EA-3, EA-4; deeper soils at 20-24 ft bgs at EA-1; 18-20 ft bgs at EA-2; and soils at 6-10 ft bgs at EA-3. Light non-aqueous phase petroleum product floating on the water table at EA-1. See attached site plan for soil boring/monitoring well locations sampled in 2019.

(Attach site sketch as necessary)

3. Release Information

Date of Discovery: Laboratory analytical results associated with the 2019 investigation received and assessed by EA on 16 October 2019.

Source: **176 Sunnyside Ave:** Historical industrial use/petroleum/urban fill; **92 Sunnyside Ave:** Unknown/petroleum/historical industrial use

Release Media: Soil, groundwater, pure-phase oil on groundwater table, potential for vapors

Hazardous Materials and Concentrations: **176 Sunnyside Ave:** Ethylbenzene in groundwater collected at MW-210.
92 Sunnyside Ave: Benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, benzo[g,h,i]perylene, benzo[k]fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, C9-C36 total petroleum hydrocarbons, and arsenic in soils. See attached soil analytical summary table (Table 1) and groundwater analytical summary table (Table 2) for highlighted concentrations that exceed RIDEM Method 1 Residential and I/C Direct Exposure Criteria and/or GB Groundwater Objectives. Laboratory analytical reports included as attachment.

Extent of Contamination:

176 Sunnyside Ave: Site wide, higher concentrations in eastern and central portions of the site

92 Sunnyside Ave: Extent of contamination currently unknown/to be determined by further investigative activities.

Approximate acreage of Contaminated Area:

176 Sunnyside: 1.5 acres as estimated by historical site investigations

92 Sunnyside: Acreage of contaminated area currently unknown/to be determined by further investigative activities.

4. Resource Information

Site Land Usage: Industrial/Commercial Residential
Adjacent Land Usage: Industrial/Commercial Residential
Site Groundwater Class: GA/GAA GB
Adjacent Groundwater Class: GA/GAA GB
(if different than site groundwater classification within 500 feet)
Nearest Surface Water or Wetland: Cherry Brook, located approximately 500 ft southeast of the site.
 Less Than 500 Feet Greater Than 500 Feet
Potential for adverse impact: Yes No

5. Potentially Responsible Parties

Name: City of Woonsocket as current property owner
Address: 169 Main Street, Woonsocket, RI 02895

Status: Owner Operator Other:

Name: _____
Address: _____

Status: Owner Operator Other:

6. Measures Taken or Proposed to be Taken in Response to Release

176 Sunnyside Avenue: Remedial alternatives to be discussed in final Site Investigation Report.
92 Sunnyside Avenue: Further investigation is required to determine the extent of contamination at the property and identify any potential for adverse impacts to nearest environmental resources. Remedial alternatives will be determined after additional investigation.

Check all that apply: Site Investigation Short-Term/Emergency EXPRESS Dig & Haul

7. Other Significant Remarks about Release (Will a background determination be made?)

Signature: _____

Date 3/12/2020

Title: _____

City Planner

Read and approved for signature by
the Law Department

Initial LD

Date 3/11/20

Appendix E

Historical Documentation

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RIDEM

Sunnyside Avenue
Woonsocket, RI 02895

Inquiry Number: 5381680.5
August 07, 2018

The EDR-City Directory Image Report

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Thank you for your business.
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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by

infoUSA[®]

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2014	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2010	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2005	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
2000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1995	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1992	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1987	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1982	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1977	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EDR Digital Archive
1973	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1968	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1963	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1958	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1951	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1946	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1942	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory
1938	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Polk's City Directory

EXECUTIVE SUMMARY

Year Target Street Cross Street Source

FINDINGS

TARGET PROPERTY STREET

Sunnyside Avenue
Woonsocket, RI 02895

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

SUNNYSIDE AVE

2014	pg A2	EDR Digital Archive
2010	pg A4	EDR Digital Archive
2005	pg A6	EDR Digital Archive
2000	pg A8	EDR Digital Archive
1995	pg A10	EDR Digital Archive
1992	pg A12	EDR Digital Archive
1987	pg A14	EDR Digital Archive
1982	pg A16	EDR Digital Archive
1977	pg A18	EDR Digital Archive
1973	pg A20	Polk's City Directory
1968	pg A23	Polk's City Directory
1968	pg A24	Polk's City Directory
1963	pg A27	Polk's City Directory
1963	pg A28	Polk's City Directory
1958	pg A30	Polk's City Directory
1958	pg A31	Polk's City Directory
1951	pg A34	Polk's City Directory
1946	pg A36	Polk's City Directory
1942	pg A38	Polk's City Directory
1938	pg A40	Polk's City Directory

FINDINGS

CROSS STREETS

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
-------------	-----------------	---------------

MASON ST

2014	pg. A1	EDR Digital Archive
2010	pg. A3	EDR Digital Archive
2005	pg. A5	EDR Digital Archive
2000	pg. A7	EDR Digital Archive
1995	pg. A9	EDR Digital Archive
1992	pg. A11	EDR Digital Archive
1987	pg. A13	EDR Digital Archive
1982	pg. A15	EDR Digital Archive
1977	pg. A17	EDR Digital Archive
1973	pg. A19	Polk's City Directory
1968	pg. A21	Polk's City Directory
1968	pg. A22	Polk's City Directory
1963	pg. A25	Polk's City Directory
1963	pg. A26	Polk's City Directory
1958	pg. A29	Polk's City Directory
1951	pg. A32	Polk's City Directory
1951	pg. A33	Polk's City Directory
1946	pg. A35	Polk's City Directory
1942	pg. A37	Polk's City Directory
1938	pg. A39	Polk's City Directory

City Directory Images

MASON ST 2014

80	GARY L CHANDLER
85	MOHMMAD IQBAL
108	VOTZE BUTLER ASSOCIATES INC
131	AGROTECH LLC
	AMCO INC
144	B PS CORPORATE CLEANING CO
	BPS VACCUM AND MACHINE INC
360	BOW-WOW RACING LLC

SUNNYSIDE AVE 2014

28	BEAULIEU, ROGER L
38	SEAMONE, GREGORY T
45	CASTO, PHILIP
57	WILSON, WALLACE
73	TIMES, KENT E
99	BURT, RANDY
115	AGOSTO, MARITZA
117	OCCUPANT UNKNOWN,
119	OCCUPANT UNKNOWN,
121	ROMAN, MARISOL
131	PENA, ARELIS
151	HOULE, BARRY M
195	KOBACK, DONALD S
203	RUIZ, SAMUEL A

MASON ST 2010

80 GARY L CHANDLER
85 MOHMMAD IQBAL
108 VOTZE BUTLER ASSOCIATES INC
131 AGRO TECH LLC
AMCO INC
142 GARY SANTOS CONTRACTOR
144 B PS CORPORATE CLEANING CO
BPS VACCUM AND MACHINE INC
248 JAMES J REILLY
268 DBA RAYMOND TETREULT
360 BOW-WOW RACING LLC

SUNNYSIDE AVE 2010

28 VANSCYOC, MEAGAN
38 SEAMONE, GREGORY
45 CASTO, PHILIP
57 WILSON, WALLACE
73 TIMES, KENT E
85 OCCUPANT UNKNOWN,
99 AVB CONSTRUCTION
OCCUPANT UNKNOWN,
115 AGOSTO, MARITZA
117 MORRIS, WILLIAM F
119 GIGUERE, TAMMY
125 BURT, ARLEAN
131 SANTIAGO, CELSA
133 PAGAN, TATA
151 OCCUPANT UNKNOWN,
SUNNY SIDE SPICE
195 KOBACK, ANABELLE
203 RUIZ, SAMUEL A

MASON ST 2005

85	MOHMMAD IQBAL
108	VOTZE BUTLER ASSOCIATES INC
144	BP VACUUM AND MACHINE REPAIR
	BPS CORPORATE CLEANING CO INC
212	GLR CONSTRUCTION
575	R&C VARIETY INC

SUNNYSIDE AVE 2005

28 BEAULIEU, ROGER L
38 GANKO, GEORGE C
45 CASTO, PHILIP
57 OCCUPANT UNKNOWN,
73 TIMES, KENT E
87 AVB EQUIPMENT CORP
99 CHARPENTIER, LARRY
115 OCCUPANT UNKNOWN,
117 OCCUPANT UNKNOWN,
119 OCCUPANT UNKNOWN,
121 CEBALLOS, RAMON V
125 BURT, ARLEAN
131 OCCUPANT UNKNOWN,
133 MACHUCA, DAISY J
151 HOULE, ROLAND T
203 RUIZ, SAMUEL A

MASON ST 2000

144 JK PRESS INC

SUNNYSIDE AVE 2000

45 OLIVER, LAURA
73 HILERIO, CANDI V
115 OCCUPANT UNKNOWN,
117 ROBINSON, ONDREA
119 GIGUERE, TAMMY
121 OCCUPANT UNKNOWN,
131 OCCUPANT UNKNOWN,
133 OCCUPANT UNKNOWN,
195 KOBACK, A

MASON ST 1995

85	A J S WHOLESALE INC
	G & B REALTY COMPANY
144	J K PRESS INC
198	JT S GENERAL STORE



-

SUNNYSIDE AVE 1995

45	POWERS, M
92	CAVEDON JOSEPH CHEMICAL CO
121	MANDULA, CORNEL
131	GREENE, SARAH
133	MORIN, LORRAINE E
195	KOBACK, STANLEY J
203	NGUYEN, THACH VAN

MASON ST 1992

83	PRECISION CONNECTOR DESIGNS
85	G & B REALTY COMPANY
144	J K PRESS INC
198	JT S GENERAL STORE
302	FAIRMOUNT MARKET



-

SUNNYSIDE AVE 1992

92	ODONNELL P J & SONS INC
121	MANDULA, CORNEL
131	GREENE, SARAH
133	MORIN, LORRAINE E
195	KOBACK, STANLEY J
203	NGUYEN, THACH VAN

MASON ST 1987

85	G & B REALTY COMPANY*
108	GERBER PRODUCTS COMPANY*
144	BLISS PRESS INC
	S E C INC
302	FAIRMOUNT MARKET



-

SUNNYSIDE AVE 1987

92	O DONNELL P J & SONS INC
176	GASPEE CHEMICAL CO LTD

MASON ST 1982

85	G & B REALTY COMPANY*
100	DA-MA REALTY PROPERTIES
108	RELIANCE PRODUCTS CORPORATION
144	BLISS PRESS INC
	CUSTOM CONTROLS CO INC
	S E C INC
575	MELS VARIETY

SUNNYSIDE AVE 1982

92	O DONNELL P J & SONS INC
110	DIAMOND OIL CO INC
176	GASPEE CHEMICAL LTD*

MASON ST 1977

85	G & B REALTY COMPANY*
108	RELIANCE PRODUCTS CORPORATION
144	BLISS PRESS INC
	CUSTOM CONTROLS CO INC
	S E C INC
575	MELS VARIETY



-

SUNNYSIDE AVE 1977

92	O DONNELL P J & SONS INC
110	DIAMOND OIL CO INC
176	DURYEA PRODUCTS CO INC

MASON ST 1973

388 RATHBUN STREET	ZIP CODE 02895	360 P
	226 Lima Francisco © 766-5258	370 S
		ASY
		28 381★7
	MASON ST —FROM 365 SOUTH MAIN TO CITY LINE	383★1
	ZIP CODE 02895	6TH
	PLEASANT ENDS	7TH
	OAK BEGINS	413 D
	77 Richer Raymond P 766-1684	447 M
	79★Pignolet Norman L 762-6447	F
Caron Arth J	480 D	
85 Leo's Pastries Inc whol 769-6200	489 A	
108 Reliance Products Corp plastic prods mfrs 769-8230	499 T	
142 Lunn Roland H ©	8TH	
144 Bliss Press prntrs 769-3732	9TH	
Sun Textile Co wool dlrs 769-3732	575 M	
Woonsocket Tag Stringing Service Inc 769-6828	10TH	
	BOU	
PENN CENTRAL INTERSECTS		
	27	
	MAY	
	STA	
2D AV BEGINS		
198 Jones Theresa V Mrs © 769-7937	ZIP	
212 Moon Thos A © 769-0348		
222 Comire Richd A ©		
★Sausa Dorothy A Mrs	MEAL	
★Godin Lillian Mrs 769-9781	TO	
236 Fugere Norman R Jr © 766-1344		
Fugere Norman R © 766-6437	ZIP	
Fisher Ramona J 769-0857	33 Mc	
3D AV BEGINS	Pir	
248 Reilly Francis M © 762-3325	34 Br	
262 Robitaille Alton F 769-6083	Ph	
268 Robitaille Wm J © 769-2110	Co	
SUNNYSIDE AV BEGINS	La	
277 Beaudet Maurice A 769-4014	Mo	
279 Beauregard Lionel E © 769-4209	Pet	
Connell Charles E 766-0534	35 De	
287 Backers Robt J 766-0842	37 Sh	
289 Bergeron Edouard J 766-1557	OAF	
Fleetwood Geo R 766-6672	50 Fu	
4TH AV BEGINS	★M	
292 Orlando Peter J Jr © 767-2227	★F	
294 Santanna Jack J 766-2305	60 Gr	
296★Fowler Charles W	62 O'F	
302 Fairmount Market gro 762-9860	72 Mc	
Reilly Kath Mrs	82 Kil	
★Gelinas Terence P 769-5698	90 Br	
310 Crisafulli Frank A © 769-3838	91 Ge	
320 Gagnon Albert R © 767-2423	Ba	
322 Phaneuf Robt I 769-1034	93 Ge	
327★Clancy James H © 766-1457	94 Du	
★Gravel Louis	95 Gr	
★Tierney Laurence M 767-3884	100★I	
338 Gendron Paul A © 766-4426	104 B	
343 Desmarais Eug J © 769-3780	107 B	
Vacant	110 S	

TIM'S POWER EC

SUNNYSIDE AVE 1973

160

27

**SUNNYSIDE AV —FROM 268 MASON TO
174 ASYLUM**

ZIP CODE 02895

28 Roody Antone © 769-2259

38 Moon Robt E © 769-5658

45 Guy Robt S © 766-4362

57 Bishop Everett R © 766-1584

73 Walsh Kenneth A © 769-3044

92 O'Donnell P J And Sons Inc rendering
762-0396

110 Diamond Oil Co Inc fuel oil 762-2169

RUBY BEGINS

176 Woonsocket Color And Chemical Co
769-1520

195 Koback Stanley J © 762-2460

203 Mattson Carl L © 766-1034

19

SUNRISE AV —FROM 659 BOUND RD

MASON ST 1968

220 LIMA FRANCISCO • 766-2071

 10A

MASON ST -FROM 365 SOUTH MAIN TO
 CITY LINE

---ZIP CODE 02895

---PLEASANT ENDS

---OAK BEGINS

77 RICHER RAYMOND P 766-1684

79 RICHER EDGAR W 762-6478

CARON ARTH J

85 LEO'S PASTRIES INC WHOL
 769-6200

108 RELIANCE PRODUCTS CORP SLS

PLASTIC PRODS 769-8230

ABELL CHAIR MANUFACTURING
 CORP

MASON TRADING CO INC SLS

PLASTIC PRODS 769-8230

142 LUNN ROLAND H • 766-2376

144 BLISS PRESS PRNTRS 769-3732

SUN TEXTILE CO WOOL DLRS
 769-1617

WOONSOCKET TAG STRINGING
 SERVICE INC 769-6828

MASON ST 1968

105

---NYNHH INTERSECTS

6A

---RR INTERSECTS

---2D AV BEGINS

198 JONES THERESA V • 769-7937

212 MOON THOS A • 769-0348

222 ROULEAU JOSEPH E 769-2339

MASTERSON ROBT H

FISHER RAMONA J 767-0748

236 DUBEAU GEDEON D • 769-4611

GOULET GEO F 762-1065

LE BLANC ROGER 766-4365

---3D AV BEGINS

248 REILLY FRANCIS M • 762-3325

262 ROBITAILLE ALTON F 769-6083

268 ROBITAILLE WM J • 769-2110

---SUNNYSIDE AV BEGINS

277 BEAUDET MAURICE A 769-4014

279 BEAUREGARD LIONEL E •

769-4209

CONNELL CHARLES E 766-0534

287 HAWKSLEY EDW C 767-2345

289 BERGERON EDOUARD J 766-1557

GOSSELIN ALF N

---4TH AV BEGINS

292 ORLANDO PETER J JR • 767-2227

294 LEMAY NORMAN 766-1481

296 EAGAN EDW A 766-2551

302 FAIRMOUNT MARKET GRO 762-9860

JOLICOEUR ERNEST L 766-0213

310 JOLICOEUR TELESOPHORE •

769-2021

320 GAGNON ALBERT R • 767-2423

322 PHANEUF ROBT I 769-1034

327 LEMAY RICARD L • 769-7318

BENOIT ROBT 769-1315

338 LABONTE RAYMOND P • 762-1473

274 L'ETOILE FERDINAND J

343 DESMARAIS EUG J • 769-3780

DESMARAIS WILFRID 769-6685

---5TH AV

320 ZOLTEK JOHN S • 769-2573

350 RAPKO JOSEPH B 766-0125

359 DWYER AMY R MRS • 766-2623

360 PAGE GEO F • 769-7368

370 MULLIGAN ELLEN M MRS •

766-0686

---ASYLUM BEGINS

381 CONNELL MAUDE V MRS 766-0508

383 CONNELL LUCY • 762-2338

---6TH AV BEGINS

6

---6TH AV BEGINS

413 NO RETURN

---7TH AV BEGINS

447 MILLETTE HELEN A MRS •

762-0325

DEROSIERS DENNIS 767-1807

480 DUNN EDNA C MEMORIAL PARK

489 CANESTRARI LEON J • 762-4651

499 THIBAUT DONAT L • 762-1995

---8TH AV BEGINS

---9TH AV BEGINS

575 MEL'S VARIETY 769-8107

---10TH AV BEGINS

---BOURDON BLVD BEGINS

9C

CC070 '11 U7033
996C-69/ '101
101 101 101



-

SUNNYSIDE AVE 1968

6A

SUNNYSIDE AV -FROM 268 MASON TO
174 ASYLUM

---ZIP CODE 02895

28 STEVENS GEO H JR • 769-2951

38 MOON ROBT E • 769-5658

45 CAMPBELL PAUL D •

57 BISHOP EVERETT R • 766-1584

73 WALSH KENNETH A • 769-3044

SUNNYSIDE AVE 1968

159

SUNNYSIDE AV--CONTD

92 O'DONNELL P J AND SONS INC
HIDES & SKINS 762-0396

110 DIAMOND OIL CO INC FUEL OIL
762-2169

---RUBY BEGINS

176 WOONSOCKET COLOR AND CHEMICAL
CO 769-1520

195 KOBACK STANLEY J • 762-2460

203 MATTSON CARL L •

7C

MASON ST 1963

160

Oak begins

77 Richer Raymond P 9-1684

79 Richer Edgar W 2-6478

Caron Arth J 7-1502

85 Leo's Bakery Inc 9-6200

90 Reliance Molded Plastic

Co Inc 9-8230

Waverly begins

142 Lunn Roland H ©

2-6328

144 Sun Textile Co wool

dealers 9-1617

Bliss Press printers

9-3732

6-A

Railroad Bridge crosses**2d av begins**

198 Jones Theresa V ©

9-7937

212 Moon Thos A 9-0348

222 Ballou Robt A 2-1578

Boyce Kathryn F

236 Dubeau Gedeon D ©

9-4611

Goulet Geo F 2-1065

Rovedo Jeannette A Mrs

2-0408

248 Reilly Francis M ©

2-3325

3d av begins

262 Robitaille Alton F 9-6083

268 Robitaille Wm J ©

9-2110

272 Corrigan Albert E

277 Beaudet Maurice A

9-4014

279 Beauregard Lionel E ©

9-4209

Chaput Arth J

287 Charette Norman J

9-5094

289 Morin Roger L 2-0483

Gosselin Alf N 769-0689

4th av begins**Sunnyside av begins**

292 Lachapelle Roger R

9-1225

294 Plante Henry P 7-1864

Sweeney Francis H

302 Fairmount Mkt gro

2-9860

Bouvier Antonette Mrs

2-2579

Oberzol Thos

310 Connell Chas E 9-0534

320 Blais Albert W © 9-8460

322 Peloquin Gerald H

2-6056

327 Lemay Ricard L ©

9-7318

MASON ST 1963

MASON-Contd

327-Contd

Dextrateur Leo A

2-5248

338 Nadeau Henry R ©

7-0678

343 Desmarais Eug J ©

9-3780

Desmarais Wilfrid

9-6685

5th av begins

350 Zotek John S © 9-2573

Jacobs Robt T 7-2819

359 Dwyer Edw F © 9-2623

360 Page Geo F © 9-7368

370 Mulligan John J © 9-0686

Asylum begins

381 Connell Raymond J 9-0508

383 Connell Kath © 2-2338

6th av begins

6

477 Millette Normand L ©

7-1683

LeBlanc Henry L 9-9314

7th av begins

480 Dunn Edna C Memorial

Park

489 Canestrari Leno J ©

2-4651

499 Thibault Donat L ©

2-1995

8th av begins

SUNNYSIDE AVE 1963

63 Stapanos Oscar E ©

6-A

SUNNYSIDE AVENUE-From
274 Mason to 174 Asylum

28 Stevens Geo H jr © 7-2707

38 Moon Robt E © 9-5658

45 Vacant

57 Bishop Everett R ©
 9-6838

73 Walsh Kenneth A © 9-3044

Ruby begins

92 O'Donnell P J & Sons ©
 hides and skins
 2-0396

110 Diamond Oil Co Inc fuel
 oil 2-2169

SUNNYSIDE AVE 1963

248

176 Woonsocket Color &
Chem Co 9-1520

195 Hunt Annie P © 2-3367

203 Mattson Carl L © 9-9673

MASON ST 1958

Arona st ends

10

MASON fr 369 South Main to
city line wd 2

Pleasant st ends

Oak st begins

77△Richer Raymond P

79 Richer Mary Mrs

△Armstrong Arth S

85△Leo's Bakery

00△Reliance Molded Plastic Co

Waverly st begins

142△Lunn Roland H ⊙

144△Sun Textile Co wool
dealers

6

Railroad bridge crosses

Second av begins

198△Jones Theresa V ⊙

212△Moon Thos A

222△Parenteau Elzear

Boyce Marion F

236△Dubeau Gedeon D ⊙

△Goulet Geo F

248△Reilly Francis M ⊙

Third av begins

262△Robitaille Alton F

268△Rubin Marion ⊙

277△Girard Andrew A

279△Landrv Walter

△Connell John J

287 Shields Cath F

289△Bolduc Warren E

△Williams Harold V

Fourth av begins

Sunnyside av begins

292△Sebalaski Alex

294△Metivier Herve

Marquis Roger A

302△Fairmount Market gro ⊙

△Lantagne Albert G

Lamoureux Arth J

310△Connell Chas E ⊙

320△Blais Albert W ⊙

322△Peloquin Gerard H ⊙

327△Berry Edw J jr

△Lemay Richd L ⊙

338 LaBarre Adelard S ⊙

343△Desmarais Eug J ⊙

△Desmarais Wilfrid

Fifth av begins

350 Zotek John S ⊙

SUNNYSIDE AVE 1958

63△Halliwell Obiella N Mrs ©

8

SUNNYSIDE AVENUE fr 274

Mason to 175 Asylum wd 2

28△Ryan Esmond I

38△Moon Robt E ©

73△Walsh Kenneth A ©

Ruby begins

**92△O'Donnell P J & Sons hides
and tallow ©**

△Nitro-Form Agricultural
Chemical Co

110△Diamond Oil Co Inc fuel oil

SUNNYSIDE AVE 1958

176△Woonsocket Color & Chemi-
cal Co

195△Hunt Annie P ©

203△Mattson Carl L ©

7

SUNSET AVENUE from Hillside

MASON ST 1951

10

MASON fr 369 South Main to
city line wd 2

Pleasant st ends

77△Goldfine Max ©

79△Landreville Onorius

85△Cherry Brook Worsted Mills
Inc yarns

Oak st begins

Waverly st begins

00△Bell Co of RI The

142△Lunn Roland H ©

Danis Robt T ©

Railroad bridge intersects

SUNNYSIDE AVE 1951

PHONE 1500

6

SUNNYSIDE AVENUE fr 274

Mason to 175 Asylum wd 2

28△Ryan Esmond E ⊙

38 Moon Eliz Mrs ⊙

73 Aberdeen Wm ⊙

Ruby st begins

92△O'Donnell P J & Sons hides
and tallow ⊙

△Woonsocket Color & Chem-
ical Co

110△Diamond Oil Co Inc fuel oil

176 Woonsocket Color & Chemi-
cal Co

195△Hunt Annie P ⊙

203△Parkin Lester A ⊙

Ninth av intersects

Tenth av intersects

7

SUNSET AVENUE from Hillside

av easterly to Crest rd wd 5

MASON ST 1946

	Camp st begins	ris 18
	MASON fr 369 South Main to city line wd 2	33
		34
	Pleasant st ends	
	77△Goldfine Max ©	
	79△Landreville Onorius ©	
	△Maney Raymond F	
	85△Cherry Brook Worsted Mills yarns	35
	Oak st begins	37
	Waverly st begins	50
	142 Lunn Roland H ©	
	Railroad bridge intersects	
	Second av begins	60
	198△Jones Frank T	62
	212 Moon Thos A	72
	222 Boyce Marion F	
	△Parenteau Elzear	90
	236 Kane Woodrow C	91
	△Connell John J	
	Proulx Wilfred J	93
	248△Kane Geo C	94
	Third av begins	95
	262 Blazejewski Frank T	100
	268△Rubin Morris ©	104
	277 Mailhot Albert J	107
	279△Landry Walter	110
	Lavallee Napoleon A	114
	287 Shields Mary	119
	289 Pennington Delina L Mrs	121
	△Williams Harold V	124
	Fourth av begins	129
	Sunnyside av begins	133
		143
	292 Blinkhorn John O	148
	294△Barron Pierce ©	155
	310△Canzano Richd V	157
	320 Blais Albert	158
	322△Brissette Alphonse J ©	
	327 Sokolski Jos	
	△Stearns Robt W jr	M
	338△LaBarre Adelard ©	Nort
	343 Dardelle Paul	
	Schofield Harry	31
	Fifth av begins	
	350△Hewitt Chas G ©	
	359△Rodgers Thos F ©	
	360△Curtin Mary E Mrs ©	32
	△Haggerty Wm N	
	370△Mulligan John J	37
	Asylum st begins	
	381 Connell Raymond J	
	383△Connell Catherine ©	
	Sixth av begins	
	447 Capeau Idonie Mrs ©	M
	Dymon John	line
	Seventh av begins	wd
	480 Edna Dunn Memorial Park	28
	489△Canestrari Leno J ©	82
	499△Oakes Saml ©	
	Eighth av begins	
	Ninth av begins	00
	Tenth av begins	

SUNNYSIDE AVE 1946

47△Francis Annie M Mrs ⊙
57△Sheahan Rodolph T ⊙

SUNNYSIDE AVENUE fr 274

Mason to 175 Asylum wd 2

28△Ryan Edmond E ⊙
38 Moon Eliz Mrs ⊙
73△Greene Cath T Mrs ⊙
80 Trentner Lucille

Ruby st begins

92△O'Donnell P J & Sons hides
and tallow ⊙

△Woonsocket Color & Chem-
ical Co

110△Diamond Oil Co Inc fuel oil

176 Woonsocket Color & Chemi-
cal Co

△Duryea Products Co Inc
paint oil mfrs

195△Hunt Ada F ⊙

203 Parkin Lester A ⊙

Ninth av intersects

Tenth av intersects

SWEET AVENUE from 284

Cass av to 557 Elm wd 5

10△Lavallee Jos V

MASON ST 1942

TELS. 2170 and 21

MASON fr 369 South Main to
city line wd 2

Pleasant st ends

77△Goldfine Max ⊙

79 Landreville Onorius

△Maney Raymond F

00△Cherrybrook Worsted Co

Oak st begins

Waverly st begins

142△Decter Abr remnants h ⊙

Railroad bridge intersects

Second av begins

198△Jones Frank T

212 Moon Thos A

222 Boyce Marion F

△Parenteau Elzear

236 Morin Frank J

△Letoile Francois D

Proulx Wilfred J

248△Kane Geo C

Third av begins

262 Blazejewski Frank T

268△Rubin Morris junk h ⊙

277 Lavallee Napoleon A

279 Blanchette Raymond L

△Haggerty Harold J

287 Shields Mary

289 Pennington Delina L Mrs

△Williams Harold V

Fourth av begins

Sunnyside av begins

292 Blinkhorn John O

294△Barron Pierce ⊙

310 Nunes Antonio A ⊙

320△Brissette Alphonse J ⊙

322 Courchesne Aristide A ⊙

327 Sokolski John

Benjamin Ovila

338△LaBarre Adelard ⊙

343 Marsden Jos

Schofield Harry

Fifth av begins

350 Clausen Fred N ⊙

359△Rodgers Thos F ⊙

360△Curtin Mary E Mrs ⊙

370△Mulligan John J

Asylum st begins

000 Edna Dunn Memorial Park

381 Connell Raymond J

383△Connell Catherine ⊙

Sixth av begins

447 Capeau Idonie Mrs ⊙

Dymon John

Seventh av begins

489△Oakes Saml ⊙

499 Stead Clifford

Eighth av begins

Ninth av begins

Tenth av begins

Eleventh av begins

Alice av intersects

MAY fr 544 Gaskill across State
line wd 4

SUNNYSIDE AVE 1942

57△Sheahan Rodolph T ⊙

SUNNYSIDE AVENUE fr 274

Mason to 175 Asylum wd 2

4 Same as 268 Mason

28△Ryan Edmond I ⊙

38 Moon Eliz Mrs ⊙

73△Greene Jas F ⊙

Ruby st begins92△O'Donnell P J & Sons hides
and tallow ⊙△Woonsocket Color & Chem-
ical Co

110△Diamond Oil Co Inc fuel oil

140 Same as 92

176 Storage

195△Hunt Ada F ⊙

203△Ballou Louis S ⊙

Ninth av intersects**Tenth av intersects****SWEET AVENUE from 284**

Cass av to 557 Elm wd 5

100 Lovell Lee V

MASON ST 1938

Camp st begins

MASON fr 369 South Main
to City line wd 2

Pleasant st ends

77 Goldfine Max junk h ☉

79 Swartz Nathan

Maney Raymond F

00 Cherrybrook Worsted Co

Oak st begins

142 Decter Abr remnants h

☉

Waverly st begins

Railroad bridge crosses

Second av begins

198 Jones Frank T

212 Moon Thos A

222 Boyce Marion F

Parenteau Elzear

236 Moon Wm F

Morin Frank J

Harvey Herbert W

248 Kane Geo C

Third av begins

262 Casse Napoleon

268 Rubin Morris ☉

277 Fortin Arthur C

279 Blanchette Raymond L

Haggerty Harold J

287 Shields Mary

289 Pennington Delina L Mrs

Williams Harold V

Fourth av begins

Sunnyside av begins

292 Nichols Squire

294 Barron Pierce ☉

Barron Wm J Rev

310 Proulx Wilfred J

320 Brissette Alphonse J

322 Courchesne Aristide A

327 Lowry Gertrude F ☉

Durkin Wm J

338 Labarre Adelard ☉

343 Marsden Jos

Schofield Harry

Fifth av begins

350 Clausen Fred N ☉

359 Rodgers Thos F ☉

360 Curtin Mary E Mrs ☉

370 Gilain Marcel

Asylum st begins

000 Edna Dunn Memorial
Park

381 Connell Raymond J

383 Connell Delia Mrs ☉

Sixth av begins

447 Capeau Idonie Mrs ☉

Donovan Ann Mrs

Seventh av begins

SUNNYSIDE AVE 1938

SUNNYSIDE AVENUE fr
268 Mason to 175 Asylum wd
2

- 4 Rubin Morris iron and
metal ©
28 Gobeille Geo R
38 Moon Eliz Mrs ©
73 Greene Jas F ©

Ruby st begins

- 92 O'Donnell P J & Sons
hides and tallow
Woonsocket Color &
Chemical Co
110 Diamond Oil Co Inc fuel
oil
140 Blackstone Oil Co
176 Farrar Lumber Co bldg
materials
195 Hunt Ada F ©
203 Laliberte Jos W
Ninth av crosses
Tenth av crosses



RIDEM

Sunnyside Avenue

Woonsocket, RI 02895

Inquiry Number: 5381680.3

August 03, 2018

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

08/03/18

Site Name:

RIDEM
Sunnyside Avenue
Woonsocket, RI 02895
EDR Inquiry # 5381680.3

Client Name:

Beta Engineering Inc.
6 Blackstone Valley Place #101
Lincoln, RI 02865
Contact: Joe Mcloughlin



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Certified Sanborn Results:

Certification # 5CDD-4B0E-8096

PO # NA

Project RIDEM

Maps Provided:

1970
1967
1965
1963
1955
1950
1911



Sanborn® Library search results

Certification #: 5CDD-4B0E-8096

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- Library of Congress
- University Publications of America
- EDR Private Collection

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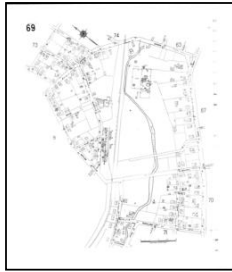
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Sanborn Sheet Key

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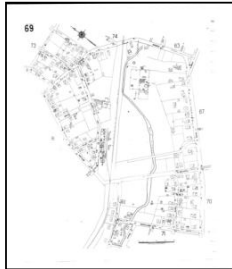


1970 Source Sheets



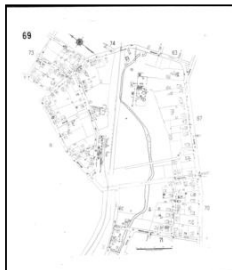
Volume 1, Sheet 69
1970

1967 Source Sheets



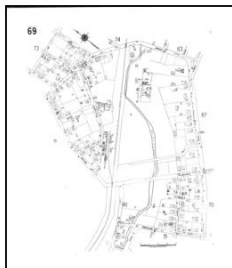
Volume 1, Sheet 69
1967

1965 Source Sheets



Volume 1, Sheet 69
1965

1963 Source Sheets



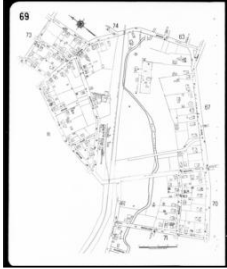
Volume 1, Sheet 69
1963

Sanborn Sheet Key

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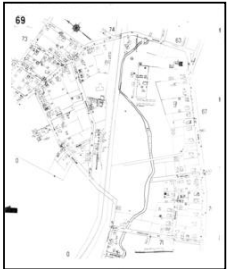


1955 Source Sheets



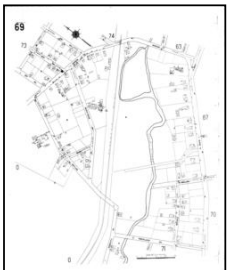
Volume 1, Sheet 69
1955

1950 Source Sheets



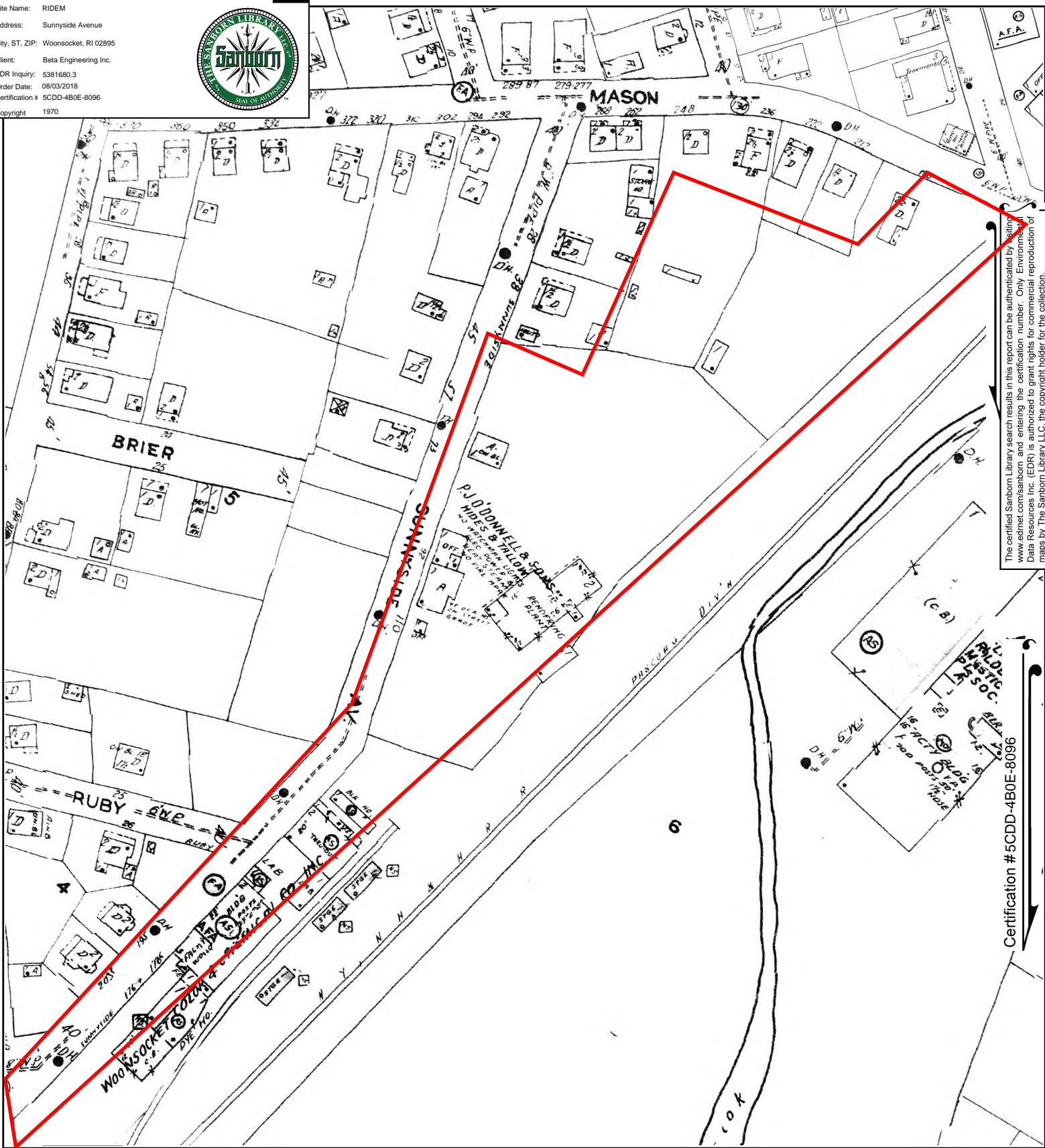
Volume 1, Sheet 69
1950

1911 Source Sheets



Volume 1, Sheet 69
1911

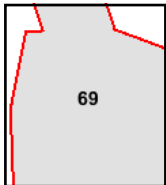
Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
 EDR Inquiry: 5381680.3
 Order Date: 08/03/2018
 Certification #: 5CDD-4BOE-8096
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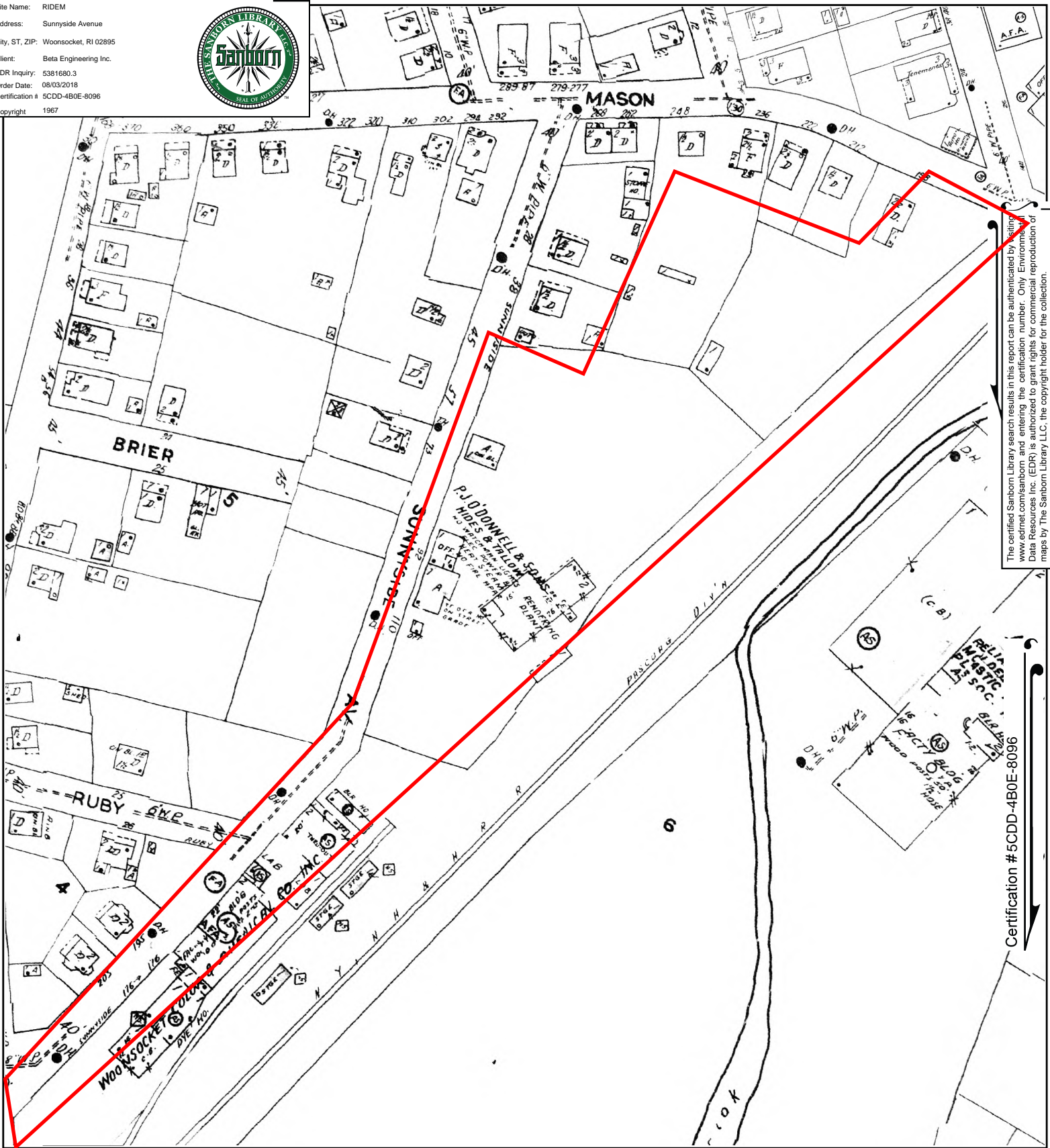
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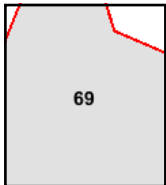
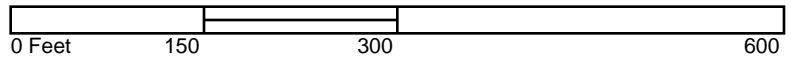
Volume 1, Sheet 69



Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
 EDR Inquiry: 5381680.3
 Order Date: 08/03/2018
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 Copyright: 1967



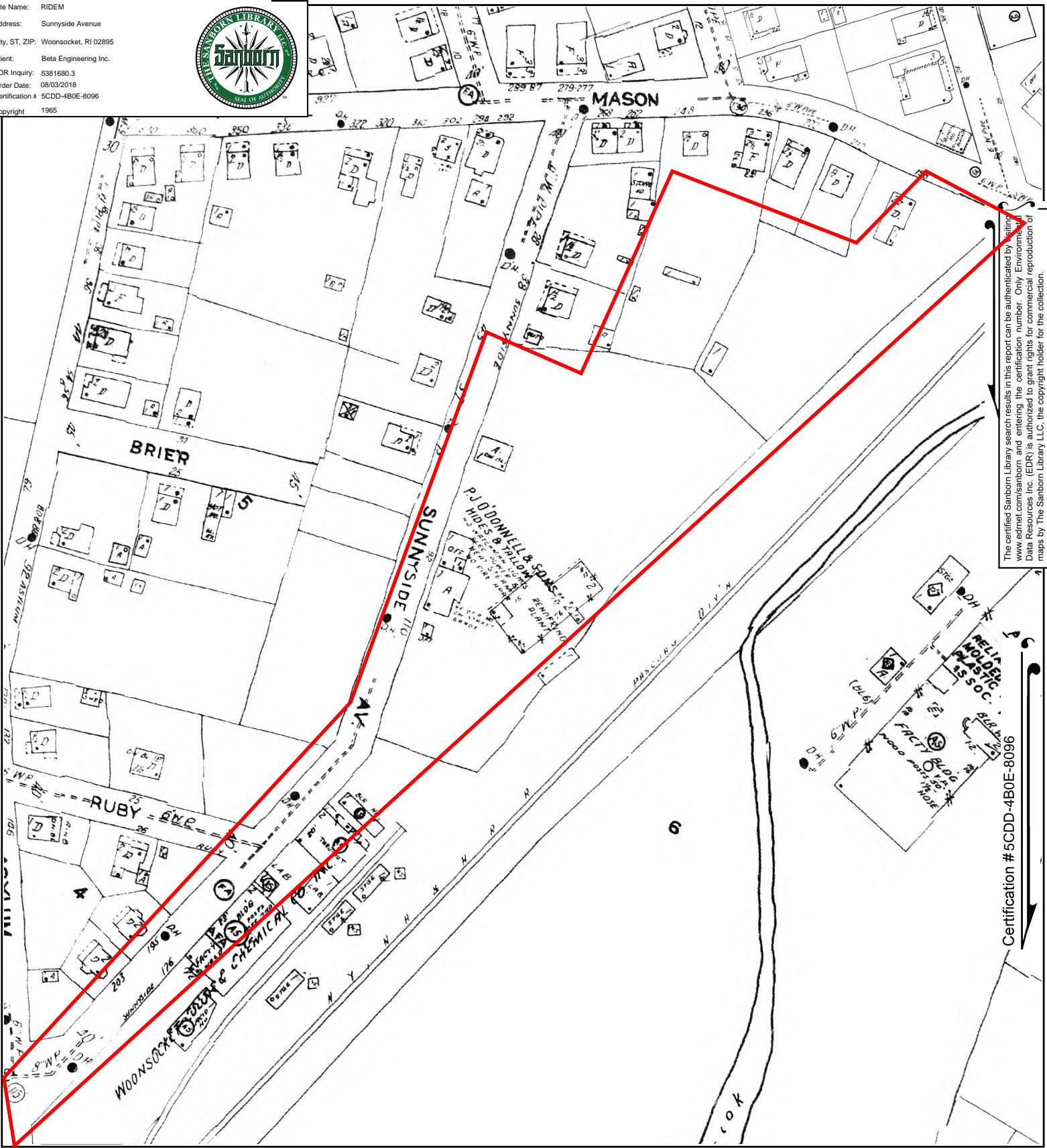
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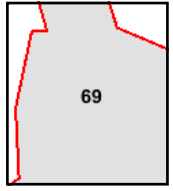
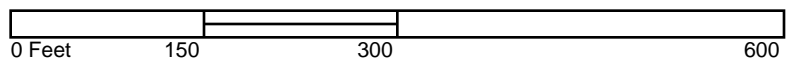
Volume 1, Sheet 69



Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
 EDR Inquiry: 5381680.3
 Order Date: 08/03/2018
 Certification # 5CDD-4BOE-8096
 Copyright: 1965



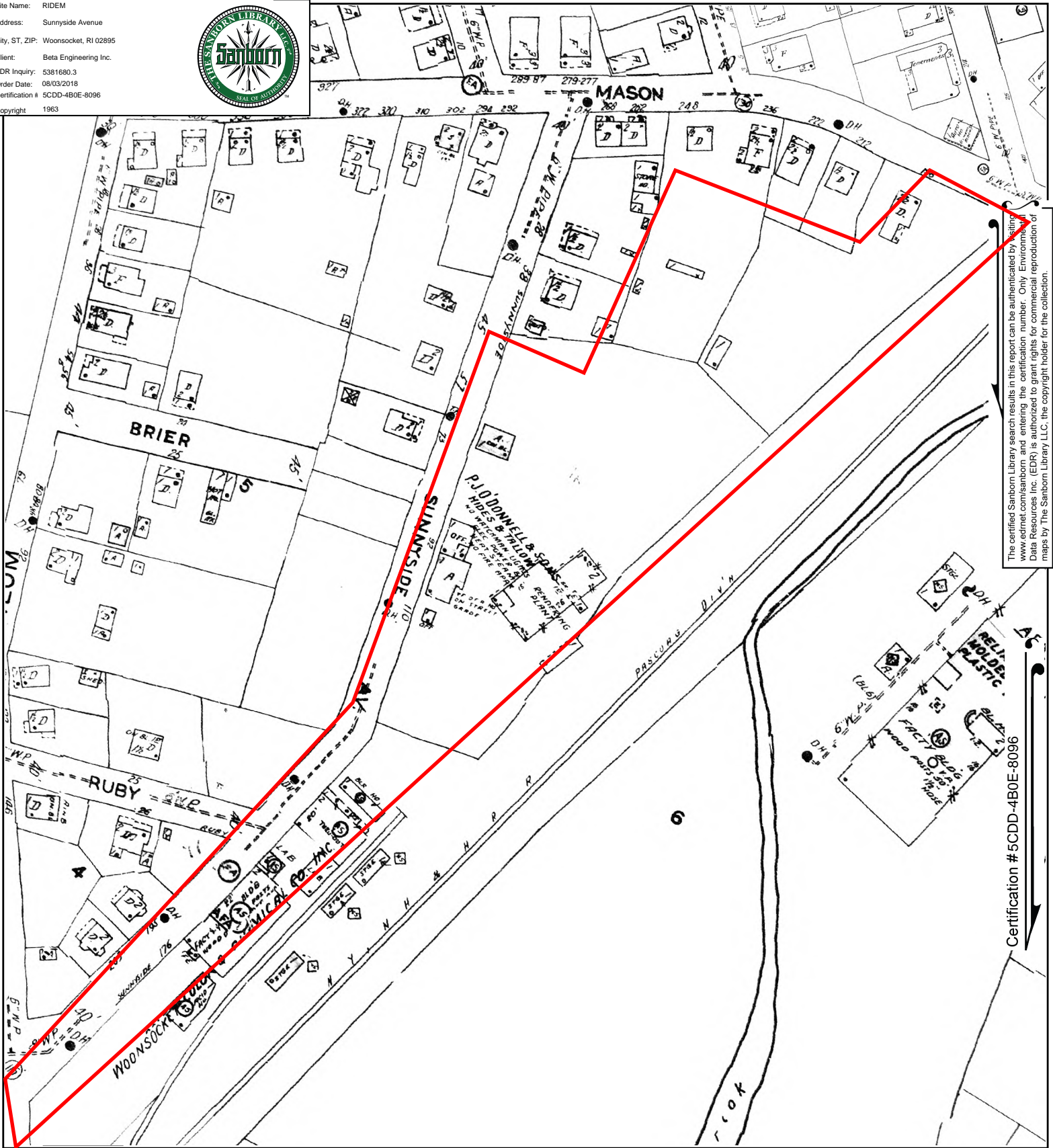
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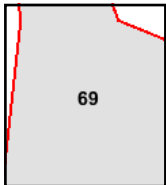
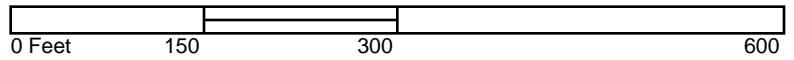
Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
 EDR Inquiry: 5381680.3
 Order Date: 08/03/2018
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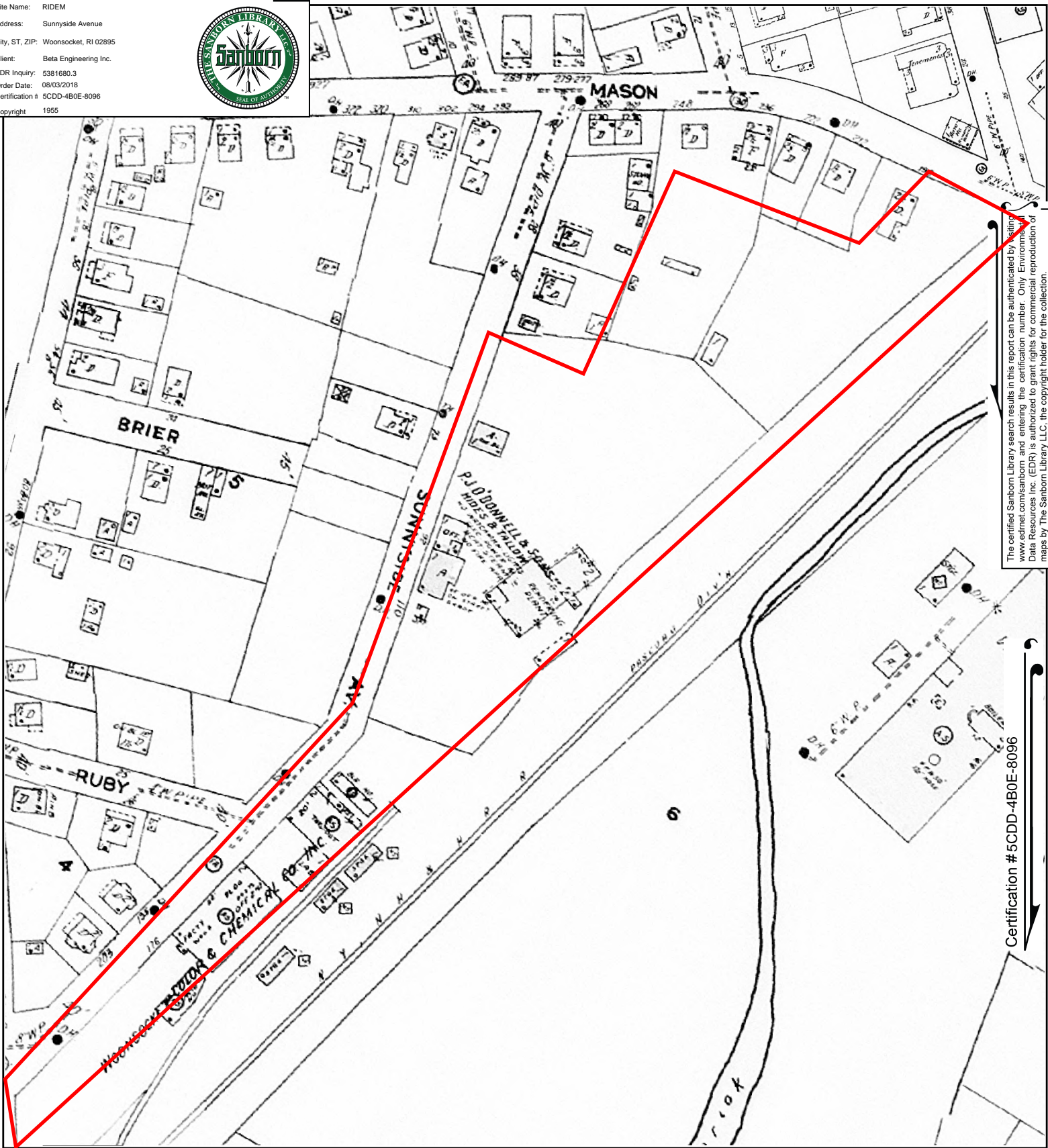
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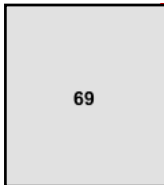
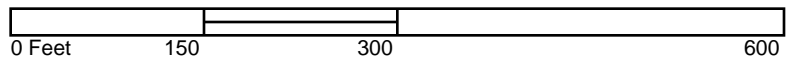
Volume 1, Sheet 69



Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
 EDR Inquiry: 5381680.3
 Order Date: 08/03/2018
 Certification # 5CDD-4BOE-8096
 Copyright: 1955



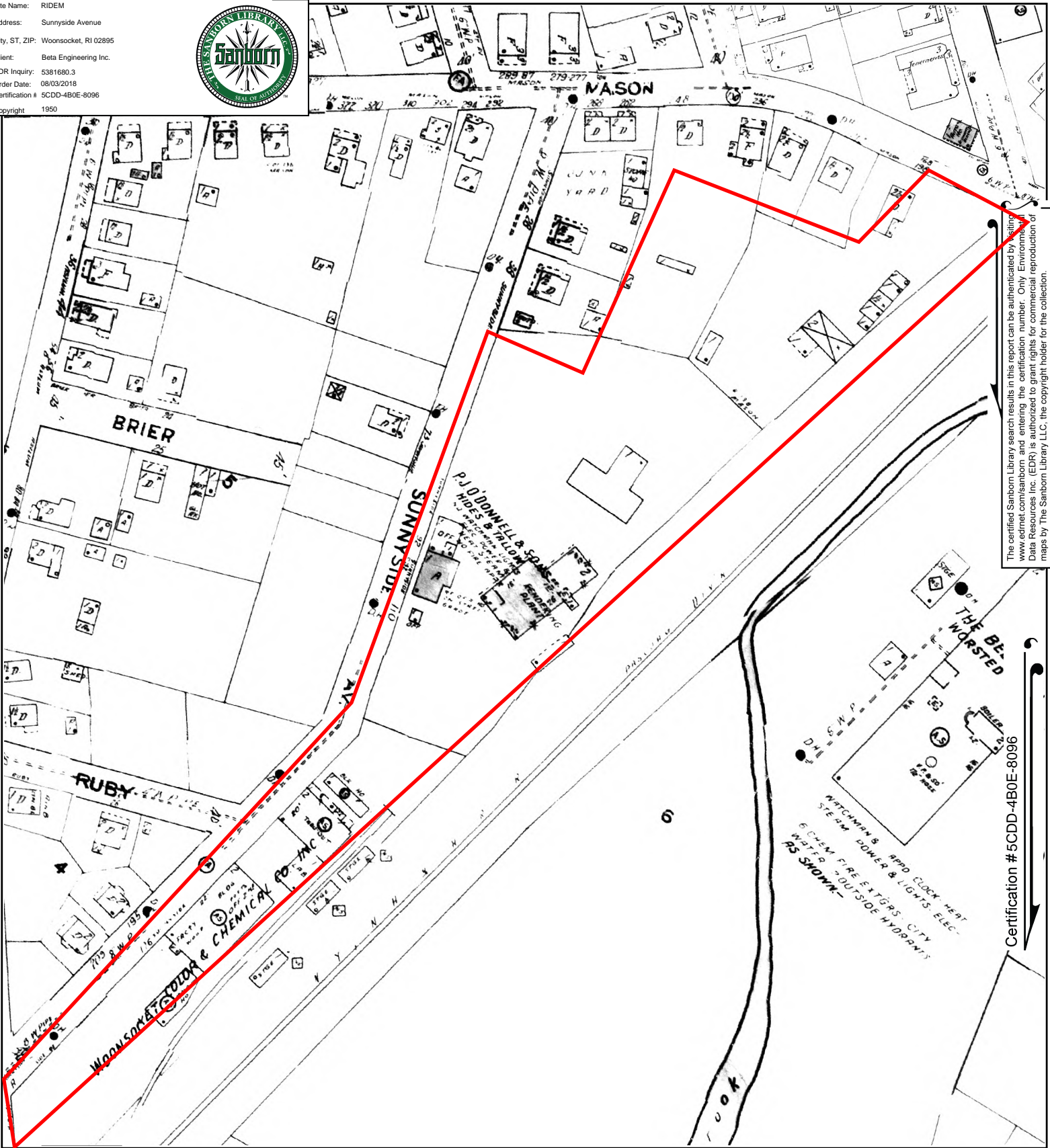
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Volume 1, Sheet 69



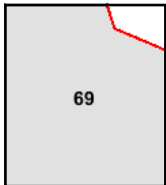
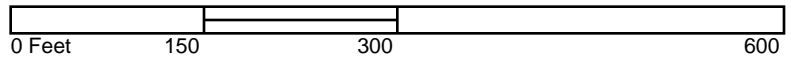
Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
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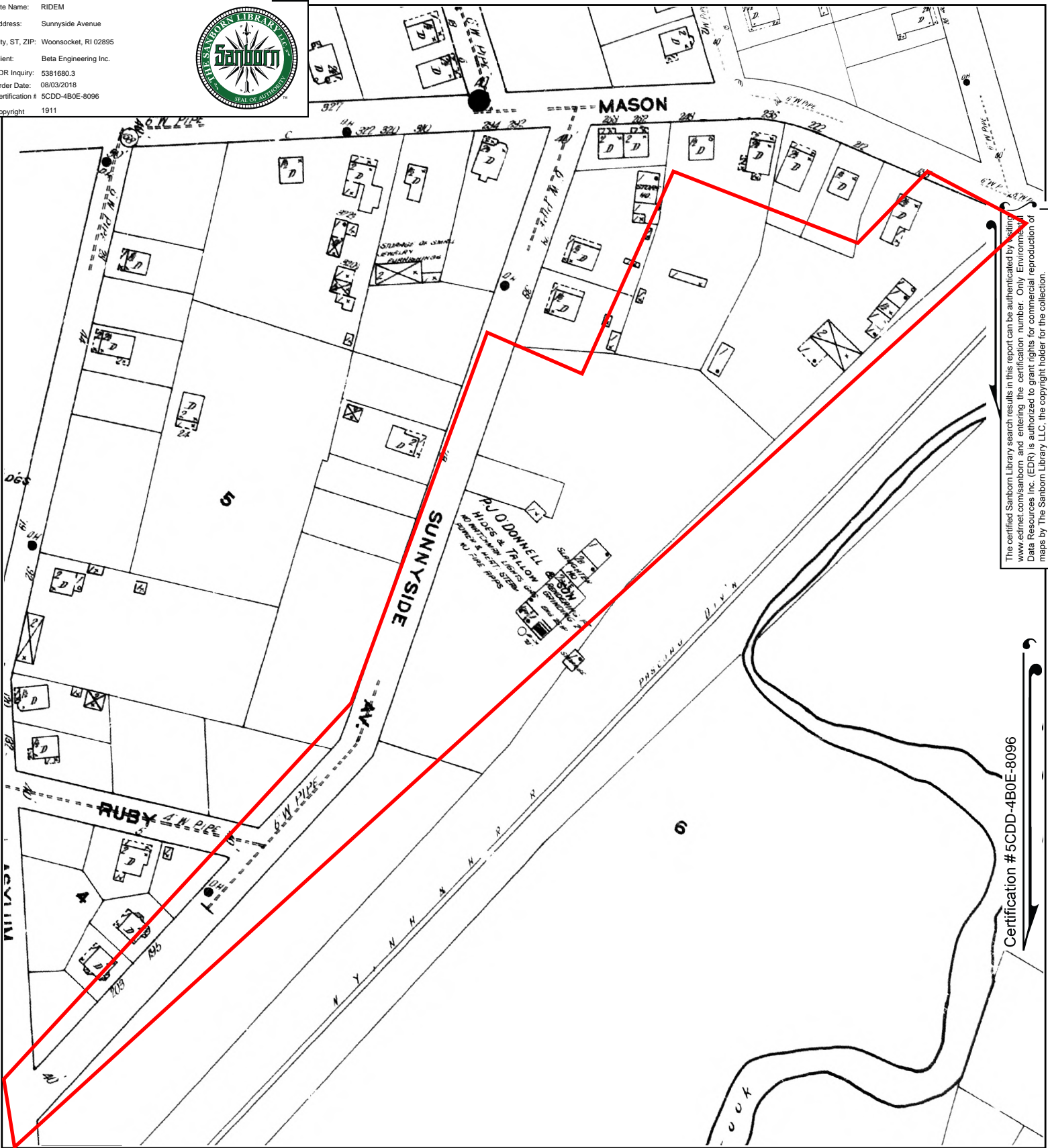
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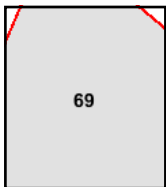
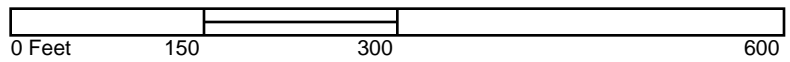
Volume 1, Sheet 69



Site Name: RIDEM
 Address: Sunnyside Avenue
 City, ST, ZIP: Woonsocket, RI 02895
 Client: Beta Engineering Inc.
 EDR Inquiry: 5381680.3
 Order Date: 08/03/2018
 Certification # 5CDD-4BOE-8096
 Copyright: 1911



This Certified Sanborn Map combines the following sheets.
 Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 69





RIDEM

Sunnyside Avenue

Woonsocket, RI 02895

Inquiry Number: 5381680.4

August 03, 2018

EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

08/03/18

Site Name:

RIDEM
Sunnyside Avenue
Woonsocket, RI 02895
EDR Inquiry # 5381680.4

Client Name:

Beta Engineering Inc.
6 Blackstone Valley Place #101
Lincoln, RI 02865
Contact: Joe Mcloughlin



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Search Results:

Coordinates:

P.O.#	NA	Latitude:	41.997074 41° 59' 49" North
Project:	RIDEM	Longitude:	-71.527568 -71° 31' 39" West
		UTM Zone:	Zone 19 North
		UTM X Meters:	290656.02
		UTM Y Meters:	4652541.98
		Elevation:	212.97' above sea level

Maps Provided:

2012	1944, 1946	1889
1998, 1999	1943, 1947, 1948	
1982	1940, 1942, 1943	
1979	1919	
1975	1915, 1918	
1970	1908	
1964, 1969	1900	
1953, 1954	1893, 1894	

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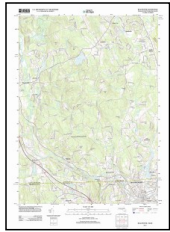
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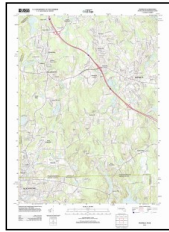
Topo Sheet Key

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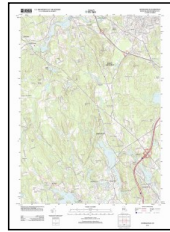
2012 Source Sheets



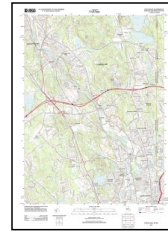
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2012
7.5-minute, 24000



Franklin
2012
7.5-minute, 24000



Georgiaville
2012
7.5-minute, 24000

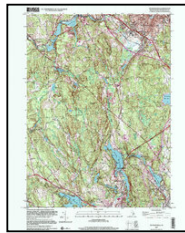


Pawtucket
2012
7.5-minute, 24000

1998, 1999 Source Sheets



Pawtucket
1998
7.5-minute, 24000
Aerial Photo Revised 1975



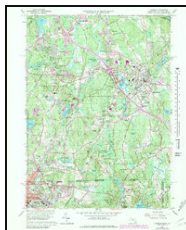
Georgiaville
1999
7.5-minute, 24000
Aerial Photo Revised 1975

1982 Source Sheets



Uxbridge
1982
7.5-minute, 25000
Aerial Photo Revised 1980

1979 Source Sheets



Franklin
1979
7.5-minute, 24000
Aerial Photo Revised 1975

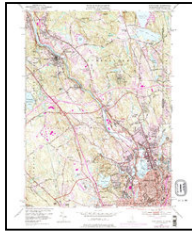


Blackstone
1979
7.5-minute, 24000
Aerial Photo Revised 1977

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1975 Source Sheets



Pawtucket
1975
7.5-minute, 24000



Georgiaville
1975
7.5-minute, 24000
Aerial Photo Revised 1975

1970 Source Sheets



Pawtucket
1970
7.5-minute, 24000
Aerial Photo Revised 1970

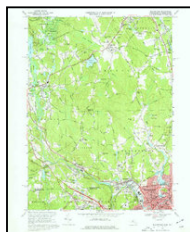


Georgiaville
1970
7.5-minute, 24000
Aerial Photo Revised 1970

1964, 1969 Source Sheets



Franklin
1964
7.5-minute, 24000

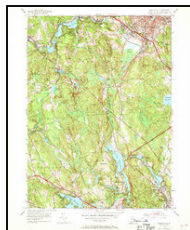


Blackstone
1969
7.5-minute, 24000
Aerial Photo Revised 1967

1953, 1954 Source Sheets



Blackstone
1953
7.5-minute, 24000

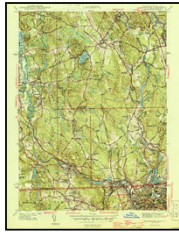


Georgiaville
1954
7.5-minute, 24000

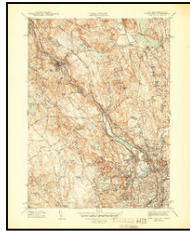
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

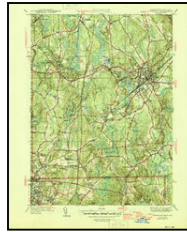
1944, 1946 Source Sheets



Blackstone
1944
7.5-minute, 31680



Pawtucket
1944
7.5-minute, 31680

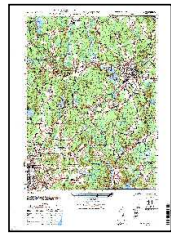


Franklin
1946
7.5-minute, 31680

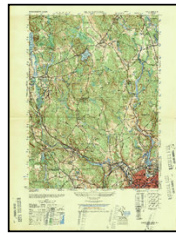
1943, 1947, 1948 Source Sheets



GEORGIAVILLE
1943
7.5-minute, 25000



FRANKLIN
1947
7.5-minute, 25000

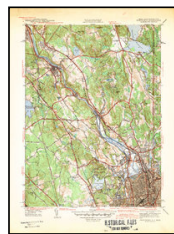


Blackstone
1948
7.5-minute, 25000

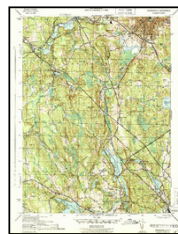
1940, 1942, 1943 Source Sheets



Franklin
1940
7.5-minute, 31680



Pawtucket
1942
7.5-minute, 31680

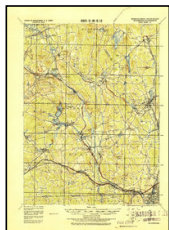


Georgiaville
1943
7.5-minute, 31680

1919 Source Sheets



Franklin
1919
15-minute, 62500

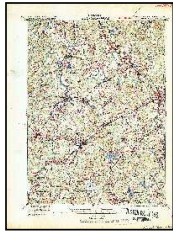


Blackstone
1919
15-minute, 62500

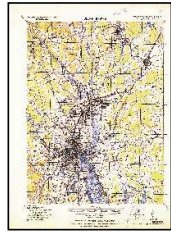
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

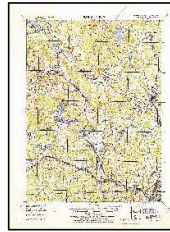
1915, 1918 Source Sheets



FRANKLIN
1915
15-minute, 62500

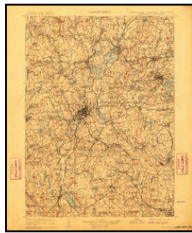


PROVIDENCE
1915
15-minute, 62500



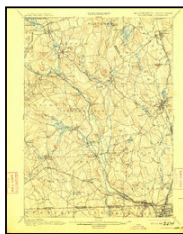
BLACKSTONE
1918
15-minute, 62500

1908 Source Sheets



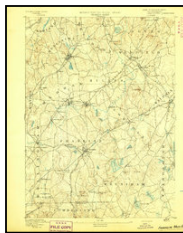
Quinsigamond
1908
30-minute, 125000

1900 Source Sheets

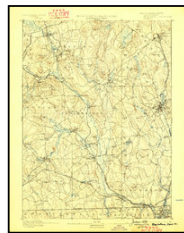


Blackstone
1900
15-minute, 62500

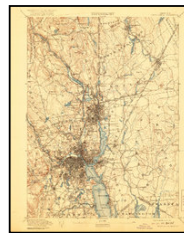
1893, 1894 Source Sheets



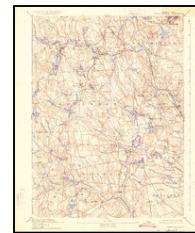
Franklin
1893
15-minute, 62500



Blackstone
1893
15-minute, 62500



Providence
1894
15-minute, 62500

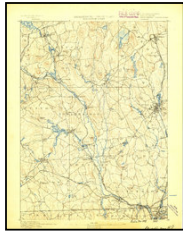


Burrillville
1894
15-minute, 62500

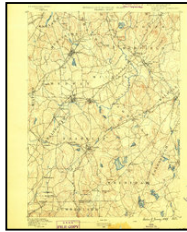
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

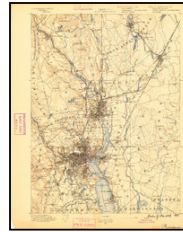
1889 Source Sheets



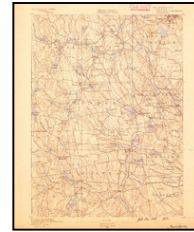
Blackstone
1889
15-minute, 62500



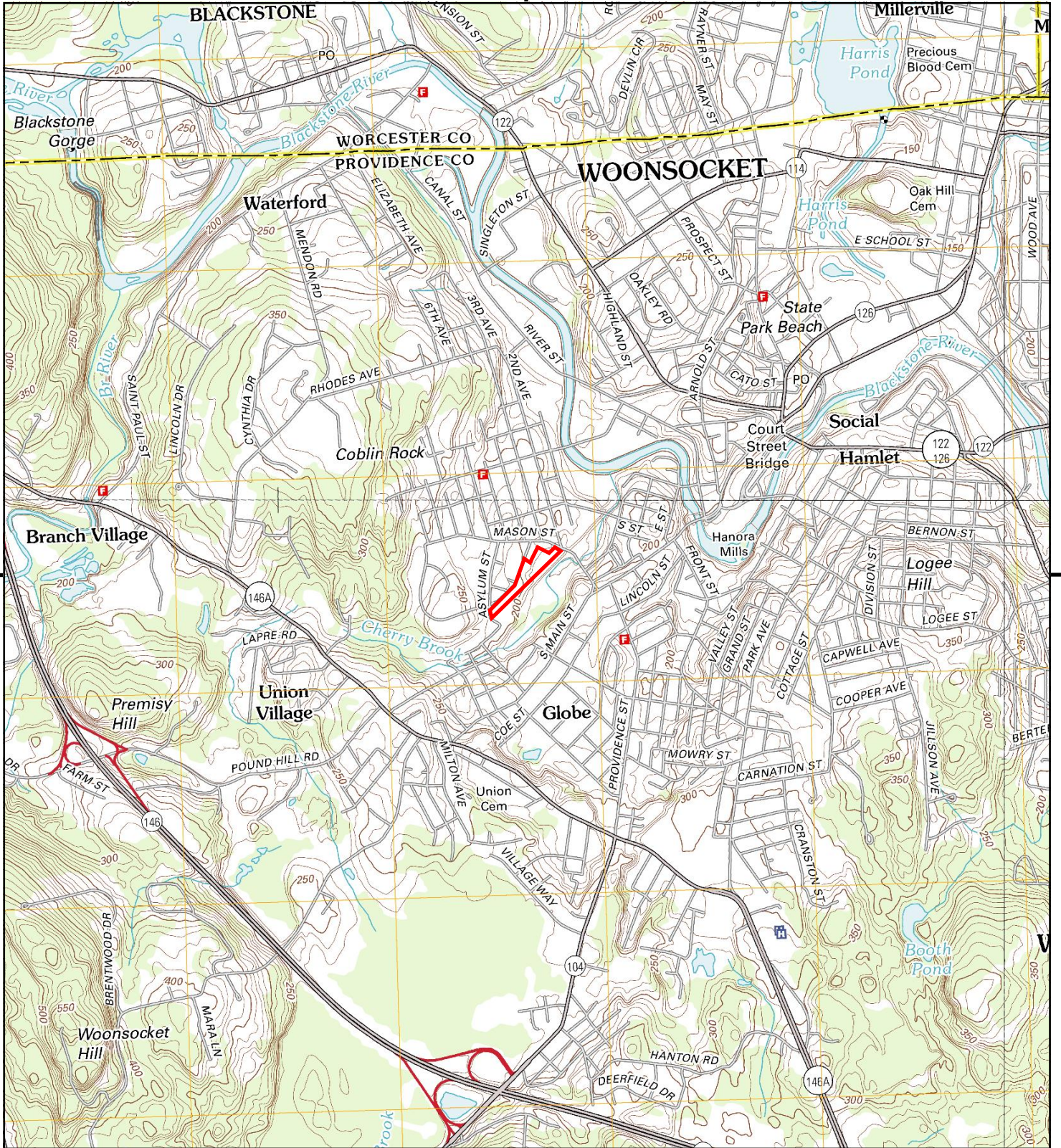
Franklin
1889
15-minute, 62500



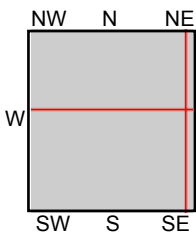
Providence
1889
15-minute, 62500



Burrillville
1889
15-minute, 62500



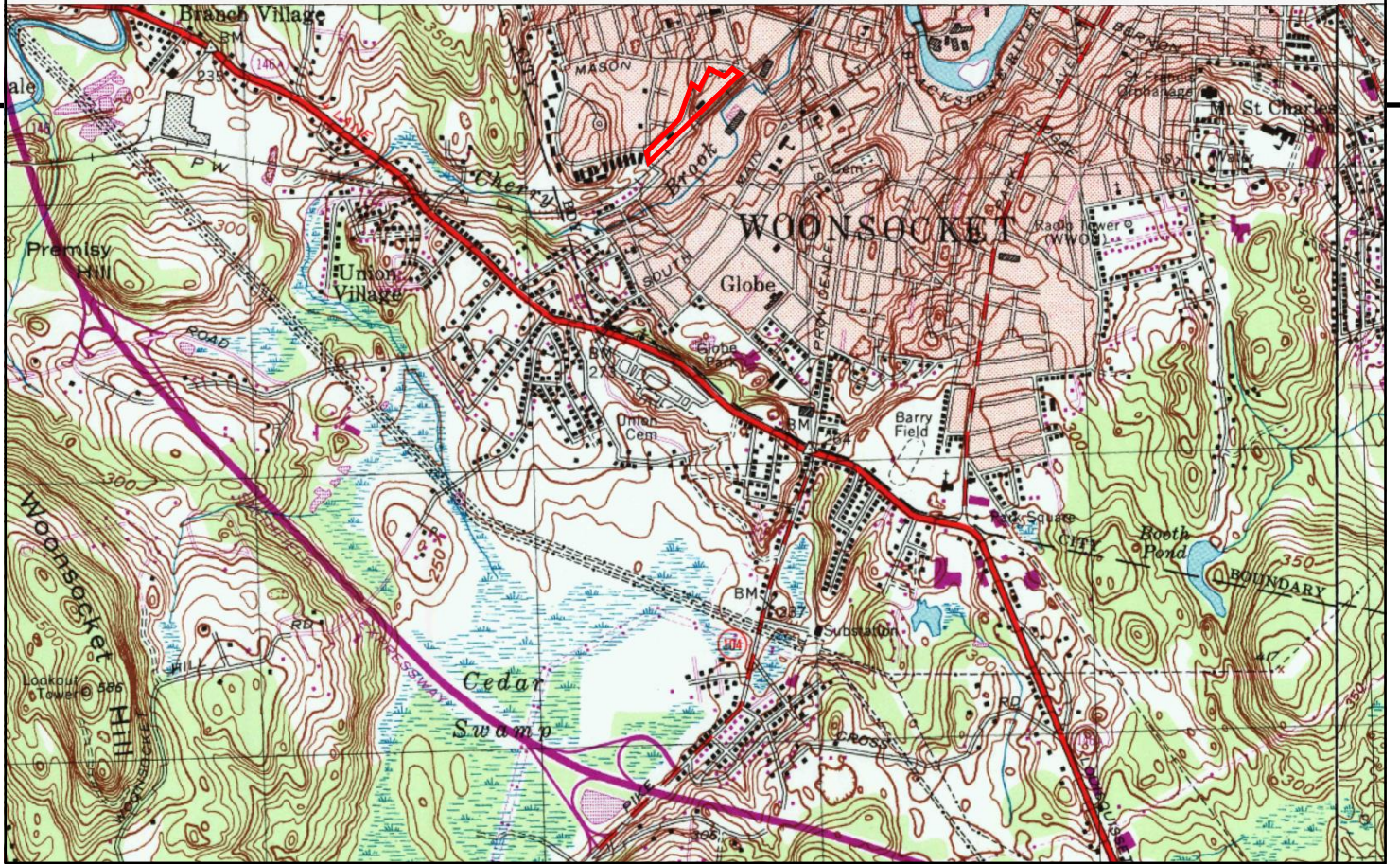
This report includes information from the following map sheet(s).



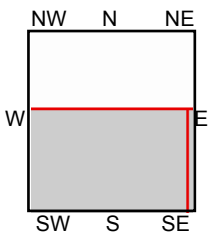
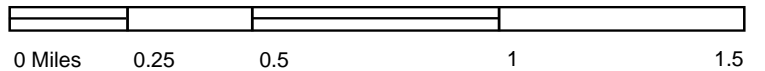
TP, Georgiaville, 2012, 7.5-minute
 N, Blackstone, 2012, 7.5-minute
 NE, Franklin, 2012, 7.5-minute
 SE, Pawtucket, 2012, 7.5-minute

SITE NAME: RIDEM
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 Woonsocket, RI 02895
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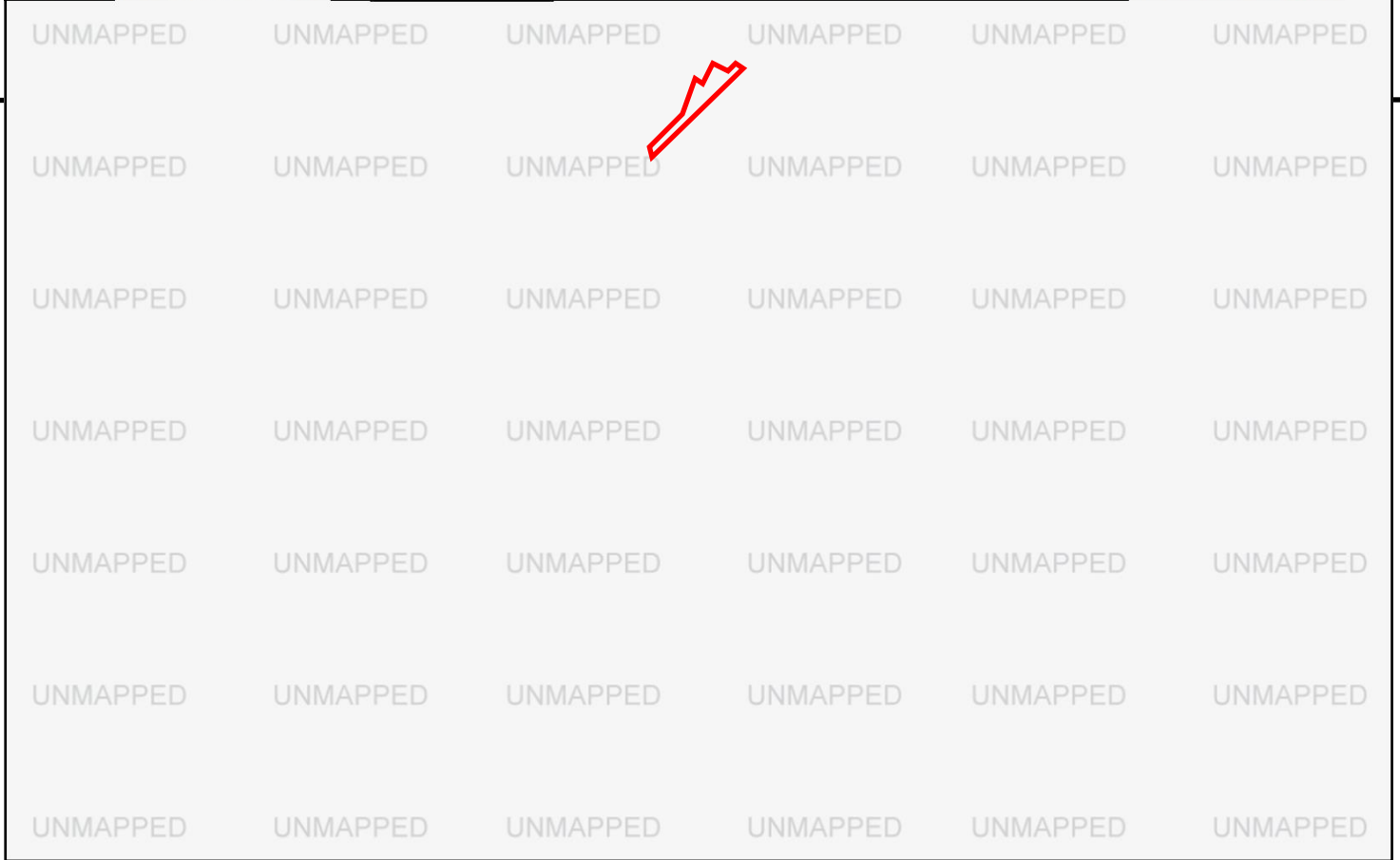
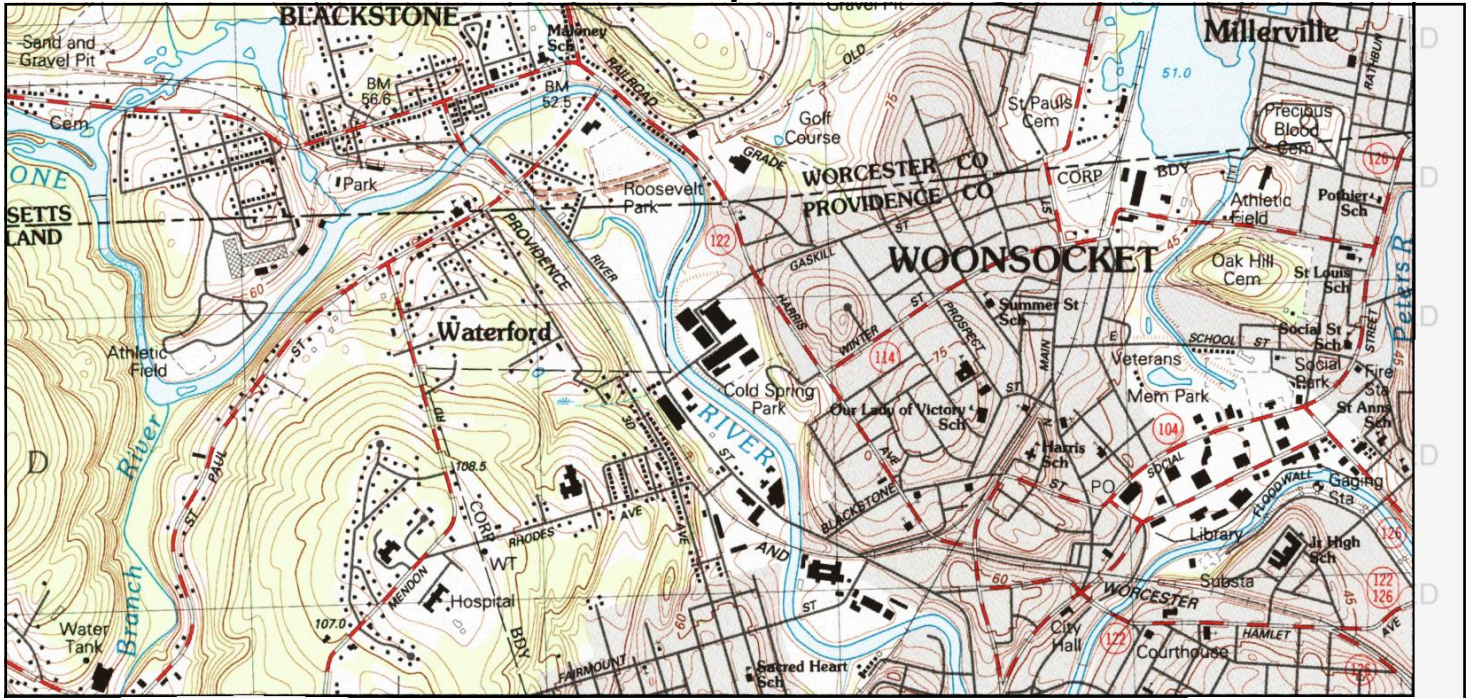
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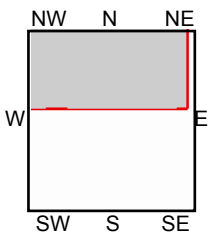
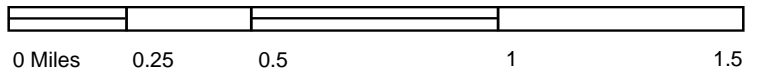
TP, Georgiaville, 1999, 7.5-minute
SE, Pawtucket, 1998, 7.5-minute

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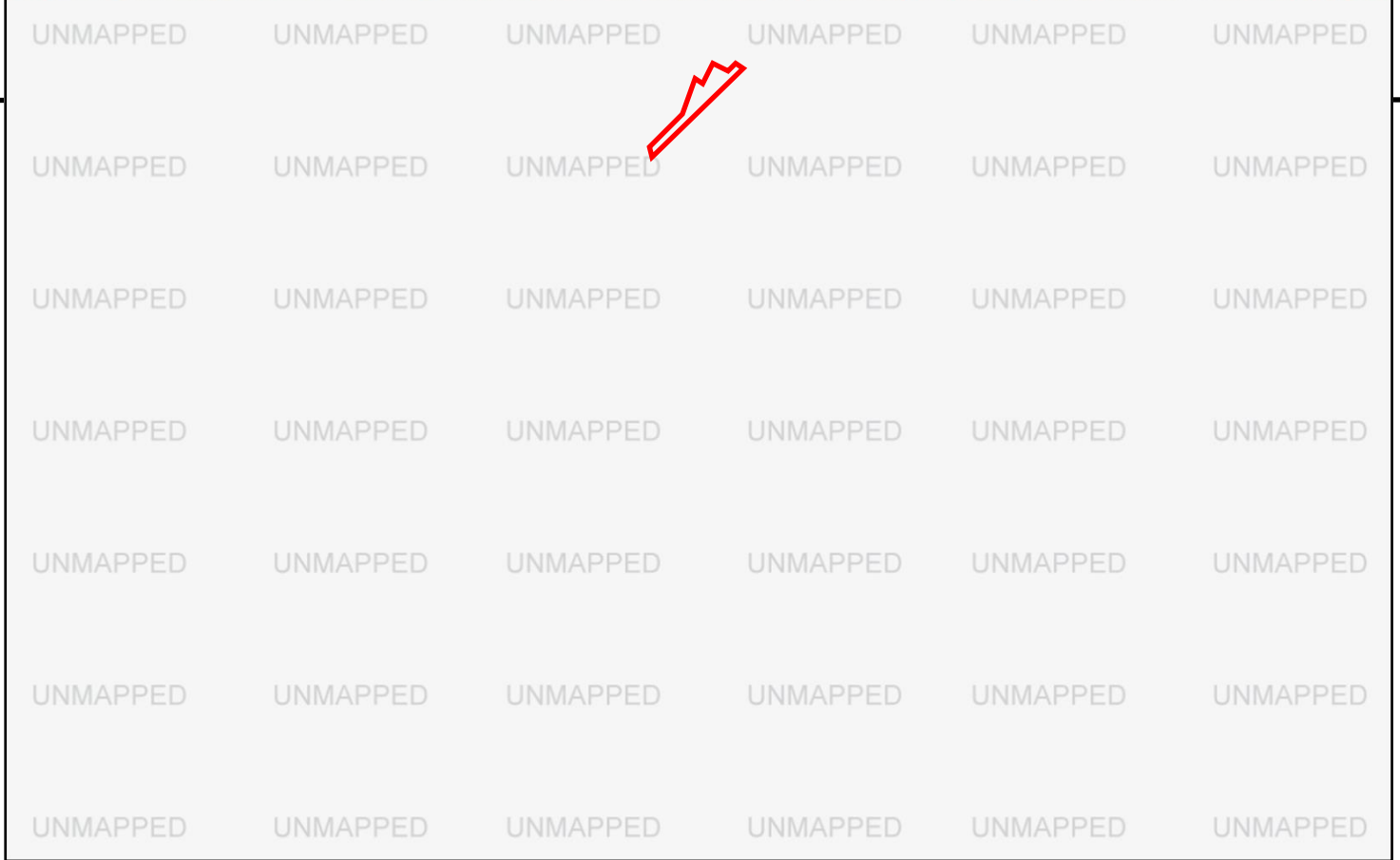
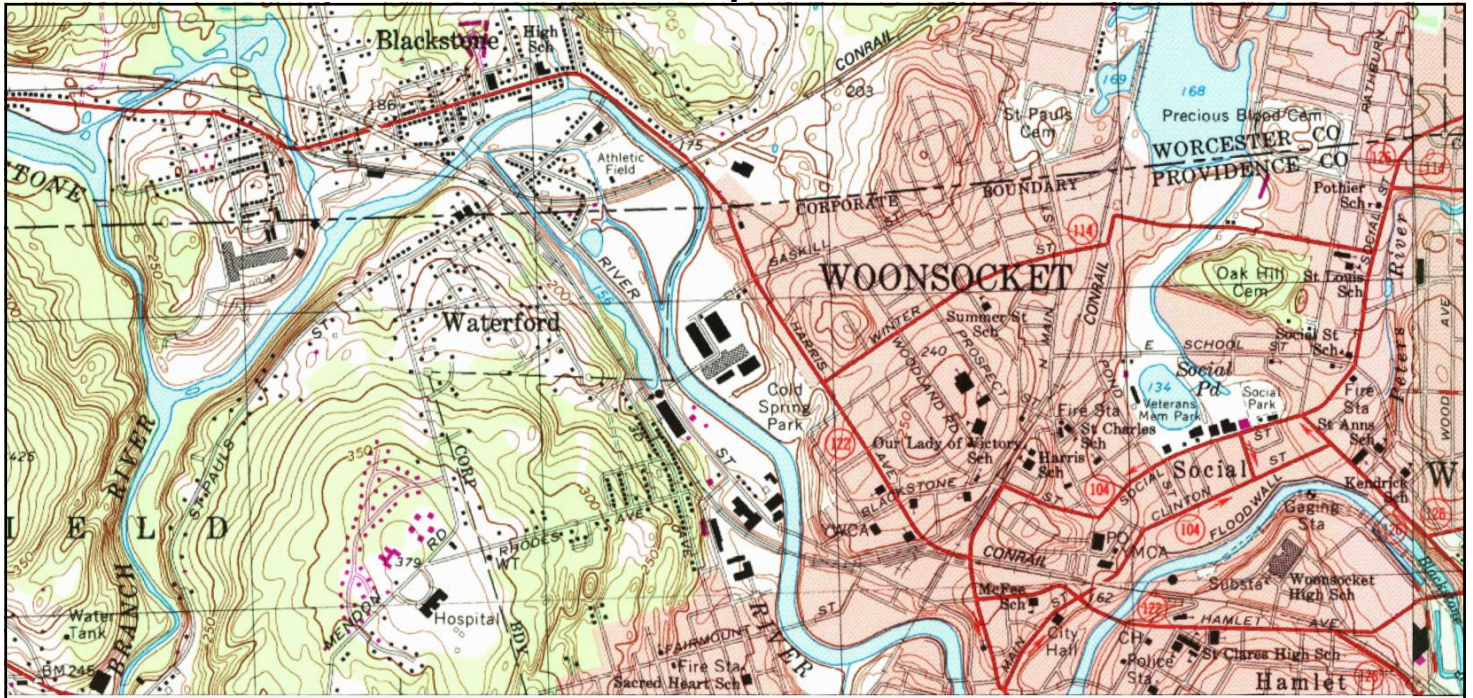
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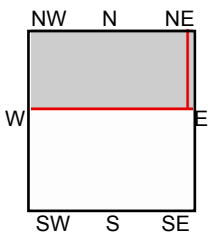
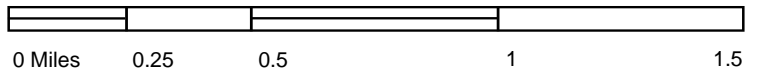
NW, Uxbridge, 1982, 7.5-minute

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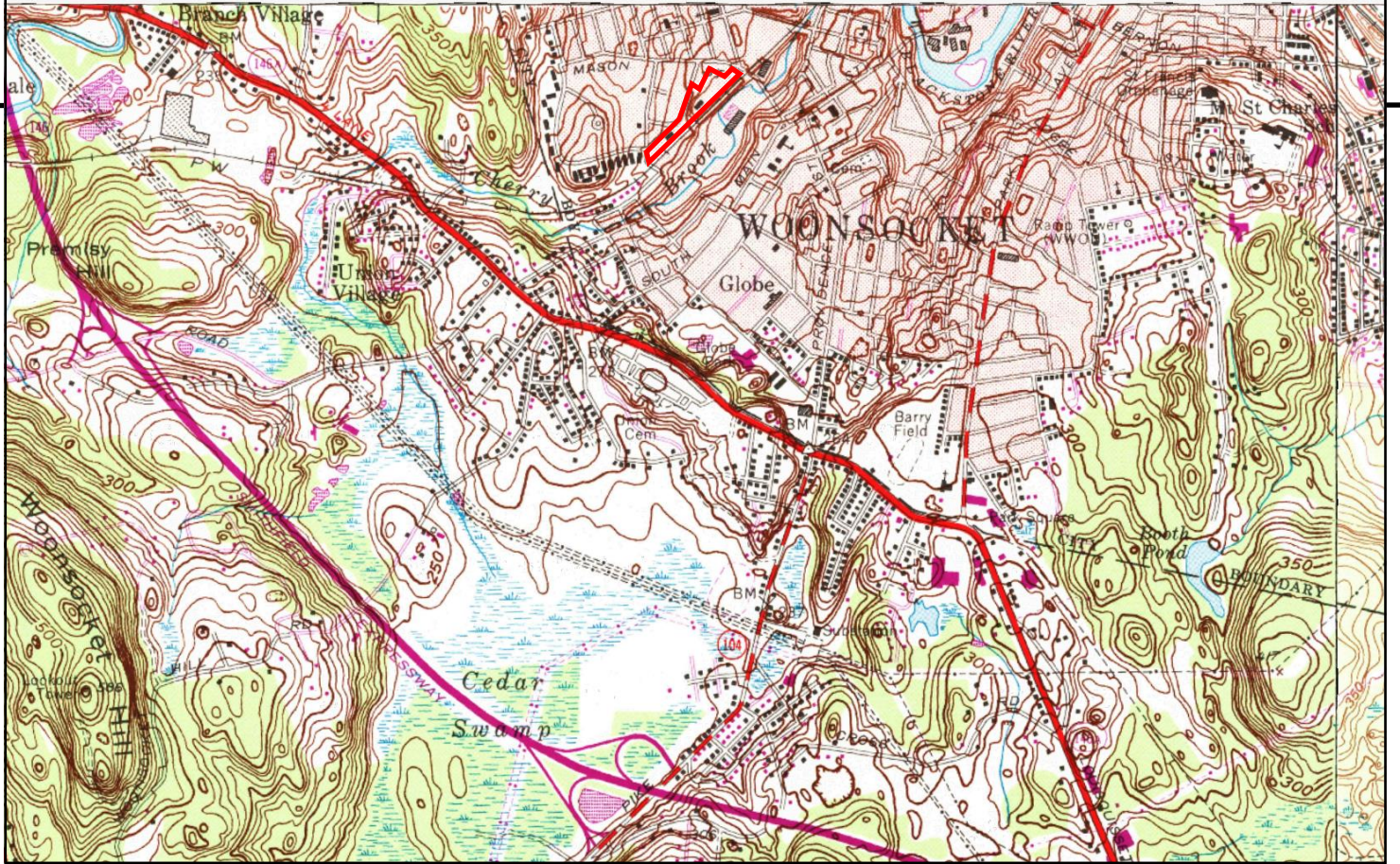
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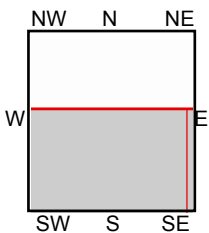
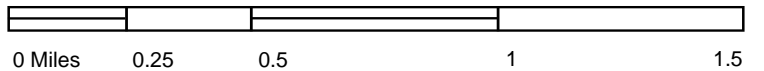
N, Blackstone, 1979, 7.5-minute
NE, Franklin, 1979, 7.5-minute

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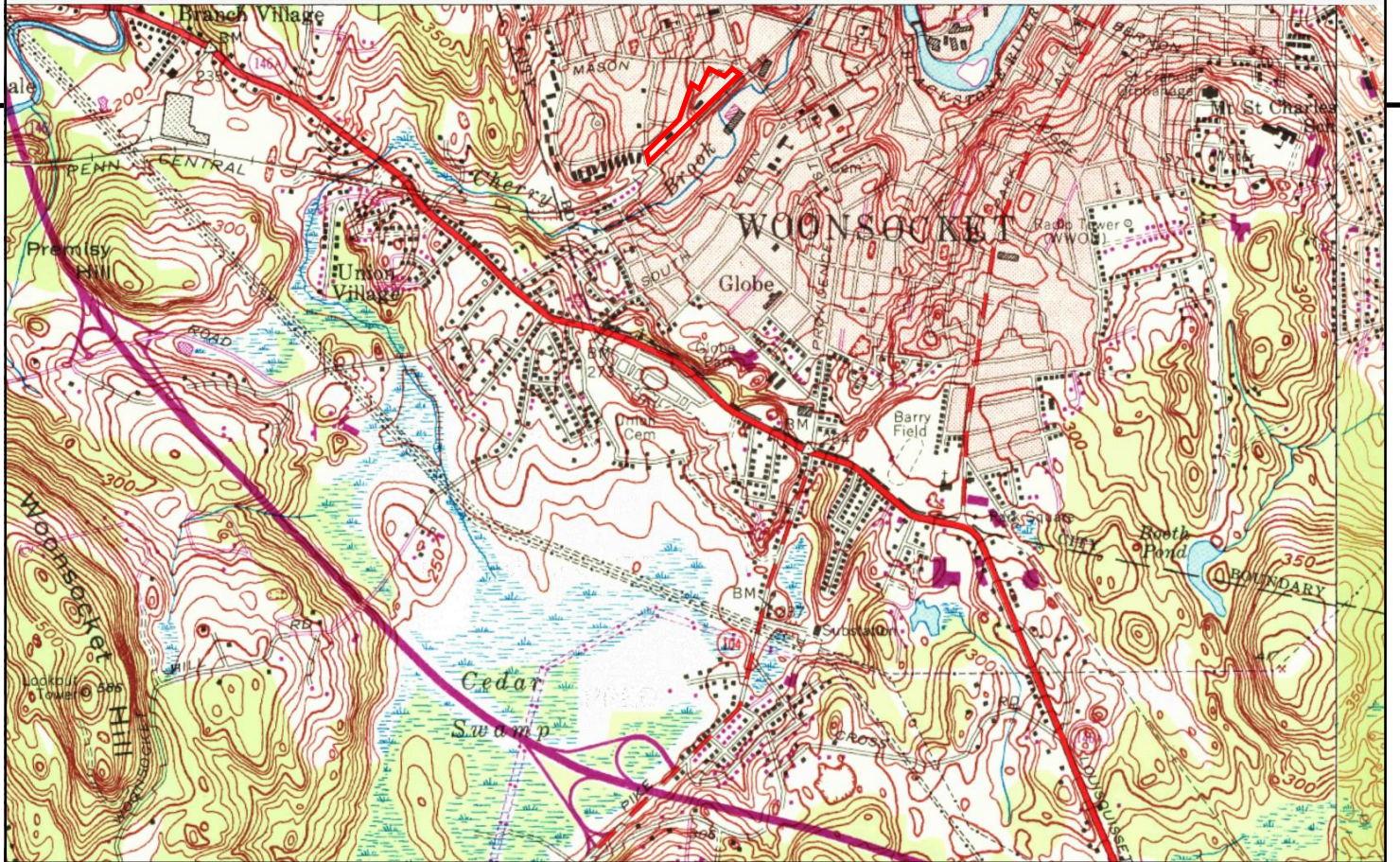
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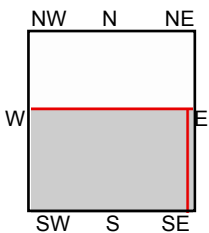
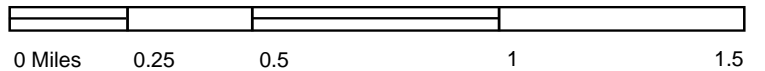
TP, Georgiaville, 1975, 7.5-minute
SE, Pawtucket, 1975, 7.5-minute

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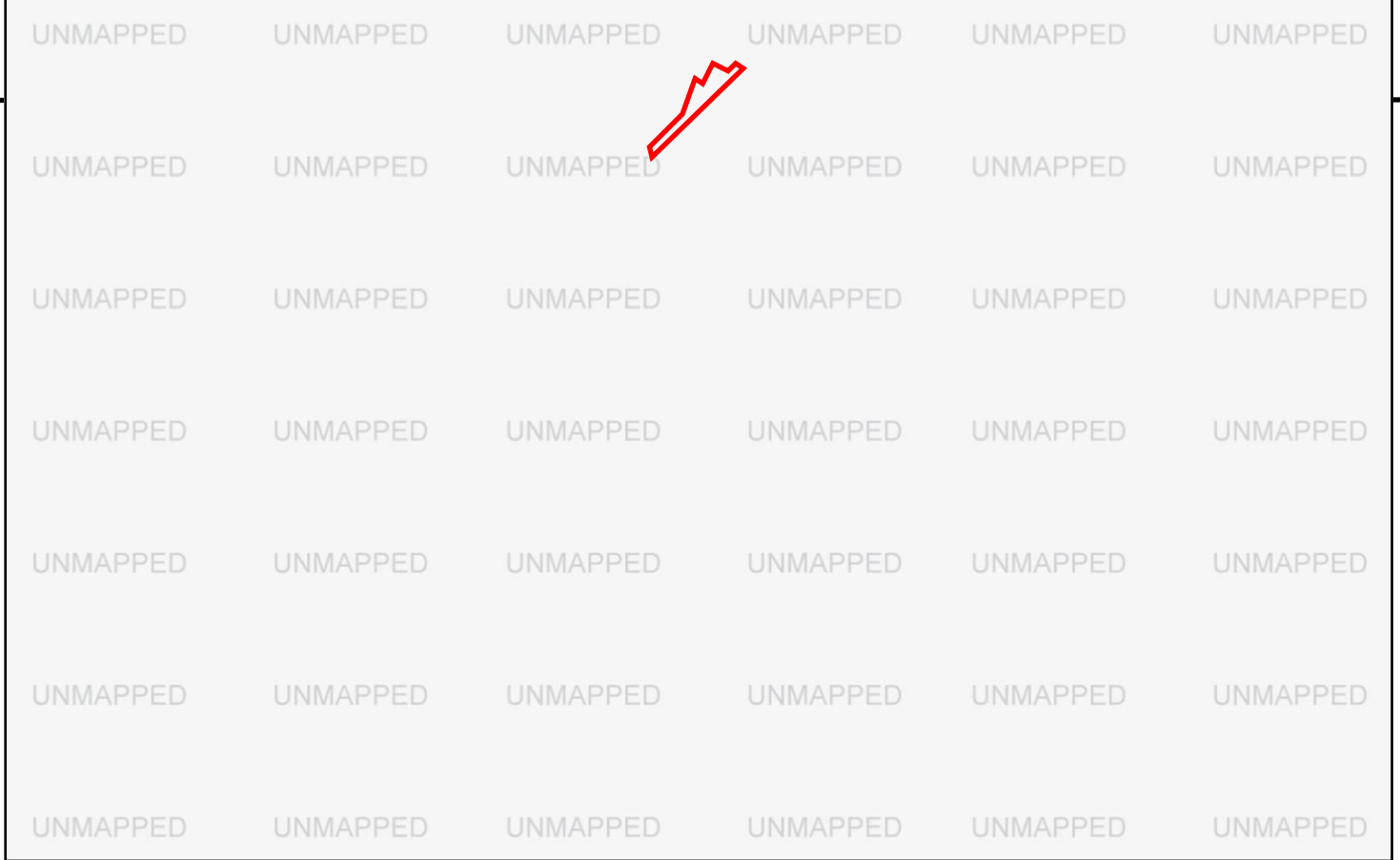
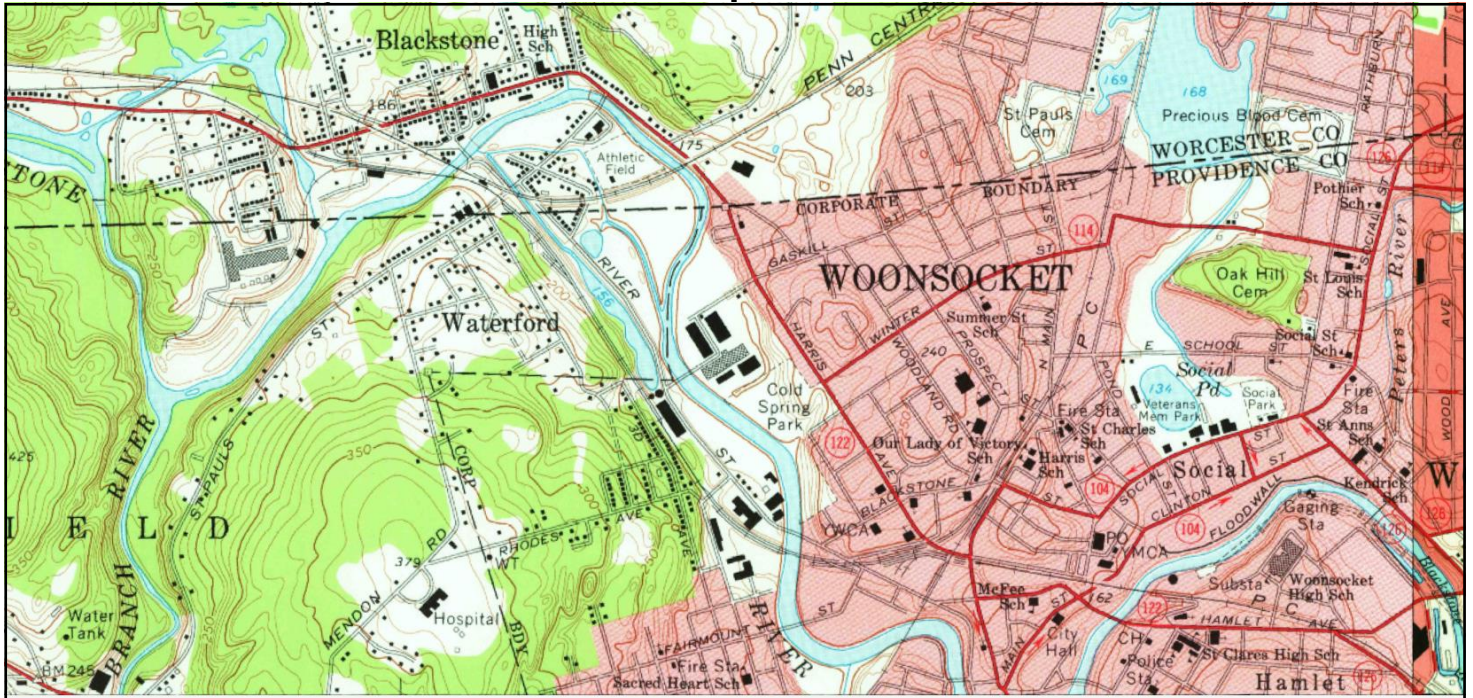
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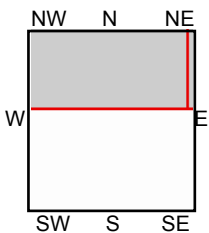
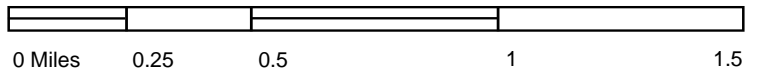
TP, Georgiaville, 1970, 7.5-minute
SE, Pawtucket, 1970, 7.5-minute

SITE NAME: RIDEM
ADDRESS: Sunnyside Avenue
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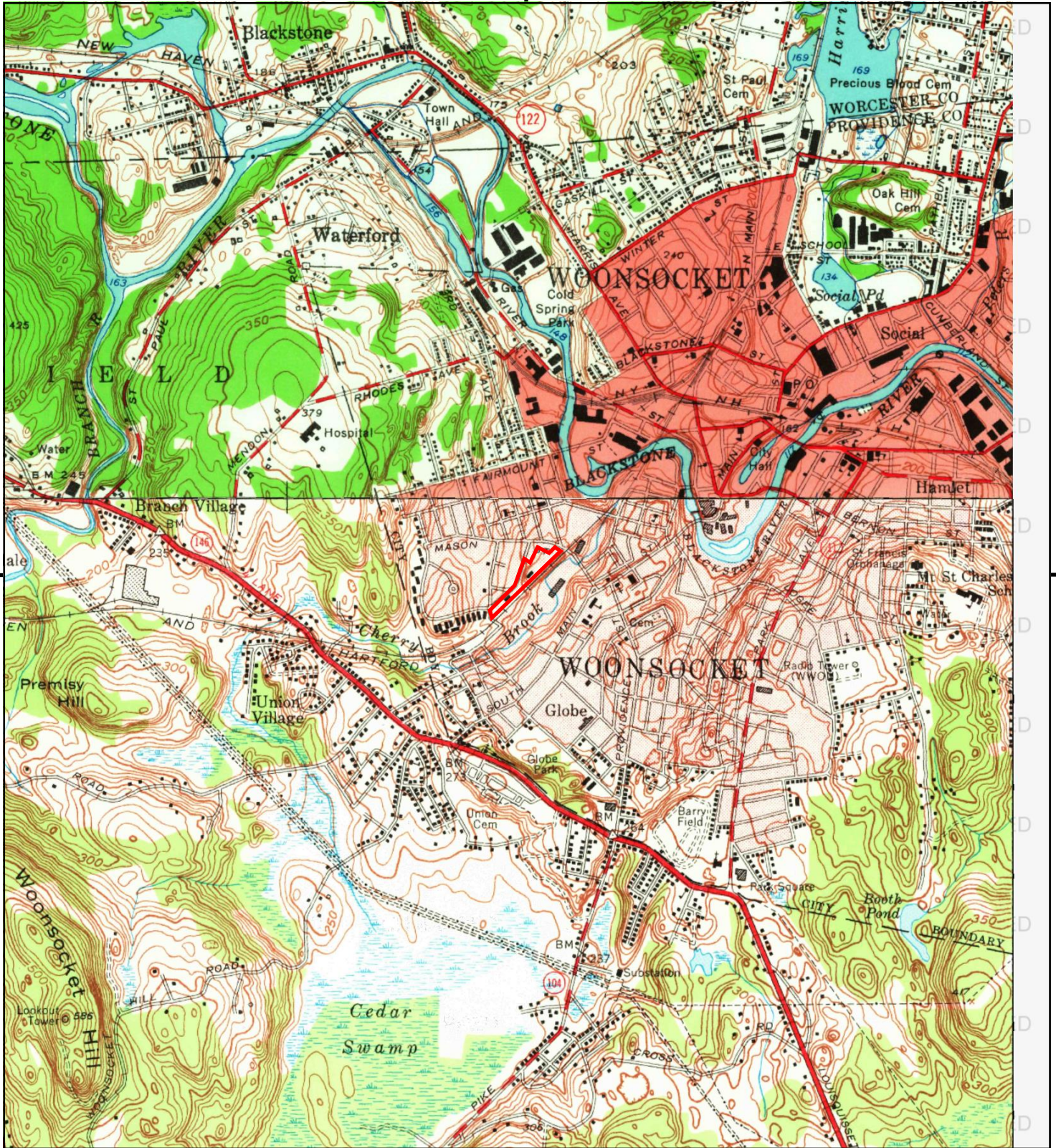
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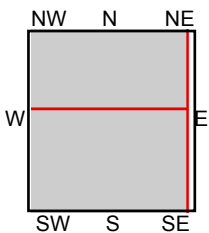
N, Blackstone, 1969, 7.5-minute
NE, Franklin, 1964, 7.5-minute

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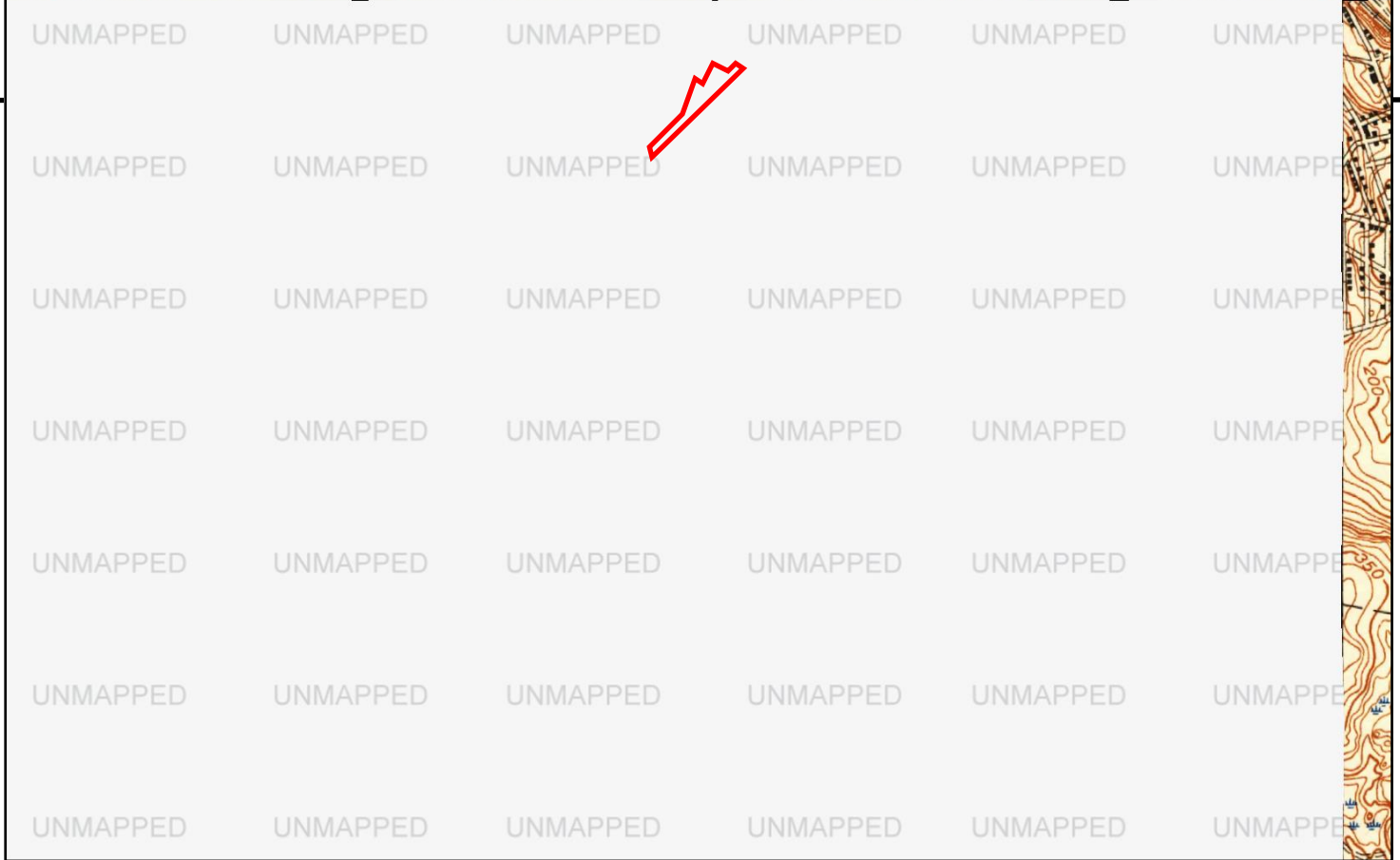
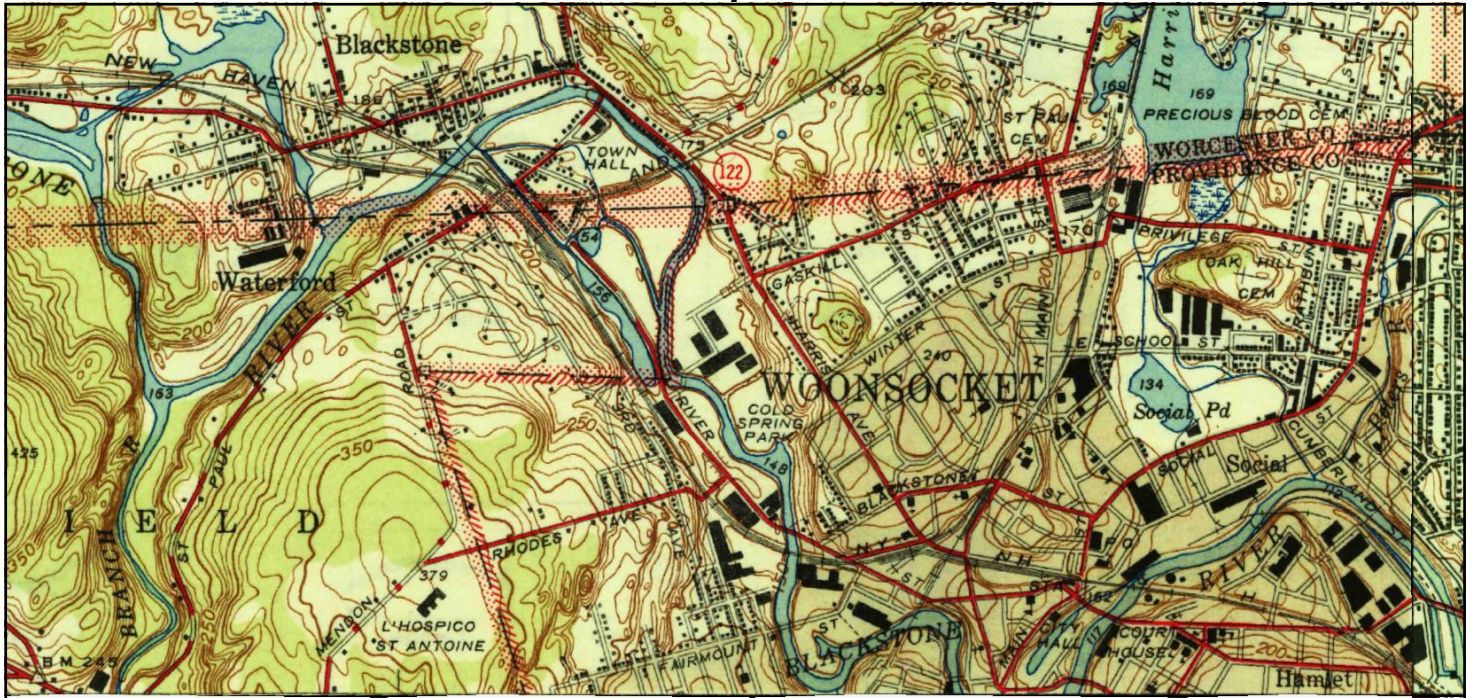
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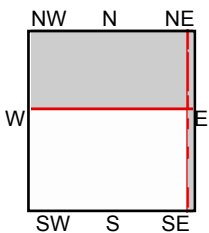
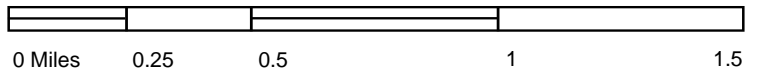
TP, Georgiaville, 1954, 7.5-minute
N, Blackstone, 1953, 7.5-minute

SITE NAME: RIDEM
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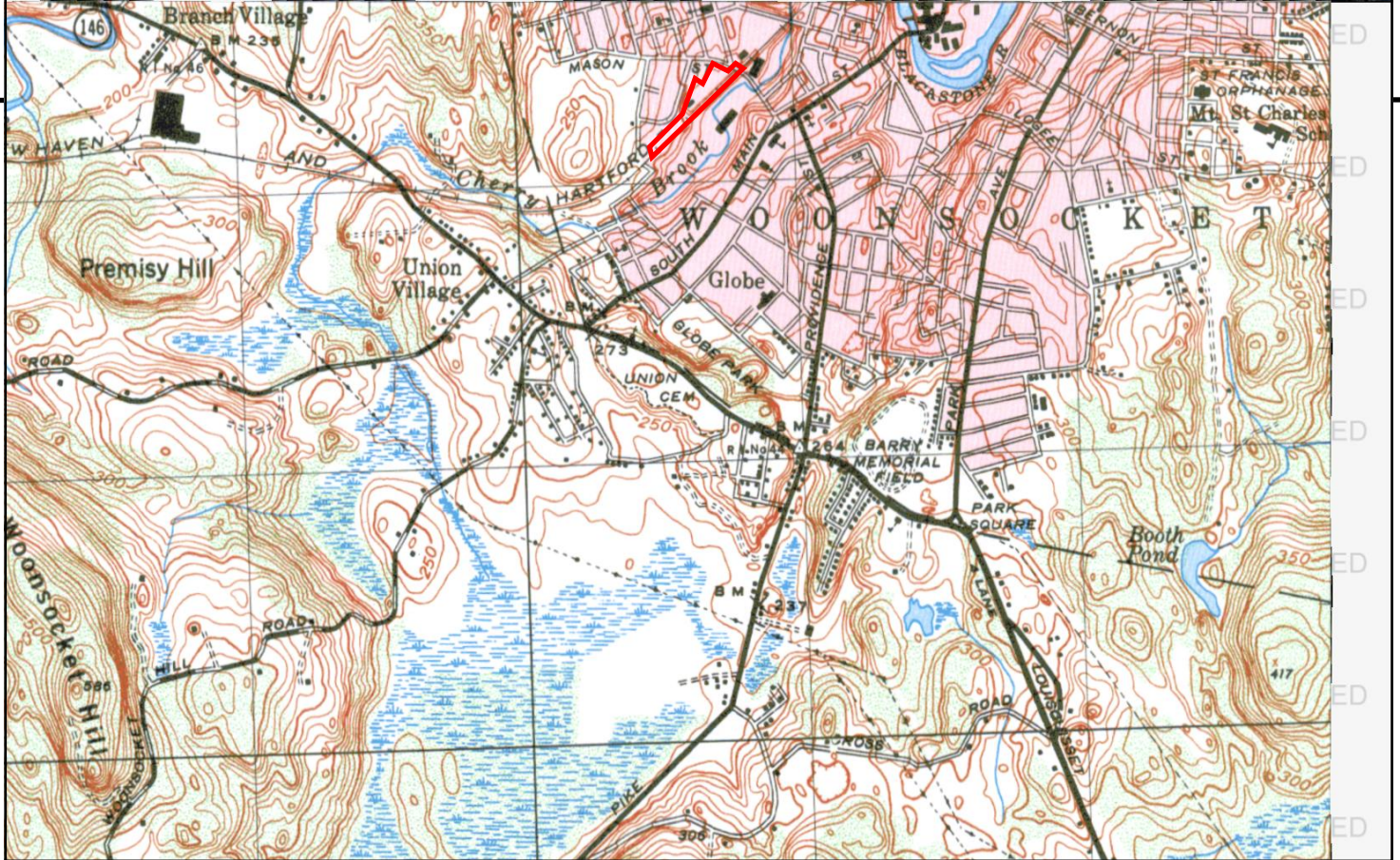
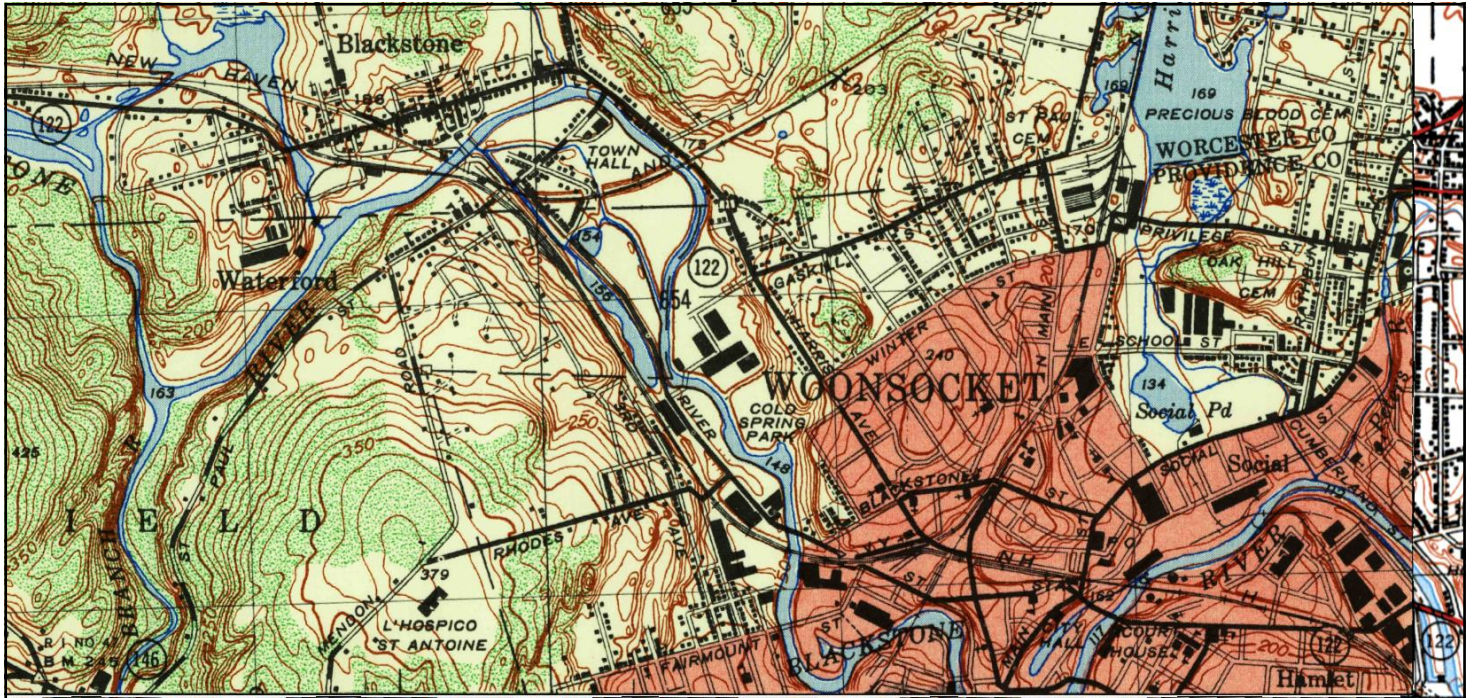
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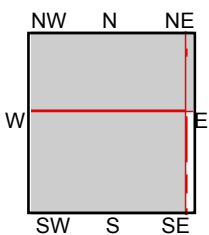
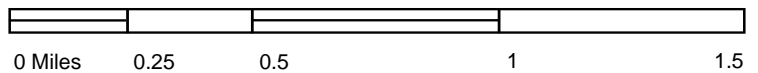
N, Blackstone, 1944, 7.5-minute
 NE, Franklin, 1946, 7.5-minute
 SE, Pawtucket, 1944, 7.5-minute

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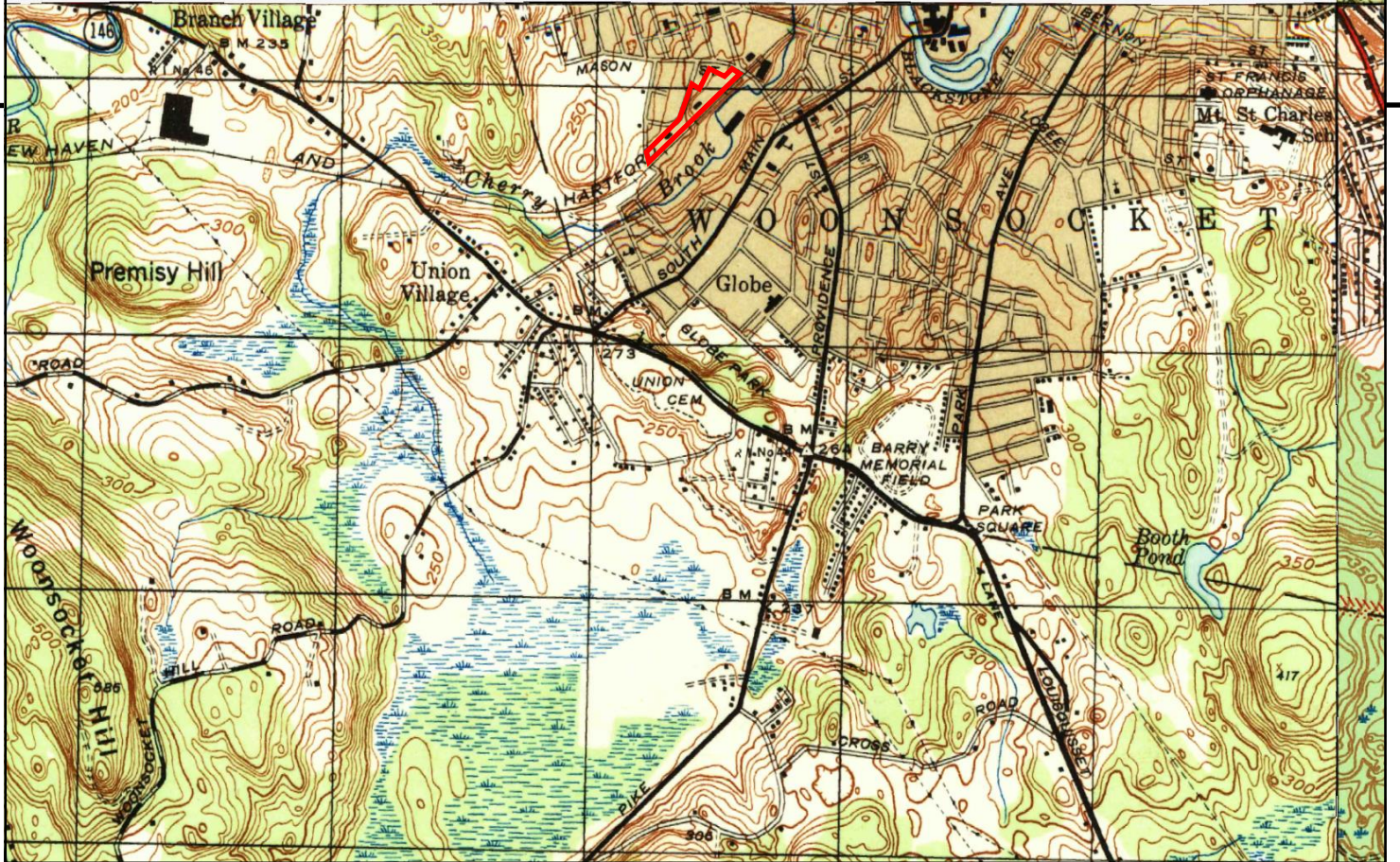
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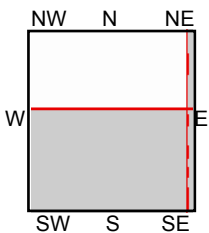
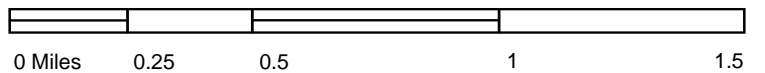
TP, GEORGIAVILLE, 1943, 7.5-minute
 N, Blackstone, 1948, 7.5-minute
 NE, FRANKLIN, 1947, 7.5-minute

SITE NAME: RIDEM
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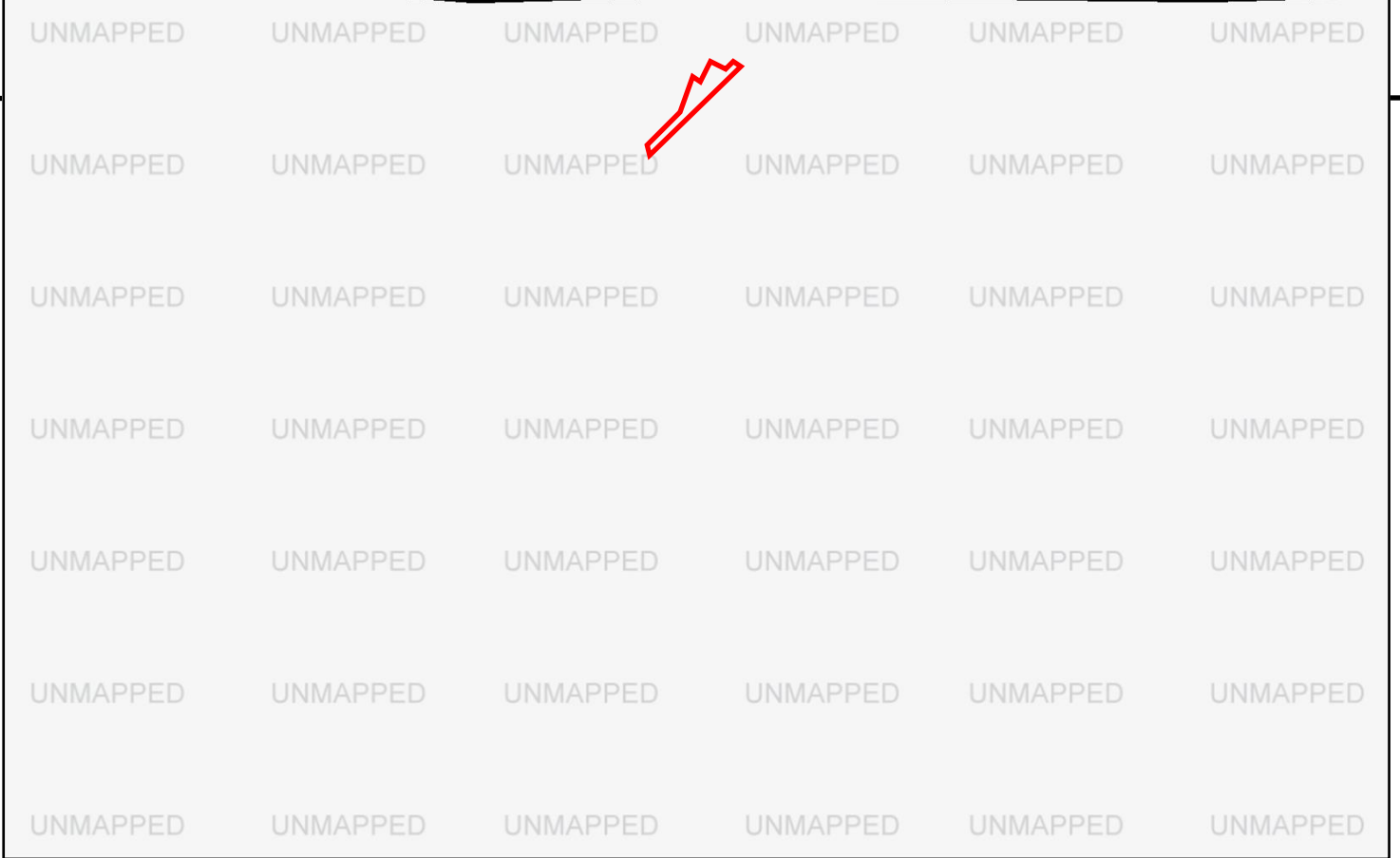
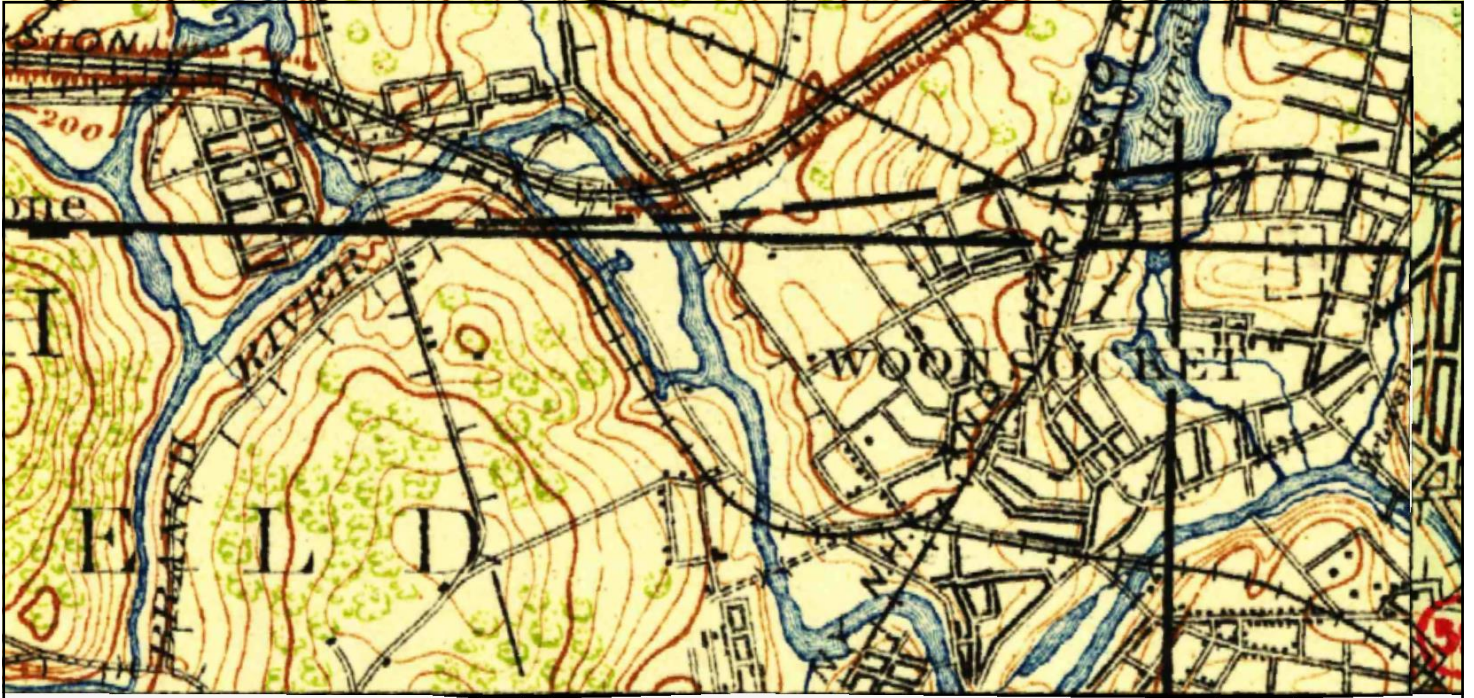
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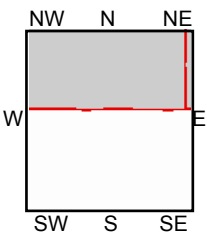
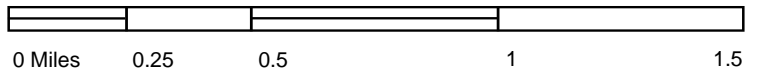
TP, Georgiaville, 1943, 7.5-minute
 NE, Franklin, 1940, 7.5-minute
 SE, Pawtucket, 1942, 7.5-minute

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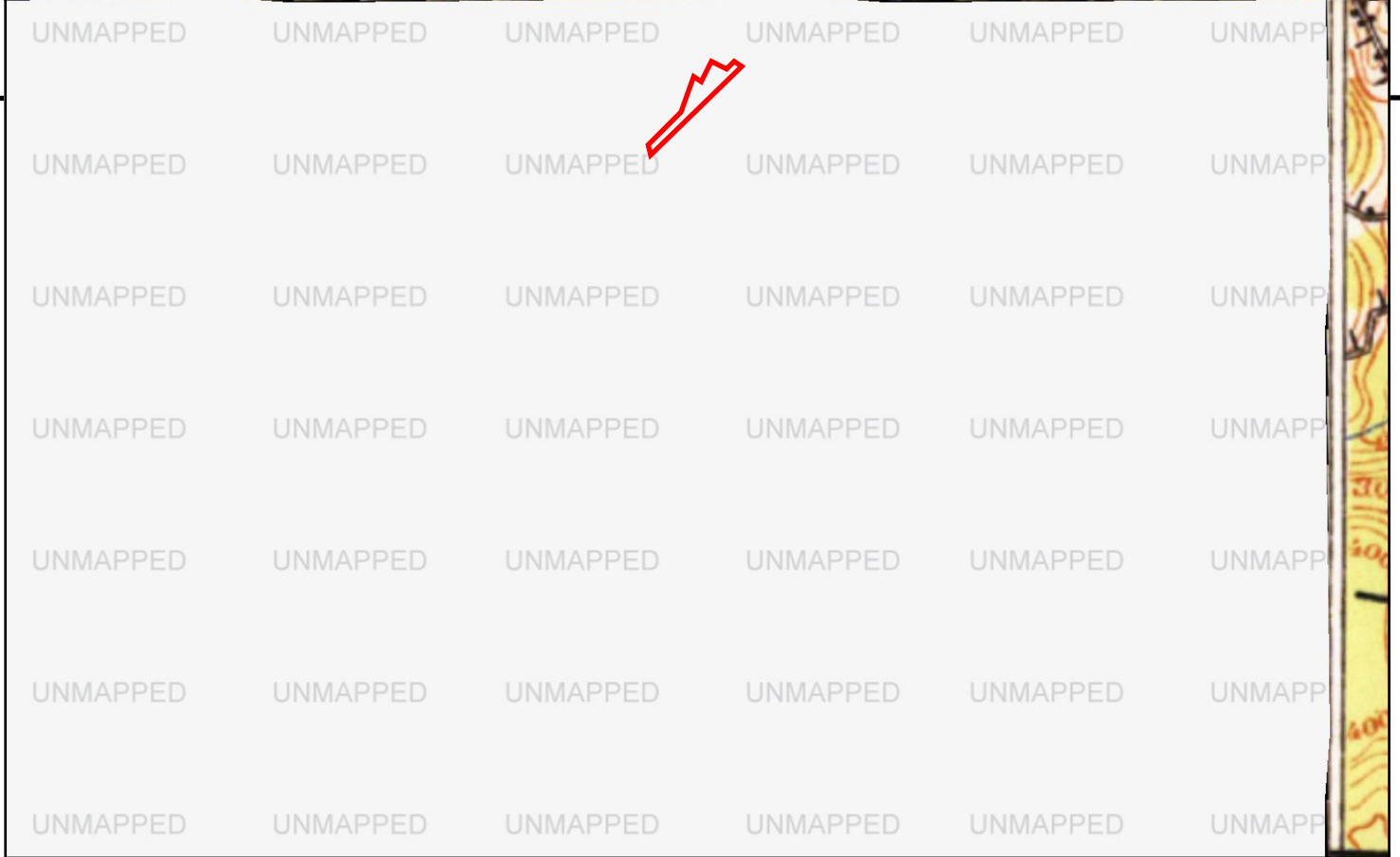
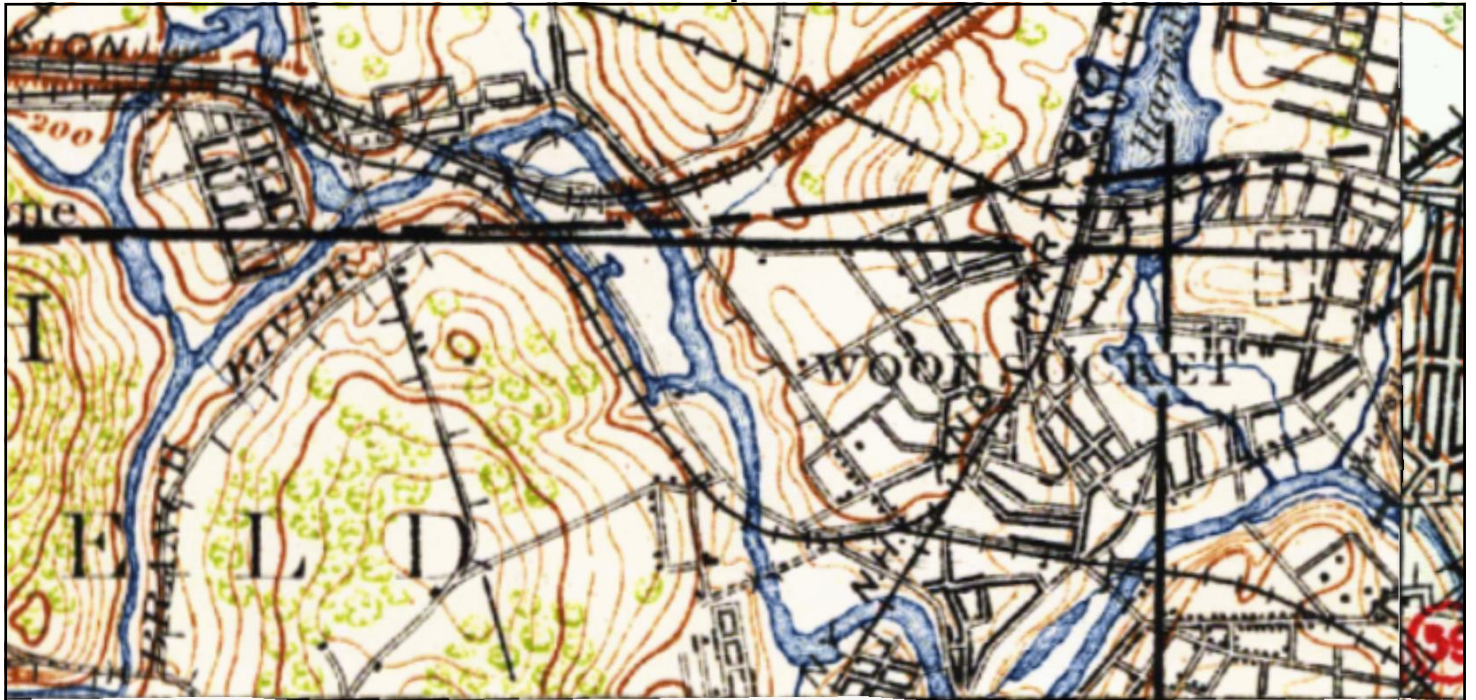
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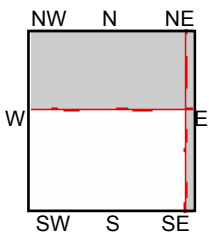
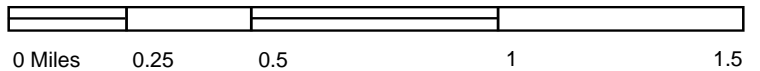
NE, Franklin, 1919, 15-minute
NW, Blackstone, 1919, 15-minute

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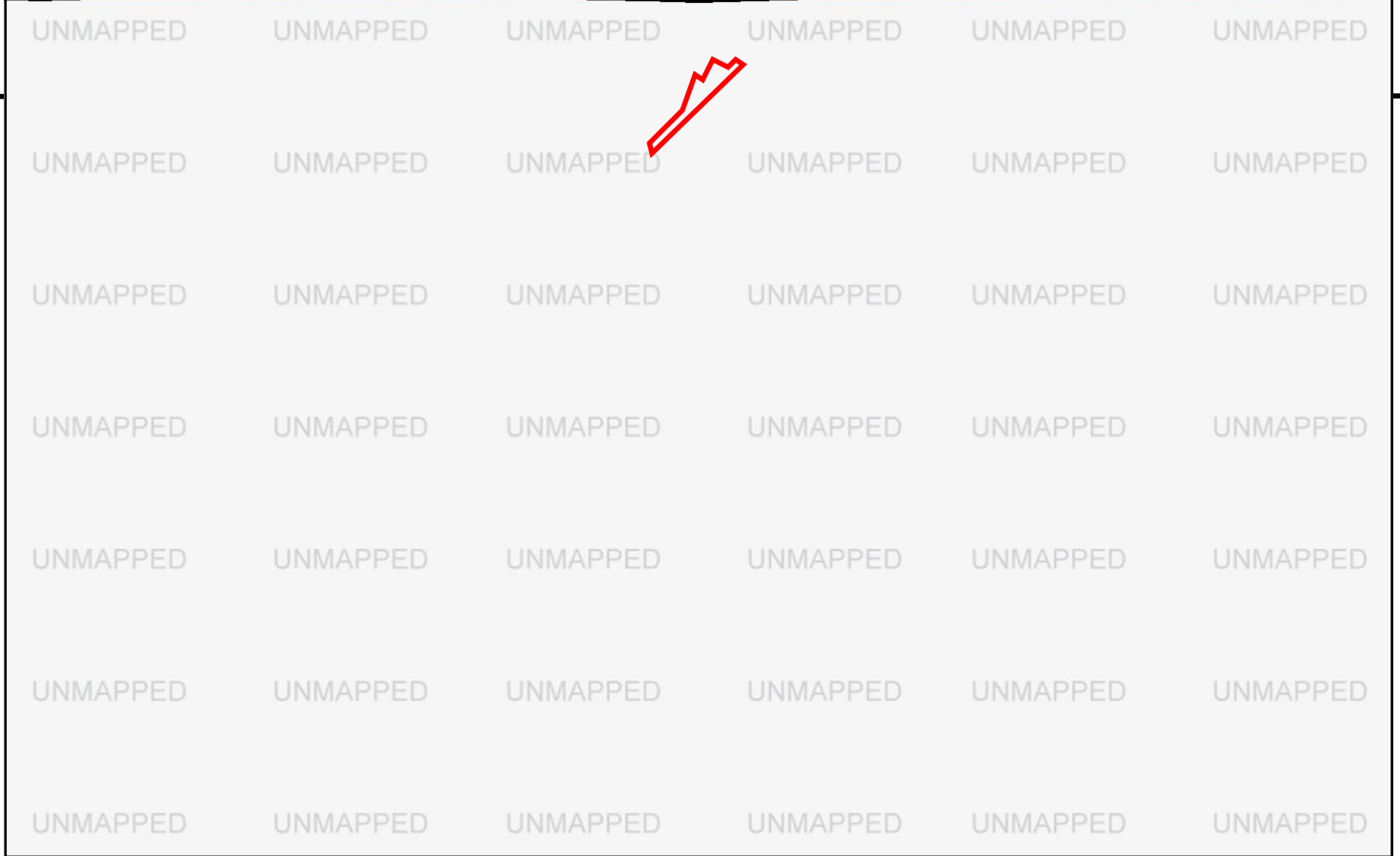
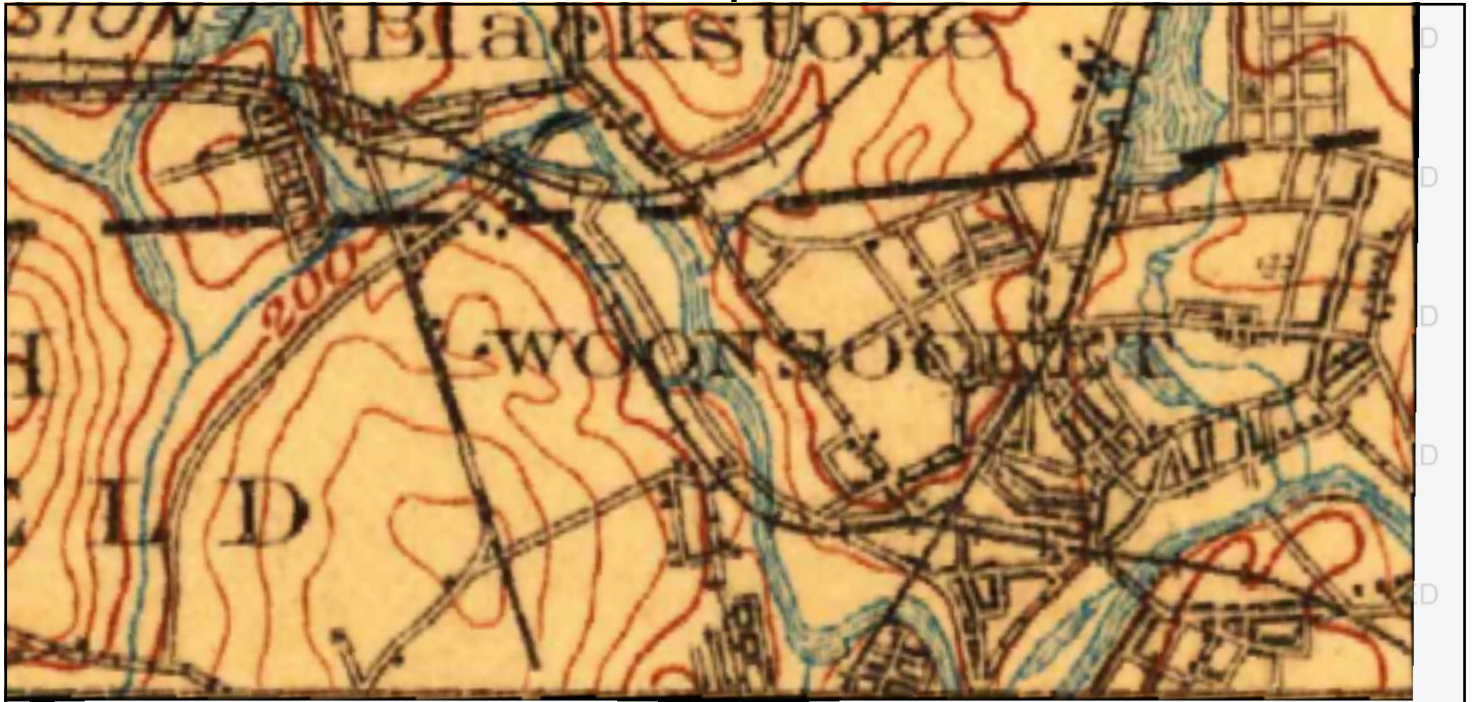
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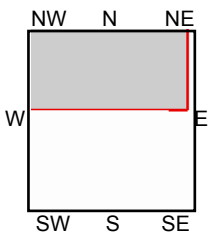
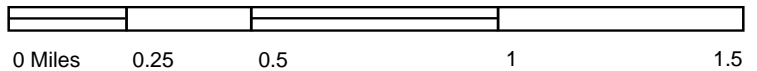
NE, FRANKLIN, 1915, 15-minute
SE, PROVIDENCE, 1915, 15-minute
NW, BLACKSTONE, 1918, 15-minute

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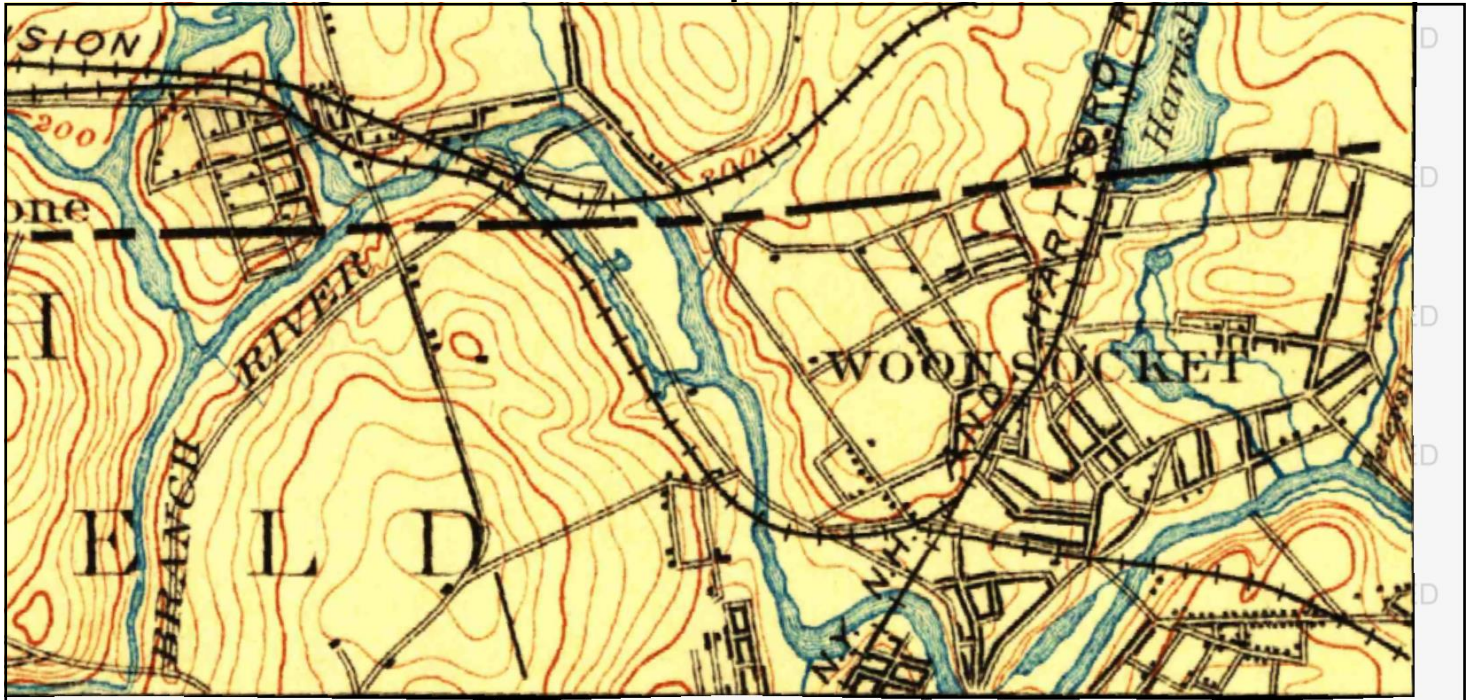
This report includes information from the following map sheet(s).



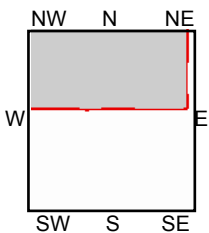
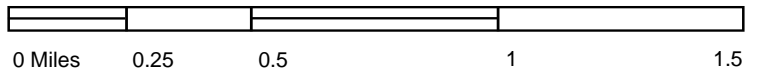
NW, Quinsigamond, 1908, 30-minute

SITE NAME: RIDEM
ADDRESS: Sunnyside Avenue
Woonsocket, RI 02895
CLIENT: Beta Engineering Inc.





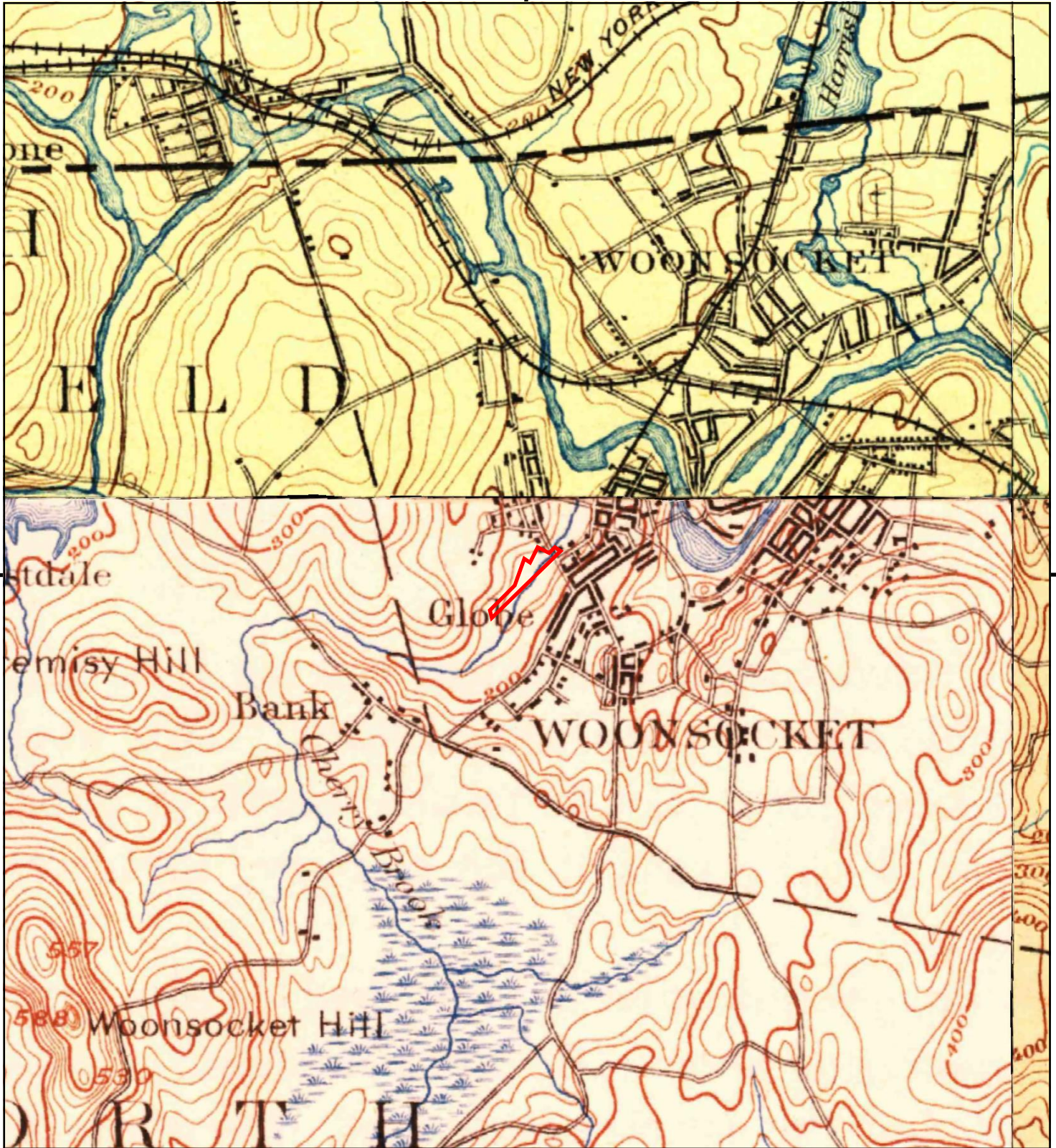
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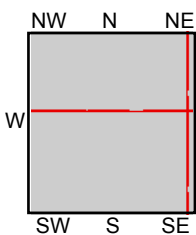
NW, Blackstone, 1900, 15-minute

SITE NAME: RIDEM
 ADDRESS: Sunnyside Avenue
 Woonsocket, RI 02895
 CLIENT: Beta Engineering Inc.





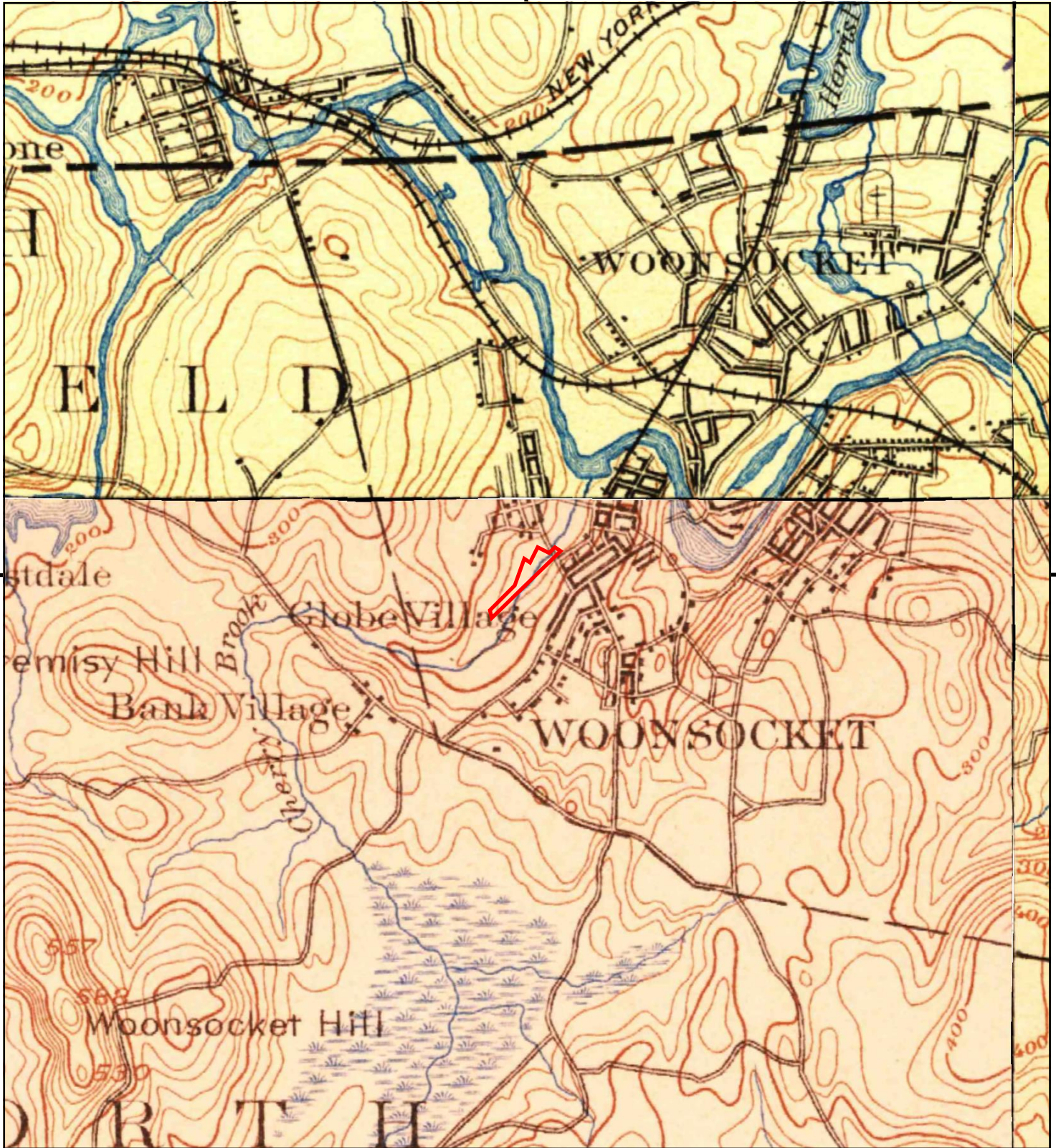
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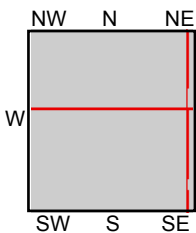
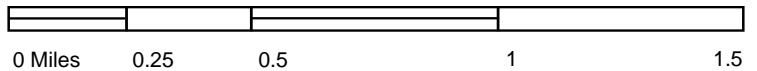
TP, Burrillville, 1894, 15-minute
 NE, Franklin, 1893, 15-minute
 SE, Providence, 1894, 15-minute
 NW, Blackstone, 1893, 15-minute

SITE NAME: RIDEM
 ADDRESS: Sunnyside Avenue
 Woonsocket, RI 02895
 CLIENT: Beta Engineering Inc.





This report includes information from the following map sheet(s).



TP, Burrillville, 1889, 15-minute
 NE, Franklin, 1889, 15-minute
 SE, Providence, 1889, 15-minute
 NW, Blackstone, 1889, 15-minute

SITE NAME: RIDEM
 ADDRESS: Sunnyside Avenue
 Woonsocket, RI 02895
 CLIENT: Beta Engineering Inc.





RIDEM

Sunnyside Avenue

Woonsocket, RI 02895

Inquiry Number: 5381680.8

August 03, 2018

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Site Name:

RIDEM
 Sunnyside Avenue
 Woonsocket, RI 02895
 EDR Inquiry # 5381680.8

Client Name:

Beta Engineering Inc.
 6 Blackstone Valley Place #101
 Lincoln, RI 02865
 Contact: Joe Mcloughlin



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2008	1"=500'	Flight Year: 2008	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1995	1"=500'	Acquisition Date: March 29, 1995	USGS/DOQQ
1985	1"=500'	Flight Date: April 17, 1985	USGS
1981	1"=500'	Flight Date: April 13, 1981	RIGIS
1975	1"=500'	Flight Date: April 30, 1975	USGS
1970	1"=500'	Flight Date: October 18, 1970	USDA
1967	1"=500'	Flight Date: December 01, 1967	USGS
1962	1"=500'	Flight Date: April 27, 1962	RIGIS
1951	1"=500'	Flight Date: October 20, 1951	RIGIS
1941	1"=500'	Flight Date: October 20, 1941	USGS
1939	1"=500'	Flight Date: May 10, 1939	RIGIS

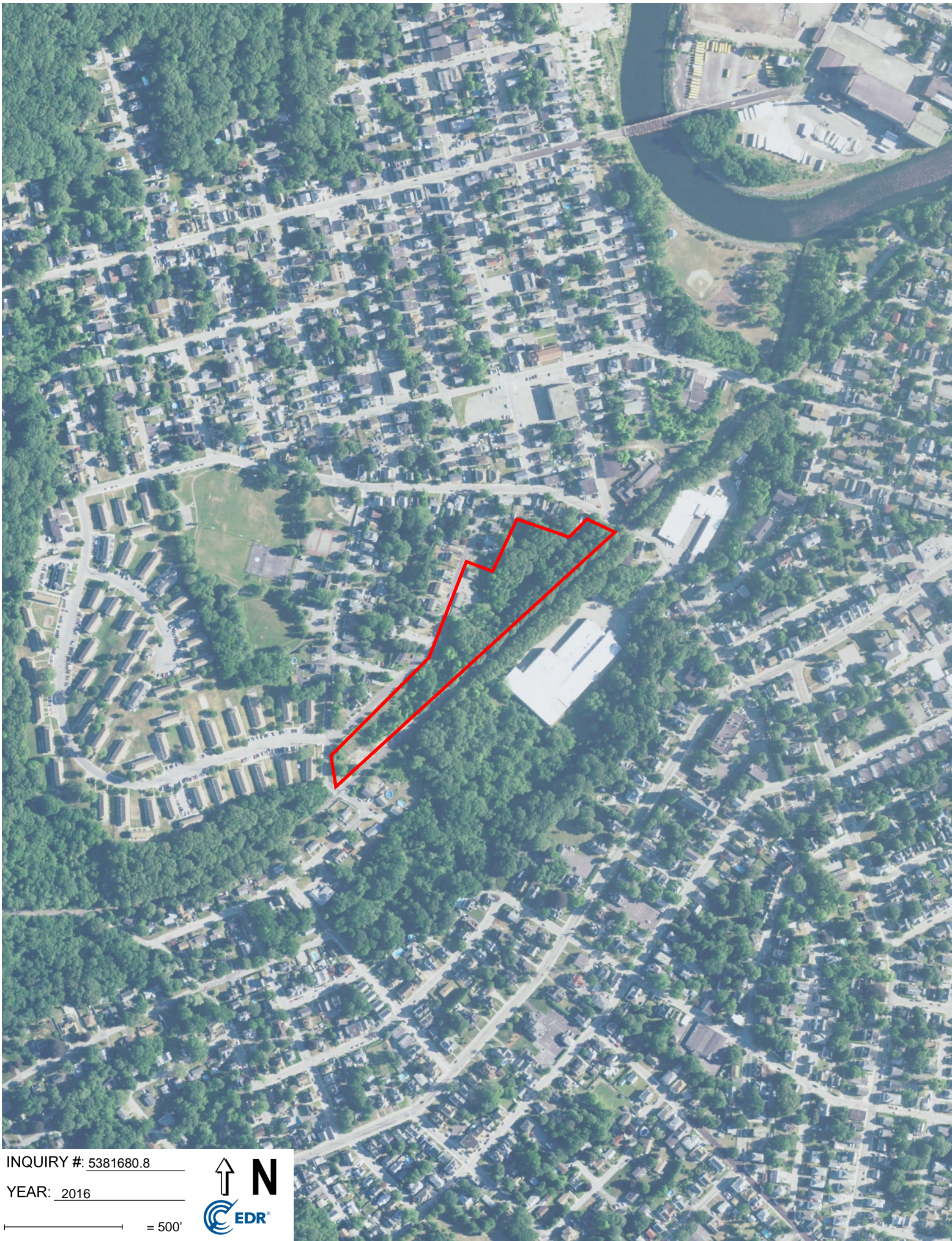
When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Disclaimer - Copyright and Trademark Notice

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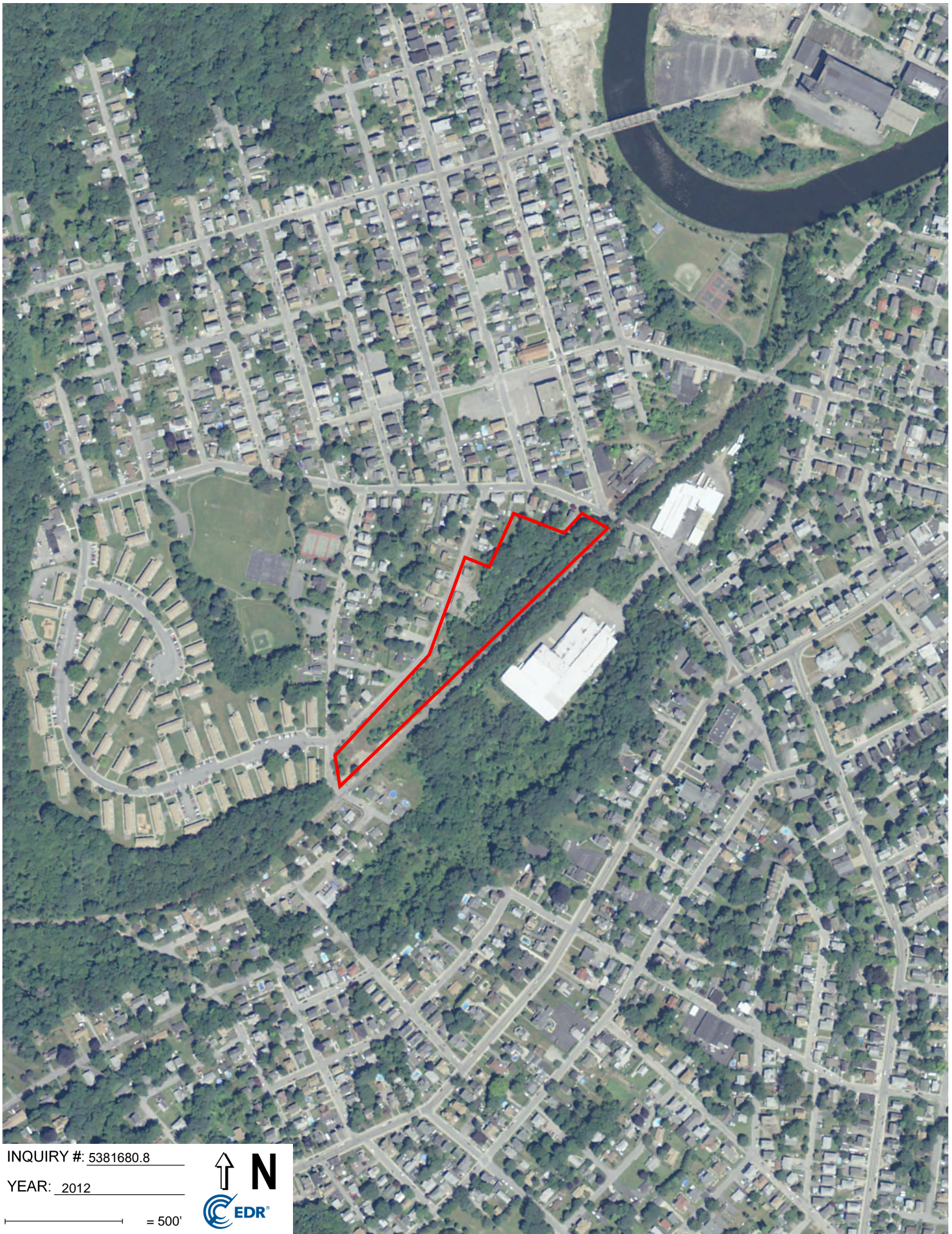


INQUIRY #: 5381680.8

YEAR: 2016

— = 500'





INQUIRY #: 5381680.8

YEAR: 2012

— = 500'





INQUIRY #: 5381680.8

YEAR: 2008

— = 500'





INQUIRY #: 5381680.8

YEAR: 2005

— = 500'





INQUIRY #: 5381680.8

YEAR: 1995

— = 500'



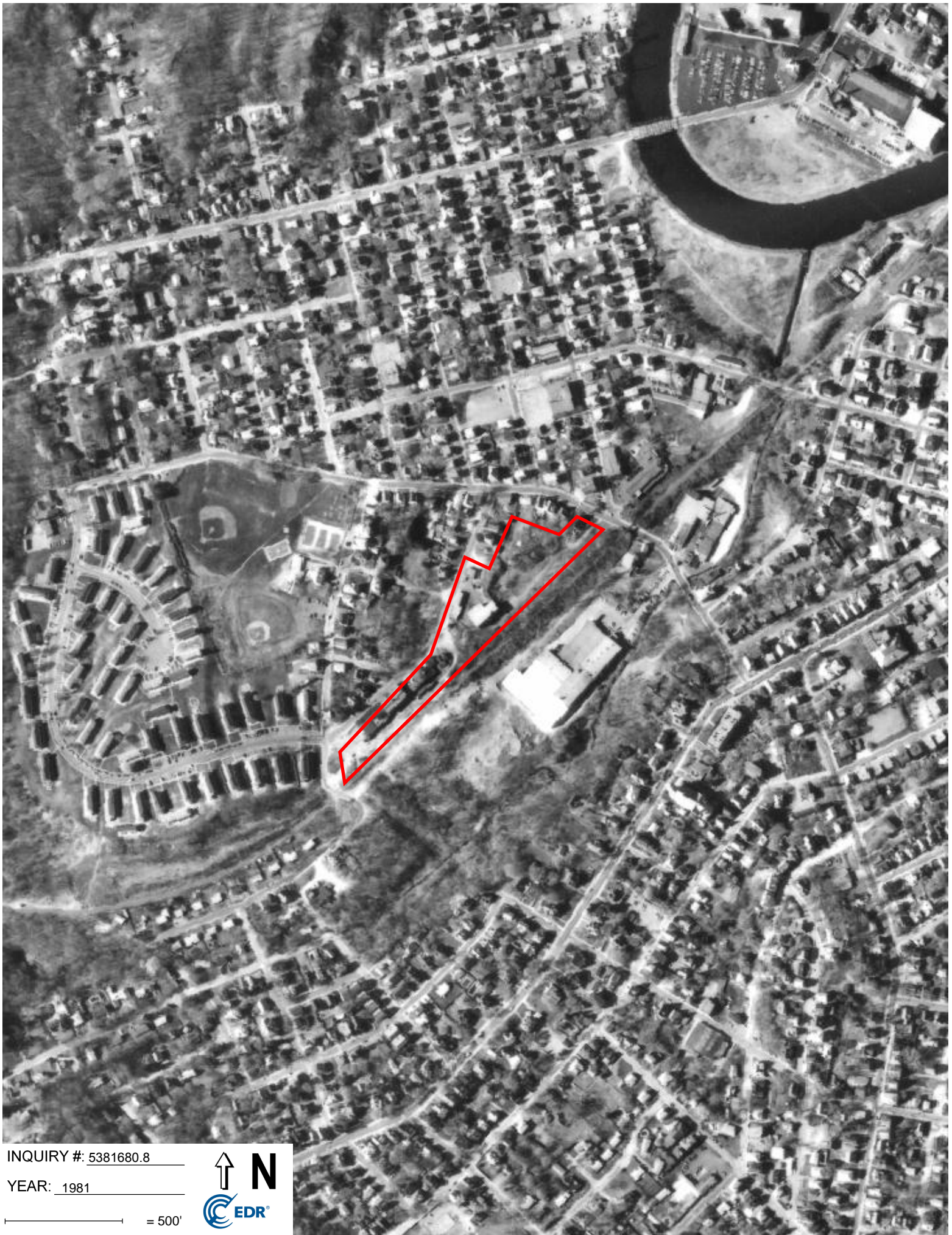


INQUIRY #: 5381680.8

YEAR: 1985

— = 500'





INQUIRY #: 5381680.8

YEAR: 1981

 = 500'





INQUIRY #: 5381680.8

YEAR: 1975

— = 500'





INQUIRY #: 5381680.8

YEAR: 1970

— = 500'



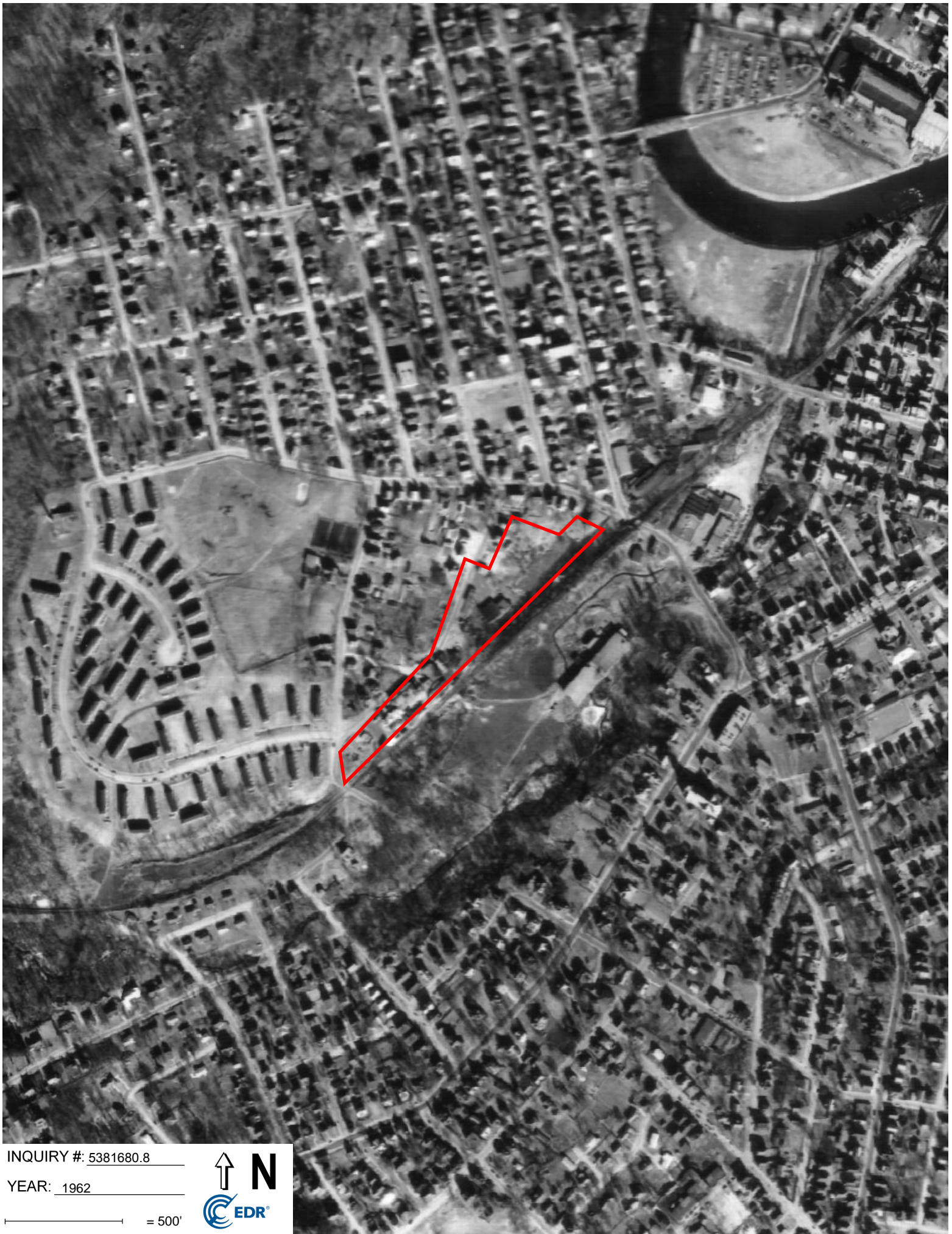


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YEAR: 1967

— = 500'





INQUIRY #: 5381680.8

YEAR: 1962

 = 500'



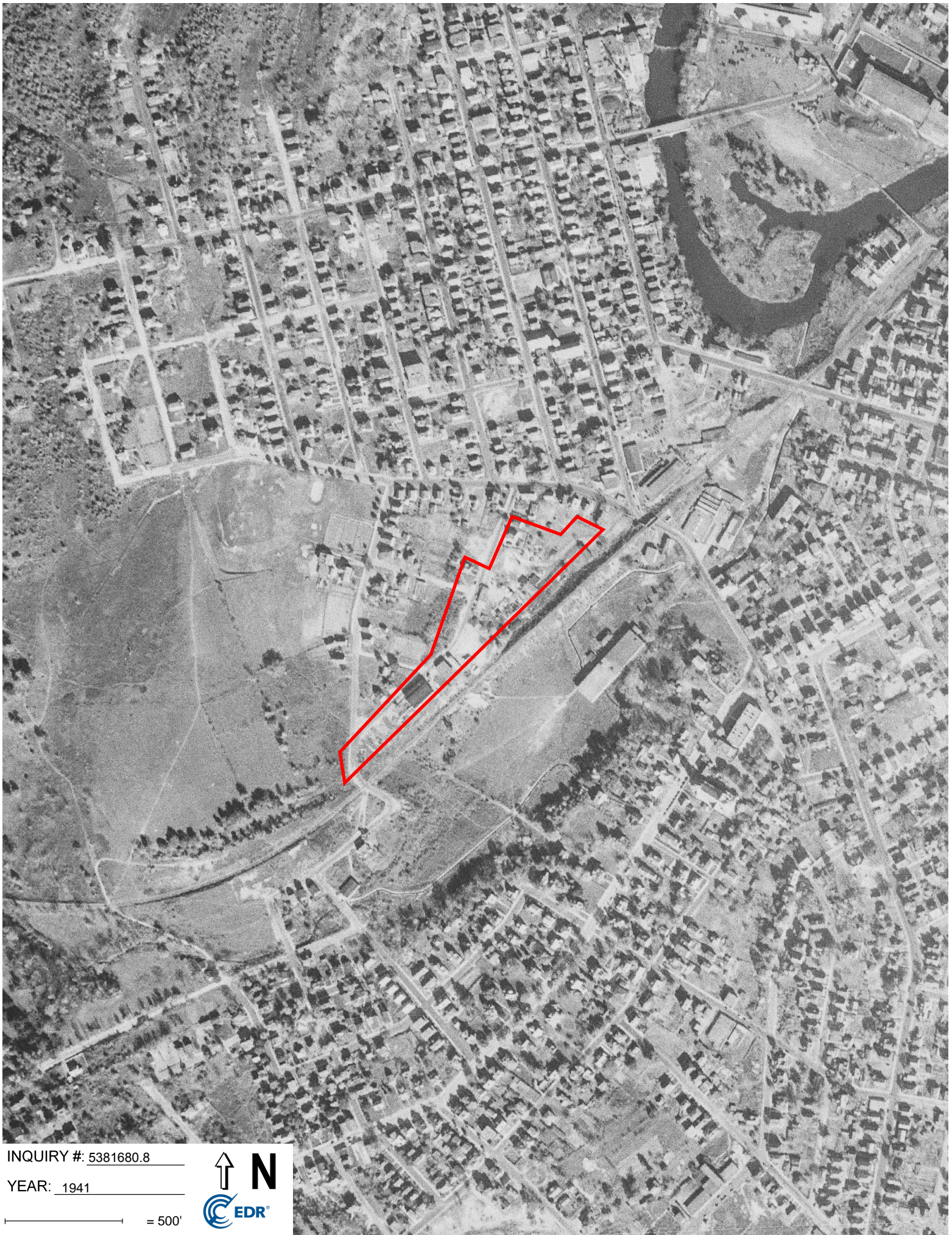


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YEAR: 1951

 = 500'



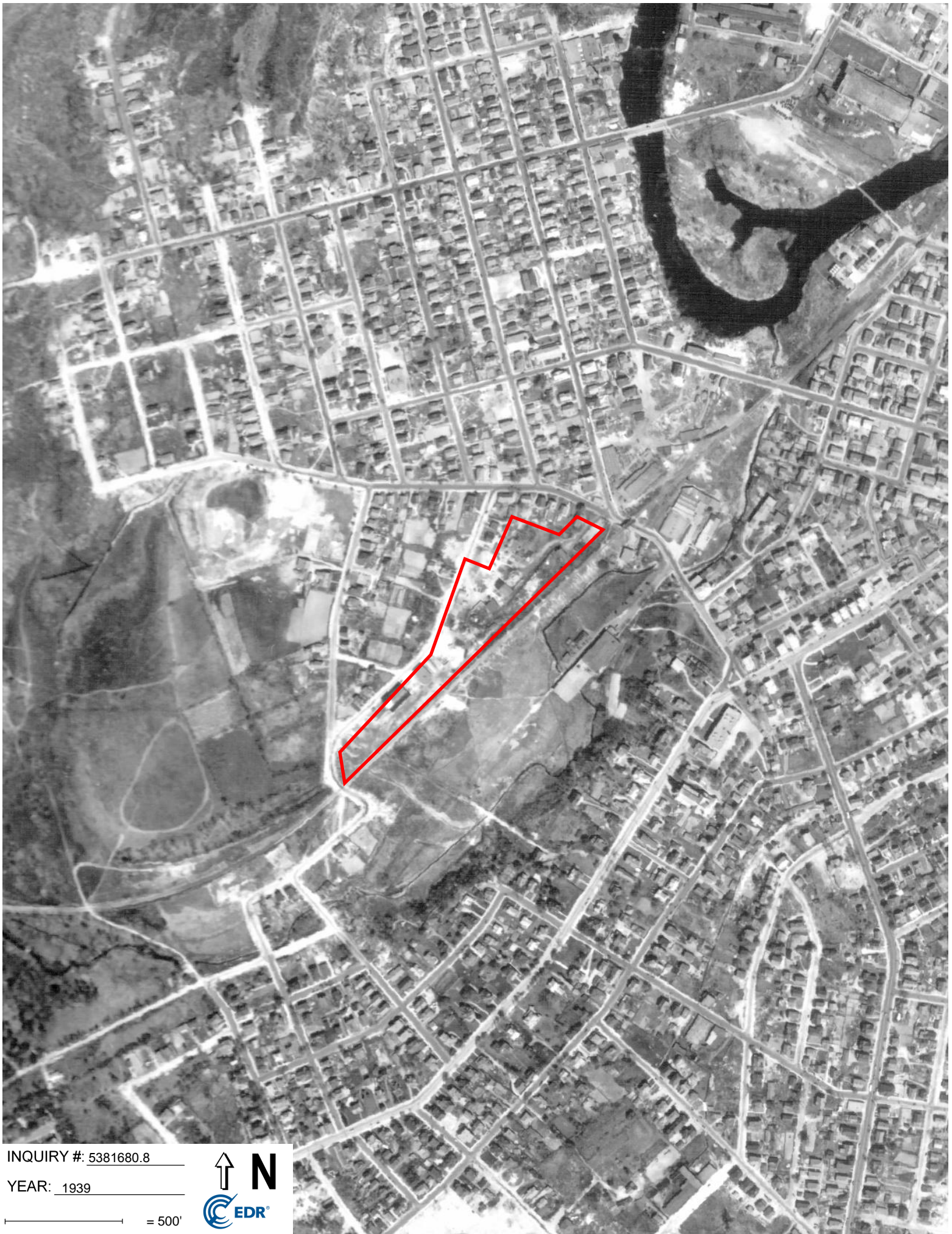


INQUIRY #: 5381680.8

YEAR: 1941

 = 500'





INQUIRY #: 5381680.8

YEAR: 1939

 = 500'



Appendix F

Ownership Documentation

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Property Details

Number of records found: **1**

One record is displayed for each address found at the selected property. Multiple addresses may occur in the case of condominiums.

92 SUNNYSIDE AVENUE
ID: **3-97**

[External Property Card](#)

PARCEL ID (GIS): **3-97**
LANDUSE CODE: **07**
LAST SALE VALUE: **0.00**
APPROXIMATE YEAR BUILT: **1920**
STREET: **SUNNYSIDE AVENUE**
ADDRESS NUMBER #2:
CO-OWNER:
MAILING ADDRESS LINE 2:
MAILING ADDRESS STATE: **RI**
MAILING ADDRESS CITY: **WOONSOCKET**
MAILING ADDRESS COUNTRY:
PARCEL ID (CAMA): **03B-097-020**

ALTERNATE PARCEL ID: **03B-097-020**
LANDUSE DESCRIPTION: **INDUSTRIAL**
LAST SALE DATE: **7/7/1999**
BUILDING STYLE: **Office/Wareh**
ADDRESS NUMBER: **92**
OWNER: **ODONNELL P J + SONS INC**
MAILING ADDRESS LINE 1: **P O BOX 206**
MAILING ADDRESS ZIP: **02895-0780**
GRANTOR:
BOOK / PAGE: **1104-584**
GRANTEE: **ODONNELL P J + SONS INC**



Woonsocket, RI



Home	Search	Print	Previous	Next
----------------------	------------------------	-----------------------	--------------------------	----------------------

Disclaimer: This information is for tax assessing purposes and is not warranted

Parcel Identification		Assessment	
Map/Lot	03B-097-020	Land	\$84,500
Account	3679	Building	\$19,700
State Code	07	Card Total	\$104,200
Card	1/1	Parcel Total	\$104,200

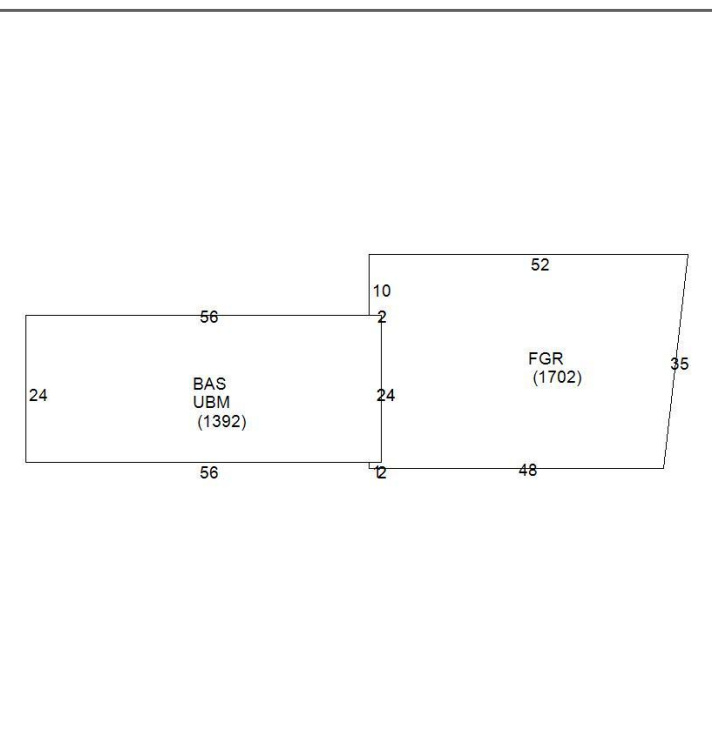


Prior Assessments				
Fiscal Year	Land Value	Building Value	Outbuilding Value	Total Value
2019	\$84,500	\$6,600	\$13,100	\$104,200
2018	\$84,500	\$6,600	\$13,100	\$104,200
2017	\$63,800	\$30,300	\$2,700	\$96,800
2016	\$63,800	\$30,300	\$2,700	\$96,800

Location and Owner	
Location	92 SUNNYSIDE AVENUE
Owner	ODONNELL P J + SONS INC
Owner2	
Owner3	
Address	P O BOX 206
Address2	
Address3	WOONSOCKET RI 02895-0780

Building Information	
Design	Office/Wareh
Year Built	1920
Heat	Steam
Fireplaces	0
Rooms	0
Bedrooms	0
Bathrooms	1 Half Bath
Above Grade Living Area	1,392 SF

Sale Information			
Sale Date	Sale Price	Legal Reference	Instrument
07/07/1999	\$0	1104-584	



Building Sub Areas	
Sub Area	Net Area
Basement, Unfinished	1,392 SF
First Floor	1,392 SF
Garage	1,702 SF

Land Information	
Land Area	3.51 AC
Zoning	R2

View

Neighborhood

CA

Yard Item(s)

Description

Quant

Garage - Avg

1

Paving - Asphalt

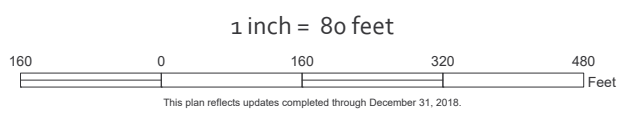
1

[Click To Open MainStreetGIS Maps](#)



Notes:
 1. THIS IS NOT A LEGAL DOCUMENT
 2. Property line information was developed from the City of Woonsocket's Assessor's plat maps.
 3. All information shown on this map are subject to verification.

Legend	
29-113	Lot Number
12000 sf	Lot Area
---	Parcel Boundary Line or Dimension
---	Easement Line
---	Town Line
---	Right-of-Way Line
---	Paper Street
CEM	Cemetery



Tax Map
 City of Woonsocket
 Rhode Island
 Sheet No. E2

Appendix G
Geophysical Report

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March 25th, 2020

Jonathan Alvarez
EA Engineering, Science, and Technology, Inc.
2374 Post Road, Suite 102
Warwick, RI 02886

Project: Geophysical Survey – 92 Sunnyside Ave, Woonsocket, RI

Dear Jonathan,

The following is a brief letter report detailing the results of the geophysical survey performed at the above referenced site. Site maps and/or pertinent ground penetrating radar (GPR) transects are contained in the report and Appendix A. It would be helpful to review Appendix A and the site maps when reading this report. TPI's standard practice is to indicate the results of the geophysical survey by marking all identified utility lines, tanks, and GPR anomalies etc. with chalk, paint or flags. It should be noted that this report is a means of transferring data and results of data interpretation, which was performed during the time allotted for the fieldwork.

Project Scope and Visual Site Inspection

TPI Environmental, Inc. (TPI) was contracted by EA Engineering, Science, and Technology, Inc (client) to scan areas of concern (AOC) at the above referenced location to confirm or deny the presence of potential underground storage tanks (USTs) and/or significant buried metallic structures. Additionally, TPI was tasked with attempting to identify any potential UST-related piping. The site consists of a vacant and partially demolished commercial property located at the above address and as indicated in Figure 1. Upon arrival to the site on March 13th, 2020, TPI reviewed the site history with the client and performed a site walk. During the site walk the following areas of interest were noted:

- The client indicated a known UST and dilapidated shed believed to contain at least one UST based on visual evidence of piping and electrical service (Figure 1).
- The client indicated a large aboveground storage tank (AST) in the eastern parcel of the site (Figure 1).
- At the conclusion of the site walk, TPI reviewed the areas to be included in the survey with the client.

Methodology

Geophysical surveys are typically accomplished by employing the following techniques; GPR, Fisher TW6 electromagnetic metal detection (TW6 EM), a Geonics EM61-MK2 Time – Domain Electromagnetic Detector unit (EM61), radio frequency line locating (RF), and magnetics. The EM61 is a high power, high sensitivity metal detector capable of detecting both ferrous and non-ferrous metal. The TW6 EM unit sounds an audible alarm in the presence of a large mass of metal such as an UST. A description and discussion of these geophysical methods as well as TPI's standard procedures for performing geophysical surveys is found in Appendix A. In general, "blind surveys" are typically performed by initially scanning the site with a TW6 EM unit and/or an EM61 unit and noting areas of

relatively high EM response. Locations with a high EM response are further investigated with GPR. Known utilities are typically traced with the RF unit, GPR, and the TW6 EM unit depending on the size, matrix and conductive properties of the line. EM units are typically not effective and practical in areas underlain with reinforced concrete and/or the presence of ubiquitous metallic objects.

During EM61 surveys the EM response is sampled at four time positions at each survey point (every 0.62-feet). These four readings allow for the discrimination of targets based on target size, shape, material, and orientation. Furthermore the EM61 is designed in such a way that it is possible to distinguish deeper objects from shallow ones. In Channel D mode, the system suppresses near surface targets that may mask the response of deeper, more important targets. This feature is useful when the purpose of the survey is to locate deeper targets, such as USTs, in the presence of near-surface metallic objects.

Geophysical Survey Results

The geophysical survey at this site was accomplished with the EM61, TW6 EM, and GPR units. The EM surveys were conducted throughout accessible areas indicated in Figure 1. GPR transects were collected over metallic anomalies identified during the EM surveys and in areas immediately around metallic objects. Results of the geophysical survey were marked on the ground with paint and pin flags. Maps of the survey results are contained in this report and Appendix A. Results of the geophysical survey are as follows:

- TPI detected nine significant metallic anomalies as indicated in Figures 2-3 and detailed below:

Anomaly	GPR and EM Description	GPR Transect # (Appendix A)
A1	9' x 19' UST-style anomaly. Actual length may be longer than 19' if the anomaly extends under the shed.	1
A2	7' x 19' UST-style anomaly. Actual length may be longer than 19' if the anomaly extends under the shed.	1
A3	9' x 33' UST-style anomaly.	1
A4	11' x 21' UST-style anomaly with associated piping as indicated in Figure 2.	2
A5	7' x 8' UST-style anomaly with associated piping as indicated in Figure 2.	3
A6	18' x 10' potential UST-style anomaly with associated piping as indicated in Figure 3.	4
A7	6' x 5' flat-lying, shallow metallic anomaly.	
A8	7' x 4' metallic anomaly. GPR transects collected across the anomaly were inconclusive.	
A9	~30' x 20' reinforced concrete slab-style anomaly immediately below the surface	

- A1 – A5 are likely associated with USTs.
- A6 is potentially associated with an UST. TPI was unable to thoroughly scan the anomaly with GPR due to surface obstructions (brick piles, logs, etc.).
- While no UST-style GPR reflections were detected in association with A7 – A9 and the likelihood of a UST within these anomalies is low, these anomalies are large enough to contain a disguised and/or disfigured UST.

TPI completes non-intrusive geophysical surveys using equipment and techniques representing best available technology. TPI does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen and varying site-specific conditions such as metal-reinforced concrete. In practical terms, TPI serves to reduce the risk of encountering subsurface utilities during

excavation operations or greatly increase the chance of locating man made subsurface objects depending on the goal of the project. The results of this investigation should only be used as a tool and should not be considered a guarantee regarding the presence or absence of USTs or piping.

If you should have any questions or concerns, please do not hesitate to contact us.

Your Project Team at TPI:



Frank Fendler, M.S., P.G.
President
ffendler@tpienv.com



Mike Robbins, M.S.
Geologist/Boston Manager
mrobbins@tpienv.com



Dustin Lutz
Geologist/P.M.
dlutz@tpienv.com

724 S. 27th St, Easton, PA 18045	888-204-3266	www.tpienv.com
<i>Serving</i>	<i>New Jersey</i>	<i>Pennsylvania</i>
		<i>Massachusetts</i>



LEGEND

- UST scan area
- UST/UST-related piping scan area



92 Sunnyside Ave, Woonsocket, RI

Figure 1

Client: EA

Date: 3/13/20

Geophysical Survey Areas



LEGEND

EM/GPR anomaly
 UST-related piping



92 Sunnyside Ave, Woonsocket, RI

Figure 2


Client: EA


Date: 5/13/20

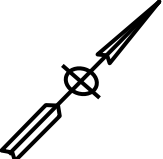
West Parcel Results



LEGEND

 EM/GPR anomaly

 UST-related piping




92 Sunnyside Ave, Woonsocket, RI

Client: EA

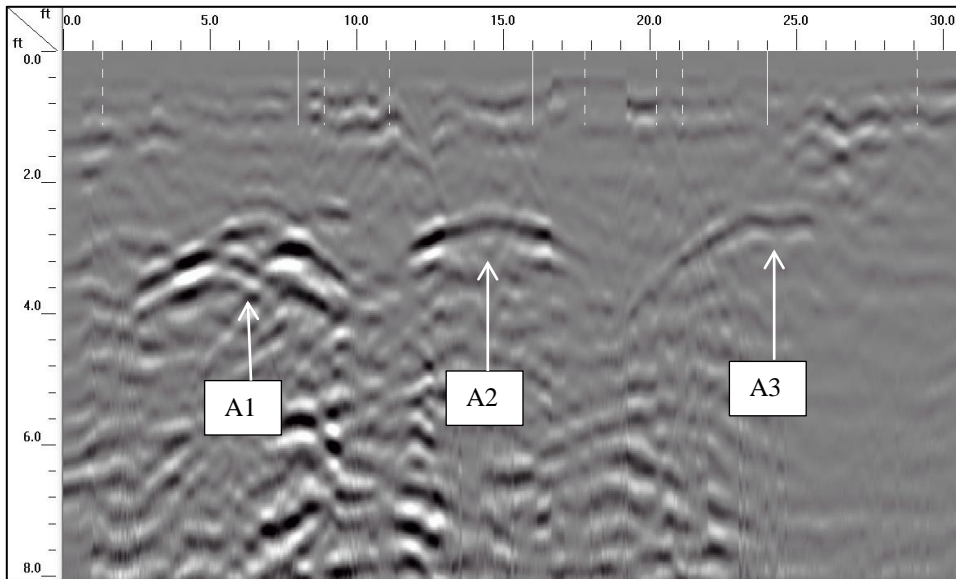
Date: 5/13/20

Figure 3

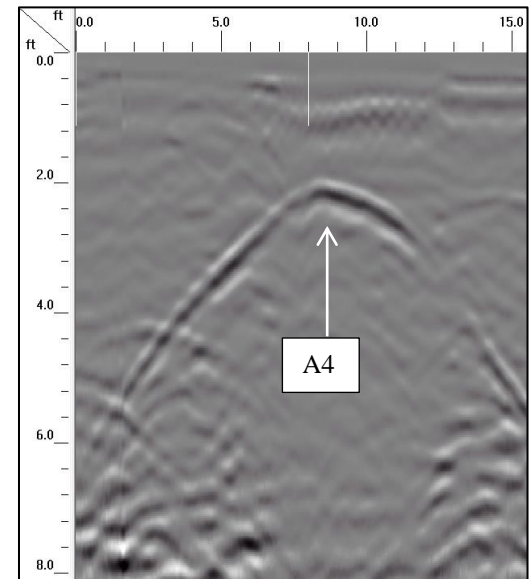
East Parcel Results

Appendix A

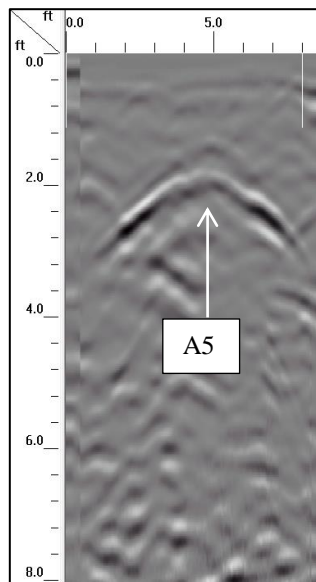
Representative GPR Transects and Survey Methods



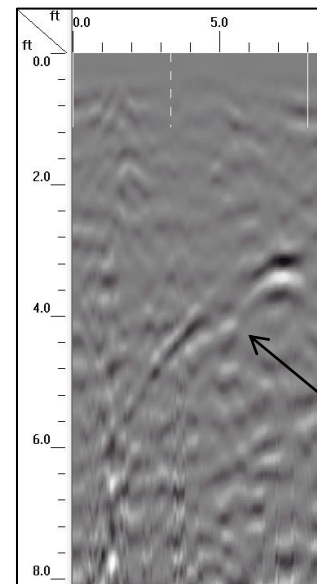
GPR Transect 1. North across A1, A2, A3.



GPR Transect 2. West across A4



GPR Transect 3. South across A5



GPR Transect 4. West across A6 (incomplete)

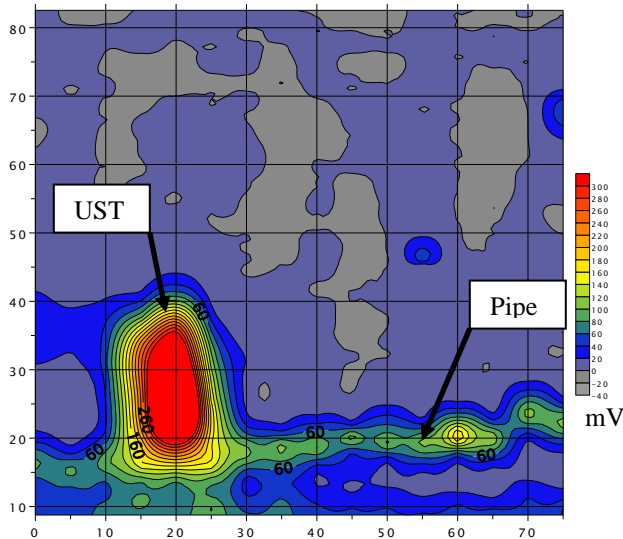
Attachment A

TPI's Geophysical Survey Equipment & Methods

Geonics EM61-MK2

The EM61 is a high resolution time-domain metal detector which is used to detect ferrous and non-ferrous metallic objects. It consists of a powerful transmitter that generates a pulsed primary magnetic field, which induces eddy currents in nearby metallic objects. The decay of these currents is measured by two receiver coils mounted on the coil assembly. The responses are recorded and displayed by an integrated computer based digital data logger with real time numeric and graphic display. Two ports on the logger allows simultaneous collection of EM and GPS data. For further processing and interpretation data can be transferred to a laptop computer in the field and a color contoured map of the EM61 response is prepared (see below).

EM61 Color Contoured Map



The EM61-MK2 detects a single 55 gallon drum at a depth of over 10-feet beneath the instrument, yet it is relatively insensitive to interference from nearby surface metal such as fences, buildings, cars, etc. By making the measurement at a relatively long time after termination of the primary pulse, the response is practically independent of the electrical conductivity of the ground.

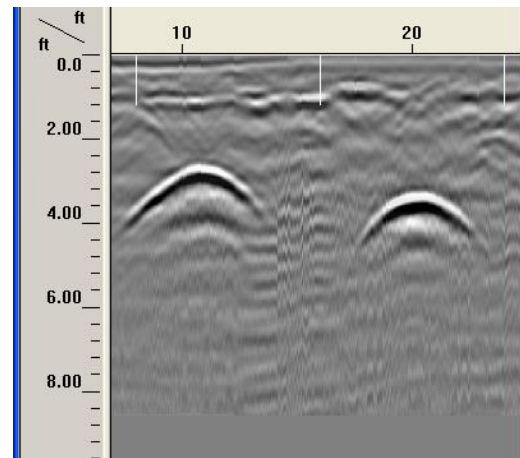
Due to its unique coil arrangements, the response curve is a single well defined positive peak

greatly facilitating quick and accurate location of the target, the depth of which can usually be estimated from the width of the response and/or from relative response from each of the two receiver coils.

GPR

This method is one of the most powerful and cost effective methods of locating man made objects and stratigraphic layers in the subsurface. It is an active method that transmits electromagnetic pulses into the ground, the radar pulses are reflected from materials or layers of differing dielectric and electrical conductive properties. The GPR computer measures the elapsed time in billionths of a second (nanoseconds) from when the pulses are sent and when they are received back at the surface that can then be converted to depth. Results of the radar scan are displayed as a continuous cross-section of the subsurface on the computer screen in real time. Metallic materials such as tanks, pipes, conduits, rebar etc. have vastly different dielectric properties than soils so there reflections are striking and relatively easy to identify. Pipes and tanks constructed of PVC, concrete, and terracotta also produce distinct reflections, however, these reflections are typically not as striking as metallic materials. A typical radar image of two metallic underground storage tanks is found below.

GPR Image of Two Metallic USTs



GPR surveys are conducted with the most advanced GPR equipment currently available

Attachment A TPI's Geophysical Survey Equipment & Methods

including a Geophysical Survey Systems (GSSI) SIR-3000 subsurface radar unit with a 400 MHz antenna. The 400 MHz antenna has a depth range of approximately 20-feet and other antennas may be employed with the system depending on specific site conditions and objectives of the survey. The GPR transect data may be saved on the internal hard drive and transferred to a PC for storage, printing, and post processing. GSSI is the world leader in the development of GPR systems and was the first company to commercialize GPR in 1970. GPR hardware and software has improved dramatically over the last several years allowing for relatively rapid and economical GPR surveys. With 3-dimensional capabilities, the latest GPR software takes data processing a step farther than the former 2-dimensional viewing method. Three-dimensional visualization helps you to see the whole picture, giving you a powerful tool to interpret complex utility layouts and identify subtle linear features that may have otherwise been missed.

GPR surveys are typically conducted by searching for GPR hyperbolas indicative of subsurface pipes or tanks signatures in the vicinity of known entities. These signatures are marked on the ground and areas progressively further from the known entity are scanned and marked. This process is continued until the GPR operator performed enough scans to determine and mark the subsurface pipe, tank or anomaly. During this process the GPR data is typically not saved due to the immense size of the data files. After this phase of the GPR survey is completed, representative GPR transects or grids are performed and saved for the report and post processing. Some of the factors that may negatively affect GPR results include clay soils, rebar in concrete, high moisture content, depth of the target, and the integrity, size, and material of the target.

TW-6 EM Unit

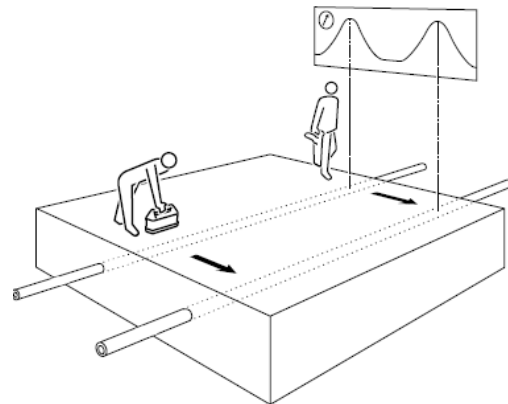
TPI routinely employs a Fisher TW-6 electromagnetic metal detector when performing GPR surveys. The TW-6 creates an electromagnetic field with a transmitting coil and measures the strength of that field with a receiving coil. As the TW-6 passes over electrically conductive materials such as metal tanks or drums the field is distorted and the instrument produces an audible alarm based on

the degree of the distortion. The TW-6 can detect conductive materials the size of drums or small tanks to depths of 10-feet. The instrument is actually a relatively poor metal detector which makes it ideal for locating large conductive materials such as metal drums, medium to large metal pipes, reinforced concrete pipes, and metal tanks. A more sensitive metal detector would produce "false positives" on small pieces of metal that are typically found in fill and throughout developed sites. If the survey area is underlain by reinforced concrete or cars and other large surficial metallic features are within 10-feet, the TW-6 will not be useful.

Line Locating

Line locating is performed with a Radiodetection RD400 PXL-2 line locator with a 433 HCTX-2 transmitter. The transmitter emits a specific radio or electromagnetic signal which is indirectly induced or directly conducted onto the metallic line. The transmitter is capable of producing frequencies of 512 Hz, 8 kHz, or 33 kHz and the receiver is configured for the specific transmitted frequency. The induced signal is coupled with the line by either using an induction clamp which surrounds an exposed line or placing the transmitter above a buried line and transmitting the signal to it. The receiver may also be used in a passive locate mode (power) to identify the presence of current carrying lines. Nonmetallic lines may also be located by snaking a sonde down accessible lines with push rods. A sonde is a small transmitter that emits a specific electromagnetic frequency which can be detected by the receiver at depths of 12 to 16-feet.

Inductive Sweep With Transmitter/Receiver



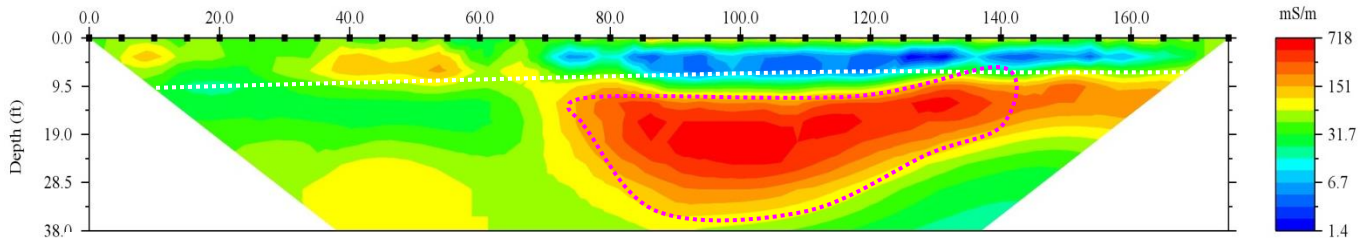
Attachment A TPI's Geophysical Survey Equipment & Methods

Resistivity

TPI conducts subsurface resistivity surveys using the AGI SuperSting R8 IP Earth Resistivity and IP Meter. The SuperSting unit measures the voltage drop of an induced electrical current across numerous electrodes as it travels through the electrically heterogeneous subsurface. Multiple survey profiles are completed in this manner based upon the specific conditions of the field area in order to assemble a complete characterization of the ground resistivity properties. The resistivity data is then processed and examined for evidence of significant subsurface features including bedrock surfaces, perched groundwater tables, cavities/sinkholes, or potential contaminant plumes.



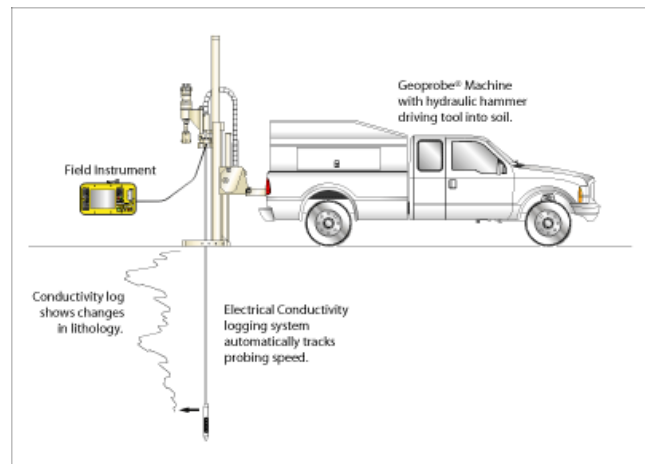
AGI SuperSting R8 IP Earth Resistivity and IP Meter assembly.



Resistivity pseudosection across a backfilled canal. Approximately 10' of high resistivity/low conductivity surficial fill (blue) over low resistivity/high conductivity canal backfill (orange-red).

Down-hole Conductivity

TPI is also able to collect down-hole soil conductivity data with an electric conductivity probe. The EC probe is driven into the subsurface by a direct push unit. A current is induced in the native soil between two contacts at opposite ends of the probe. The soil conductivity is then calculated based upon the ratio of induced current to resultant voltage across the probe. Down-hole EC profiling is particularly useful in the efficient determination of soil grain size (permeable sands vs impermeable clays), water content, and metal content.



Electrical conductivity probe

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Appendix H
Soil Boring Logs

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EA Engineering, Science, and Technology, Inc., PBC

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: See site plan

Job No. 1525815	Client: RIDEM	Location: 92 Sunnyside Ave, Woonsocket RI	
Project: Sunnyside Ave Site Investigation		Soil Boring/Well Number: EA-1/MW-EA-1	
Drilling Method: Direct push - Geoprobe		Sheet 1 of 1	
Sampling Method: Direct push continuous soil core in 4-ft poly liners		Drilling	
Water Level:	21 ft	19.12	
Time:	1045	1600	
Date:	9/20/2019	9/20/2019	
		TIME 0830	TIME 1400

Blow Counts (140-lb)	In. Recvrd/In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	Surface Conditions: Wooded	
					Weather: Cloudy	Temperature: 73 deg. F
				0	0-4 ft	
	24/48		0	1	0-4" - Moist, dark grayish brown fine silt and fine sand with some organic matter	
				2	4-24" - Moist, dark grayish brown medium sand with some gravel, trace amounts of trash/debris and organic matter	
				3	24-48" - Moist, tan medium sand and gravel	
				4	Collect laboratory sample EA-1-0-2 @ 0835	
				5	4-8 ft	
	36/48		0	6	0-12" - Dry tan medium sand and gravel	
				7	12-36" - Dry tan medium sand with some medium gravel and trace rock/till	
				8		
				9	8-12 ft - Dry tan medium sand with some medium gravel and trace rock/till	
	40/48		0	10	0-40" - Dry tan medium sand and some small gravel	
				11		
				12		
				13	12-16 ft	
	48/48		142.7	14	0-12" - Dry, tan medium sand and small gravels	
				15	12-24" - Dry, tan medium sand and trace rock/gravel till	
				16	24-48" - Moist/oil saturated, dark gray medium sand with strong petroleum odor, color turning black at 15-16 ft	
				17	16-20 ft	
	24/48		156.2	18	0-24" - Moist black sand, thoroughly oil saturated with strong petroleum odor.	
				19	Collect Laboratory sample EA-1-20-24 @ 1230.	
				20		
				21	20-24 ft - Oil saturated black sand with strong petroleum odor. Wet, dark gray clay at 23.5 to 24 ft.	
	48/48		122.2	22	Boring terminated at 24 ft.	PVC Screen
				23		Sand Pack
				24		Bentonite Seal
						Concrete Grout

Monitoring Well Construction Information	Soil Vapor Point Installation Information
Monitoring Well Diameter: <u>2</u> in	Depth of Soil Vapor Point: _____ ft
Bottom of Monitoring Well: <u>24</u> ft bgs	Bottom of Tubing: _____ ft
Stick Up or Flush Mount: _____ Standpipe 0-3 above gs	Top of Sand Pack: _____ ft
Screen Interval: <u>24</u> To <u>14</u> ft bgs	Top of Bentonite Seal: _____ ft
Riser Interval: <u>14</u> To <u>0</u> ft bgs	
Sand Pack Interval: <u>24</u> To <u>12</u> ft bgs	
Bentonite Seal: <u>12</u> To <u>10</u> ft bgs	
Grout Interval: <u>1</u> To <u>0</u> ft bgs	

Notes: Drill rig down between 0900 and 1135 (approx 10 ft bgs) due to hydraulic oil leak. Move boring approx 1 ft south to avoid any potential oil leaks. Casing stuck between 1230-1345 during beginning of well installation. Leave casing until 9/20/19 when have part from mechanic. Complete monitoring well install on 9/20/19.

Logged by: D. Allen Date: 19 September 2019
 Drilling Contractor: Geologic Earth Exploration, Inc Driller: J. LeGrand, N. Pereion



**EA Engineering, Science,
and Technology, Inc., PBC**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: See site plan

Job No. 1525815	Client: RIDEM	Location: 92 Sunnyside Ave, Woonsocket RI
Project: Sunnyside Ave Site Investigation		Soil Boring/Well Number: EA-2/MW-EA-2
Drilling Method: Direct push - Geoprobe		Sheet 1 of 2
Sampling Method: Direct push continuous soil core in 4-ft poly liners		
Water Level:		Drilling
Time:		Start
Date:		Finish
		DATE 9/20/2019
		DATE 9/20/2019
		TIME 1115
		TIME 1330

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Pavement
				in		Weather: Sunny
				Feet	Temperature: 75 deg. F
	24/24		0.2	0	0-2" - Asphalt pavement
				1	2-22" - Dry medium to fine sand
				2	22-24" - Dry blackish gray asphalt pavement
					Laboratory sample EA-2-0-2 collected @ 1120
	18/48		0.9	3	2-6 ft - Dry, tan fine sand with some small gravel
				4	
				5	
				6	
	18/48		1.2	7	6-10 ft - Dry, tan medium sand with trace fine sand and some small gravel
				8	
				9	
				10	
	26/48		0.4	11	10-14 ft - Dry, tan medium sand with small gravel (slightly less sand than above)
				12	
				13	
				14	
	48/48		0.4	15	14-18 ft Dry, medium sand and small gravel. Slightly moist at 16-18 ft bgs.
				16	
				17	
				18	
	24/24		1.5	19	0-1" - Slightly moist, reddish tan medium to fine sand
				20	
					1-12" - Moist reddish brown fine sand with trace silt
					12-24" - Moist reddish brown medium sand with some fine sand
					Laboratory sample EA-2-18-20 collected @ 1220

Monitoring Well Construction Information	Soil Vapor Point Installation Information
Monitoring Well Diameter: 2 in	Depth of Soil Vapor Point: _____ ft
Bottom of Monitoring Well: 28 ft bgs	Bottom of Tubing: _____ ft
Stick Up or Flush Mount: _____ Flush	Top of Sand Pack: _____ ft
Screen Interval: 28 To 13 ft bgs	Top of Bentonite Seal: _____ ft
Riser Interval: 13 To 0 ft bgs	
Sand Pack Interval: 28 To 11 ft bgs	
Bentonite Seal: 11 To 9 ft bgs	
Grout Interval: 1 To 0 ft bgs	
	Note: Native fill 9 to 1 ft bgs. No well development occurred due to absence of groundwater post completion.

Logged by: D. Allen and B. Chambers
 Drilling Contractor: Geologic Earth Exploration, Inc
 Date: 20 September 2019
 Driller: J. LeGrand, N. Pereion



**EA Engineering, Science,
and Technology, Inc., PBC**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: See site plan

Job No. 1525815 Client: RIDEM
Project: Sunnyside Ave Site Investigation

Location: 92 Sunnyside Ave, Woonsocket RI

Drilling Method:
Direct push - Geoprobe

Soil Boring/Well Number:
EA-3

Sampling Method:
Direct push continuous soil core in 4-ft poly liners

Sheet 1 of 1

Water Level:				
Time:				
Date:				

Drilling	
Start	Finish
DATE 9/19/2019	DATE 9/19/2019
TIME 1415	TIME 1435

Blow Counts (140-lb)	In. Recvr/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth in Feet	Surface Conditions: Pavement
					Weather: Sunny
					Temperature: 90s
	22/24		0.9	0 1 2	0-2" - Asphalt pavement 2-14" - Dry, brown silty fine sand. 14-22" - Dry medium sand and small gravel. Laboratory sample EA-3-0-2 collected @ 1425
	24/48		0.1	3 4 5 6	0-24" - Dry, tan fine and medium sand with some small gravel
	48/48		0.1	7 8 9 10	6-10 ft 0-24" - Dry, light brown fine and medium sand and small gravel Laboratory sample EA-3-6-10 collected @ 1435 Boring terminated at 10 ft.
				11 12 13 14	
				15 16 17 18 19 20	

Monitoring Well Construction Information	Soil Vapor Point Installation Information
Monitoring Well Diameter: _____ in	Depth of Soil Vapor Point: _____ ft
Bottom of Monitoring Well: _____ ft bgs	Bottom of Tubing: _____ ft
Stick Up or Flush Mount: _____	Top of Sand Pack: _____ ft
Screen Interval: _____ To _____ ft bgs	Top of Bentonite Seal: _____ ft
Riser Interval: _____ To _____ ft bgs	
Sand Pack Interval: _____ To _____ ft bgs	
Bentonite Seal: _____ To _____ ft bgs	
Grout Interval: _____ To _____ ft bgs	

Logged by: D. Allen _____ Date: 19 September 2019 _____
 Drilling Contractor: Geologic Earth Exploration, Inc _____ Driller: J. LeGrand, N. Pereion _____



**EA Engineering, Science,
and Technology, Inc., PBC**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: _____ See site plan

Job. No. 1525815	Client: RIDEM Project: Sunnyside Ave site Investigatio	Location: 92 Sunnyside Ave, Woonsocket RI
Drilling Method: Direct push - Geoprobe		Soil Boring/Well Number: EA-4
Sampling Method: Direct push continuous soil core in 4-ft poly liners		Sheet 1 of 1
Water Level:		Drilling
Time:		Start DATE 9/19/2019
Date:		Finish DATE 9/19/2019
		TIME 1445
		TIME 1515

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Sunny Temperature: 70 deg. F
				in	
				Feet	
	20/24		0.3	0	0-4" - Moist, grayish brown silty sands with some organic matter. 4-20" - Dry, light brown silt and fine sand with some small gravel Laboratory sample EA-4-0-2 collected at @ 1450
				1	
				2	
	30/48		0.1	3	2-6 ft - Dry, tan medium sand and fine gravel
				4	
				5	
				6	
	25/48		0	7	6-10 ft - Dry, tan medium sand with some fine gravel Laboratory sample EA-4-2-6 and Duplicate collected at @ 1500 Boring terminated at 10 ft
				8	
				9	
				10	
				11	
				12	
				13	
				14	
				15	
				16	
				17	
				18	
				19	
				20	

Monitoring Well Construction Information		Soil Vapor Point Installation Information	
Monitoring Well Diameter: _____	in	Depth of Soil Vapor Point: _____	ft
Bottom of Monitoring Well: _____	ft bgs	Bottom of Tubing: _____	ft
Stick Up or Flush Mount: _____		Top of Sand Pack: _____	ft
Screen Interval: _____	To _____	Top of Bentonite Seal: _____	ft
Riser Interval: _____	To _____		
Sand Pack Interval: _____	To _____		
Bentonite Seal: _____	To _____		
Grout Interval: _____	To _____		

Logged by: D. Allen Date: 19 September 2019
 Drilling Contractor: Geologic Earth Exploration, Inc Driller: J. LeGrand, N. Pereion



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:

Geoprobe Direct Push

Soil Boring/Well Number:

EA-11

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

Sampling Method:

Continuous w/ 5ft Poly Liners

Sheet 1

of 2

TOC Elevation: _____

Water Level: _____

Start

Finish

Surface Elevation: _____

Time: _____

DATE 3/18/20

DATE 3/18/20

Reference Elevation: _____

Date: _____

TIME 0921

TIME 1010

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth		Surface Conditions: Pavement	
				in	Feet	Weather: Sunny	
						Temperature: 45 F	
				0		0-6" black asphalt then dry tan medium sand with coarse sand and gravel	
	48/60		0.2	1		Collect Sample EA-11-0-2.5	
				2			
				3		Dry light tan fine to medium sand with some coarse sand and few gravel	
	48/60		0.2	4			
				5		Dry light tan fine to medium sand with some coarse sand and few gravel	
				6			
	60/60		0.1	7			
				8		Moist medium to coarse sand with some fine gravel, trace fine sand	
				9			
	52/60		0.2	10		Medium to fine light tan sand with some gravel	
				11			
				12		Dry to moist medium and coarse sand with gravel. 1" layer of silt @14.5 ft then perfectly pure medium tan sand	
	52/60		0.3	13			
				14		Moist light tan medium to fine sand becoming silt.	
				15			
	52/60		0.3	16			
				17		Moist light gray silt with trace fine sand. Some collapse.	
				18			
				19			
				20			

Monitoring Well Construction Information				Soil Vapor Point Installation Information					
Monitoring Well Diameter:	_____	N/A	_____	in	Depth of Soil Vapor Point:	_____	N/A	_____	ft
Bottom of Monitoring Well:	_____		_____	ft bgs	Bottom of Tubing:	_____		_____	ft
Stick Up or Flush Mount:	_____		_____		Top of Sand Pack:	_____		_____	ft
Screen Interval:	_____	To	_____	ft bgs	Top of Bentonite Seal:	_____		_____	ft
Riser Interval:	_____	To	_____	ft bgs	Sample Parameters/Notes				
Sand Pack Interval:	_____	To	_____	ft bgs					
Bentonite Seal:	_____	To	_____	ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low)				
Grout Interval:	_____	To	_____	ft bgs	Sample EA-11-0-2.5 @ 0922				
					Sample EA-11-29-30 @ 0955				
					Only slight moisture observed; no evidence of water table encountered.				

Logged by: B. Chambers, C. Maxwell
Drilling Contractor: New England Geotech

Date: 3/18/20
Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:
Geoprobe Direct Push

Soil Boring/Well Number:
EA-11

Sampling Method:
Continuous w/ 5ft Poly Liners

Sheet 2
of 2

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Water Level: _____

Drilling
Start _____ **Finish** _____

Reference Elevation: _____

Time: _____

DATE 3/18/20 DATE 3/18/20

Reference Description: _____

Date: _____

TIME 0921 TIME 1010

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Pavement
				in	Weather: Sunny
				Feet	Temperature: 45 F
	40/60		0.3	20	Dry, white-tan fine to medium sand. Lots of collapse.
				21	
				22	
	40/60		0.3	23	Same as above with some silt.
				24	
	30/60		0.4	25	Dry medium to coarse sand, some fine sand. Light tan. Lots of collapse.
				26	
				27	
				28	Moist to wet fine sand with some silt becoming blue-ish gray dense silt at basw. Approx 3" dense silt, possible perched water table of confining layer. -Est. water table at 29.5-30 ft or perched - Refusal based on repeated collapse of sandy subsurface. - Collect Sample EA-11-29-30 from silt layer and slightly above. Sample
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information	Soil Vapor Point Installation Information
Monitoring Well Diameter: _____ in	Depth of Soil Vapor Point: _____ ft
Bottom of Monitoring Well: _____ ft bgs	Bottom of Tubing: _____ ft
Stick Up or Flush Mount: _____	Top of Sand Pack: _____ ft
Screen Interval: _____ To _____ ft bgs	Top of Bentonite Seal: _____ ft
Riser Interval: _____ To _____ ft bgs	Sample Parameters/Notes
Sand Pack Interval: _____ To _____ ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low)
Bentonite Seal: _____ To _____ ft bgs	Sample EA-11-0-2.5 @ 0922
Grout Interval: _____ To _____ ft bgs	Sample EA-11-29-30 @ 0955
	Only slight moisture observed; no evidence of water table encountered.

Logged by: B. Chambers, C. Maxwell Date: 3/18/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-12

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/18/20 **DATE** 3/18/20

Reference Elevation: _____ **Date:** _____ **TIME** 1030 **TIME** 1050

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth		Surface Conditions: Grass
				in	Feet	
					0	
	60/60		0.4		1	Dry brown topsoil/fine sand then tan fine sand
					2	Collect Sample EA-12-0-2.5 *Collect Duplicate EA-Dup-HM-1
					3	
	60/60		0.4		4	Same as above
					5	
					6	Dry light tan fine sand . At approx. 7ft a 3" layer of dense silt with some fine sand
	57/60		0.5		7	
					8	Dry light tan and gray fine sand with trace silt. Trace medium sand at base.
					9	
	60/60		0.6		10	
					11	Dry, tan uniform fine and medium sand
					12	
	60/60		0.4		13	Same as above, 2" layer of denser silt with fine sand at 14.5 ft
					14	
					15	
	52/60		0.5		16	Same as above.
					17	
					18	Moist, mottled olive, brown and gray dense silt with trace fine sand in some layers. Trace gravel at base. Some gravel fragments throughout.
			0.3		19	
					20	

Monitoring Well Construction Information	Soil Vapor Point Installation Information
Monitoring Well Diameter: _____ N/A _____ in	Depth of Soil Vapor Point: _____ N/A _____ ft
Bottom of Monitoring Well: _____ ft bgs	Bottom of Tubing: _____ ft
Stick Up or Flush Mount: _____	Top of Sand Pack: _____ ft
Screen Interval: _____ To _____ ft bgs	Top of Bentonite Seal: _____ ft
Riser Interval: _____ To _____ ft bgs	Sample Parameters/Notes
Sand Pack Interval: _____ To _____ ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low)
Bentonite Seal: _____ To _____ ft bgs	Sample EA-11-0-2.5 @ 1030
Grout Interval: _____ To _____ ft bgs	Sample EA-11-29-30 @ 1044
	Only moisture encountered; no evidence of groundwater table.

Logged by: B. Chambers, C. Maxwell Date: 3/18/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:

Geoprobe Direct Push

Soil Boring/Well Number:

EA-12

Sampling Method:

Continuous w/ 5ft Poly Liners

Sheet 2

of 2

Drilling

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: _____

Water Level: _____

Time: _____

Date: _____

Start

Finish

DATE 3/18/20

DATE 3/18/20

TIME 1030

TIME 1050

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Sunny Temperature: 45 F
				in	
				Feet	
	60/60		0.3	20	Olivey gray moist dense silt with fine gravel within. Some rock fragments.
				21	
				22	
			0.3	23	Same as above but with more rock fragments. More moist than above, possible water table. Sample EA-12-22.5-25 @ 1030
				24	
				25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information

Monitoring Well Diameter: _____ in
 Bottom of Monitoring Well: _____ ft bgs
 Stick Up or Flush Mount: _____
 Screen Interval: _____ To _____ ft bgs
 Riser Interval: _____ To _____ ft bgs
 Sand Pack Interval: _____ To _____ ft bgs
 Bentonite Seal: _____ To _____ ft bgs
 Grout Interval: _____ To _____ ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: _____ N/A ft
 Bottom of Tubing: _____ ft
 Top of Sand Pack: _____ ft
 Top of Bentonite Seal: _____ ft

Sample Parameters/Notes

TPH, SVOC, PP13 Metals, VOCs (high/low)
 Sample EA-11-0-2.5 @ 1030
 Sample EA-11-29-30 @ 1044
 Only moisture encountered; no evidence of groundwater table.

Logged by: B. Chambers, C. Maxwell
 Drilling Contractor: New England Geotech

Date: 3/18/20
 Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-09/MW-EA-9

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/19/20 **DATE** 3/19/20

Reference Elevation: _____ **Date:** _____ **TIME** 0900 **TIME** 1000

Reference Description: _____ **Surface Conditions:** Grass

Weather: Rain **Temperature:** 40 F

Blow Counts (140-lb) **In. Recvrd/ In. Driven** **Boring Diagram** **PID (ppm) 10.6 eV with isobutylene as reference gas** **Depth in Feet**

0 2" layer of organic matter at surface, followed by 1" layer of dark grayish black crushed asphalt or burnt frgments at 1.5 ft bgs. Moist medium tan sands with some medium gravel below.

1 Collect sample EA-9-0-2.5 @ 0910

2 3 Moist, medium light brownish sand with some gravel and pulverized rock at 5ft.

3 4 Moist, light brown medium sand becoming fine sand at 7.5 ft. Few gravels throughout.

4 5 Moist, brown medium sand with trace fine sand. Possible crushed asphalt layer at 9 ft bgs.

5 6 Moist, dark brown medium sand with trace small gravels.

6 7 Moist, light reddish brown medium and fine sands.

7 8 Moist, brown fine sand with trace silt. Wire fragment at approx. 16 ft.

8 9 Light brown medium sand with trace fine sands, some large rocks and trace gravel.

9 10

10 11

11 12

12 13

13 14

14 15

15 16

16 17

17 18

18 19

19 20

20

Monitoring Well Construction Information **Soil Vapor Point Installation Information**

Monitoring Well Diameter: 2 in
Bottom of Monitoring Well: 33 ft bgs
Stick Up or Flush Mount: _____ Stick Up

Screen Interval: 33 To 23 ft bgs
Riser Interval: 23 To 3 ft ags
Sand Pack Interval: 33 To 21 ft bgs
Bentonite Seal: 21 To 20 ft bgs
Grout Interval: 1 To 0 ft bgs

Depth of Soil Vapor Point: N/A ft
Bottom of Tubing: _____ ft
Top of Sand Pack: _____ ft
Top of Bentonite Seal: _____ ft

Sample Parameters/Notes
TPH-DRO, TPH-GRO, Lead, BTEX (high/low)
Sample EA-9-0-2.5 @ 0910
Sample EA-9-25-27.5 @ 1000
Groundwater encountered at approx 30 ft. Well screened 33-23 ft bgs.

Logged by: B. Chambers Date: 3/19/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817	Client: Rhode Island DEM	Location: 92 Sunnyside Ave, Woonsocket, RI	
Project: 92 Sunnyside Ave Phase II		Soil Boring/Well Number: EA-9/MW-EA-9	
Drilling Method: Geoprobe Direct Push		Sheet 2 of 2	
Sampling Method: Continuous w/ 5ft Poly Liners		Drilling	
Water Level:		Start	Finish
Time:		DATE 3/19/20	DATE 3/19/20
Date:		TIME 0900	TIME 1010

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvr/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in Feet	
				20	Moist, tan medium and fine sand with some medium rocks.
			0.1	21	
	40/60			22	Same as above
			0.1	23	
				24	Moist, light brown medium sand. Wet at approx. 26.5 ft.
	36/60		0.1	25	
				26	
			0.2	27	Wet, light brown medium and fine sand becoming silt and fine sand at approx. 30 ft. Collect sample EA-9-25-27.5 ft to capture water table interface @ approx 26 ft bgs
				28	
				29	PVC Screen
				30	
				31	Sand Pack
				32	
				33	Bentonite Seal
				34	
				35	Concrete Grout
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	2	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:	33	ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:		Stick Up		Top of Sand Pack:		ft	
Screen Interval:	33	To	23	Top of Bentonite Seal:		ft	
Riser Interval:	23	To	3	Sample Parameters/Notes			
Sand Pack Interval:	33	To	21	TPH-DRO, TPH-GRO, Lead, BTEX (high/low)			
Bentonite Seal:	21	To	20	Sample EA-9-0-2.5 @ 0910			
Grout Interval:	1	To	0	Sample EA-9-25-27.5 @ 1000			
				Groundwater encountered at approx 30 ft. Well screened 33-23 ft bgs.			

Logged by: B. Chambers Date: 3/19/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-10/MW-EA-10

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

Water Level: _____ **Drilling**
Time: _____ **Start** _____ **Finish** _____
Date: _____ **DATE** 3/19/20 **DATE** 3/19/20
TIME 1045 **TIME** 1145

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass
				in		Weather: Rain
				Feet	Temperature: 40 F
				0	3" layer of organic matter below surace. Crushed brick and black crushed asphalt or burnt rubble at 6" bgs followed by brown fine sands. Collect sample EA-10-0-2.5 @ 1045
	44/60		0.2	1	
				2	
	44/60		0.2	3	Moist, tan fine sand with trace medium sand.
				4	
	38/60		0.7	5	Moist, light brown medium and course sand with some gravel.
				6	
				7	
	38/60		144	8	Petroleum saturated black medium sand and dense fine sand at 10 ft. Strong petroleum odor. First evidence of petroleum beginning at approx. 8 ft bgs.
				9	
				10	
	36/60		183	11	Oil saturated dark gray medium sand. Most heavily saturated at 12 ft, then thinning from approx 12-15 ft bgs. Petroleum odor.
				12	
				13	
	36/60		208	14	Moist, gray, dense medium sand with petroleum odor. Not as oil saturated as 8-12ft interval.
				15	
				16	
	40/60		273.1	17	Approx. 6" of dark petroleum/groundwater mixture on top of soil in soil sleeve. Oil saturated black, dense medium sand with trace gravel. Petroleum odor. Collect Sample EA-10-15-17.5 @ 1145.
				18	
				19	
	40/60		222.6	20	Oil saturated, black medium sand with trace fine sand, few medium and small gravels. Petroleum odor.

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	2	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:	25	ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:		Stick Up		Top of Sand Pack:		ft	
Screen Interval:	25	To	5	Top of Bentonite Seal:		ft	
Riser Interval:	5	To	3	Sample Parameters/Notes			
Sand Pack Interval:	5	To	3	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Bentonite Seal:	3	To	2	Sample EA-10-0-2.5 @ 1045; Sample EA-10-15-17.5 @ 1145			
Grout Interval:	1	To	0	First evidence of petroleum at approx 8ft bgs, gw estimated at approx 15 ft bgs (oily water mixture in soil sleeve). Monitoring well installed 3/20/20.			

Logged by: B. Chambers Date: 3/19/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-10/MW-EA-10

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 2 of 2**

Water Level: _____ **Start** _____ **Finish** _____

Time: _____ **DATE** 3/19/20 **DATE** 3/19/20

Date: _____ **TIME** 1045 **TIME** 1145

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass
				in		Weather: Rain
				Feet	Temperature: 40 F
	28/60		158	20	Oil saturated, dark gray medium and coarse sand with trace silt. Petroleum odor.
				21	
				22	
			257	23	Oil saturated, dark gray coarse and fine sand. Thin 0.5" layer of gray silty clay at approx. 23 ft. bgs. Petroleum odor.
				24	
				25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	PVC Screen Sand Pack Bentonite Seal Concrete Grout
				39	
				40	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	2	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:	25	ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:		Stick Up		Top of Sand Pack:		ft	
Screen Interval:	25	To	5	Top of Bentonite Seal:		ft	
Riser Interval:	5	To	3				
Sand Pack Interval:	5	To	3	Sample Parameters/Notes			
Bentonite Seal:	3	To	2	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Grout Interval:	1	To	0	Sample EA-10-0-2.5 @ 1045; Sample EA-10-15-17.5 @ 1145			
				First evidence of petroleum at approx 8ft bgs, gw estimated at approx 15 ft bgs (oily water mixture in soil sleeve). Monitoring well installed 3/20/20.			

Logged by: B. Chambers Date: 3/19/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817	Client: Rhode Island DEM Project: 92 Sunnyside Ave Phase II	Location: 92 Sunnyside Ave, Woonsocket, RI
Drilling Method: Geoprobe Direct Push		Soil Boring/Well Number: EA-17/MW-EA-17
Sampling Method: Continuous w/ 5ft Poly Liners		Sheet 1 of 1
Water Level:		Drilling
Time:		Start Finish
Date:		DATE 3/19/20 DATE 3/19/20
		TIME 1220 TIME 1320

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass
				in		Weather: Rain
				Feet	Temperature: 40 F
				0	Damp, very dark brown fine sand with topsoil and organic matter 0-6" bgs. Collect sample EA-17-0-2.5 @ 1230.
	36		1.2	1	
				2	
				3	
	36		0.5	4	Moist, light brown fine sand with trace silt.
				5	
	36		0.5	6	Damp, tan fine sand with trace silt and some gravel.
				7	
				8	
	50		0.5	9	Moist, light reddish brown fine sand with trace coarse sand and few medium gravels.
				10	
				11	
	50		0.6	12	Moist, light brown course sand with some medium sand and trace gravel.
				13	
				14	
	60		1.2	15	Wet, brown course sand with silt until 13.5 ft bgs, then dark gray course and medium sand at 14 ft. bgs. Water table encountered at approx. 13.5 ft bgs.
				16	
				17	
	60		3.1	18	Wet, black course sand with some medium sand and trace gravel. Faint petroleum odor. Collect sample EA-17-15-17.5 @ 1300
				19	
				20	
			1.2	18	Wet, dark gray course sand with some medium sand. Borehole collapse and cannot continue.
				19	Set monitoring well MW-EA-17 with screen 20-10 ft bgs.
				20	PVC Screen Sand Pack Bentonite Seal Concrete Grout

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	2	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:	25	ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:		Stick Up		Top of Sand Pack:		ft	
Screen Interval:	20	To	10	Top of Bentonite Seal:		ft	
Riser Interval:	10	To	3				
Sand Pack Interval:	20	To	8	Sample Parameters/Notes			
Bentonite Seal:	8	To	7	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Grout Interval:	1	To	0	Sample EA-17-0-2.5 @ 1230; Sample EA-17-15-17.5 @ 1300			
				Black course sand & petroleum odor at approx 15ft bgs, water table encountered at 13.5 ft bgs. End boring at 20 ft due to bore hole collapse.			

Logged by B. Chambers Date: 3/19/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817	Client: Rhode Island DEM Project: 92 Sunnyside Ave Phase II	Location: 92 Sunnyside Ave, Woonsocket, RI
Drilling Method: Geoprobe Direct Push		Soil Boring/Well Number: EA-13/MW-EA-13
Sampling Method: Continuous w/ 5ft Poly Liners		Sheet 1 of 2
Water Level:		Drilling
Time:		Start Finish
Date:		DATE 3/19/20 DATE 3/19/20
		TIME 1445 TIME 1545

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in Feet	
				0	Moist dark brown topsoil and organic matter 0 to 6" bgs, becoming wet, dark brown fine sand with trace silt. Collect sample EA-13-0-2.5 @ 1515
			0.2	1	
	26/60			2	Dry, light brown medium sand with trace coarse sand and some small gravel.
			0.1	3	
				4	Dry, tan fine sand.
			0.5	5	
	50/60			6	Same as above.
			0.2	7	
				8	Same as above.
			0.2	9	
				10	Same as above.
			0.2	11	
	60/60			12	Same as above.
			0.2	13	
				14	Same as above. Minor borehole collapse.
			0.2	15	
	60/60			16	Same as above to 19.5 ft then a thin fine silt with trace clay layer. Wet light brown fine sand below 19.5 ft. Water table estimated at approx 20 ft.
			0.2	17	
				18	
			0.2	19	
				20	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	2	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:	25	ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:		Stick Up		Top of Sand Pack:		ft	
Screen Interval:	25	To	15	Top of Bentonite Seal:		ft	
Riser Interval:	15	To	3	Sample Parameters/Notes			
Sand Pack Interval:	15	To	13	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Bentonite Seal:	13	To	14	Sample EA-13-0-2.5 @ 1515; Sample EA-10-20-22.5 @ 1530			
Grout Interval:	1	To	0	No evidence of petroleum. Gw estimated at approx 19.5 or 20 ft bgs.			
				Monitoring well screened 25 to 15 ft bgs.			

Logged by: B. Chambers Date: 3/19/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-13/MW-EA-13

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 2 of 2**

Water Level: _____ **Drilling**
Time: _____ **Start** _____ **Finish** _____
Date: _____ **TIME 1445** _____ **TIME 1545** _____

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in Feet	
	60/60		0.1	20	Wet, tan fine sand with trace coarse sand. Sample EA-13-20-22.5 collected @ 1530 *Collect Duplicate EA-Dup-HM-2*
21					
			0.1	22	Same as above. Minor borehole collapse.
				23	
				24	
				25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	PVC Screen
				39	Sand Pack
				40	Bentonite Seal
					Concrete Grout

Monitoring Well Construction Information			
Monitoring Well Diameter:	2	in	
Bottom of Monitoring Well:	25	ft bgs	
Stick Up or Flush Mount:		Stick Up	
Screen Interval:	25	To	15 ft bgs
Riser Interval:	15	To	3 ft bgs
Sand Pack Interval:	15	To	13 ft bgs
Bentonite Seal:	13	To	14 ft bgs
Grout Interval:	1	To	0 ft bgs

Soil Vapor Point Installation Information	
Depth of Soil Vapor Point:	N/A ft
Bottom of Tubing:	ft
Top of Sand Pack:	ft
Top of Bentonite Seal:	ft
Sample Parameters/Notes	
TPH, SVOC, PP13 Metals, VOCs (high/low) Sample EA-13-0-2.5 @ 1515; Sample EA-10-20-22.5 @ 1530 No evidence of petroleum impacts. Gw estimated at approx 19.5 or 20 ft bgs. Monitoring well screened 25 to 15 ft bgs.	

Logged by: B. Chambers Date: 3/19/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-14

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/19/20 **DATE** 3/19/20

Reference Elevation: _____ **Date:** _____ **TIME** 1600 **TIME** 1630

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in	
				Feet	
				0	Dry brown topsoil and organic matter 0 to 6" bgs. Moist, dark brown fine silty sands becoming tan fine sands with trace coarse sand. Collect sample EA-14-0-2.5 @ 1615 Dry, dense, tan fine sand. Same as above. Same as above. Same as above. Same as above but damp at 14.5 ft bgs. Same as above but water table at approx. 15 ft. Collect sample EA-14-15-17.5 @ 1625 Wet, tan fine sand. Minor borehole collapse.
	26/60		0.2	1	
				2	
				3	
	50/60		0.1	4	
				5	
				6	
	60/60		0.5	7	
				8	
				9	
	60/60		0.2	10	
				11	
				12	
	60/60		0.2	13	
				14	
				15	
	60/60		0.2	16	
				17	
				18	
	60/60		0.2	19	
				20	

Monitoring Well Construction Information				Soil Vapor Point Installation Information					
Monitoring Well Diameter:	_____	N/A	_____	in	Depth of Soil Vapor Point:	_____	N/A	_____	ft
Bottom of Monitoring Well:	_____		_____	ft bgs	Bottom of Tubing:	_____		_____	ft
Stick Up or Flush Mount:	_____		_____		Top of Sand Pack:	_____		_____	ft
Screen Interval:	_____	To	_____	ft bgs	Top of Bentonite Seal:	_____		_____	ft
Riser Interval:	_____	To	_____	ft ags	Sample Parameters/Notes TPH, SVOC, PP13 Metals, VOCs (high/low) Sample EA-14-0-2.5 @ 1615; Sample EA-14-15-17.5 @ 1625 No evidence of petroleum. Groundwater table encountered at approx 15 ft bgs. Generally uniform fine dense sand. Boring located on hillside.				
Sand Pack Interval:	_____	To	_____	ft bgs					
Bentonite Seal:	_____	To	_____	ft bgs					
Grout Interval:	_____	To	_____	ft bgs					

Logged by: B. Chambers Date: 3/19/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:
Geoprobe Direct Push

Soil Boring/Well Number:
EA-14

Sampling Method:
Continuous w/ 5ft Poly Liners

Sheet 2
of 2

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Water Level: _____

Start

Finish

Reference Elevation: _____

Time: _____

DATE 3/19/20

DATE 3/19/20

Reference Description: _____

Date: _____

TIME 1600

TIME 1630

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in	
				Feet	
	60/60		0.1	20	Wet, tan fine sand with trace coarse sand. Sample EA-13-20-22.5 collected @ 1530
				21	
			0.1	22	Same as above.
				23	
				24	
				25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes TPH, SVOC, PPI3 Metals, VOCs (high/low) Sample EA-14-0-2.5 @ 1615; Sample EA-14-15-17.5 @ 1625 No evidence of petroleum. Groundwater table encountered at approx 15 ft bgs. Generally uniform fine dense sand. Boring located on hillside.			
Sand Pack Interval:		To	ft bgs				
Bentonite Seal:		To	ft bgs				
Grout Interval:		To	ft bgs				

Logged by: B. Chambers Date: 3/19/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-15

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 1**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/19/20 **DATE** 3/19/20

Reference Elevation: _____ **Date:** _____ **TIME** 1700 **TIME** 1745

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in	
				Feet	
	35/60		0.0	0	Most, dark brown topsoil with organic matter 0-2" bgs. Some crushed asphalt/burnt rubble or possibly coal in 1 to 2 ft interval Collect sample EA-15-0-2.5 @ 1720
				1	
				2	
	60/60		0.0	3	Moist, dark brown fine sand with sharp change to light brown fine sand at 4 ft bgs.
				4	
				5	
	60/60		0.0	6	Moist, dense, light brown fine sand with some medium sands.
				7	
				8	
	60/60		0.1	9	Moist, dense, reddish brown fine sand with trace medium sand and few small gravels.
				10	
				11	
	60/60		0.1	12	Moist, light brown medium sands with some crushed rock.
				13	
				14	
				15	Evidence of water table at 13.5 ft bgs. Wet, light brown medium sand with some fine sand. Complete borehole collapse. Collect sample EA-15-12.5-15 @ 1735.
				16	
				17	
				18	
				19	
				20	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes			
Sand Pack Interval:		To	ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Bentonite Seal:		To	ft bgs	Sample EA-15-0-2.5 @ 1720; Sample EA-15-12.5-15 @ 1735			
Grout Interval:		To	ft bgs	No evidence of petroleum. Groundwater table encountered at 13.5 ft bgs. Boring located on hillside. End boring at 15ft due to boring collapse			

Logged by: B. Chambers Date: 3/19/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-16

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/20/20 **DATE** 3/20/20

Reference Elevation: _____ **Date:** _____ **TIME** 0830 **TIME** 0900

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth		Surface Conditions: Grass
				in	Feet	
					0	
	40/60		0.2		1	Moist, black topsoil and organic matter 0-4" bgs, then brown fine sand. Collect sample EA-16-0-2.5 @ 0840
				2		
				3		
	50/60		0.2		4	Dry, tan medium sand with few gravels
				5		
				6		
	33/60		0.2		7	Dry, light brown medium and fine sand with pulverized rock at 7.5 ft bgs.
				8		
				9		
	44/60		0.2		10	Dry, dense, light brown fine sand.
				11		
				12		
			0.1		13	Same as above.
				14		
				15		
			0.1		16	Wet, grayish brown, medium sand with trace fine sand. Evidence of water table at 15 ft bgs. Collect sample EA-16-14.5-17 @0850. *Collect Matrix Spike and Matrix Spike Duplicate*
				17		
				18		
			0.1		19	Same as above but turning to reddish brown.
				20		

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes			
Sand Pack Interval:		To	ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Bentonite Seal:		To	ft bgs	Sample EA-16-0-2.5 @ 0840; Sample EA-16-14.5-17 and MS/MSD @ 0850,			
Grout Interval:		To	ft bgs	No evidence of petroleum. Sample collected from groundwater interface;			
				Groundwater table encountered at approx 15 ft bgs.			

Logged by: B. Chambers, G. Janigian
Drilling Contractor: New England Geotech

Date: 3/20/20
Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:

Geoprobe Direct Push

Soil Boring/Well Number:

EA-16

Sampling Method:

Continuous w/ 5ft Poly Liners

Sheet 2

of 2

Drilling

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: _____

Water Level: _____

Time: _____

Date: _____

Start

Finish

DATE 3/20/20

DATE 3/20/20

TIME 0830

TIME 0900

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in	
				Feet	
	35/60		0.1	20	Same as above. Minor borehole collapse.
				21	
				22	
			0.0	23	Wet, tan coarse sand with some medium and fine sands.
				24	
				25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information

Monitoring Well Diameter: _____ N/A _____ in
 Bottom of Monitoring Well: _____ ft bgs
 Stick Up or Flush Mount: _____
 Screen Interval: _____ To _____ ft bgs
 Riser Interval: _____ To _____ ft bgs
 Sand Pack Interval: _____ To _____ ft bgs
 Bentonite Seal: _____ To _____ ft bgs
 Grout Interval: _____ To _____ ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: _____ N/A _____ ft
 Bottom of Tubing: _____ ft
 Top of Sand Pack: _____ ft
 Top of Bentonite Seal: _____ ft

Sample Parameters/Notes

TPH, SVOC, PP13 Metals, VOCs (high/low)
 Sample EA-16-0-2.5 @ 0840; Sample EA-16-14.5-17 and MS/MSD @ 0850,
 No evidence of petroleum. Sample collected from groundwater interface;
 Groundwater table encountered at approx 15 ft bgs.

Logged by: B. Chambers, G. Janigian
 Drilling Contractor: New England Geotech

Date: 3/20/20
 Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Reference Elevation: _____

Reference Description: _____

Job No. 1525817	Client: Rhode Island DEM Project: 92 Sunnyside Ave Phase II	Location: 92 Sunnyside Ave, Woonsocket, RI
Drilling Method: Geoprobe Direct Push		Soil Boring/Well Number: EA-18
Sampling Method: Continuous w/ 5ft Poly Liners		Sheet 1 of 1
Water Level:		Drilling
Time:		Start DATE 3/20/20
Date:		Finish DATE 3/20/20
		TIME 0920
		TIME 0950

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Overcast Temperature: 45 F
				in	
				Feet	
	24/60	[Diagram]	0.8	0	Damp. Brown organic matter and fine sands 0 to 3', thin crushed asphalt/burnt rubble layer followed by fine and medium sand. Collect sample EA-18-0-2.5 @ 0925
				1	
				2	
	48/60	[Diagram]	1.2	3	Damp, orangish brown medium and fine sand followed by dark brown medium sand with some coarse sand and few gravel.
				4	
				5	
	28/60	[Diagram]	354	6	Wet, gray fine sandy silt with trace clay. Slight paint-like solvent odor.
				7	
				8	
	28/60	[Diagram]	549	9	Damp black fine sandy silt with some coarse sand, followed by black silt with trace clay at 9 ft bgs. Slight paint-like solvent odor. Sample EA-18-7.5-10 collected @ 0945.
				10	
				11	
	28/60	[Diagram]	298	12	Damp gray fine sand and some silt, trace coarse sand.
				13	
				14	
	28/60	[Diagram]	527	15	Light gray fine sand with some medium sand, pulverized rock at bottom. Resusal at 14.5 ft.
				16	
				17	
	28/60	[Diagram]	527	18	
				19	
				20	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes			
Sand Pack Interval:		To	ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Bentonite Seal:		To	ft bgs	Sample EA-18-0-2.5 @ 0925; Sample EA-18-17.5-10 @ 0945 at highest PID.			
Grout Interval:		To	ft bgs	Solvent/paint-like odor beginning at approx 5 ft bgs. Ponding in immediate vicinity of boring, difficult to distinguish groundwater.			

Logged by: B. Chambers, G. Janigian Date: 3/20/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817	Client: Rhode Island DEM Project: 92 Sunnyside Ave Phase II	Location: 92 Sunnyside Ave, Woonsocket, RI
Drilling Method: Geoprobe Direct Push		Soil Boring/Well Number: EA-19
Sampling Method: Continuous w/ 5ft Poly Liners		Sheet 1 of 1
Water Level:		Start
Time:		Finish
Date:		DATE 3/20/20
		DATE 3/20/20
		TIME 1015
		TIME 1040

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth		Surface Conditions: Grass
				in	Feet	Weather: Overcast
						Temperature: 45 F
	36/60		1.5	0		Moist, black organic matter and silty fine sand 0-2" bgs. Crushed asphalt/burnt rubble or possibly coal at 2", then dry light brown coarse and medium sand. Collect sample EA-19-0-2.5 @ 1020
1						
2						
	40/60		374	3		Moist, black medium sand with 2" layer of crushed rock at approx 2.5 ft bgs, followed by moist black, dense fine sand and silt. Sudden PID spike at 4 ft bgs. No odors indicating presence of petroleum impacts Collect sample EA-19-2.5-5 @ 1025.
4						
5						
	30/60		10.5	6		Damp, black fine sand and silt followed by damp dense gray silt with some pulverized rock.
7						
8						
	30/60		3.5	9		Damp, gray silt and fine sand turning to light gray at 9-10 ft bgs
10						
11						
	30/60		2.1	12		Wet, light gray fine sand with crushed rock throughout.
13						
14						
	30/60		2.1	15		Confining rock layer at 13.5 ft. Refusal at 13.5 ft bgs.
16						
17						
	30/60		2.1	18		
19						
20						

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes			
Sand Pack Interval:		To	ft bgs	TPH, SVOC, PP13 Metals, VOCs (high/low) AND Hexavalent Chromium			
Bentonite Seal:		To	ft bgs	Sample EA-19-0-2.5 @ 1020;			
Grout Interval:		To	ft bgs	Sample EA-19-2.5-5 @1025 at highest PID reading.			
				Refusal at 13.5 ft bgs.			

Logged by: B. Chambers, G. Janigian Date: 3/20/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-7

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/20/20 **DATE** 3/20/20

Reference Elevation: _____ **Date:** _____ **TIME** 1110 **TIME** 1250

Reference Description: _____ **Surface Conditions:** Grass

Weather: Overcast
Temperature: 45 F

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Description
				in	
				Feet	
				0	
	50/60		3.0	1	Moist, black organic matter and silty fine sand 0-5" bgs, then crushed asphalt/burnt rubble at 5" bgs. 1" layer of tar at 6", followed by light orangish brown medium sand. Collect sample EA-7-0-2.5 @ 1120
				2	
				3	
	60/60		2.6	4	Dry brown medium sand turning to light gray medium sand at 4.5 ft bgs.
				5	
	26/60		1.5	6	Dry, light gray coarse sand turning to damp, dark blackish brown medium sand.
				7	
				8	
	32/60		122.7	9	Damp dark brownish black medium sand. Oil saturated black medium sand at 9 ft bgs. Strong petroleum odor.
				10	
				11	
				12	
			355.4	13	Oil saturated dark brownish black dense fine sand. Strong petroleum odor. Collect sample EA-7-10-15 @ 1230 *Collect Matrix Spike and Matrix Spike Duplicate*
				14	
			345.4	15	Oil saturated dark brownish black dense fine sand. Strong petroleum odor.
				16	
				17	
			306.2	18	Same as above
				19	
				20	
				203.3	Same as above, very dense.

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes			
Sand Pack Interval:		To	ft bgs	TPH-DRO, TPH-GRO, Lead, BTEX (high/low)			
Bentonite Seal:		To	ft bgs	Sample EA-7-0-2.5 @ 1120; Sample EA-7-10-15 @ 1230			
Grout Interval:		To	ft bgs	Evidence of petroleum beginning at 9 ft bgs. Very dense silt layer at 24 ft bgs likely confining layer. Difficult to distinguish groundwater table.			

Logged by: B. Chambers, G. Janigian Date: 3/20/20
Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:
Geoprobe Direct Push

Soil Boring/Well Number:
EA-7

Sampling Method:
Continuous w/ 5ft Poly Liners

Sheet 2
of 2

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Water Level: _____ **Start** _____ **Finish** _____

Reference Elevation: _____

Time: _____ DATE 3/20/20 DATE 3/20/20

Reference Description: _____

Date: _____ TIME 1110 TIME 1250

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in	
				Feet	
	55/60		243.1	20	Same as above but with more water/oil mixture in soil sleeve. Some small light brown gravels.
				21	
				22	
			271.7	23	Thin light gray clay/silt layer at 23.5 ft followed by wet, light gray fine sand with reduced visual evidence of petroleum
				24	
			40.2	25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information				Soil Vapor Point Installation Information					
Monitoring Well Diameter:	_____	N/A	_____	in	Depth of Soil Vapor Point:	_____	N/A	_____	ft
Bottom of Monitoring Well:	_____		_____	ft bgs	Bottom of Tubing:	_____		_____	ft
Stick Up or Flush Mount:	_____		_____		Top of Sand Pack:	_____		_____	ft
Screen Interval:	_____	To	_____	ft bgs	Top of Bentonite Seal:	_____		_____	ft
Riser Interval:	_____	To	_____	ft ags	Sample Parameters/Notes TPH-DRO, TPH-GRO, Lead, BTEX (high/low) Sample EA-7-0-2.5 @ 1120; Sample EA-7-25-27.5 @ 1230 Evidence of petroleum beginning at 9 ft bgs. Very dense silt layer at 23.5 ft bgs possible petroleum confining layer.				
Sand Pack Interval:	_____	To	_____	ft bgs					
Bentonite Seal:	_____	To	_____	ft bgs					
Grout Interval:	_____	To	_____	ft bgs					

Logged by: B. Chambers, G. Janigian Date: 3/20/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-8

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 1**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE** 3/20/20 **DATE** 3/20/20

Reference Elevation: _____ **Date:** _____ **TIME** 1300 **TIME** 1340

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass/edge of remnent pavement
				in		Weather: Overcast
				Feet	Temperature: 45 F
	24/60		3.6	0	Moist, black organic matter and silty fine sand 0-2" bgs, then crushed asphalt/burnt rubble and coarse black sand at 2.5 " bgs Collect sample EA-7-0-2.5 @ 1305
				1	
				2	
	36/60		2.4	3	Layer of crushed concrete at approx 2.5 ft to 3 ft, then dry, brown medium sand. Layer of crushed brick at 4.5 ft..
				4	
				5	
	60/60		3.0	6	Dry blackish brown medium and course sand. Crushed asphalt/burnt rubble at 6 ft to 6.5 ft.
				7	
				8	
	20/60		2.8	9	Dry, blackish brown medium and coarse dry sand with trace fine sand and trace tree roots at 9-10 ft bgs.
				10	
				11	
			24.3	12	Dry, dark brown course sand 10 to 10.5 ft then oil-saturated black fine sands 10 to 13 ft. Strong petroleum odor.
				13	
				14	
			311.1	15	Oil saturated dark gray fine sand with some medium sand and trace course sand, and trace clay 13 to 15 ft bgs. Very dense.
				16	
				17	
			442.3	18	Oil saturated, dense, black fine sand. Strong petroleum/gasoline-like odor.
				19	
				20	
			323.5	18	Same as above. Drill gets stuck at 20 ft bgs. End boring at 20 ft. Collect sample EA-8-15-20; 5ft interval sampled due to low recovery. *Collect duplicate EA-Dup-PT*
				19	
				20	

Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	N/A	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:		ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:				Top of Sand Pack:		ft	
Screen Interval:		To	ft bgs	Top of Bentonite Seal:		ft	
Riser Interval:		To	ft ags	Sample Parameters/Notes			
Sand Pack Interval:		To	ft bgs	TPH-DRO, TPH-GRO, Lead, BTEX (high/low)			
Bentonite Seal:		To	ft bgs	Sample EA-8-0-2.5 @ 1315; Sample EA-8-15-20 @ 1330 at highest PID			
Grout Interval:		To	ft bgs	Evidence of petroleum beginning at approx 10 ft bgs. Difficult to distinguish groundwater table.			

Logged by: B. Chambers, G. Janigian
Drilling Contractor: New England Geotech

Date: 3/20/20
Driller: Hayes Rubijas



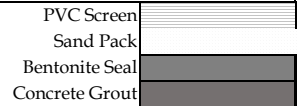
**EA Engineering, Science,
and Technology, Inc., PBC**

Job. No. 1525817	Client: Rhode Island DEM	Location: 92 Sunnyside Ave, Woonsocket, RI	
Project: 92 Sunnyside Ave Phase II		Soil Boring/Well Number: EA-20/ MW-EA-20	
Drilling Method: Geoprobe Direct Push		Sheet 1 of 2	
Sampling Method: Continuous w/ 5ft Poly Liners		Drilling	
Water Level:		Start	Finish
Time:		DATE 3/20/20	DATE 3/20/20
Date:		TIME 1335	TIME 1430

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
TOC Elevation: _____
Surface Elevation: _____
Reference Elevation: _____
Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass/edge of remnent pavement
				in		Weather: Overcast
				Feet	Temperature: 45 F
				0	Moist, black organic matter and silty fine sand 0-2" bgs, then dry dark brown coarse sand and silt with gravel layer at 2.5" bgs Collect sample EA-20-0-2.5 @ 1430
	24/60		2.5	1	
				2	
				3	
	36/60		13.6	4	Damp dark brown coarse sand
				5	
				6	
	60/60		10.4	7	Dry brown coarse sand with gravel
				8	
				9	
	20/60		25.4	10	Dry light brown gray medium sand
				11	
				12	
	60/60		7.9	13	Same as above but damp at 12.5 ft bgs. Groundwater table at 15 ft bgs.
				14	
				15	
	20/60		6.1	16	Saturated dark gray medium sand turning to fine sand. Collect sample EA-20-15-17.5 @ 1445
				17	
				18	
			7.8	19	Same as above. Dark brownish black silt with petroleum odor at 18 to 20 ft bgs.
				20	



Monitoring Well Construction Information				Soil Vapor Point Installation Information			
Monitoring Well Diameter:	2	in		Depth of Soil Vapor Point:	N/A	ft	
Bottom of Monitoring Well:	20	ft bgs		Bottom of Tubing:		ft	
Stick Up or Flush Mount:		Stick Up		Top of Sand Pack:		ft	
Screen Interval:	20	To	10	Top of Bentonite Seal:		ft	
Riser Interval:	10	To	3	Sample Parameters/Notes			
Sand Pack Interval:	20	To	8	TPH, SVOC, PP13 Metals, VOCs (high/low)			
Bentonite Seal:	8	To	7	Sample EA-20-0-2.5 @ 1430; Sample EA-20-15-17.5 @1445. Water table encountered at 15 ft bgs. Faint petroleum odor at approx 18 ft bgs.			
Grout Interval:	1	To	0				

Logged by B. Chambers, G. Janigian Date: 3/20/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:
Geoprobe Direct Push

Soil Boring/Well Number:
EA-20/ MW-EA-20

Sampling Method:
Continuous w/ 5ft Poly Liners

**Sheet 2
of 2**

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Water Level: _____

Start

Finish

Reference Elevation: _____

Time: _____

DATE 3/20/20

DATE 3/20/20

Reference Description: _____

Date: _____

TIME 1335

TIME 1430

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Rain Temperature: 40 F
				in	
				Feet	
	60/60		8.0	20	Saturated gray medium sand with some gravel at 22.5 ft bgs
				21	
				22	
			7.8	23	Saturated gray coarse sand then orange coarse sand with some gravel.
				24	
				25	
				26	
				27	
				28	
				29	
				30	
				31	
				32	
				33	
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information

Monitoring Well Diameter: 2 in
 Bottom of Monitoring Well: 20 ft bgs
 Stick Up or Flush Mount: Stick Up
 Screen Interval: 20 To 10 ft bgs
 Riser Interval: 10 To 3 ft bgs
 Sand Pack Interval: 20 To 8 ft bgs
 Bentonite Seal: 8 To 7 ft bgs
 Grout Interval: 1 To 0 ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: N/A ft
 Bottom of Tubing: _____ ft
 Top of Sand Pack: _____ ft
 Top of Bentonite Seal: _____ ft

Sample Parameters/Notes

TPH, SVOC, PP13 Metals, VOCs (high/low)
 Sample EA-20-0-2.5 @ 1430; Sample EA-20-15-17.5 @1445. Water table encountered at 15 ft bgs. Faint petroleum odor at approx 18 ft bgs.

Logged by: B. Chambers, G. Janigian
 Drilling Contractor: New England Geotech

Date: 3/20/20
 Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No. 1525817 **Client:** Rhode Island DEM
Project: 92 Sunnyside Ave Phase II **Location:** 92 Sunnyside Ave, Woonsocket, RI

Drilling Method: Geoprobe Direct Push **Soil Boring/Well Number:** EA-21

Sampling Method: Continuous w/ 5ft Poly Liners **Sheet 1 of 2**

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____

TOC Elevation: _____ **Water Level:** _____ **Start** _____ **Finish** _____

Surface Elevation: _____ **Time:** _____ **DATE 3/20/20** **DATE 3/20/20**

Reference Elevation: _____ **Date:** _____ **TIME 1630** **TIME 1715**

Reference Description: _____

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth		Surface Conditions: Grass
				in	Feet	
				0		Dry, dark brown topsoil/fine sand then fine silty sand with trace coarse sand. Collect Sample EA-21-0-2.5 @ 1630
	50/60		0.5	1		
				2		
				3		Dry, light brown fine and medium sand with some small gravels.
	60/60		0.3	4		
				5		
				6		Dry medium and fine tan sand.
	60/60		2.7	7		
				8		
				9		Dry tan medium sand.
	50/60		2.0	10		
				11		
				12		Same as above.
	50/60		4.9	13		
				14		
				15		Dry, tan fine sand.
	60/60		2.5	16		
				17		
				18		Same as above.
	60/60		2.0	19		
				20		

Monitoring Well Construction Information				Soil Vapor Point Installation Information					
Monitoring Well Diameter:	_____	N/A	_____	in	Depth of Soil Vapor Point:	_____	N/A	_____	ft
Bottom of Monitoring Well:	_____		_____	ft bgs	Bottom of Tubing:	_____		_____	ft
Stick Up or Flush Mount:	_____		_____		Top of Sand Pack:	_____		_____	ft
Screen Interval:	_____	To	_____	ft bgs	Top of Bentonite Seal:	_____		_____	ft
Riser Interval:	_____	To	_____	ft bgs	Sample Parameters/Notes TPH, SVOC, PP13 Metals, VOCs (high/low) Sample EA-21-0-2.5 @ 1630 Sample EA-21-32.5-35 @ 1705 Only slight moisture observed; no evidence of water table encountered.				
Sand Pack Interval:	_____	To	_____	ft bgs					
Bentonite Seal:	_____	To	_____	ft bgs					
Grout Interval:	_____	To	_____	ft bgs					

Logged by: B. Chambers, G. Janigian Date: 3/20/20
 Drilling Contractor: New England Geotech Driller: Hayes Rubijas



**EA Engineering, Science,
and Technology, Inc., PBC**

Job No.
1525817

Client: Rhode Island DEM
Project: 92 Sunnyside Ave Phase II

Location:
92 Sunnyside Ave, Woonsocket, RI

Drilling Method:
Geoprobe Direct Push

Soil Boring/Well Number:
EA-21

Sampling Method:
Continuous w/ 5ft Poly Liners

Sheet 2
of 2

LOG OF SOIL BORING
Coordinates: Northing _____ Easting: _____

TOC Elevation: _____

Surface Elevation: _____

Water Level: _____

Start

Finish

Reference Elevation: _____

Time: _____

DATE 3/20/20

DATE 3/20/20

Reference Description: _____

Date: _____

TIME 1630

TIME 1715

Blow Counts (140-lb)	In. Recvrd/ In. Driven	Boring Diagram	PID (ppm) 10.6 eV with isobutylene as reference gas	Depth	Surface Conditions: Grass Weather: Overcast Temperature: 45 F
				in	
				Feet	
				20	
	60/60		2.4	21	Same as above.
				22	
	60/60		2.7	23	Same as above.
				24	
	60/60		2.5	25	Same as above.
				26	
				27	
	60/60		1.4	28	Same as above.
				29	
	60/60		0.9	30	Same as above.
				31	
				32	
	60/60		1.2	33	Same as above. Wet at 33 ft bgs. Collect sample EA-21-32.5-35 @1705.
				34	
				35	
				36	
				37	
				38	
				39	
				40	

Monitoring Well Construction Information

Monitoring Well Diameter: N/A in
 Bottom of Monitoring Well: ft bgs
 Stick Up or Flush Mount:
 Screen Interval: To ft bgs
 Riser Interval: To ft bgs
 Sand Pack Interval: To ft bgs
 Bentonite Seal: To ft bgs
 Grout Interval: To ft bgs

Soil Vapor Point Installation Information

Depth of Soil Vapor Point: N/A ft
 Bottom of Tubing: ft
 Top of Sand Pack: ft
 Top of Bentonite Seal: ft

Sample Parameters/Notes

TPH, SVOC, PP13 Metals, VOCs (high/low)
 Sample EA-21-0-2.5 @ 1630
 Sample EA-21-32.5-35 @ 1705
 Only slight moisture observed; no evidence of water table encountered.

Logged by: B. Chambers, G. Janigian
 Drilling Contractor: New England Geotech

Date: 3/20/20
 Driller: Hayes Rubijas

Appendix I

Monitoring Well Development Logs

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**FIELD RECORD OF WELL DEVELOPMENT**

Project Name: Sunnyside Ave Site Investigation	Location ID: MW-EA-1
Address: 761 & 92 Sunnyside Ave, Woonsocket RI	Date: 9/20/19
Project Number: 1525815	Time: 1600
Personnel: Britta Chambers, Dan Allen	Weather: ~75 deg F, sunny
Well ID: MW-EA-1	Ambient Air / Well Headspace (ppm):
Well Secure: <u>Yes</u> / No	Well Grout Date: 9/20/19
Well Condition: Good	Well Installation Date: 9/20/19
Well Diameter: 2"	Well Completion: 3 ft standpipe
Equipment: Interface probe, submersible whale pump	Length of Screen (ft):
	Depth to Pump Intake (ft): 22.5-23.7

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, **2 / 0.163**, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) = 23.7 - 19.12 = 4.58 ft Well Volume (gal/ft depth) x Liquid Depth = 4.58 x 0.163 = 0.75 gal = 1 well volume

Interval	Time (hhmm)	Depth to Water (ft)	Pump Rate (gpm)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	1605	19.12							
1			Begin purging, water has very strong petroleum odor and visible sheen/oil in purge water. Interface probe and whale pump heavily coated with viscous black oil-like substance, possibly fuel oil.						
2	1615		Well runs dry and end purging.						
3									
4									
5									
6									
7									
8									
9									
10									

Depth to Sediment Before Development: 23.7	Estimated Recharge Rate:
Depth to Sediment After Development: 23.8	Total Surging Time: ~10 min
Is the Sediment Thickness <1% of the Screen Length? <u>Yes</u> / No **	Total Amount Purged (gal): ~1 gal
Screen from 24"-14" bgs	(Minimum 3 to 5 times the well volume)

Comments: See above. Heavily sediment laden and strong evidence of petroleum product in water column. Could not confidently assume depth of oil/water interface but amount of oil in water observed to be fairly well mixed; maybe hadnt settled since install in morning of 9/20/19.

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:

- Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
- Proper well construction has been verified
- Turbidity has stabilized within <10 percent over three successive well volumes
- Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.



FIELD RECORD OF WELL DEVELOPMENT

Project Name: <u>Sunnyside RIDEM TAC</u>		Location ID: <u>EA-MW-20</u>	
Address: <u>92 Sunnyside Ave</u>		Date: <u>3/23/20</u>	
Project Number: <u>1525817</u>		Time: <u>1330</u>	
Personnel: <u>G Jangjan + C Maxwell</u>		Weather: <u>Sun, 50°</u>	
Well ID: <u>MW-20</u>		Ambient Air / Well Headspace (ppm):	
Well Secure: <input checked="" type="radio"/> Yes / No	Well Grout Date:	Depth to Product (ft): <u>-</u>	
Well Condition: <u>new</u>	Well Installation Date: <u>March 2020</u>	Depth to Water (ft): <u>17.61</u>	
Well Diameter: <u>2"</u>	Well Completion: <u>stand pipe</u>	Depth of Well (ft): <u>22.90</u>	
Equipment: <u>whale pump</u>		Length of Screen (ft): <u>10'</u>	
		Depth to Pump Intake (ft): <u>~20</u>	

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, 2 / 0.163, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) = 5' Well Volume (gal/ft depth) x Liq. Depth = 0.6 gal

Stabilization Goal:			<u>vOLUME</u>	10%	3%	+/- 0.3 mg/L	+/- 0.1	+/- 10 mV	<10 NTU*
Interval	Time (hhmm)	Depth to Water (ft)	Rump Rate (gpm)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	<u>1333</u>	<u>17.61</u>							
1	<u>1336</u>		<u>1 gal</u>						<u>slightly silty</u>
2	<u>1339</u>		<u>2 gal</u>						<u>Mostly clear</u>
3	<u>1345</u>		<u>3 gal</u>						<u>clear</u>
4	<u>1346</u>		<u>5 gal</u>						<u>✓ clear</u>
5									
6									
7									
8									
9									
10									

Depth to Sediment Before Development: <u>18.90 22.90</u>	Estimated Recharge Rate: <u>~0.3 gpm</u>
Depth to Sediment After Development: <u>23.00</u>	Total Surging Time: <u>~3 mins</u>
Is the Sediment Thickness <1% of the Screen Length? <input checked="" type="radio"/> Yes / No **	Total Amount Purged (gal): <u>5 gal</u> (Minimum 3 to 5 times the well volume)

Comments: Some organic odor but perfectly clear water

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:

- Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
- Proper well construction has been verified
- Turbidity has stabilized within <10 percent over three successive well volumes
- Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.



FIELD RECORD OF WELL DEVELOPMENT

Project Name: <u>Sunnyside RIDEM TAE</u>	Location ID: <u>EA-MW-17</u>
Address: <u>95 Sunnyside Ave</u>	Date: <u>3/26/20</u>
Project Number: <u>1525817</u>	Time: <u>1420</u>
Personnel: <u>B Janigan</u>	Weather: <u>50 sunny</u>
Well ID: <u>MW-17</u>	Ambient Air / Well Headspace (ppm):
Well Secure: <u>(Yes)</u> / No	Well Grout Date: <u>-</u>
Well Condition: <u>new</u>	Well Installation Date: <u>March 2020</u>
Well Diameter: <u>2"</u>	Well Completion: <u>stand pipe</u>
Equipment: <u>whale pump, IP</u>	Depth to Product (ft): <u>-</u>
	Depth to Water (ft): <u>14.97</u>
	Depth of Well (ft): <u>22.70</u>
	Length of Screen (ft): <u>10'</u>
	Depth to Pump Intake (ft): <u>variable</u>

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, 2 / 0.163, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) =

Well Volume (gal/ft depth) x Liq. Depth =

Interval	Time (hhmm)	Depth to Water (ft)	Volume Pump Rate (gph)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	<u>1430</u>	<u>14.97</u>							
1	<u>1440</u>		<u>2.5 g</u>						
2	<u>1450</u>		<u>5 g</u>						
3	<u>1500</u>		<u>6 g</u>						
4	<u>1510</u>		<u>~10 g</u>						
5									
6									
7									
8									
9									
10									

Depth to Sediment Before Development: <u>22.70</u>	Estimated Recharge Rate: <u>~5 gpm</u>
Depth to Sediment After Development: <u>22.75</u>	Total Surging Time: <u>entire time</u>
Is the Sediment Thickness <1% of the Screen Length? <u>(Yes)</u> / No **	Total Amount Purged (gal): <u>~10 gal</u> (Minimum 3 to 5 times the well volume)

Comments: purged ~10 gal total, water stayed gray w/ slight odor, never cleared but no silt
H2O drummed

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:
 - Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
 - Proper well construction has been verified
 - Turbidity has stabilized within <10 percent over three successive well volumes
 - Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.



FIELD RECORD OF WELL DEVELOPMENT

Project Name: <i>Sunnyside RDEM TAC</i>		Location ID: <i>EA-MW-10</i>	
Address: <i>92 Sunnyside Ave</i>		Date: <i>3/20/20</i>	
Project Number: <i>152258.17</i>		Time: <i>1700</i>	
Personnel: <i>G Janqian</i>		Weather: <i>Sunny 50</i>	
Well ID: <i>MW-10</i>		Ambient Air / Well Headspace (ppm): <i>---</i>	
Well Secure: <input checked="" type="radio"/> Yes / No	Well Grout Date: <i>March 2020</i>	Depth to Product (ft): <i>---</i>	
Well Condition: <i>new</i>	Well Installation Date: <i>March 2020</i>	Depth to Water (ft): <i>17.60</i> ⁵	
Well Diameter: <i>2"</i>	Well Completion: <i>stand pipe</i>	Depth of Well (ft): <i>27.75</i>	
Equipment: <i>bailer, IP</i>		Length of Screen (ft): <i>20</i>	
		Depth to Pump Intake (ft): <i>variable</i>	

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, 2 / 0.163, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) =

Well Volume (gal/ft depth) x Liq. Depth =

Stabilization Goal:				10%	3%	+/- 0.3 mg/L	+/- 0.1	+/- 10 mV	<10 NTU*
Interval	Time	Depth to Water	Pump Rate	Temperature	Conductivity	Dissolved Oxygen	pH	ORP	Turbidity
	(hhmm)	(ft)	(gpm)	(C)	(ms/cm)	(mg/L)		(mV)	(NTU)
Start									
1	<i>bailed ~ 1 gal - oily w/ odor ^{+ screen} but only slightly cloudy</i>								
2									
3	<i>oil on outside of bailer - see picture</i>								
4									
5	<i>top</i>								
6									
7									
8									
9									
10									

Depth to Sediment Before Development: *---*

Estimated Recharge Rate: *---*

Depth to Sediment After Development: *---*

Total Surging Time: *---*

Is the Sediment Thickness <1% of the Screen Length? Yes No ** *NA*

Total Amount Purged (gal): *---*

(Minimum 3 to 5 times the well volume)

Comments: *Did not fully develop well - just bailed to see amount of oil*

H₂O drummed

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:

- Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
- Proper well construction has been verified
- Turbidity has stabilized within <10 percent over three successive well volumes
- Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.



FIELD RECORD OF WELL DEVELOPMENT

Project Name: <u>Sunnyside RIDEM TAC</u>		Location ID: <u>EA-MW-9</u>	
Address: <u>92 Sunnyside Ave</u>		Date: <u>3/26/20</u>	
Project Number: <u>1525817</u>		Time: <u>1015</u>	
Personnel: <u>G. Tamgon + C. Maxwell</u>		Weather: <u>Sunny 45°F</u>	
Well ID: <u>MW-9</u>		Ambient Air / Well Meadspace (ppm): <u>-</u>	
Well Secure: <u>Yes</u> / No	Well Grout Date: <u>-</u>	Depth to Product (ft): <u>-</u>	
Well Condition: <u>New</u>	Well Installation Date: <u>3/19/20</u>	Depth to Water (ft): <u>29.28</u>	
Well Diameter: <u>2"</u>	Well Completion:	Depth of Well (ft): <u>35.28</u>	
Equipment: <u>Mini whale pump, battery</u>		Length of Screen (ft): <u>10'</u>	
		Depth to Pump Intake (ft): <u>variable</u>	

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, 2 / 0.163, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) =

Well Volume (gal/ft depth) x Liq. Depth =

Stabilization Goal:			10%	3%	+/- 0.3 mg/L	+/- 0.1	+/- 10 mV	<10 NTU*	
Interval	Time (hhmm)	Depth to Water (ft)	Pump Rate (gpm)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	1020								
1	1100		~2.5g						Silty
2	1120		~3g						Silty
3	1130		~4.2g						" "
4	1150		~7.5g						" "
5	1245		~15g						much clearer than at the start but still slightly cloudy
6									
7									
8	purged ~15g total								
9									
10									

Depth to Sediment Before Development: <u>35.28</u>	Estimated Recharge Rate: <u>~1 gpm</u>
Depth to Sediment After Development: <u>35.42</u>	Total Surging Time: <u>entire time</u>
Is the Sediment Thickness <1% of the Screen Length? <u>Yes</u> / No **	Total Amount Purged (gal): <u>15 gal</u> (Minimum 3 to 5 times the well volume)

Comments: DTW too deep for small whale pump
resorted to bailer, water never fully cleared, H₂O drummed no odor or screen

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:
 - Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
 - Proper well construction has been verified
 - Turbidity has stabilized within <10 percent over three successive well volumes
 - Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.



FIELD RECORD OF WELL DEVELOPMENT

Project Name: <u>Sunnyside RIDEM TAE</u>		Location ID: <u>EA-MW-13</u>	
Address: <u>92 Sunnyside Ave</u>		Date: <u>3/26/20</u>	
Project Number: <u>1525817</u>		Time: <u>1550</u>	
Personnel: <u>G Janigan</u>		Weather: <u>Sunny 50</u>	
Well ID: <u>MW-13</u>		Ambient Air / Well Headspace (ppm): <u>—</u>	
Well Secure: <u>(Yes)</u> / No	Well Grout Date: <u>—</u>	Depth to Product (ft): <u>—</u>	
Well Condition: <u>new</u>	Well Installation Date: <u>March 2020</u>	Depth to Water (ft): <u>19.41</u>	
Well Diameter: <u>2"</u>	Well Completion: <u>stand pipe</u>	Depth of Well (ft): <u>28.1</u>	
Equipment: <u>whale pump, IP</u>		Length of Screen (ft): <u>10'</u>	
		Depth to Pump Intake (ft): <u>variable</u>	

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, 2 / 0.163, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) = _____ Well Volume (gal/ft depth) x Liq. Depth = _____

Stabilization Goal:			<i>Volume</i>	10%	3%	+/- 0.3 mg/L	+/- 0.1	+/- 10 mV	<10 NTU*
Interval	Time (hhmm)	Depth to Water (ft)	Pump Rate (gpm)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	<u>11000</u>	<u>19.41</u>							
1	<u>11010</u>		<u>~2g</u>						
2	<u>11015</u>		<u>~5g</u>			<u>slightly silty to</u>			
3						<u>very clear, no odor</u>			<u>begin by cleared quickly</u>
4									
5									
6									
7									
8									
9									
10									

Depth to Sediment Before Development: <u>28.1</u>	Estimated Recharge Rate: <u>~1 gpm</u>
Depth to Sediment After Development: <u>28.20</u>	Total Surging Time: <u>entire time</u>
Is the Sediment Thickness <1% of the Screen Length? Yes / No **	Total Amount Purged (gal): <u>5 gal</u> (Minimum 3 to 5 times the well volume)

Comments: Water cleared very quickly, #
very little silt, no odor

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:
 - Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
 - Proper well construction has been verified
 - Turbidity has stabilized within <10 percent over three successive well volumes
 - Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.



FIELD RECORD OF WELL DEVELOPMENT

Project Name: <u>Sunnyside - RIDEM TAC</u>	Location ID: <u>EA-MW-2</u>
Address: <u>92 Sunnyside Ave</u>	Date: <u>3/26/20</u>
Project Number: <u>15258.17</u>	Time: <u>1000</u>
Personnel: <u>C. Maxwell</u>	Weather: <u>Sunny 45°F</u>
Well ID: <u>MW-2</u>	Ambient Air / Well Headspace (ppm):
Well Secure: <u>Yes</u> / No	Well Grout Date: <u>Sept 2019</u>
Well Condition: <u>new</u>	Well Installation Date:
Well Diameter: <u>2"</u>	Well Completion: <u>Flush</u>
Equipment: <u>bauler, IP</u>	Depth to Product (ft): <u>25.25</u>
	Depth to Water (ft): <u>25.85</u>
	Depth of Well (ft): <u>27.68</u>
	Length of Screen (ft): <u>10'</u>
	Depth to Pump Intake (ft): <u>Variable</u>

Standard Volumes (Diameter [in.] / gal per ft): 1 / 0.041, 1.5 / 0.092, 2 / 0.163, 4 / 0.653

Liquid Depth (Well Depth + Depth of Water) = 2.5' Well Volume (gal/ft depth) x Liq. Depth = 0.3 gal

Interval	Time (hhmm)	Depth to Water (ft)	Volume Pump Rate (gpm)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	<u>1055</u>	<u>25.25</u>							
1	<u>1058</u>		<u>~1 gal</u>						<u>brown silty</u>
2	<u>1100</u>		<u>~2 gal</u>						<u>"</u>
3	<u>1103</u>		<u>~3 gal</u>						<u>"</u>
4	<u>1108</u>		<u>~4 gal</u>						<u>"</u>
5	<u>1112</u>		<u>~5 gal</u>						<u>"</u>
6	<u>1115</u>		<u>~6 gal</u>						<u>"</u>
7	<u>1117</u>		<u>~7 gal</u>						<u>less silty</u>
8	<u>1120</u>		<u>~8 gal</u>						<u>less silty</u>
9	<u>1122</u>		<u>~9 gal</u>						<u>Mostly clear</u>
10	<u>1124</u>		<u>10 gal</u>						<u>clear</u>

Depth to Sediment Before Development: <u>27.68</u>	Estimated Recharge Rate: <u>~1 gpm</u>
Depth to Sediment After Development: <u>27.68</u>	Total Surging Time: <u>entire time</u>
Is the Sediment Thickness <1% of the Screen Length? <u>Yes</u> / No ** <u>bottom feels hard</u>	Total Amount Purged (gal): <u>10 gal (+20 wv)</u> (Minimum 3 to 5 times the well volume)

Comments: During gauging no odor/residue - confirm w/ builder - NO NAPL layer. DTW is too deep for whale pump. use disposable bailer. No drummed. No sheen or odor

* When low turbidity is difficult to obtain, development can stop when the following conditions are met:
 - Several procedures have been tried (i.e., surge and purge utilizing a surge block, or air lifting)
 - Proper well construction has been verified
 - Turbidity has stabilized within <10 percent over three successive well volumes
 - Conductivity and pH have stabilized over at least three successive well volumes. pH, temperature, and conductivity may not stabilize if water quality has been degraded.

** Development should continue until sediment thickness is <1% the screen length, or 0.1 ft on a 10 ft screen.

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Appendix J
Groundwater Sampling Logs

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**FIELD RECORD OF WELL PURGING AND SAMPLING**

Project Name: Sunnyside Ave Site Investigation	Location ID: MW-EA-1
Project Number: 1525815	Date: 9/24/19
Personnel: Britta Chambers	Time: 1500
Sampling Method: Bailer	Weather: Sunny, 75 deg F
Well Secure: <u>Yes</u> / No	Ambient Air / Well Headspace (ppm): N/A
Well Condition: New (developed on 9/20/19)	Depth to Product (ft): nable to confidently determine
Well Diameter: 2"	Depth to Water (ft): 22' from top of casing (~14 ft bgs)
Well Completion: Standpipe (~3 ft tall)	Depth of Well (ft): 27' from top of csaing (~24 ft bgs - based on install)
Equipment: Bailer/string	Depth of Screen Interval (ft): 24'-14'
	Depth to Pump Intake (ft): ~2-3 ft below DTW bailer length

EPA Stabilization Goal:		<0.02 ft/min	100-500 ml/min	10%	3%	10%	+/- 0.1	+/- 10 mV	10% or <5
Interval	Time (hhmm)	Depth to Water (ft)	Purge Rate (ml/min)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	1505								
1	Notes: Pulled up first bailer with approximately 2 ft of clear water; dark oil smear on tip/outside of bailer.								
2	Call project manager to see if he wants to purge 3 well vol or go ahead and collect sample. Says to collect sample.								
3	Sample time: 1515								
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: MW-EA-1	Comments: Bailer gets progressively more oil covered; completely coated in black viscous oil by end of sampling. Very strong petroleum odor and sheen ion water. Moderately turbid.
Sampling Date: 9/24/19	
Sampling Time (Start / End): 1515-1540	
Sample Parameters: PAH, PCB, TPH, VOC, PP13 metals	

Total Amount Purged (L): First bailer had ~0.5 gal emptied into purge bucket. No other purge water generated. Approximately 8 L of water taken in sample bottles.



FIELD RECORD OF WELL PURGING AND SAMPLING

Project Name: Sunnyside RIDEM TAC	Location ID: EA-MW-17
Project Number: 1525817	Date: 4/1/20
Personnel: G Janigan	Time: 1500
Sampling Method: Low Flow	Weather: cloudy 30s
Well Secure: <input checked="" type="checkbox"/> Yes / No	Ambient Air / Well Headspace (ppm): -
Well Condition: new	Depth to Product (ft): -
Well Diameter: 2"	Depth to Water (ft): 14.89
Well Completion: stand pipe	Depth of Well (ft): 22.75
Equipment: WLM, peri pump, turb meter YSI	Depth of Screen Interval (ft): 10-20
	Depth to Pump Intake (ft): ~20 ft

EPA Stabilization Goal:		<0.02 ft/min	100-500 ml/min	10%	3%	10%	+/- 0.1	+/- 10 mV	10% or <5
Interval	Time (hhmm)	Depth to Water (ft)	Purge Rate (ml/min)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	1505	14.89							
1	1508	15.05	270	8.91	.216	.39	7.08	-44.4	5.15
2	1513	15.05	250	8.87	.215	.35	7.13	-53.0	3.49
3	1518	15.04	250	8.86	.214	.22	7.10	-49.8	3.14
4	1522	15.04	250	8.85	.214	.18	7.11	-52.3	3.26
5	1526	15.04	250	8.82	.214	.21	7.13	-56.7	3.03
6	1530	15.04	250	8.85	.215	.16	7.16	-60.8	3.48
7									
8									
9	sample at		1535						
10									
11	collect duplicate								
12									
13	EA HazMat Dup								
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: EA-MW-17	Comments: water had slight odor
Sampling Date: 4/1/20	
Sampling Time (Start / End): 1530 / 1535	
Sample Parameters: TPH, SVOLs, VOC, PAH metals	
Total Amount Purged (L): ~2 gal	



FIELD RECORD OF WELL PURGING AND SAMPLING

Project Name: <u>Sunnyside RIDEM TAL</u>	Location ID: <u>EA-MW-13</u>
Project Number: <u>1525817</u>	Date: <u>4/1/20</u>
Personnel: <u>B Janigan</u>	Time: <u>1640</u>
Sampling Method: <u>Low Flow</u>	Weather: <u>cloudy 30s</u>
Well Secure: <u>Yes</u> / No	Ambient Air / Well Headspace (ppm): <u>-</u>
Well Condition: <u>new</u>	Depth to Product (ft): <u>-</u>
Well Diameter: <u>2"</u>	Depth to Water (ft): <u>19.23</u>
Well Completion: <u>standpipe</u>	Depth of Well (ft): <u>28.2</u>
Equipment: <u>VSI, WLM, per. pump, turbometer</u>	Depth of Screen Interval (ft): <u>5-25</u>
	Depth to Pump Intake (ft): <u>-26</u>

EPA Stabilization Goal:		<0.02 ft/min	100-500 ml/min	10%	3%	10%	+/- 0.1	+/- 10 mV	10% or <5
Interval	Time (hhmm)	Depth to Water (ft)	Purge Rate (ml/min)	Temper- ature (C)	Conduc- tivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	<u>1640</u>	<u>19.23</u>							
1	<u>1648</u>	<u>19.23</u>	<u>290</u>	<u>9.81</u>	<u>.450</u>	<u>7.48</u>	<u>6.99</u>	<u>9.2</u>	<u>11.3</u>
2	<u>1653</u>	<u>19.23</u>	<u>240</u>	<u>10.12</u>	<u>.406</u>	<u>7.19</u>	<u>6.81</u>	<u>25.8</u>	<u>3.70</u>
3	<u>1658</u>	<u>19.23</u>	<u>240</u>	<u>10.18</u>	<u>.448</u>	<u>7.93</u>	<u>6.72</u>	<u>34.4</u>	<u>3.33</u>
4	<u>1702</u>	<u>19.23</u>	<u>240</u>	<u>10.15</u>	<u>.422</u>	<u>8.23</u>	<u>6.72</u>	<u>35.0</u>	<u>3.60</u>
5	<u>1705</u>	<u>19.23</u>	<u>240</u>	<u>10.20</u>	<u>.408</u>	<u>8.09</u>	<u>6.71</u>	<u>35.3</u>	<u>1.48</u>
6	<u>1708</u>	<u>19.23</u>	<u>240</u>	<u>10.19</u>	<u>.399</u>	<u>8.22</u>	<u>6.71</u>	<u>35.9</u>	<u>1.47</u>
7	<u>1711</u>	<u>19.23</u>	<u>240</u>	<u>10.19</u>	<u>.386</u>	<u>8.30</u>	<u>6.72</u>	<u>35.8</u>	<u>1.31</u>
8	<u>1714</u>	<u>19.23</u>	<u>240</u>	<u>10.21</u>	<u>.381</u>	<u>8.35</u>	<u>6.72</u>	<u>35.5</u>	<u>1.07</u>
9	<u>1717</u>	<u>19.23</u>	<u>240</u>	<u>10.21</u>	<u>.378</u>	<u>8.38</u>	<u>6.72</u>	<u>35.0</u>	<u>1.02</u>
10									
11									
12	<u>sample @</u>		<u>1720</u>	<u>EA-MW-13</u>					
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: <u>EA-MW-13</u>	Comments: <u>clear water, no odor</u>
Sampling Date: <u>4/1/20</u>	
Sampling Time (Start / End): <u>1720</u>	
Sample Parameters: <u>TPH, SVOCs, VOCs, PP13 metals</u>	
Total Amount Purged (L): <u>~2.5 gal</u>	



FIELD RECORD OF WELL PURGING AND SAMPLING

Project Name: <u>Sunnyside RIDEM TAL</u>	Location ID: <u>EA-MW-9</u>
Project Number: <u>1525817</u>	Date: <u>4/1/20</u>
Personnel: <u>G. Sanyal</u>	Time: <u>900</u>
Sampling Method: <u>Low flow</u>	Weather: <u>Cloudy mid 30s</u>
Well Secure: <input checked="" type="checkbox"/> Yes / No	Ambient Air / Well Headspace (ppm): <u>-</u>
Well Condition: <u>new</u>	Depth to Product (ft): <u>-</u>
Well Diameter: <u>2"</u>	Depth to Water (ft): <u>28.96</u>
Well Completion: <u>stand pipe</u>	Depth of Well (ft): <u>35.42</u>
Equipment: <u>WLM, bailer</u>	Depth of Screen Interval (ft): <u>23-33</u>
<u>Volume removed</u>	Depth to Pump Intake (ft): <u>variable</u>

EPA Stabilization Goal:	<0.02 ft/min	100-500 ml/min	10%	3%	10%	+/- 0.1	+/- 10 mV	10% or <5	
Interval	Time (hhmm)	Depth to Water (ft)	Purge Rate (ml/min)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	<u>905</u>	<u>35.42</u>							
1	<u>915</u>		<u>0.75 g</u>	<u>11.56</u>	<u>0.251</u>	<u>7.47</u>	<u>6.02</u>	<u>20.4</u>	<u>55.8</u>
2	<u>920</u>		<u>1.25g</u>	<u>11.73</u>	<u>0.284</u>	<u>8.79</u>	<u>6.26</u>	<u>45.7</u>	<u>71</u>
3	<u>926</u>		<u>2.5g</u>	<u>11.93</u>	<u>0.222</u>	<u>6.95</u>	<u>6.24</u>	<u>49.8</u>	<u>612</u>
4	<u>930</u>		<u>3.25g</u>	<u>10.80</u>	<u>0.354</u>	<u>12.42</u>	<u>6.19</u>	<u>50.9</u>	<u>71</u>
5									
6									
7	<u>sample at 935 based on >3 well volumes removed</u>								
8	<u>field filtered dissolved lead</u>								
9	<u>EA-Pet-Dup -> duplicated sample</u>								
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: <u>EA-MW-9 + Dup</u>	Comments: <u>0.75 gal = well volume</u>
Sampling Date: <u>4/1/20</u>	<u>-water cleared during sampling</u>
Sampling Time (Start / End): <u>0930</u>	
Sample Parameters: <u>Diss lead, BTEX, TPH GRO/DRO</u>	
Total Amount Purged (L): <u>4 gal</u>	

↓ 10 bottles / sample



FIELD RECORD OF WELL PURGING AND SAMPLING

Project Name: <u>Sunnyside</u>	Location ID: <u>EA-MW-2</u>
Project Number: <u>15258.17</u>	Date: <u>4/1/20</u>
Personnel: <u>G. Janigian</u>	Time: <u>1015</u>
Sampling Method: <u>Low Flow</u>	Weather: <u>Sun</u>
Well Secure: <input checked="" type="checkbox"/> Yes / No	Ambient Air / Well Headspace (ppm): <u>—</u>
Well Condition: <u>good</u>	Depth to Product (ft): <u>—</u>
Well Diameter: <u>2"</u>	Depth to Water (ft): <u>24.95</u>
Well Completion: <u>RWSH</u>	Depth of Well (ft): <u>27.68</u>
Equipment: <u>Geopump, YSI, Lamotte turbidity</u>	Depth of Screen Interval (ft): <u>13-28</u>
<u>Interface Probe</u>	Depth to Pump Intake (ft): <u>~26 ft</u>

EPA Stabilization Goal:									
Interval	Time	Depth to Water	Purge Rate	Temperature	Conductivity	Dissolved Oxygen	pH	ORP	Turbidity
	(hhmm)	(ft)	(ml/min)	(C)	(ms/cm)	(mg/L)	+/- 0.1	+/- 10 mV	10% or <5
								(mV)	(NTU)
Start	<u>1027</u>	<u>25.00</u>							
1	<u>1032</u>	<u>25.00</u>	<u>225</u>	<u>11.61</u>	<u>0.500</u>	<u>7.26</u>	<u>5.78</u>	<u>54.0</u>	<u>12.9</u>
2	<u>1040</u>	<u>25.00</u>	<u>225</u>	<u>12.04</u>	<u>.394</u>	<u>7.10</u>	<u>5.71</u>	<u>61.9</u>	<u>5.86</u>
3	<u>1047</u>	<u>25.00</u>	<u>225</u>	<u>12.25</u>	<u>.370</u>	<u>7.01</u>	<u>5.66</u>	<u>68.4</u>	<u>2.46</u>
4	<u>1053</u>	<u>25</u>	<u>225</u>	<u>11.72</u>	<u>.361</u>	<u>6.91</u>	<u>5.62</u>	<u>70.8</u>	<u>1.82</u>
5	<u>1058</u>	<u>25</u>	<u>225</u>	<u>11.97</u>	<u>.362</u>	<u>6.83</u>	<u>5.60</u>	<u>72.7</u>	<u>1.59</u>
6	<u>1106</u>	<u>25</u>	<u>225</u>	<u>10.99</u>	<u>.352</u>	<u>7.24</u>	<u>5.58</u>	<u>73.7</u>	<u>1.75</u>
7									
8									
9	<u>sampled @</u>		<u>1110</u>	<u>EA-MW-2</u>					
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: <u>EA-MW-2</u>	Comments: <u>✓ clear water, stable</u>
Sampling Date: <u>4/1/20</u>	
Sampling Time (Start / End): <u>1110</u>	
Sample Parameters: <u>TPH, SVOCs, VOCs, PP13 metals</u>	
Total Amount Purged (L): <u>~2.5</u>	



FIELD RECORD OF WELL PURGING AND SAMPLING

Project Name: <u>Sunnyside RIDEM</u>	Location ID: <u>EA-MW-20</u>
Project Number: <u>1525817</u>	Date: <u>4/1/20</u>
Personnel: <u>G. Saruman</u>	Time: <u>1200</u>
Sampling Method: <u>Low Flow</u>	Weather: <u>cloudy 30s</u>
Well Secure: <u>Yes</u> / No	Ambient Air / Well Headspace (ppm): <u>-</u>
Well Condition: <u>new</u>	Depth to Product (ft): <u>-</u>
Well Diameter: <u>2"</u>	Depth to Water (ft): <u>17.50</u>
Well Completion: <u>stand pipe</u>	Depth of Well (ft): <u>23.00</u>
Equipment: <u>YSI, per pump, turb meter interface probe</u>	Depth of Screen Interval (ft): <u>10-20</u>
	Depth to Pump Intake (ft): <u>~21 ft</u>

EPA Stabilization Goal:		<0.02 ft/min	100-500 ml/min	10%	3%	10%	+/- 0.1	+/- 10 mV	10% or <5
Interval	Time (hhmm)	Depth to Water (ft)	Purge Rate (ml/min)	Temperature (C)	Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)
Start	1215	17.5							
1	1218	17.5	250	9.78	.239	.71	7.21	-99.7	4.89
2	1223	17.54	250	9.98	.232	.36	7.00	-75.9	2.65
3	1228	17.54	250	10.04	.229	.32	6.98	-75.8	2.60
4	1235	17.55	250	9.93	.209	.60	6.88	-71.1	1.96
5	1240	17.56	250	9.89	.198	.83	6.73	-58.0	1.18
6	1244	17.59	250	9.86	.194	.90	6.64	-51.0	.93
7	1247	17.56	250	9.85	.191	1.01	6.57	-46.0	.81
8	1250	17.56	250	9.82	.189	1.10	6.54	-43.6	.88
9	1253	17.57	250	9.80	.189	1.09	6.52	-43.0	.91
10									
11									
12	Sample at 1255			EA-MW-20					
13	collect MS/MSD								
14									
15									
16	EA-MW-20-MS			1315					
17	EA-MW-20-MSD			1335					
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: <u>EA-MW-20</u>	Comments: <u>Slight sheen in water</u>
Sampling Date: <u>4/1/20</u>	
Sampling Time (Start / End): <u>1255</u>	
Sample Parameters: <u>SVOCs, TPH, VOCs, PP13 metals</u>	
Total Amount Purged (L): <u>~3 gal</u>	

Appendix K

Laboratory Analytical Reports

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Project Description

Sunnyside Ave Site Investigation

For:

Britta Chambers

EA Engineering

301 Metro Center Blvd. Suite 102

Warwick, RI 02886

Project Manager

Katherine A. Wall

Wednesday, October 30, 2019

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Dayville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

61 Louisa Viens Drive | Dayville, CT 06241 | 860.774.6814 p | www.microbac.com



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Revised Report: Per client,
amended to add QC package.

EA Engineering

Britta Chambers
301 Metro Center Blvd. Suite 102
Warwick, RI 02886

Project Name: Sunnyside Ave Site Investigation

Project / PO Number: 1525815
Received: 09/19/2019
Reported: 10/30/2019

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
EA-1-0-2	D9I1977-01	Soil/Sediment	Grab		09/19/19 08:35	09/19/19 17:15
EA-1-20-24	D9I1977-02	Soil/Sediment	Grab		09/19/19 12:30	09/19/19 17:15
EA-3-0-2	D9I1977-03	Soil/Sediment	Grab		09/19/19 14:25	09/19/19 17:15
EA-3-6-10	D9I1977-04	Soil/Sediment	Grab		09/19/19 14:35	09/19/19 17:15
EA-4-0-2	D9I1977-05	Soil/Sediment	Grab		09/19/19 14:50	09/19/19 17:15
EA-4-2-6	D9I1977-06	Soil/Sediment	Grab		09/19/19 15:00	09/19/19 17:15
EA Duplicate	D9I1977-07	Soil/Sediment	Grab		09/19/19 00:00	09/19/19 17:15
EA-5-0-2	D9I1977-08	Soil/Sediment	Grab		09/19/19 15:25	09/19/19 17:15
EA-5-6-10	D9I1977-09	Soil/Sediment	Grab		09/19/19 15:30	09/19/19 17:15
Trip Blank	D9I1977-10	Soil/Sediment	Grab		09/19/19 00:00	09/19/19 17:15



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Analytical Testing Parameters

Client Sample ID:	EA-1-0-2	Collected By:	Customer
Sample Matrix:	Soil/Sediment	Collection Date:	09/19/2019 8:35
Lab Sample ID:	D9I1977-01		

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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SM2540 G-1997

Percent Solids	93.3		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM
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Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3050B/EPA 6010C

Antimony	1.82	0.750	mg/kg dry	1	Q10,Y1	09/23/19 1430	09/24/19 1757	JDF
Arsenic	5.59	0.268	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Beryllium	0.214	0.0536	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Cadmium	1.69	0.107	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Chromium	29.7	0.107	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Copper	25.9	0.107	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Lead	92.7	0.161	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Nickel	8.25	0.268	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Silver	<0.107	0.107	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF
Thallium	<0.268	0.268	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2015	JDF
Zinc	424	0.268	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1757	JDF

EPA 7471B

Mercury	0.0496	0.0354	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1131	DLO
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Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8081B

Aldrin	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
delta-BHC	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
gamma-BHC (Lindane)	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Chlordane (tech.)	<107	107	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
4,4'-DDD	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
4,4'-DDE	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
4,4'-DDT	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Dieldrin	37.9	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Endosulfan I	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Endosulfan II	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Endosulfan Sulfate	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Endrin	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Endrin aldehyde	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Endrin ketone	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG

Microbac Laboratories, Inc.



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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-1-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 8:35
Lab Sample ID: D911977-01	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Heptachlor epoxide	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Methoxychlor	<21.4	21.4	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	MRB
Toxaphene	<536	536	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1705	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	86.5	Limit: 30-150	% Rec	10		10/03/19 1000	10/05/19 1705	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	69.5	Limit: 30-150	% Rec	10		10/03/19 1000	10/05/19 1705	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD

EPA 3550C/EPA 8082A

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Aroclor-1016 (PCB-1016)	<10.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1717	MRB
Aroclor-1221 (PCB-1221)	<10.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1717	MRB
Aroclor-1232 (PCB-1232)	<10.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1717	MRB
Aroclor-1242 (PCB-1242)	<10.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1717	MRB
Aroclor-1248 (PCB-1248)	<10.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1717	MRB
Aroclor-1254 (PCB-1254)	21.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 0957	MRB
Aroclor-1260 (PCB-1260)	<10.7	10.7	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1717	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	46.9	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1717	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	44.6	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1717	MRB

Petroleum Hydrocarbon Range Organics - GC/FID

EPA 3550C/EPA 8100M

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
C9-C36 TPH	230	10.7	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 1820	MRB
Surrogate: 1-Chlorooctadecane	62.9	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 1820	MRB

Semi-Volatile Organic Compounds - GC/MS

EPA 3550C/EPA 8270D

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Acenaphthene	367	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Acenaphthylene	<70.6	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Anthracene	629	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Benzo[a]anthracene	1230	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Benzo[a]pyrene	1200	70.6	ug/kg dry	2	I1,Y1	09/26/19 1000	10/02/19 2045	GMP
Benzo[b]fluoranthene	1910	70.6	ug/kg dry	2	I1,Y1	09/26/19 1000	10/02/19 2045	GMP
Benzo[g,h,i]perylene	420	70.6	ug/kg dry	2	I1,Y1	09/26/19 1000	10/02/19 2045	GMP
Benzo[k]fluoranthene	622	70.6	ug/kg dry	2	I1,Y1	09/26/19 1000	10/02/19 2045	GMP
Chrysene	1290	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Dibenz(a,h) anthracene	141	70.6	ug/kg dry	2	I1,Y1	09/26/19 1000	10/02/19 2045	GMP
Fluoranthene	3170	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Fluorene	447	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Indeno(1,2,3-cd) pyrene	540	70.6	ug/kg dry	2	I1,Y1	09/26/19 1000	10/02/19 2045	GMP

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-1-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 8:35
Lab Sample ID: D911977-01	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
2-Methylnaphthalene	136	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Naphthalene	240	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Phenanthrene	3090	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Pyrene	2410	70.6	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 2045	GMP
Surrogate: 2-Fluorobiphenyl	44.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 2045	GMP
Surrogate: 2-Fluorophenol	46.9	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 2045	GMP
Surrogate: Nitrobenzene-d5	48.3	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 2045	GMP
Surrogate: Phenol-d6	48.4	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 2045	GMP
Surrogate: p-Terphenyl-d14	68.0	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 2045	GMP
Surrogate: 2,4,6-Tribromophenol	56.4	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 2045	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<561	561	ug/kg dry	50	Y1		09/30/19 1517	JAN
Acrylonitrile	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Benzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Bromobenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Bromochloromethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Bromodichloromethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Bromoform	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Bromomethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
2-Butanone (MEK)	<561	561	ug/kg dry	50	Y1		09/30/19 1517	JAN
n-Butylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
tert-Butylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
sec-Butylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Carbon disulfide	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Carbon tetrachloride	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Chlorobenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Chloroethane (Ethyl chloride)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Chloroform	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Chloromethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
2-Chlorotoluene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
4-Chlorotoluene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Dibromochloromethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Dibromomethane (Methylene bromide)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
trans-1,4-Dichloro-2-butene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2-Dichlorobenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,3-Dichlorobenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,4-Dichlorobenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN

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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-1-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 8:35
Lab Sample ID: D911977-01	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Dichlorodifluoromethane (Freon-12)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2-Dichloroethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1-Dichloroethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
cis-1,2-Dichloroethene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1-Dichloroethene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
trans-1,2-Dichloroethene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
2,2-Dichloropropane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2-Dichloropropane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,3-Dichloropropane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1-Dichloropropene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
cis-1,3-Dichloropropene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
trans-1,3-Dichloropropene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Diethyl ether	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,4-Dioxane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Ethylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Hexachlorobutadiene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
2-Hexanone (MBK)	<561	561	ug/kg dry	50	Y1		09/30/19 1517	JAN
Isopropylbenzene (Cumene)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Methyl tert-butyl ether (MTBE)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Methylene chloride (Dichloromethane)	<1120	1120	ug/kg dry	50	Y1		09/30/19 1517	JAN
4-Methyl-2-pentanone (MIBK)	<561	561	ug/kg dry	50	Y1		09/30/19 1517	JAN
Naphthalene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
n-Propylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Styrene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1,2,2-Tetrachloroethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1,1,2-Tetrachloroethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Tetrachloroethene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Tetrahydrofuran (THF)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Toluene	458	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2,3-Trichlorobenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2,4-Trichlorobenzene	499	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1,2-Trichloroethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1,1-Trichloroethane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Trichloroethene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Trichlorofluoromethane (Freon 11)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2,3-Trichloropropane	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,2,4-Trimethylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
1,3,5-Trimethylbenzene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Vinyl chloride	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
m,p-Xylene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-1-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 8:35
Lab Sample ID: D9I1977-01	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
o-Xylene	<280	280	ug/kg dry	50	Y1		09/30/19 1517	JAN
Surrogate: 4-Bromofluorobenzene	102	Limit: 70-130	% Rec	50			09/30/19 1517	JAN
Surrogate: 1,2-Dichloroethane-d4	90.5	Limit: 70-130	% Rec	50			09/30/19 1517	JAN
Surrogate: Toluene-d8	94.6	Limit: 70-130	% Rec	50			09/30/19 1517	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-1-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 12:30
Lab Sample ID: D911977-02	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	92.6		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Arsenic	0.991	0.270	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Beryllium	<0.0540	0.0540	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Cadmium	<0.108	0.108	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Chromium	16.9	0.108	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Copper	3.03	0.108	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Lead	5.69	0.162	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Nickel	2.37	0.270	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Silver	<0.108	0.108	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF
Thallium	<0.270	0.270	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2018	JDF
Zinc	16.2	0.270	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1810	JDF

EPA 7471B								
Mercury	<0.0356	0.0356	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1135	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
delta-BHC	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
gamma-BHC (Lindane)	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Chlordane (tech.)	<10800	10800	ug/kg dry	1,000	AC, Y1	10/03/19 1000	10/05/19 1404	GEG
4,4'-DDD	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
4,4'-DDE	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
4,4'-DDT	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Dieldrin	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Endosulfan I	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Endosulfan II	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Endosulfan Sulfate	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Endrin	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Endrin aldehyde	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Endrin ketone	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Heptachlor	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-1-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 12:30
Lab Sample ID: D9I1977-02	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Hexachlorobenzene	<2160	2160	ug/kg dry	1,000	Y	10/03/19 1000	10/05/19 1404	GEG
Methoxychlor	<2160	2160	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	MRB
Toxaphene	<54000	54000	ug/kg dry	1,000	Y1	10/03/19 1000	10/05/19 1404	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	338	Limit: 30-150	% Rec	1,000	S3	10/03/19 1000	10/05/19 1404	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	326	Limit: 30-150	% Rec	1,000	S3	10/03/19 1000	10/05/19 1404	MRB

Polychlorinated Biphenyls (PCBs) - GC/ECD

EPA 3550C/EPA 8082A

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Aroclor-1016 (PCB-1016)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Aroclor-1221 (PCB-1221)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Aroclor-1232 (PCB-1232)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Aroclor-1242 (PCB-1242)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Aroclor-1248 (PCB-1248)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Aroclor-1254 (PCB-1254)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Aroclor-1260 (PCB-1260)	<539	539	ug/kg dry	50	Y1	09/27/19 1000	10/11/19 1043	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	41.0	Limit: 30-150	% Rec	50	S3	09/27/19 1000	10/11/19 1043	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	79.4	Limit: 30-150	% Rec	50	S3	09/27/19 1000	10/11/19 1043	MRB

Petroleum Hydrocarbon Range Organics - GC/FID

EPA 3550C/EPA 8100M

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
C9-C36 TPH	15400	1080	mg/kg dry	100	Y1	10/01/19 1512	10/12/19 1850	MRB
Surrogate: 1-Chlorooctadecane	0	Limit: 25-125	% Rec	100	S3	10/01/19 1512	10/12/19 1850	MRB

Semi-Volatile Organic Compounds - GC/MS

EPA 3550C/EPA 8270D

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Acenaphthene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Acenaphthylene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Anthracene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Benzo[a]anthracene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Benzo[a]pyrene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Benzo[b]fluoranthene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Benzo[g,h,i]perylene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Benzo[k]fluoranthene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Chrysene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Dibenz(a,h) anthracene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Fluoranthene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Fluorene	1330	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Indeno(1,2,3-cd) pyrene	<711	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP

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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-1-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 12:30
Lab Sample ID: D911977-02	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
2-Methylnaphthalene	13900	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Naphthalene	3900	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Phenanthrene	4470	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Pyrene	1720	711	ug/kg dry	20	Y1	09/26/19 1000	10/02/19 2144	GMP
Surrogate: 2-Fluorobiphenyl	0	Limit: 30-130	% Rec	20	S3	09/26/19 1000	10/02/19 2144	GMP
Surrogate: 2-Fluorophenol	0	Limit: 30-130	% Rec	20	S3	09/26/19 1000	10/02/19 2144	GMP
Surrogate: Nitrobenzene-d5	0	Limit: 30-130	% Rec	20	S3	09/26/19 1000	10/02/19 2144	GMP
Surrogate: Phenol-d6	0	Limit: 30-130	% Rec	20	S3	09/26/19 1000	10/02/19 2144	GMP
Surrogate: p-Terphenyl-d14	0	Limit: 30-130	% Rec	20	S3	09/26/19 1000	10/02/19 2144	GMP
Surrogate: 2,4,6-Tribromophenol	0	Limit: 30-130	% Rec	20	S3	09/26/19 1000	10/02/19 2144	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<5830	5830	ug/kg dry	500	Y1		09/30/19 1542	JAN
Acrylonitrile	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Benzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Bromobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Bromochloromethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Bromodichloromethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Bromoform	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Bromomethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
2-Butanone (MEK)	<5830	5830	ug/kg dry	500	Y1		09/30/19 1542	JAN
n-Butylbenzene	3920	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
tert-Butylbenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
sec-Butylbenzene	2920	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Carbon disulfide	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Carbon tetrachloride	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Chlorobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Chloroethane (Ethyl chloride)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Chloroform	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Chloromethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
2-Chlorotoluene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
4-Chlorotoluene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Dibromochloromethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Dibromomethane (Methylene bromide)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
trans-1,4-Dichloro-2-butene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2-Dichlorobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,3-Dichlorobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,4-Dichlorobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-1-20-24
 Sample Matrix: Soil/Sediment
 Lab Sample ID: D9I1977-02

Collected By: Customer
 Collection Date: 09/19/2019 12:30

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Dichlorodifluoromethane (Freon-12)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2-Dichloroethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1-Dichloroethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
cis-1,2-Dichloroethene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1-Dichloroethene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
trans-1,2-Dichloroethene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
2,2-Dichloropropane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2-Dichloropropane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,3-Dichloropropane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1-Dichloropropene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
cis-1,3-Dichloropropene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
trans-1,3-Dichloropropene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Diethyl ether	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,4-Dioxane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Ethylbenzene	5740	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Hexachlorobutadiene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
2-Hexanone (MBK)	<5830	5830	ug/kg dry	500	Y1		09/30/19 1542	JAN
Isopropylbenzene (Cumene)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	3470	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Methyl tert-butyl ether (MTBE)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Methylene chloride (Dichloromethane)	<11700	11700	ug/kg dry	500	Y1		09/30/19 1542	JAN
4-Methyl-2-pentanone (MIBK)	<5830	5830	ug/kg dry	500	Y1		09/30/19 1542	JAN
Naphthalene	32000	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
n-Propylbenzene	5440	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Styrene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1,2,2-Tetrachloroethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1,1,2-Tetrachloroethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Tetrachloroethene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Tetrahydrofuran (THF)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Toluene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2,3-Trichlorobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2,4-Trichlorobenzene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1,2-Trichloroethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1,1-Trichloroethane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Trichloroethene	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Trichlorofluoromethane (Freon 11)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2,3-Trichloropropane	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,2,4-Trimethylbenzene	44800	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
1,3,5-Trimethylbenzene	13300	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Vinyl chloride	<2910	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
m,p-Xylene	12700	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-1-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 12:30
Lab Sample ID: D9I1977-02	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
o-Xylene	4140	2910	ug/kg dry	500	Y1		09/30/19 1542	JAN
Surrogate: 4-Bromofluorobenzene	104	Limit: 70-130	% Rec	500			09/30/19 1542	JAN
Surrogate: 1,2-Dichloroethane-d4	90.0	Limit: 70-130	% Rec	500			09/30/19 1542	JAN
Surrogate: Toluene-d8	96.7	Limit: 70-130	% Rec	500			09/30/19 1542	JAN



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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-3-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:25
Lab Sample ID: D911977-03	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	96.0		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Arsenic	1.83	0.260	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Beryllium	0.101	0.0521	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Cadmium	<0.104	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Chromium	6.89	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Copper	4.28	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Lead	2.97	0.156	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Nickel	3.16	0.260	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Silver	<0.104	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF
Thallium	<0.260	0.260	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2031	JDF
Zinc	12.0	0.260	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1813	JDF

EPA 7471B								
Mercury	<0.0344	0.0344	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1138	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
delta-BHC	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
gamma-BHC (Lindane)	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Chlordane (tech.)	<104	104	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
4,4'-DDD	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
4,4'-DDE	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
4,4'-DDT	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Dieldrin	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Endosulfan I	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Endosulfan II	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Endosulfan Sulfate	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Endrin	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Endrin aldehyde	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Endrin ketone	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Heptachlor	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-3-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:25
Lab Sample ID: D9I1977-03	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Methoxychlor	<20.8	20.8	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	MRB
Toxaphene	<521	521	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1716	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	168	Limit: 30-150	% Rec	10	S3	10/03/19 1000	10/05/19 1716	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	72.3	Limit: 30-150	% Rec	10		10/03/19 1000	10/05/19 1716	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Aroclor-1221 (PCB-1221)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Aroclor-1232 (PCB-1232)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Aroclor-1242 (PCB-1242)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Aroclor-1248 (PCB-1248)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Aroclor-1254 (PCB-1254)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Aroclor-1260 (PCB-1260)	<10.4	10.4	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1728	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	41.4	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1728	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	46.8	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1728	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M								
C9-C36 TPH	44.5	10.4	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 1920	MRB
Surrogate: 1-Chlorooctadecane	62.8	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 1920	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D								
Acenaphthene	<68.5	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Acenaphthylene	<68.5	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Anthracene	144	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Benzo[a]anthracene	985	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Benzo[a]pyrene	952	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Benzo[b]fluoranthene	1210	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Benzo[g,h,i]perylene	399	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Benzo[k]fluoranthene	570	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Chrysene	995	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Dibenz(a,h) anthracene	120	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Fluoranthene	1890	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Fluorene	<68.5	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Indeno(1,2,3-cd) pyrene	454	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
2-Methylnaphthalene	<68.5	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-3-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:25
Lab Sample ID: D911977-03	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<68.5	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Phenanthrene	998	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Pyrene	1550	68.5	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1815	GMP
Surrogate: 2-Fluorobiphenyl	64.7	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1815	GMP
Surrogate: 2-Fluorophenol	66.0	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1815	GMP
Surrogate: Nitrobenzene-d5	65.4	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1815	GMP
Surrogate: Phenol-d6	68.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1815	GMP
Surrogate: p-Terphenyl-d14	82.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1815	GMP
Surrogate: 2,4,6-Tribromophenol	79.3	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1815	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 5035A/EPA 8260C

Acetone	<553	553	ug/kg dry	50	Y1		09/30/19 1608	JAN
Acrylonitrile	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Benzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Bromobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Bromochloromethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Bromodichloromethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Bromoform	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Bromomethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
2-Butanone (MEK)	<553	553	ug/kg dry	50	Y1		09/30/19 1608	JAN
n-Butylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
tert-Butylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
sec-Butylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Carbon disulfide	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Carbon tetrachloride	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Chlorobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Chloroethane (Ethyl chloride)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Chloroform	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Chloromethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
2-Chlorotoluene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
4-Chlorotoluene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Dibromochloromethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Dibromomethane (Methylene bromide)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
trans-1,4-Dichloro-2-butene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2-Dichlorobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,3-Dichlorobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,4-Dichlorobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Dichlorodifluoromethane (Freon-12)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-3-0-2
 Sample Matrix: Soil/Sediment
 Lab Sample ID: D9I1977-03

Collected By: Customer
 Collection Date: 09/19/2019 14:25

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2-Dichloroethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1-Dichloroethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
cis-1,2-Dichloroethene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1-Dichloroethene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
trans-1,2-Dichloroethene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
2,2-Dichloropropane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2-Dichloropropane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,3-Dichloropropane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1-Dichloropropene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
cis-1,3-Dichloropropene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
trans-1,3-Dichloropropene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Diethyl ether	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,4-Dioxane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Ethylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Hexachlorobutadiene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
2-Hexanone (MBK)	<553	553	ug/kg dry	50	Y1		09/30/19 1608	JAN
Isopropylbenzene (Cumene)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Methyl tert-butyl ether (MTBE)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Methylene chloride (Dichloromethane)	<1110	1110	ug/kg dry	50	Y1		09/30/19 1608	JAN
4-Methyl-2-pentanone (MIBK)	<553	553	ug/kg dry	50	Y1		09/30/19 1608	JAN
Naphthalene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
n-Propylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Styrene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1,2,2-Tetrachloroethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1,1,2-Tetrachloroethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Tetrachloroethene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Tetrahydrofuran (THF)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Toluene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2,3-Trichlorobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2,4-Trichlorobenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1,2-Trichloroethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1,1-Trichloroethane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Trichloroethene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Trichlorofluoromethane (Freon 11)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2,3-Trichloropropane	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,2,4-Trimethylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
1,3,5-Trimethylbenzene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
Vinyl chloride	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
m,p-Xylene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN
o-Xylene	<276	276	ug/kg dry	50	Y1		09/30/19 1608	JAN

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-3-0-2
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-03

Collected By: Customer
Collection Date: 09/19/2019 14:25

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	102	Limit: 70-130	% Rec	50			09/30/19 1608	JAN
Surrogate: 1,2-Dichloroethane-d4	89.3	Limit: 70-130	% Rec	50			09/30/19 1608	JAN
Surrogate: Toluene-d8	95.8	Limit: 70-130	% Rec	50			09/30/19 1608	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-3-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:35
Lab Sample ID: D911977-04	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	98.3		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Arsenic	2.52	0.254	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Beryllium	0.0753	0.0509	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Cadmium	<0.102	0.102	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Chromium	5.50	0.102	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Copper	4.25	0.102	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Lead	1.89	0.153	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Nickel	2.73	0.254	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Silver	<0.102	0.102	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF
Thallium	<0.254	0.254	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2034	JDF
Zinc	10.8	0.254	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1816	JDF

EPA 7471B								
Mercury	<0.0336	0.0336	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1140	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
delta-BHC	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
gamma-BHC (Lindane)	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Chlordane (tech.)	<102	102	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
4,4'-DDD	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
4,4'-DDE	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
4,4'-DDT	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Dieldrin	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Endosulfan I	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Endosulfan II	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Endosulfan Sulfate	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Endrin	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Endrin aldehyde	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Endrin ketone	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Heptachlor	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-3-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:35
Lab Sample ID: D9I1977-04	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Methoxychlor	<20.3	20.3	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	MRB
Toxaphene	<509	509	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1726	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	278	Limit: 30-150	% Rec	10	S3	10/03/19 1000	10/05/19 1726	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	64.5	Limit: 30-150	% Rec	10		10/03/19 1000	10/05/19 1726	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Aroclor-1221 (PCB-1221)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Aroclor-1232 (PCB-1232)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Aroclor-1242 (PCB-1242)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Aroclor-1248 (PCB-1248)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Aroclor-1254 (PCB-1254)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Aroclor-1260 (PCB-1260)	<10.1	10.1	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1740	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	45.0	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1740	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	41.5	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1740	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M								
C9-C36 TPH	199	10.2	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 1950	MRB
Surrogate: 1-Chlorooctadecane	73.0	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 1950	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D								
Acenaphthene	<335	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Acenaphthylene	<335	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Anthracene	1510	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Benzo[a]anthracene	4410	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Benzo[a]pyrene	3620	335	ug/kg dry	10	I1,Y1	09/26/19 1000	10/02/19 2115	GMP
Benzo[b]fluoranthene	5290	335	ug/kg dry	10	I1,Y1	09/26/19 1000	10/02/19 2115	GMP
Benzo[g,h,i]perylene	1290	335	ug/kg dry	10	I1,Y1	09/26/19 1000	10/02/19 2115	GMP
Benzo[k]fluoranthene	1990	335	ug/kg dry	10	I1,Y1	09/26/19 1000	10/02/19 2115	GMP
Chrysene	4360	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Dibenz(a,h) anthracene	423	335	ug/kg dry	10	I1,Y1	09/26/19 1000	10/02/19 2115	GMP
Fluoranthene	11600	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Fluorene	555	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Indeno(1,2,3-cd) pyrene	1600	335	ug/kg dry	10	I1,Y1	09/26/19 1000	10/02/19 2115	GMP
2-Methylnaphthalene	<335	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-3-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:35
Lab Sample ID: D911977-04	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<335	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Phenanthrene	13100	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Pyrene	9240	335	ug/kg dry	10	Y1	09/26/19 1000	10/02/19 2115	GMP
Surrogate: 2-Fluorobiphenyl	77.8	Limit: 30-130	% Rec	10		09/26/19 1000	10/02/19 2115	GMP
Surrogate: 2-Fluorophenol	71.8	Limit: 30-130	% Rec	10		09/26/19 1000	10/02/19 2115	GMP
Surrogate: Nitrobenzene-d5	67.0	Limit: 30-130	% Rec	10		09/26/19 1000	10/02/19 2115	GMP
Surrogate: Phenol-d6	73.8	Limit: 30-130	% Rec	10		09/26/19 1000	10/02/19 2115	GMP
Surrogate: p-Terphenyl-d14	94.4	Limit: 30-130	% Rec	10		09/26/19 1000	10/02/19 2115	GMP
Surrogate: 2,4,6-Tribromophenol	79.2	Limit: 30-130	% Rec	10		09/26/19 1000	10/02/19 2115	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 5035A/EPA 8260C								
Acetone	<475	475	ug/kg dry	50	Y1		09/30/19 1634	JAN
Acrylonitrile	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Benzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Bromobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Bromochloromethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Bromodichloromethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Bromoform	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Bromomethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
2-Butanone (MEK)	<475	475	ug/kg dry	50	Y1		09/30/19 1634	JAN
n-Butylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
tert-Butylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
sec-Butylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Carbon disulfide	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Carbon tetrachloride	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Chlorobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Chloroethane (Ethyl chloride)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Chloroform	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Chloromethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
2-Chlorotoluene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
4-Chlorotoluene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Dibromochloromethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Dibromomethane (Methylene bromide)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
trans-1,4-Dichloro-2-butene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2-Dichlorobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,3-Dichlorobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,4-Dichlorobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Dichlorodifluoromethane (Freon-12)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-3-6-10
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-04

Collected By: Customer
Collection Date: 09/19/2019 14:35

Table with 9 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows list various compounds like 1,2-Dichloroethane, 1,1-Dichloroethane, etc., with corresponding results and analysis dates.

Microbac Laboratories, Inc.



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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-3-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:35
Lab Sample ID: D9I1977-04	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	101	Limit: 70-130	% Rec	50			09/30/19 1634	JAN
Surrogate: 1,2-Dichloroethane-d4	87.7	Limit: 70-130	% Rec	50			09/30/19 1634	JAN
Surrogate: Toluene-d8	95.6	Limit: 70-130	% Rec	50			09/30/19 1634	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-4-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:50
Lab Sample ID: D911977-05	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	96.7		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	3.10	0.750	mg/kg dry	1	Q10,Y1	09/23/19 1430	09/24/19 1819	JDF
Arsenic	10.1	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Beryllium	<0.0517	0.0517	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Cadmium	0.338	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Chromium	10.8	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Copper	17.8	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Lead	60.2	0.155	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Nickel	13.0	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Silver	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF
Thallium	<0.258	0.258	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2038	JDF
Zinc	26.3	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1819	JDF

EPA 7471B								
Mercury	0.0620	0.0341	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1146	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
delta-BHC	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
gamma-BHC (Lindane)	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Chlordane (tech.)	<103	103	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1820	MRB
4,4'-DDD	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
4,4'-DDE	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
4,4'-DDT	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Dieldrin	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Endosulfan I	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Endosulfan II	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Endosulfan Sulfate	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Endrin	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Endrin aldehyde	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Endrin ketone	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Heptachlor	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:50
Lab Sample ID: D9I1977-05	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Methoxychlor	<51.7	51.7	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	MRB
Toxaphene	<1290	1290	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1457	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	84.6	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1457	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	79.9	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1457	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD

EPA 3550C/EPA 8082A

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Aroclor-1254 (PCB-1254)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1752	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	59.2	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1752	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	69.6	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1752	MRB

Petroleum Hydrocarbon Range Organics - GC/FID

EPA 3550C/EPA 8100M

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
C9-C36 TPH	47.4	10.3	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 2020	MRB
Surrogate: 1-Chlorooctadecane	63.9	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 2020	MRB

Semi-Volatile Organic Compounds - GC/MS

EPA 3550C/EPA 8270D

	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Acenaphthene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Acenaphthylene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Anthracene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Benzo[a]anthracene	205	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Benzo[a]pyrene	265	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Benzo[b]fluoranthene	380	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Benzo[g,h,i]perylene	127	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Benzo[k]fluoranthene	115	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Chrysene	266	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Dibenz(a,h) anthracene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Fluoranthene	397	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Fluorene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Indeno(1,2,3-cd) pyrene	144	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
2-Methylnaphthalene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP

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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-4-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:50
Lab Sample ID: D911977-05	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<68.0	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Phenanthrene	146	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Pyrene	422	68.0	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1744	GMP
Surrogate: 2-Fluorobiphenyl	64.1	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1744	GMP
Surrogate: 2-Fluorophenol	66.1	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1744	GMP
Surrogate: Nitrobenzene-d5	64.4	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1744	GMP
Surrogate: Phenol-d6	69.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1744	GMP
Surrogate: p-Terphenyl-d14	82.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1744	GMP
Surrogate: 2,4,6-Tribromophenol	76.5	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1744	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 5035A/EPA 8260C

Acetone	<531	531	ug/kg dry	50	Y1		09/30/19 1700	JAN
Acrylonitrile	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Benzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Bromobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Bromochloromethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Bromodichloromethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Bromoform	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Bromomethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
2-Butanone (MEK)	<531	531	ug/kg dry	50	Y1		09/30/19 1700	JAN
n-Butylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
tert-Butylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
sec-Butylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Carbon disulfide	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Carbon tetrachloride	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Chlorobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Chloroethane (Ethyl chloride)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Chloroform	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Chloromethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
2-Chlorotoluene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
4-Chlorotoluene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Dibromochloromethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Dibromomethane (Methylene bromide)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
trans-1,4-Dichloro-2-butene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2-Dichlorobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,3-Dichlorobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,4-Dichlorobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Dichlorodifluoromethane (Freon-12)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:50
Lab Sample ID: D9I1977-05	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2-Dichloroethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1-Dichloroethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
cis-1,2-Dichloroethene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1-Dichloroethene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
trans-1,2-Dichloroethene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
2,2-Dichloropropane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2-Dichloropropane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,3-Dichloropropane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1-Dichloropropene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
cis-1,3-Dichloropropene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
trans-1,3-Dichloropropene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Diethyl ether	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,4-Dioxane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Ethylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Hexachlorobutadiene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
2-Hexanone (MBK)	<531	531	ug/kg dry	50	Y1		09/30/19 1700	JAN
Isopropylbenzene (Cumene)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Methyl tert-butyl ether (MTBE)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Methylene chloride (Dichloromethane)	<1060	1060	ug/kg dry	50	Y1		09/30/19 1700	JAN
4-Methyl-2-pentanone (MIBK)	<531	531	ug/kg dry	50	Y1		09/30/19 1700	JAN
Naphthalene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
n-Propylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Styrene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1,2,2-Tetrachloroethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1,1,2-Tetrachloroethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Tetrachloroethene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Tetrahydrofuran (THF)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Toluene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2,3-Trichlorobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2,4-Trichlorobenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1,2-Trichloroethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1,1-Trichloroethane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Trichloroethene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Trichlorofluoromethane (Freon 11)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2,3-Trichloropropane	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,2,4-Trimethylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
1,3,5-Trimethylbenzene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
Vinyl chloride	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
m,p-Xylene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN
o-Xylene	<266	266	ug/kg dry	50	Y1		09/30/19 1700	JAN

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 14:50
Lab Sample ID: D9I1977-05	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	100	Limit: 70-130	% Rec	50			09/30/19 1700	JAN
Surrogate: 1,2-Dichloroethane-d4	88.9	Limit: 70-130	% Rec	50			09/30/19 1700	JAN
Surrogate: Toluene-d8	96.8	Limit: 70-130	% Rec	50			09/30/19 1700	JAN



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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-4-2-6	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:00
Lab Sample ID: D911977-06	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	97.2		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Arsenic	0.708	0.257	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Beryllium	0.0526	0.0514	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Cadmium	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Chromium	3.80	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Copper	3.12	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Lead	2.34	0.154	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Nickel	2.11	0.257	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Silver	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF
Thallium	<0.257	0.257	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2041	JDF
Zinc	8.21	0.257	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1823	JDF

EPA 7471B								
Mercury	<0.0340	0.0340	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1148	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
delta-BHC	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
gamma-BHC (Lindane)	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Chlordane (tech.)	<103	103	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1830	MRB
4,4'-DDD	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
4,4'-DDE	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
4,4'-DDT	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Dieldrin	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Endosulfan I	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Endosulfan II	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Endosulfan Sulfate	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Endrin	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Endrin aldehyde	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Endrin ketone	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Heptachlor	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG



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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-2-6	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:00
Lab Sample ID: D9I1977-06	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Methoxychlor	<51.4	51.4	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	MRB
Toxaphene	<1290	1290	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1508	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	72.3	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1508	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	71.6	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1508	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Aroclor-1254 (PCB-1254)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1803	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	48.0	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1803	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	66.2	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1803	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M								
C9-C36 TPH	13.5	10.3	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 2050	MRB
Surrogate: 1-Chlorooctadecane	80.2	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 2050	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D								
Acenaphthene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Acenaphthylene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Anthracene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Benzo[a]anthracene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Benzo[a]pyrene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Benzo[b]fluoranthene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Benzo[g,h,i]perylene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Benzo[k]fluoranthene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Chrysene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Dibenz(a,h) anthracene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Fluoranthene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Fluorene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Indeno(1,2,3-cd) pyrene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
2-Methylnaphthalene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP

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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-4-2-6	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:00
Lab Sample ID: D911977-06	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Phenanthrene	<33.8	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Pyrene	37.3	33.8	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1644	GMP
Surrogate: 2-Fluorobiphenyl	47.2	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1644	GMP
Surrogate: 2-Fluorophenol	52.7	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1644	GMP
Surrogate: Nitrobenzene-d5	50.5	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1644	GMP
Surrogate: Phenol-d6	55.0	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1644	GMP
Surrogate: p-Terphenyl-d14	59.9	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1644	GMP
Surrogate: 2,4,6-Tribromophenol	67.2	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1644	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<617	617	ug/kg dry	50	Y1		09/30/19 1726	JAN
Acrylonitrile	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Benzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Bromobenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Bromochloromethane	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Bromodichloromethane	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Bromoform	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Bromomethane	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
2-Butanone (MEK)	<617	617	ug/kg dry	50	Y1		09/30/19 1726	JAN
n-Butylbenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
tert-Butylbenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
sec-Butylbenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Carbon disulfide	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Carbon tetrachloride	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Chlorobenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Chloroethane (Ethyl chloride)	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Chloroform	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Chloromethane	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
2-Chlorotoluene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
4-Chlorotoluene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Dibromochloromethane	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Dibromomethane (Methylene bromide)	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
trans-1,4-Dichloro-2-butene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
1,2-Dichlorobenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
1,3-Dichlorobenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
1,4-Dichlorobenzene	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN
Dichlorodifluoromethane (Freon-12)	<308	308	ug/kg dry	50	Y1		09/30/19 1726	JAN

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-2-6
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-06

Collected By: Customer
Collection Date: 09/19/2019 15:00

Table with 9 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows list various chemical compounds and their corresponding analysis results.



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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-2-6	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:00
Lab Sample ID: D9I1977-06	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	103	Limit: 70-130	% Rec	50			09/30/19 1726	JAN
Surrogate: 1,2-Dichloroethane-d4	87.9	Limit: 70-130	% Rec	50			09/30/19 1726	JAN
Surrogate: Toluene-d8	97.2	Limit: 70-130	% Rec	50			09/30/19 1726	JAN



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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA Duplicate	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019
Lab Sample ID: D911977-07	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	97.0		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Arsenic	0.986	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Beryllium	0.0639	0.0515	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Cadmium	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Chromium	5.00	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Copper	2.57	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Lead	2.01	0.155	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Nickel	2.61	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Silver	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF
Thallium	<0.258	0.258	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2044	JDF
Zinc	9.52	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1826	JDF

EPA 7471B								
Mercury	<0.0340	0.0340	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1150	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
delta-BHC	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
gamma-BHC (Lindane)	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Chlordane (tech.)	<103	103	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1841	MRB
4,4'-DDD	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
4,4'-DDE	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
4,4'-DDT	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Dieldrin	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Endosulfan I	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Endosulfan II	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Endosulfan Sulfate	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Endrin	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Endrin aldehyde	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Endrin ketone	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Heptachlor	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG



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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA Duplicate	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019
Lab Sample ID: D9I1977-07	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Methoxychlor	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	MRB
Toxaphene	<1290	1290	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1518	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	82.8	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1518	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	77.5	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1518	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Aroclor-1254 (PCB-1254)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1815	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	66.6	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1815	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	78.5	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1815	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M								
C9-C36 TPH	13.1	10.3	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 2120	MRB
Surrogate: 1-Chlorooctadecane	86.4	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 2120	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D								
Acenaphthene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Acenaphthylene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Anthracene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Benzo[a]anthracene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Benzo[a]pyrene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Benzo[b]fluoranthene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Benzo[g,h,i]perylene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Benzo[k]fluoranthene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Chrysene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Dibenz(a,h) anthracene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Fluoranthene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Fluorene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Indeno(1,2,3-cd) pyrene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
2-Methylnaphthalene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP

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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA Duplicate
Sample Matrix: Soil/Sediment
Lab Sample ID: D911977-07

Collected By: Customer
Collection Date: 09/19/2019

Table with 11 columns: Semi-Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows include Naphthalene, Phenanthrene, Pyrene, and various surrogate compounds.

Table with 11 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows include EPA 5035A/EPA 8260C compounds like Acetone, Benzene, Chlorobenzene, etc.

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA Duplicate
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-07

Collected By: Customer
Collection Date: 09/19/2019

Table with 9 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows list various chemical compounds and their corresponding test results.

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA Duplicate	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019
Lab Sample ID: D9I1977-07	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	102	Limit: 70-130	% Rec	50			09/30/19 1752	JAN
Surrogate: 1,2-Dichloroethane-d4	87.8	Limit: 70-130	% Rec	50			09/30/19 1752	JAN
Surrogate: Toluene-d8	97.2	Limit: 70-130	% Rec	50			09/30/19 1752	JAN



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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-5-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:25
Lab Sample ID: D911977-08	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	97.0		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Arsenic	3.83	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Beryllium	0.103	0.0516	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Cadmium	0.182	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Chromium	6.22	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Copper	4.37	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Lead	6.47	0.155	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Nickel	4.11	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Silver	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF
Thallium	<0.258	0.258	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2047	JDF
Zinc	38.4	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1829	JDF

EPA 7471B								
Mercury	<0.0340	0.0340	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1152	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
delta-BHC	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
gamma-BHC (Lindane)	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Chlordane (tech.)	<103	103	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1851	MRB
4,4'-DDD	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
4,4'-DDE	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
4,4'-DDT	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Dieldrin	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Endosulfan I	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Endosulfan II	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Endosulfan Sulfate	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Endrin	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Endrin aldehyde	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Endrin ketone	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Heptachlor	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:25
Lab Sample ID: D9I1977-08	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Methoxychlor	<51.6	51.6	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	MRB
Toxaphene	<1290	1290	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1529	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	81.5	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1529	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	75.8	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1529	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD

EPA 3550C/EPA 8082A	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1827	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1827	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1827	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1827	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1827	MRB
Aroclor-1254 (PCB-1254)	72.5	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1008	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1827	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	60.3	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1827	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	73.0	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1827	MRB

Petroleum Hydrocarbon Range Organics - GC/FID

EPA 3550C/EPA 8100M	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
C9-C36 TPH	22.0	10.3	mg/kg dry	1	Y1	10/01/19 1000	10/12/19 2151	MRB
Surrogate: 1-Chlorooctadecane	75.0	Limit: 25-125	% Rec	1		10/01/19 1000	10/12/19 2151	MRB

Semi-Volatile Organic Compounds - GC/MS

EPA 3550C/EPA 8270D	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Acenaphthene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Acenaphthylene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Anthracene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Benzo[a]anthracene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Benzo[a]pyrene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Benzo[b]fluoranthene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Benzo[g,h,i]perylene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Benzo[k]fluoranthene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Chrysene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Dibenz(a,h) anthracene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Fluoranthene	87.1	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Fluorene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Indeno(1,2,3-cd) pyrene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
2-Methylnaphthalene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP

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CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-5-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:25
Lab Sample ID: D911977-08	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Phenanthrene	<67.9	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Pyrene	101	67.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1714	GMP
Surrogate: 2-Fluorobiphenyl	64.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1714	GMP
Surrogate: 2-Fluorophenol	62.7	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1714	GMP
Surrogate: Nitrobenzene-d5	62.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1714	GMP
Surrogate: Phenol-d6	66.0	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1714	GMP
Surrogate: p-Terphenyl-d14	81.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1714	GMP
Surrogate: 2,4,6-Tribromophenol	77.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1714	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<544	544	ug/kg dry	50	Y1		09/30/19 1817	JAN
Acrylonitrile	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Benzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Bromobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Bromochloromethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Bromodichloromethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Bromoform	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Bromomethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
2-Butanone (MEK)	<544	544	ug/kg dry	50	Y1		09/30/19 1817	JAN
n-Butylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
tert-Butylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
sec-Butylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Carbon disulfide	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Carbon tetrachloride	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Chlorobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Chloroethane (Ethyl chloride)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Chloroform	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Chloromethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
2-Chlorotoluene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
4-Chlorotoluene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Dibromochloromethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Dibromomethane (Methylene bromide)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
trans-1,4-Dichloro-2-butene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2-Dichlorobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,3-Dichlorobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,4-Dichlorobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Dichlorodifluoromethane (Freon-12)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:25
Lab Sample ID: D9I1977-08	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2-Dichloroethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1-Dichloroethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
cis-1,2-Dichloroethene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1-Dichloroethene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
trans-1,2-Dichloroethene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
2,2-Dichloropropane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2-Dichloropropane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,3-Dichloropropane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1-Dichloropropene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
cis-1,3-Dichloropropene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
trans-1,3-Dichloropropene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Diethyl ether	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,4-Dioxane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Ethylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Hexachlorobutadiene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
2-Hexanone (MBK)	<544	544	ug/kg dry	50	Y1		09/30/19 1817	JAN
Isopropylbenzene (Cumene)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Methyl tert-butyl ether (MTBE)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Methylene chloride (Dichloromethane)	<1090	1090	ug/kg dry	50	Y1		09/30/19 1817	JAN
4-Methyl-2-pentanone (MIBK)	<544	544	ug/kg dry	50	Y1		09/30/19 1817	JAN
Naphthalene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
n-Propylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Styrene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1,2,2-Tetrachloroethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1,1,2-Tetrachloroethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Tetrachloroethene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Tetrahydrofuran (THF)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Toluene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2,3-Trichlorobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2,4-Trichlorobenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1,2-Trichloroethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1,1-Trichloroethane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Trichloroethene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Trichlorofluoromethane (Freon 11)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2,3-Trichloropropane	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,2,4-Trimethylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
1,3,5-Trimethylbenzene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
Vinyl chloride	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
m,p-Xylene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN
o-Xylene	<272	272	ug/kg dry	50	Y1		09/30/19 1817	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:25
Lab Sample ID: D9I1977-08	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	101	Limit: 70-130	% Rec	50			09/30/19 1817	JAN
Surrogate: 1,2-Dichloroethane-d4	88.9	Limit: 70-130	% Rec	50			09/30/19 1817	JAN
Surrogate: Toluene-d8	94.5	Limit: 70-130	% Rec	50			09/30/19 1817	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-5-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:30
Lab Sample ID: D911977-09	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	97.0		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Arsenic	1.45	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Beryllium	0.0817	0.0515	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Cadmium	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Chromium	4.28	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Copper	2.97	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Lead	1.81	0.155	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Nickel	2.29	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Silver	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF
Thallium	<0.258	0.258	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2002	JDF
Zinc	23.6	0.258	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1744	JDF

EPA 7471B								
Mercury	<0.0340	0.0340	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1125	DLO

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8081B								
Aldrin	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
beta-BHC (beta-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
delta-BHC	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
gamma-BHC (Lindane)	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Chlordane (tech.)	<103	103	ug/kg dry	10	Y1	10/03/19 1000	10/05/19 1902	MRB
4,4'-DDD	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
4,4'-DDE	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
4,4'-DDT	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Dieldrin	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Endosulfan I	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Endosulfan II	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Endosulfan Sulfate	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Endrin	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Endrin aldehyde	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Endrin ketone	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Heptachlor	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:30
Lab Sample ID: D9I1977-09	

Pesticides - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Heptachlor epoxide	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Methoxychlor	<51.5	51.5	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	MRB
Toxaphene	<1290	1290	ug/kg dry	25	Y1	10/03/19 1000	10/05/19 1540	GEG
Surrogate: Decachlorobiphenyl (BZ-209)	83.5	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1540	GEG
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	79.0	Limit: 30-150	% Rec	25		10/03/19 1000	10/05/19 1540	GEG

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Aroclor-1254 (PCB-1254)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	10/11/19 1020	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	21.5	Limit: 30-150	% Rec	1	M, S2	09/27/19 1000	10/11/19 1020	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	32.1	Limit: 30-150	% Rec	1		09/27/19 1000	10/11/19 1020	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M								
C9-C36 TPH	<10.3	10.3	mg/kg dry	1	Y1	10/01/19 1512	10/12/19 2222	MRB
Surrogate: 1-Chlorooctadecane	78.5	Limit: 25-125	% Rec	1		10/01/19 1512	10/12/19 2222	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D								
Acenaphthene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Acenaphthylene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Anthracene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Benzo[a]anthracene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Benzo[a]pyrene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Benzo[b]fluoranthene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Benzo[g,h,i]perylene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Benzo[k]fluoranthene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Chrysene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Dibenz(a,h) anthracene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Fluoranthene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Fluorene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Indeno(1,2,3-cd) pyrene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
2-Methylnaphthalene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP

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D911977

Client Sample ID: EA-5-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:30
Lab Sample ID: D911977-09	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Phenanthrene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Pyrene	<34.0	34.0	ug/kg dry	1	Y1	09/30/19 1000	10/02/19 1514	GMP
Surrogate: 2-Fluorobiphenyl	49.8	Limit: 30-130	% Rec	1		09/30/19 1000	10/02/19 1514	GMP
Surrogate: 2-Fluorophenol	58.4	Limit: 30-130	% Rec	1		09/30/19 1000	10/02/19 1514	GMP
Surrogate: Nitrobenzene-d5	54.3	Limit: 30-130	% Rec	1		09/30/19 1000	10/02/19 1514	GMP
Surrogate: Phenol-d6	57.6	Limit: 30-130	% Rec	1		09/30/19 1000	10/02/19 1514	GMP
Surrogate: p-Terphenyl-d14	64.9	Limit: 30-130	% Rec	1		09/30/19 1000	10/02/19 1514	GMP
Surrogate: 2,4,6-Tribromophenol	76.0	Limit: 30-130	% Rec	1		09/30/19 1000	10/02/19 1514	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<530	530	ug/kg dry	50	Y1		09/30/19 1843	JAN
Acrylonitrile	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Benzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Bromobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Bromochloromethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Bromodichloromethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Bromoform	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Bromomethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
2-Butanone (MEK)	<530	530	ug/kg dry	50	Y1		09/30/19 1843	JAN
n-Butylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
tert-Butylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
sec-Butylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Carbon disulfide	<265	265	ug/kg dry	50	M2,Y1		09/30/19 1843	JAN
Carbon tetrachloride	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Chlorobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Chloroethane (Ethyl chloride)	<265	265	ug/kg dry	50	M2,Y1		09/30/19 1843	JAN
Chloroform	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Chloromethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
2-Chlorotoluene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
4-Chlorotoluene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Dibromochloromethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Dibromomethane (Methylene bromide)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
trans-1,4-Dichloro-2-butene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2-Dichlorobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,3-Dichlorobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,4-Dichlorobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Dichlorodifluoromethane (Freon-12)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:30
Lab Sample ID: D9I1977-09	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2-Dichloroethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1-Dichloroethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
cis-1,2-Dichloroethene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1-Dichloroethene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
trans-1,2-Dichloroethene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
2,2-Dichloropropane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2-Dichloropropane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,3-Dichloropropane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1-Dichloropropene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
cis-1,3-Dichloropropene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
trans-1,3-Dichloropropene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Diethyl ether	<265	265	ug/kg dry	50	M2,Y1		09/30/19 1843	JAN
1,4-Dioxane	<265	265	ug/kg dry	50	M2,Y1		09/30/19 1843	JAN
Ethylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Hexachlorobutadiene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
2-Hexanone (MBK)	<530	530	ug/kg dry	50	Y1		09/30/19 1843	JAN
Isopropylbenzene (Cumene)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Methyl tert-butyl ether (MTBE)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Methylene chloride (Dichloromethane)	<1060	1060	ug/kg dry	50	Y1		09/30/19 1843	JAN
4-Methyl-2-pentanone (MIBK)	<530	530	ug/kg dry	50	Y1		09/30/19 1843	JAN
Naphthalene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
n-Propylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Styrene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1,2,2-Tetrachloroethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1,1,2-Tetrachloroethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Tetrachloroethene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Tetrahydrofuran (THF)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Toluene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2,3-Trichlorobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2,4-Trichlorobenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1,2-Trichloroethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1,1-Trichloroethane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Trichloroethene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Trichlorofluoromethane (Freon 11)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2,3-Trichloropropane	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,2,4-Trimethylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
1,3,5-Trimethylbenzene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
Vinyl chloride	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
m,p-Xylene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN
o-Xylene	<265	265	ug/kg dry	50	Y1		09/30/19 1843	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-6-10	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019 15:30
Lab Sample ID: D9I1977-09	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Surrogate: 4-Bromofluorobenzene	101	Limit: 70-130	% Rec	50			09/30/19 1843	JAN
Surrogate: 1,2-Dichloroethane-d4	86.7	Limit: 70-130	% Rec	50			09/30/19 1843	JAN
Surrogate: Toluene-d8	94.1	Limit: 70-130	% Rec	50			09/30/19 1843	JAN



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CERTIFICATE OF ANALYSIS

D911977

Batch Quality Control Summary: Microbac Laboratories, Inc. - Dayville

Inorganics	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91531 - Wet-Solids-S - SM2540 G-1997										
Blank (DI91531-BLK1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Percent Solids	0.00		% by Weight							
Duplicate (DI91531-DUP1)				Source: D911977-01 Prepared: 09/23/2019 Analyzed: 09/24/2019						
Percent Solids	93.0		% by Weight		93.3			0.341	10	
Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91429 - 3050B S Acid ICP - EPA 6010C										
Blank (DI91429-BLK1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Silver	<0.100	0.100	mg/kg wet							
Arsenic	<0.250	0.250	mg/kg wet							
Beryllium	<0.0500	0.0500	mg/kg wet							
Cadmium	<0.100	0.100	mg/kg wet							
Chromium	<0.100	0.100	mg/kg wet							
Copper	<0.100	0.100	mg/kg wet							
Nickel	<0.250	0.250	mg/kg wet							
Lead	<0.150	0.150	mg/kg wet							
Antimony	<0.150	0.150	mg/kg wet							
Selenium	<0.250	0.250	mg/kg wet							
Zinc	<0.250	0.250	mg/kg wet							
LCS (DI91429-BS1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Silver	26.4	0.100	mg/kg wet	25.0		105	80-120			
Arsenic	25.8	0.250	mg/kg wet	25.0		103	80-120			
Beryllium	26.4	0.0500	mg/kg wet	25.0		106	80-120			
Cadmium	26.6	0.100	mg/kg wet	25.0		106	80-120			
Chromium	25.8	0.100	mg/kg wet	25.0		103	80-120			
Copper	26.1	0.100	mg/kg wet	25.0		104	80-120			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91429 - 3050B S Acid ICP - EPA 6010C										
LCS (DI91429-BS1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Nickel	26.2	0.250	mg/kg wet	25.0		105	80-120			
Lead	25.9	0.150	mg/kg wet	25.0		104	80-120			
Antimony	27.9	0.150	mg/kg wet	25.0		112	80-120			
Selenium	25.9	0.250	mg/kg wet	25.0		104	80-120			
Zinc	26.2	0.250	mg/kg wet	25.0		105	80-120			
Duplicate (DI91429-DUP1)		Source: D9I1977-09			Prepared: 09/23/2019 Analyzed: 09/24/2019					
Silver	<0.103	0.103	mg/kg dry		ND				35	
Arsenic	1.14	0.258	mg/kg dry		1.45			24.1	35	
Beryllium	0.0674	0.0515	mg/kg dry		0.0817			19.2	35	
Cadmium	<0.103	0.103	mg/kg dry		0.0548			8.94	35	
Chromium	4.91	0.103	mg/kg dry		4.28			13.7	35	
Copper	2.95	0.103	mg/kg dry		2.97			0.747	35	
Nickel	2.17	0.258	mg/kg dry		2.29			5.39	35	
Lead	2.05	0.155	mg/kg dry		1.81			12.4	35	
Antimony	<0.155	0.155	mg/kg dry		ND				35	
Selenium	<0.258	0.258	mg/kg dry		ND				35	
Zinc	20.4	0.258	mg/kg dry		23.6			14.9	35	
Matrix Spike (DI91429-MS1)		Source: D9I1977-09			Prepared: 09/23/2019 Analyzed: 09/24/2019					
Silver	26.4	0.103	mg/kg dry	25.8	ND	102	75-125			
Arsenic	26.7	0.258	mg/kg dry	25.8	1.45	98.1	75-125			
Beryllium	26.1	0.0515	mg/kg dry	25.8	0.0817	101	75-125			
Cadmium	26.5	0.103	mg/kg dry	25.8	0.0548	103	75-125			
Chromium	30.3	0.103	mg/kg dry	25.8	4.28	101	75-125			
Copper	29.0	0.103	mg/kg dry	25.8	2.97	101	75-125			
Nickel	28.2	0.258	mg/kg dry	25.8	2.29	101	75-125			
Lead	27.7	0.155	mg/kg dry	25.8	1.81	100	75-125			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91429 - 3050B S Acid ICP - EPA 6010C										
Matrix Spike (DI91429-MS1)		Source: D911977-09		Prepared: 09/23/2019 Analyzed: 09/24/2019						
Antimony	23.6	0.155	mg/kg dry	25.8	ND	91.4	75-125			
Selenium	24.7	0.258	mg/kg dry	25.8	ND	95.8	75-125			
Zinc	45.5	0.258	mg/kg dry	25.8	23.6	84.9	75-125			
Matrix Spike Dup (DI91429-MSD1)		Source: D911977-09		Prepared: 09/23/2019 Analyzed: 09/24/2019						
Silver	25.8	0.103	mg/kg dry	25.8	ND	100	75-125	2.12	35	
Arsenic	27.0	0.258	mg/kg dry	25.8	1.45	99.0	75-125	0.804	35	
Beryllium	25.5	0.0515	mg/kg dry	25.8	0.0817	98.8	75-125	2.24	35	
Cadmium	26.1	0.103	mg/kg dry	25.8	0.0548	101	75-125	1.71	35	
Chromium	30.2	0.103	mg/kg dry	25.8	4.28	101	75-125	0.468	35	
Copper	29.1	0.103	mg/kg dry	25.8	2.97	101	75-125	0.556	35	
Nickel	27.8	0.258	mg/kg dry	25.8	2.29	99.1	75-125	1.40	35	
Lead	27.5	0.155	mg/kg dry	25.8	1.81	99.8	75-125	0.558	35	
Antimony	23.8	0.155	mg/kg dry	25.8	ND	92.4	75-125	0.993	35	
Selenium	24.5	0.258	mg/kg dry	25.8	ND	95.0	75-125	0.791	35	
Zinc	45.6	0.258	mg/kg dry	25.8	23.6	85.1	75-125	0.125	35	
Batch DI91430 - 3050B S Acid ICP - EPA 6010C										
Blank (DI91430-BLK1)		Prepared: 09/23/2019 Analyzed: 09/24/2019								
Thallium	<0.250	0.250	mg/kg wet							
LCS (DI91430-BS1)		Prepared: 09/23/2019 Analyzed: 09/24/2019								
Thallium	25.1	0.250	mg/kg wet	25.0		100	80-120			
Duplicate (DI91430-DUP1)		Source: D911977-09		Prepared: 09/23/2019 Analyzed: 09/24/2019						
Thallium	<0.258	0.258	mg/kg dry		ND				35	
Matrix Spike (DI91430-MS1)		Source: D911977-09		Prepared: 09/23/2019 Analyzed: 09/24/2019						
Thallium	20.3	0.258	mg/kg dry	25.8	ND	78.9	75-125			
Matrix Spike Dup (DI91430-MSD1)		Source: D911977-09		Prepared: 09/23/2019 Analyzed: 09/24/2019						
Thallium	21.0	0.258	mg/kg dry	25.8	ND	81.4	75-125	3.05	35	



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Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91610 - 7471 - EPA 7471B										
Blank (DI91610-BLK1)			Prepared & Analyzed: 09/25/2019							
Mercury	<0.0330	0.0330	mg/kg wet							
LCS (DI91610-BS1)			Prepared & Analyzed: 09/25/2019							
Mercury	0.779	0.0330	mg/kg wet	0.833		93.5	80-120			
Matrix Spike (DI91610-MS1)			Source: D9I1977-09		Prepared & Analyzed: 09/25/2019					
Mercury	0.804	0.0340	mg/kg dry	0.859	ND	93.6	80-120			
Matrix Spike (DI91610-MS2)			Source: D9I1977-01		Prepared & Analyzed: 09/25/2019					
Mercury	0.864	0.0354	mg/kg dry	0.893	0.0496	91.1	80-120			
Matrix Spike Dup (DI91610-MSD1)			Source: D9I1977-09		Prepared & Analyzed: 09/25/2019					
Mercury	0.816	0.0340	mg/kg dry	0.859	ND	95.0	80-120	1.56	35	
Pesticides - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90238 - 3550C Ultrasonic - EPA 8081B										
Blank (DJ90238-BLK1)			Prepared: 10/03/2019 Analyzed: 10/05/2019							
Alachlor	<20.0	20.0	ug/kg wet							
Aldrin	<2.00	2.00	ug/kg wet							
alpha-BHC (alpha-Hexachlorocyclohexane)	<2.00	2.00	ug/kg wet							
beta-BHC (beta-Hexachlorocyclohexane)	<2.00	2.00	ug/kg wet							
delta-BHC	<2.00	2.00	ug/kg wet							
gamma-BHC (Lindane)	<2.00	2.00	ug/kg wet							
Chlordane (tech.)	<10.0	10.0	ug/kg wet							
4,4'-DDD	<2.00	2.00	ug/kg wet							
4,4'-DDE	<2.00	2.00	ug/kg wet							
4,4'-DDT	<2.00	2.00	ug/kg wet							
Dieldrin	<2.00	2.00	ug/kg wet							
Endosulfan I	<2.00	2.00	ug/kg wet							
Endosulfan II	<2.00	2.00	ug/kg wet							
Endosulfan Sulfate	<2.00	2.00	ug/kg wet							

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Pesticides - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90238 - 3550C Ultrasonic - EPA 8081B									
Blank (DJ90238-BLK1)					Prepared: 10/03/2019 Analyzed: 10/05/2019				
Endrin	<2.00	2.00	ug/kg wet						
Endrin aldehyde	<2.00	2.00	ug/kg wet						
Endrin ketone	<2.00	2.00	ug/kg wet						
Heptachlor	<2.00	2.00	ug/kg wet						
Heptachlor epoxide	<2.00	2.00	ug/kg wet						
Hexachlorobenzene	<2.00	2.00	ug/kg wet						
Methoxychlor	<2.00	2.00	ug/kg wet						
Toxaphene	<50.0	50.0	ug/kg wet						
<i>Surrogate: Decachlorobiphenyl (BZ-209)</i>	6.59		ug/kg wet	10.0		65.9 30-150			
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	6.01		ug/kg wet	10.0		60.1 30-150			
LCS (DJ90238-BS1)					Prepared: 10/03/2019 Analyzed: 10/05/2019				
Aldrin	7.00	2.00	ug/kg wet	10.0		70.0 40-140			
alpha-BHC (alpha-Hexachlorocyclohexane)	7.86	2.00	ug/kg wet	10.0		78.6 40-140			
beta-BHC (beta-Hexachlorocyclohexane)	8.17	2.00	ug/kg wet	10.0		81.7 40-140			
delta-BHC	8.06	2.00	ug/kg wet	10.0		80.6 40-140			
gamma-BHC (Lindane)	8.20	2.00	ug/kg wet	10.0		82.0 40-140			
4,4'-DDD	8.00	2.00	ug/kg wet	10.0		80.0 40-140			
4,4'-DDE	7.43	2.00	ug/kg wet	10.0		74.3 40-140			
4,4'-DDT	7.66	2.00	ug/kg wet	10.0		76.6 40-140			
Dieldrin	6.89	2.00	ug/kg wet	10.0		68.9 40-140			
Endosulfan I	6.91	2.00	ug/kg wet	10.0		69.1 40-140			
Endosulfan II	8.24	2.00	ug/kg wet	10.0		82.4 40-140			
Endosulfan Sulfate	7.53	2.00	ug/kg wet	10.0		75.3 40-140			
Endrin	7.81	2.00	ug/kg wet	10.0		78.1 40-140			
Endrin aldehyde	7.41	2.00	ug/kg wet	10.0		74.1 40-140			
Endrin ketone	7.40	2.00	ug/kg wet	10.0		74.0 40-140			



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Pesticides - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90238 - 3550C Ultrasonic - EPA 8081B										
LCS (DJ90238-BS1)				Prepared: 10/03/2019 Analyzed: 10/05/2019						
Heptachlor	7.34	2.00	ug/kg wet	10.0		73.4	40-140			
Heptachlor epoxide	6.80	2.00	ug/kg wet	10.0		68.0	40-140			
Methoxychlor	8.04	2.00	ug/kg wet	10.0		80.4	40-140			
<i>Surrogate: Decachlorobiphenyl (BZ-209)</i>	6.68		ug/kg wet	10.0		66.8	30-150			
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	6.17		ug/kg wet	10.0		61.7	30-150			
Matrix Spike (DJ90238-MS1)				Source: D911977-09 Prepared: 10/03/2019 Analyzed: 10/05/2019						
Aldrin	<51.5	51.5	ug/kg dry	10.3	ND	70.4	30-150			
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	10.3	ND	65.1	30-150			
beta-BHC (beta-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	10.3	ND	81.4	30-150			
delta-BHC	<51.5	51.5	ug/kg dry	10.3	ND	60.4	30-150			
gamma-BHC (Lindane)	<51.5	51.5	ug/kg dry	10.3	ND	71.8	30-150			
4,4'-DDD [2C]	<51.5	51.5	ug/kg dry	10.3	ND	75.8	30-150			
4,4'-DDE	<51.5	51.5	ug/kg dry	10.3	ND	66.7	30-150			
4,4'-DDT	<51.5	51.5	ug/kg dry	10.3	ND	79.1	30-150			
Dieldrin	<51.5	51.5	ug/kg dry	10.3	ND	71.9	30-150			
Endosulfan I	<51.5	51.5	ug/kg dry	10.3	ND	81.7	30-150			
Endosulfan II	<51.5	51.5	ug/kg dry	10.3	ND	92.8	30-150			
Endosulfan Sulfate	<51.5	51.5	ug/kg dry	10.3	ND	81.6	30-150			
Endrin	<51.5	51.5	ug/kg dry	10.3	ND	77.3	30-150			
Endrin aldehyde	<51.5	51.5	ug/kg dry	10.3	ND	102	30-150			
Endrin ketone	<51.5	51.5	ug/kg dry	10.3	ND	69.2	30-150			
Heptachlor	<51.5	51.5	ug/kg dry	10.3	ND	72.6	30-150			
Heptachlor epoxide	<51.5	51.5	ug/kg dry	10.3	ND	71.3	30-150			
Methoxychlor	<51.5	51.5	ug/kg dry	10.3	ND	98.6	30-150			
<i>Surrogate: Decachlorobiphenyl (BZ-209)</i>	8.56		ug/kg dry	10.3		83.0	30-150			
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	5.91		ug/kg dry	10.3		57.3	30-150			
Matrix Spike Dup (DJ90238-MSD1)				Source: D911977-09 Prepared: 10/03/2019 Analyzed: 10/05/2019						



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Pesticides - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90238 - 3550C Ultrasonic - EPA 8081B										
Matrix Spike Dup (DJ90238-MSD1)										
Source: D9I1977-09			Prepared: 10/03/2019 Analyzed: 10/05/2019							
Aldrin	<51.5	51.5	ug/kg dry	10.3	ND	72.2	30-150	2.59	35	
alpha-BHC (alpha-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	10.3	ND	67.0	30-150	2.95	35	
beta-BHC (beta-Hexachlorocyclohexane)	<51.5	51.5	ug/kg dry	10.3	ND	86.4	30-150	5.96	35	
delta-BHC	<51.5	51.5	ug/kg dry	10.3	ND	59.7	30-150	1.25	35	
gamma-BHC (Lindane)	<51.5	51.5	ug/kg dry	10.3	ND	71.5	30-150	0.488	35	
4,4'-DDD	<51.5	51.5	ug/kg dry	10.3	ND	77.9	30-150	2.09	35	
4,4'-DDE	<51.5	51.5	ug/kg dry	10.3	ND	66.9	30-150	0.224	35	
4,4'-DDT	<51.5	51.5	ug/kg dry	10.3	ND	72.2	30-150	9.12	35	
Dieldrin	<51.5	51.5	ug/kg dry	10.3	ND	73.6	30-150	2.34	35	
Endosulfan I	<51.5	51.5	ug/kg dry	10.3	ND	87.9	30-150	7.31	35	
Endosulfan II	<51.5	51.5	ug/kg dry	10.3	ND	90.3	30-150	2.68	35	
Endosulfan Sulfate	<51.5	51.5	ug/kg dry	10.3	ND	73.5	30-150	10.4	35	
Endrin	<51.5	51.5	ug/kg dry	10.3	ND	77.9	30-150	0.773	35	
Endrin aldehyde	<51.5	51.5	ug/kg dry	10.3	ND	87.2	30-150	15.7	35	
Endrin ketone	<51.5	51.5	ug/kg dry	10.3	ND	68.2	30-150	1.38	35	
Heptachlor	<51.5	51.5	ug/kg dry	10.3	ND	72.3	30-150	0.414	35	
Heptachlor epoxide	<51.5	51.5	ug/kg dry	10.3	ND	74.5	30-150	4.39	35	
Methoxychlor	<51.5	51.5	ug/kg dry	10.3	ND	86.7	30-150	12.8	35	
Surrogate: Decachlorobiphenyl (BZ-209)	8.56		ug/kg dry	10.3		83.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	6.28		ug/kg dry	10.3		60.9	30-150			

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91921 - 3550C Ultrasonic - EPA 8082A										
Blank (DI91921-BLK1)										
			Prepared: 09/27/2019 Analyzed: 09/30/2019							
Aroclor-1016 (PCB-1016)	<10.0	10.0	ug/kg wet							
Aroclor-1221 (PCB-1221)	<10.0	10.0	ug/kg wet							

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Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91921 - 3550C Ultrasonic - EPA 8082A										
Blank (DI91921-BLK1)										
				Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1232 (PCB-1232)	<10.0	10.0	ug/kg wet							
Aroclor-1242 (PCB-1242)	<10.0	10.0	ug/kg wet							
Aroclor-1248 (PCB-1248)	<10.0	10.0	ug/kg wet							
Aroclor-1254 (PCB-1254)	<10.0	10.0	ug/kg wet							
Aroclor-1260 (PCB-1260)	<10.0	10.0	ug/kg wet							
Surrogate: Decachlorobiphenyl (BZ-209)	8.14		ug/kg wet	10.0		81.4	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	7.33		ug/kg wet	10.0		73.3	30-150			
LCS (DI91921-BS1)										
				Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1016 (PCB-1016)	73.6	10.0	ug/kg wet	100		73.6	40-140			
Aroclor-1260 (PCB-1260)	83.1	10.0	ug/kg wet	100		83.1	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	8.30		ug/kg wet	10.0		83.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	7.73		ug/kg wet	10.0		77.3	30-150			
Matrix Spike (DI91921-MS1)										
				Source: D9I1977-09 Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1016 (PCB-1016)	63.7	10.3	ug/kg dry	103	ND	61.8	40-140			
Aroclor-1260 (PCB-1260)	70.9	10.3	ug/kg dry	103	ND	68.8	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	6.58		ug/kg dry	10.3		63.8	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	6.18		ug/kg dry	10.3		60.0	30-150			
Matrix Spike Dup (DI91921-MSD1)										
				Source: D9I1977-09 Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1016 (PCB-1016)	60.5	10.3	ug/kg dry	103	ND	58.9	40-140	5.14	35	
Aroclor-1260 (PCB-1260)	60.2	10.3	ug/kg dry	103	ND	58.6	40-140	16.3	35	
Surrogate: Decachlorobiphenyl (BZ-209)	5.80		ug/kg dry	10.3		56.4	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	7.22		ug/kg dry	10.3		70.3	30-150			
Petroieum Hydrocarbon Range Organics - GC/FID										
Batch DJ90069 - 3550C Ultrasonic - EPA 8100M										
Blank (DJ90069-BLK2)										
				Prepared: 10/01/2019 Analyzed: 10/12/2019						
C9-C36 TPH	<10.0	10.0	mg/kg wet							
Surrogate: 1-Chlorooctadecane	6.00		mg/kg wet	10.0		60.0	25-125			
LCS (DJ90069-BS2)										
				Prepared: 10/01/2019 Analyzed: 10/12/2019						
C9-C36 TPH	119	10.0	mg/kg wet	140		85.3	30-130			



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Petroieum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90069 - 3550C Ultrasonic - EPA 8100M										

LCS (DJ90069-BS2)										
Prepared: 10/01/2019 Analyzed: 10/12/2019										
<i>Surrogate: 1-Chlorooctadecane</i>	8.86		mg/kg wet	10.0		88.6	25-125			
Matrix Spike (DJ90069-MS1)										
Source: D911977-09 Prepared: 10/01/2019 Analyzed: 10/12/2019										
C9-C36 TPH	118	10.3	mg/kg dry	144	9.61	74.8	25-125			
<i>Surrogate: 1-Chlorooctadecane</i>	8.52		mg/kg dry	10.3		82.7	25-125			
Matrix Spike Dup (DJ90069-MSD1)										
Source: D911977-09 Prepared: 10/01/2019 Analyzed: 10/12/2019										
C9-C36 TPH	122	10.3	mg/kg dry	144	9.61	78.2	25-125	4.08	200	
<i>Surrogate: 1-Chlorooctadecane</i>	8.95		mg/kg dry	10.3		86.8	25-125			

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91946 - 3550C Ultrasonic - EPA 8270D										

Blank (DI91946-BLK1)										
Prepared: 09/26/2019 Analyzed: 10/02/2019										
Acenaphthene	<33.0	33.0	ug/kg wet							
Acenaphthylene	<33.0	33.0	ug/kg wet							
Anthracene	<33.0	33.0	ug/kg wet							
Benzo[a]anthracene	<33.0	33.0	ug/kg wet							
Benzo[a]pyrene	<33.0	33.0	ug/kg wet							
Benzo[b]fluoranthene	<33.0	33.0	ug/kg wet							
Benzo[g,h,i]perylene	<33.0	33.0	ug/kg wet							
Benzo[k]fluoranthene	<33.0	33.0	ug/kg wet							
Chrysene	<33.0	33.0	ug/kg wet							
Dibenz(a,h) anthracene	<33.0	33.0	ug/kg wet							
Fluoranthene	<33.0	33.0	ug/kg wet							
Fluorene	<33.0	33.0	ug/kg wet							
Indeno(1,2,3-cd) pyrene	<33.0	33.0	ug/kg wet							
2-Methylnaphthalene	<33.0	33.0	ug/kg wet							
Naphthalene	<33.0	33.0	ug/kg wet							
Phenanthrene	<33.0	33.0	ug/kg wet							



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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Notes
Batch DI91946 - 3550C Ultrasonic - EPA 8270D										
Blank (DI91946-BLK1)										
Prepared: 09/26/2019 Analyzed: 10/02/2019										
Pyrene	<33.0	33.0	ug/kg wet							
Surrogate: 2-Fluorobiphenyl	882		ug/kg wet	1670		52.9	30-130			
Surrogate: 2-Fluorophenol	969		ug/kg wet	1670		58.1	30-130			
Surrogate: Nitrobenzene-d5	913		ug/kg wet	1670		54.8	30-130			
Surrogate: Phenol-d6	964		ug/kg wet	1670		57.8	30-130			
Surrogate: p-Terphenyl-d14	1140		ug/kg wet	1670		68.6	30-130			
Surrogate: 2,4,6-Tribromophenol	1100		ug/kg wet	1670		65.9	30-130			
LCS (DI91946-BS1)										
Prepared: 09/26/2019 Analyzed: 10/02/2019										
Acenaphthene	491	33.0	ug/kg wet	833		58.9	40-140			
Acenaphthylene	522	33.0	ug/kg wet	833		62.6	40-140			
Anthracene	516	33.0	ug/kg wet	833		62.0	40-140			
Benzo[a]anthracene	483	33.0	ug/kg wet	833		58.0	40-140			
Benzo[a]pyrene	588	33.0	ug/kg wet	833		70.6	40-140			
Benzo[b]fluoranthene	547	33.0	ug/kg wet	833		65.6	40-140			
Benzo[g,h,i]perylene	599	33.0	ug/kg wet	833		71.9	40-140			
Benzo[k]fluoranthene	552	33.0	ug/kg wet	833		66.2	40-140			
Chrysene	523	33.0	ug/kg wet	833		62.7	40-140			
Dibenz(a,h) anthracene	613	33.0	ug/kg wet	833		73.6	40-140			
Fluoranthene	511	33.0	ug/kg wet	833		61.3	40-140			
Fluorene	499	33.0	ug/kg wet	833		59.9	40-140			
Indeno(1,2,3-cd) pyrene	595	33.0	ug/kg wet	833		71.4	40-140			
2-Methylnaphthalene	490	33.0	ug/kg wet	833		58.8	40-140			
Naphthalene	479	33.0	ug/kg wet	833		57.5	40-140			
Phenanthrene	520	33.0	ug/kg wet	833		62.4	40-140			
Pyrene	544	33.0	ug/kg wet	833		65.2	40-140			
Surrogate: 2-Fluorobiphenyl	870		ug/kg wet	1670		52.2	30-130			
Surrogate: 2-Fluorophenol	1020		ug/kg wet	1670		61.0	30-130			
Surrogate: Nitrobenzene-d5	930		ug/kg wet	1670		55.8	30-130			
Surrogate: Phenol-d6	1010		ug/kg wet	1670		60.8	30-130			
Surrogate: p-Terphenyl-d14	1020		ug/kg wet	1670		61.0	30-130			
Surrogate: 2,4,6-Tribromophenol	1110		ug/kg wet	1670		66.5	30-130			

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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90127 - 3550C Ultrasonic - EPA 8270D										
Blank (DJ90127-BLK1)										
Prepared: 09/30/2019 Analyzed: 10/02/2019										
Acenaphthene	<33.0	33.0	ug/kg wet							
Acenaphthylene	<33.0	33.0	ug/kg wet							
Anthracene	<33.0	33.0	ug/kg wet							
Benzo[a]anthracene	<33.0	33.0	ug/kg wet							
Benzo[a]pyrene	<33.0	33.0	ug/kg wet							
Benzo[b]fluoranthene	<33.0	33.0	ug/kg wet							
Benzo[g,h,i]perylene	<33.0	33.0	ug/kg wet							
Benzo[k]fluoranthene	<33.0	33.0	ug/kg wet							
Chrysene	<33.0	33.0	ug/kg wet							
Dibenz(a,h) anthracene	<33.0	33.0	ug/kg wet							
Fluoranthene	<33.0	33.0	ug/kg wet							
Fluorene	<33.0	33.0	ug/kg wet							
Indeno(1,2,3-cd) pyrene	<33.0	33.0	ug/kg wet							
2-Methylnaphthalene	<33.0	33.0	ug/kg wet							
Naphthalene	<33.0	33.0	ug/kg wet							
Phenanthrene	<33.0	33.0	ug/kg wet							
Pyrene	<33.0	33.0	ug/kg wet							
Surrogate: 2-Fluorobiphenyl	994		ug/kg wet	1670		59.7	30-130			
Surrogate: 2-Fluorophenol	1080		ug/kg wet	1670		64.8	30-130			
Surrogate: Nitrobenzene-d5	1050		ug/kg wet	1670		62.9	30-130			
Surrogate: Phenol-d6	1080		ug/kg wet	1670		64.8	30-130			
Surrogate: p-Terphenyl-d14	1240		ug/kg wet	1670		74.3	30-130			
Surrogate: 2,4,6-Tribromophenol	1340		ug/kg wet	1670		80.4	30-130			
LCS (DJ90127-BS1)										
Prepared: 09/30/2019 Analyzed: 10/02/2019										
Acenaphthene	606	33.0	ug/kg wet	833		72.7	40-140			
Acenaphthylene	675	33.0	ug/kg wet	833		81.0	40-140			
Anthracene	681	33.0	ug/kg wet	833		81.7	40-140			



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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90127 - 3550C Ultrasonic - EPA 8270D										
LCS (DJ90127-BS1)				Prepared: 09/30/2019 Analyzed: 10/02/2019						
Benzo[a]anthracene	674	33.0	ug/kg wet	833		80.8	40-140			
Benzo[a]pyrene	850	33.0	ug/kg wet	833		102	40-140			
Benzo[b]fluoranthene	787	33.0	ug/kg wet	833		94.4	40-140			
Benzo[g,h,i]perylene	810	33.0	ug/kg wet	833		97.2	40-140			
Benzo[k]fluoranthene	784	33.0	ug/kg wet	833		94.1	40-140			
Chrysene	737	33.0	ug/kg wet	833		88.4	40-140			
Dibenz(a,h) anthracene	826	33.0	ug/kg wet	833		99.1	40-140			
Fluoranthene	683	33.0	ug/kg wet	833		82.0	40-140			
Fluorene	605	33.0	ug/kg wet	833		72.6	40-140			
Indeno(1,2,3-cd) pyrene	840	33.0	ug/kg wet	833		101	40-140			
2-Methylnaphthalene	599	33.0	ug/kg wet	833		71.8	40-140			
Naphthalene	602	33.0	ug/kg wet	833		72.3	40-140			
Phenanthrene	676	33.0	ug/kg wet	833		81.2	40-140			
Pyrene	707	33.0	ug/kg wet	833		84.8	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>1010</i>		<i>ug/kg wet</i>	<i>1670</i>		<i>60.8</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>1220</i>		<i>ug/kg wet</i>	<i>1670</i>		<i>73.1</i>	<i>30-130</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>1060</i>		<i>ug/kg wet</i>	<i>1670</i>		<i>63.6</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d6</i>	<i>1190</i>		<i>ug/kg wet</i>	<i>1670</i>		<i>71.1</i>	<i>30-130</i>			
<i>Surrogate: p-Terphenyl-d14</i>	<i>1330</i>		<i>ug/kg wet</i>	<i>1670</i>		<i>79.8</i>	<i>30-130</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>1400</i>		<i>ug/kg wet</i>	<i>1670</i>		<i>84.1</i>	<i>30-130</i>			
Matrix Spike (DJ90127-MS1)				Source: D911977-09RE1 Prepared: 09/30/2019 Analyzed: 10/02/2019						
Acenaphthene	498	34.0	ug/kg dry	859	ND	58.0	20-109			
Acenaphthylene	525	34.0	ug/kg dry	859	ND	61.1	30-130			
Anthracene	552	34.0	ug/kg dry	859	ND	64.3	35-111			
Benzo[a]anthracene	539	34.0	ug/kg dry	859	ND	62.8	25-116			
Benzo[a]pyrene	639	34.0	ug/kg dry	859	ND	74.4	50-111			
Benzo[b]fluoranthene	613	34.0	ug/kg dry	859	ND	71.4	23-120			
Benzo[g,h,i]perylene	610	34.0	ug/kg dry	859	ND	71.0	10-132			



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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90127 - 3550C Ultrasonic - EPA 8270D										
Matrix Spike (DJ90127-MS1)	Source: D911977-09RE1			Prepared: 09/30/2019 Analyzed: 10/02/2019						
Benzo[k]fluoranthene	622	34.0	ug/kg dry	859	ND	72.4	34-107			
Chrysene	594	34.0	ug/kg dry	859	ND	69.2	38-100			
Dibenz(a,h) anthracene	618	34.0	ug/kg dry	859	ND	71.9	10-125			
Fluoranthene	593	34.0	ug/kg dry	859	ND	69.0	34-115			
Fluorene	505	34.0	ug/kg dry	859	ND	58.8	40-87			
Indeno(1,2,3-cd) pyrene	651	34.0	ug/kg dry	859	ND	75.8	22-124			
2-Methylnaphthalene	505	34.0	ug/kg dry	859	ND	58.8	30-130			
Naphthalene	476	34.0	ug/kg dry	859	ND	55.4	16-94			
Phenanthrene	567	34.0	ug/kg dry	859	ND	66.0	14-133			
Pyrene	574	34.0	ug/kg dry	859	ND	66.8	33-114			
<i>Surrogate: 2-Fluorobiphenyl</i>	865		ug/kg dry	1720		50.4	30-130			
<i>Surrogate: 2-Fluorophenol</i>	982		ug/kg dry	1720		57.1	30-130			
<i>Surrogate: Nitrobenzene-d5</i>	935		ug/kg dry	1720		54.4	30-130			
<i>Surrogate: Phenol-d6</i>	1000		ug/kg dry	1720		58.2	30-130			
<i>Surrogate: p-Terphenyl-d14</i>	1030		ug/kg dry	1720		60.0	30-130			
<i>Surrogate: 2,4,6-Tribromophenol</i>	1180		ug/kg dry	1720		68.8	30-130			
Matrix Spike Dup (DJ90127-MSD1)	Source: D911977-09RE1			Prepared: 09/30/2019 Analyzed: 10/02/2019						
Acenaphthene	592	34.0	ug/kg dry	859	ND	68.9	20-109	17.2	20	
Acenaphthylene	620	34.0	ug/kg dry	859	ND	72.2	30-130	16.7	20	
Anthracene	668	34.0	ug/kg dry	859	ND	77.7	35-111	18.9	20	
Benzo[a]anthracene	640	34.0	ug/kg dry	859	ND	74.5	25-116	17.1	20	
Benzo[a]pyrene	789	34.0	ug/kg dry	859	ND	91.9	50-111	21.1	20	R1
Benzo[b]fluoranthene	752	34.0	ug/kg dry	859	ND	87.5	23-120	20.3	20	R1
Benzo[g,h,i]perylene	683	34.0	ug/kg dry	859	ND	79.5	10-132	11.3	20	
Benzo[k]fluoranthene	726	34.0	ug/kg dry	859	ND	84.5	34-107	15.4	20	
Chrysene	668	34.0	ug/kg dry	859	ND	77.7	38-100	11.6	20	
Dibenz(a,h) anthracene	742	34.0	ug/kg dry	859	ND	86.4	10-125	18.2	20	
Fluoranthene	729	34.0	ug/kg dry	859	ND	84.9	34-115	20.6	20	R1



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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90127 - 3550C Ultrasonic - EPA 8270D										
Matrix Spike Dup (DJ90127-MSD1)	Source: D9I1977-09RE1		Prepared: 09/30/2019 Analyzed: 10/02/2019							
Fluorene	580	34.0	ug/kg dry	859	ND	67.5	40-87	13.9	20	
Indeno(1,2,3-cd) pyrene	731	34.0	ug/kg dry	859	ND	85.1	22-124	11.6	20	
2-Methylnaphthalene	568	34.0	ug/kg dry	859	ND	66.2	30-130	11.8	20	
Naphthalene	559	34.0	ug/kg dry	859	ND	65.0	16-94	15.9	20	
Phenanthrene	682	34.0	ug/kg dry	859	ND	79.4	14-133	18.4	20	
Pyrene	672	34.0	ug/kg dry	859	ND	78.3	33-114	15.8	20	
<i>Surrogate: 2-Fluorobiphenyl</i>	958		ug/kg dry	1720		55.8	30-130			
<i>Surrogate: 2-Fluorophenol</i>	1090		ug/kg dry	1720		63.4	30-130			
<i>Surrogate: Nitrobenzene-d5</i>	1030		ug/kg dry	1720		59.9	30-130			
<i>Surrogate: Phenol-d6</i>	1100		ug/kg dry	1720		63.8	30-130			
<i>Surrogate: p-Terphenyl-d14</i>	1200		ug/kg dry	1720		69.9	30-130			
<i>Surrogate: 2,4,6-Tribromophenol</i>	1390		ug/kg dry	1720		80.7	30-130			

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Blank (DJ90230-BLK1)	Prepared & Analyzed: 09/30/2019									
Acetone	<10.0	10.0	ug/kg wet							
Acrylonitrile	<5.00	5.00	ug/kg wet							
Benzene	<5.00	5.00	ug/kg wet							
Bromobenzene	<5.00	5.00	ug/kg wet							
Bromochloromethane	<5.00	5.00	ug/kg wet							
Bromodichloromethane	<5.00	5.00	ug/kg wet							
Bromoform	<5.00	5.00	ug/kg wet							
Bromomethane	<5.00	5.00	ug/kg wet							
2-Butanone (MEK)	<10.0	10.0	ug/kg wet							
n-Butylbenzene	<5.00	5.00	ug/kg wet							
tert-Butylbenzene	<5.00	5.00	ug/kg wet							
sec-Butylbenzene	<5.00	5.00	ug/kg wet							



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Blank (DJ90230-BLK1)	Prepared & Analyzed: 09/30/2019								
Carbon disulfide	<5.00	5.00	ug/kg wet						
Carbon tetrachloride	<5.00	5.00	ug/kg wet						
Chlorobenzene	<5.00	5.00	ug/kg wet						
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/kg wet						
Chloroform	<5.00	5.00	ug/kg wet						
Chloromethane	<5.00	5.00	ug/kg wet						
2-Chlorotoluene	<5.00	5.00	ug/kg wet						
4-Chlorotoluene	<5.00	5.00	ug/kg wet						
1,2-Dibromo-3-chloropropane (DBCP)	<5.00	5.00	ug/kg wet						
Dibromochloromethane	<5.00	5.00	ug/kg wet						
1,2-Dibromoethane (Ethylene dibromide, EDB)	<5.00	5.00	ug/kg wet						
Dibromomethane (Methylene bromide)	<5.00	5.00	ug/kg wet						
trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/kg wet						
1,2-Dichlorobenzene	<5.00	5.00	ug/kg wet						
1,3-Dichlorobenzene	<5.00	5.00	ug/kg wet						
1,4-Dichlorobenzene	<5.00	5.00	ug/kg wet						
Dichlorodifluoromethane (Freon-12)	<5.00	5.00	ug/kg wet						
1,2-Dichloroethane	<5.00	5.00	ug/kg wet						
1,1-Dichloroethane	<5.00	5.00	ug/kg wet						
cis-1,2-Dichloroethene	<5.00	5.00	ug/kg wet						
1,1-Dichloroethene	<5.00	5.00	ug/kg wet						
trans-1,2-Dichloroethene	<5.00	5.00	ug/kg wet						
2,2-Dichloropropane	<5.00	5.00	ug/kg wet						
1,2-Dichloropropane	<5.00	5.00	ug/kg wet						
1,3-Dichloropropane	<5.00	5.00	ug/kg wet						

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Blank (DJ90230-BLK1)	Prepared & Analyzed: 09/30/2019								
1,1-Dichloropropene	<5.00	5.00	ug/kg wet						
cis-1,3-Dichloropropene	<5.00	5.00	ug/kg wet						
trans-1,3-Dichloropropene	<5.00	5.00	ug/kg wet						
Diethyl ether	<5.00	5.00	ug/kg wet						
1,4-Dioxane	<5.00	5.00	ug/kg wet						
Ethylbenzene	<5.00	5.00	ug/kg wet						
Hexachlorobutadiene	<5.00	5.00	ug/kg wet						
2-Hexanone (MBK)	<10.0	10.0	ug/kg wet						
Isopropylbenzene (Cumene)	<5.00	5.00	ug/kg wet						
4-Isopropyltoluene (p-Isopropyltoluene)	<5.00	5.00	ug/kg wet						
Methyl tert-butyl ether (MTBE)	<5.00	5.00	ug/kg wet						
Methylene chloride (Dichloromethane)	<20.0	20.0	ug/kg wet						
4-Methyl-2-pentanone (MIBK)	<10.0	10.0	ug/kg wet						
Naphthalene	<5.00	5.00	ug/kg wet						
n-Propylbenzene	<5.00	5.00	ug/kg wet						
Styrene	<5.00	5.00	ug/kg wet						
1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/kg wet						
1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/kg wet						
Tetrachloroethene	<5.00	5.00	ug/kg wet						
Tetrahydrofuran (THF)	<5.00	5.00	ug/kg wet						
Toluene	<5.00	5.00	ug/kg wet						
1,2,3-Trichlorobenzene	<5.00	5.00	ug/kg wet						
1,2,4-Trichlorobenzene	<5.00	5.00	ug/kg wet						
1,1,2-Trichloroethane	<5.00	5.00	ug/kg wet						
1,1,1-Trichloroethane	<5.00	5.00	ug/kg wet						

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Blank (DJ90230-BLK1)				Prepared & Analyzed: 09/30/2019					
Trichloroethene	<5.00	5.00	ug/kg wet						
Trichlorofluoromethane (Freon 11)	<5.00	5.00	ug/kg wet						
1,2,3-Trichloropropane	<5.00	5.00	ug/kg wet						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<5.00	5.00	ug/kg wet						
1,2,4-Trimethylbenzene	<5.00	5.00	ug/kg wet						
1,3,5-Trimethylbenzene	<5.00	5.00	ug/kg wet						
Vinyl chloride	<5.00	5.00	ug/kg wet						
m,p-Xylene	<5.00	5.00	ug/kg wet						
o-Xylene	<5.00	5.00	ug/kg wet						
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>49.2</i>		ug/L	<i>50.0</i>		<i>98.4</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>45.0</i>		ug/L	<i>50.0</i>		<i>89.9</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>49.3</i>		ug/L	<i>50.0</i>		<i>98.6</i>	<i>70-130</i>		
LCS (DJ90230-BS1)				Prepared & Analyzed: 09/30/2019					
Acetone	51.6	10.0	ug/kg wet	50.0		103	70-130		
Acrylonitrile	56.9	5.00	ug/kg wet	50.0		114	70-130		
Benzene	54.0	5.00	ug/kg wet	50.0		108	70-130		
Bromobenzene	54.5	5.00	ug/kg wet	50.0		109	70-130		
Bromochloromethane	52.0	5.00	ug/kg wet	50.0		104	70-130		
Bromodichloromethane	51.6	5.00	ug/kg wet	50.0		103	70-130		
Bromoform	49.0	5.00	ug/kg wet	50.0		97.9	70-130		
Bromomethane	54.1	5.00	ug/kg wet	50.0		108	70-130		
2-Butanone (MEK)	52.5	10.0	ug/kg wet	50.0		105	70-130		
n-Butylbenzene	55.2	5.00	ug/kg wet	50.0		110	70-130		
tert-Butylbenzene	55.7	5.00	ug/kg wet	50.0		111	70-130		
sec-Butylbenzene	55.1	5.00	ug/kg wet	50.0		110	70-130		
Carbon disulfide	50.3	5.00	ug/kg wet	50.0		101	70-130		



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
LCS (DJ90230-BS1)				Prepared & Analyzed: 09/30/2019					
Carbon tetrachloride	50.0	5.00	ug/kg wet	50.0		99.9 70-130			
Chlorobenzene	57.0	5.00	ug/kg wet	50.0		114 70-130			
Chloroethane (Ethyl chloride)	48.0	5.00	ug/kg wet	50.0		96.0 70-130			
Chloroform	52.6	5.00	ug/kg wet	50.0		105 70-130			
Chloromethane	55.5	5.00	ug/kg wet	50.0		111 70-130			
2-Chlorotoluene	53.3	5.00	ug/kg wet	50.0		107 70-130			
4-Chlorotoluene	52.5	5.00	ug/kg wet	50.0		105 70-130			
1,2-Dibromo-3-chloropropane (DBCP)	41.3	5.00	ug/kg wet	50.0		82.7 70-130			
Dibromochloromethane	50.7	5.00	ug/kg wet	50.0		101 70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	52.4	5.00	ug/kg wet	50.0		105 70-130			
Dibromomethane (Methylene bromide)	51.4	5.00	ug/kg wet	50.0		103 70-130			
trans-1,4-Dichloro-2-butene	42.6	5.00	ug/kg wet	50.0		85.1 70-130			
1,2-Dichlorobenzene	52.3	5.00	ug/kg wet	50.0		105 70-130			
1,3-Dichlorobenzene	55.0	5.00	ug/kg wet	50.0		110 70-130			
1,4-Dichlorobenzene	53.2	5.00	ug/kg wet	50.0		106 70-130			
Dichlorodifluoromethane (Freon-12)	46.4	5.00	ug/kg wet	50.0		92.8 70-130			
1,2-Dichloroethane	46.8	5.00	ug/kg wet	50.0		93.5 70-130			
1,1-Dichloroethane	52.9	5.00	ug/kg wet	50.0		106 70-130			
cis-1,2-Dichloroethene	53.4	5.00	ug/kg wet	50.0		107 70-130			
1,1-Dichloroethene	58.2	5.00	ug/kg wet	50.0		116 70-130			
trans-1,2-Dichloroethene	53.2	5.00	ug/kg wet	50.0		106 70-130			
2,2-Dichloropropane	48.2	5.00	ug/kg wet	50.0		96.5 70-130			
1,2-Dichloropropane	53.1	5.00	ug/kg wet	50.0		106 70-130			
1,3-Dichloropropane	50.7	5.00	ug/kg wet	50.0		101 70-130			
1,1-Dichloropropene	53.6	5.00	ug/kg wet	50.0		107 70-130			

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
LCS (DJ90230-BS1)				Prepared & Analyzed: 09/30/2019					
cis-1,3-Dichloropropene	51.7	5.00	ug/kg wet	50.0		103 70-130			
trans-1,3-Dichloropropene	51.6	5.00	ug/kg wet	50.0		103 70-130			
Diethyl ether	52.1	5.00	ug/kg wet	50.0		104 70-130			
1,4-Dioxane	60.5	5.00	ug/kg wet	50.0		121 70-130			
Ethylbenzene	54.2	5.00	ug/kg wet	50.0		108 70-130			
Hexachlorobutadiene	51.6	5.00	ug/kg wet	50.0		103 70-130			
2-Hexanone (MBK)	48.4	10.0	ug/kg wet	50.0		96.7 70-130			
Isopropylbenzene (Cumene)	52.5	5.00	ug/kg wet	50.0		105 70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	53.0	5.00	ug/kg wet	50.0		106 70-130			
Methyl tert-butyl ether (MTBE)	50.2	5.00	ug/kg wet	50.0		100 70-130			
Methylene chloride (Dichloromethane)	56.6	20.0	ug/kg wet	50.0		113 70-130			
4-Methyl-2-pentanone (MIBK)	48.2	10.0	ug/kg wet	50.0		96.3 70-130			
Naphthalene	49.2	5.00	ug/kg wet	50.0		98.4 70-130			
n-Propylbenzene	55.0	5.00	ug/kg wet	50.0		110 70-130			
Styrene	55.1	5.00	ug/kg wet	50.0		110 70-130			
1,1,2,2-Tetrachloroethane	51.4	5.00	ug/kg wet	50.0		103 70-130			
1,1,1,2-Tetrachloroethane	52.7	5.00	ug/kg wet	50.0		105 70-130			
Tetrachloroethene	56.1	5.00	ug/kg wet	50.0		112 70-130			
Tetrahydrofuran (THF)	47.4	5.00	ug/kg wet	50.0		94.9 70-130			
Toluene	55.0	5.00	ug/kg wet	50.0		110 70-130			
1,2,3-Trichlorobenzene	50.5	5.00	ug/kg wet	50.0		101 70-130			
1,2,4-Trichlorobenzene	51.1	5.00	ug/kg wet	50.0		102 70-130			
1,1,2-Trichloroethane	57.2	5.00	ug/kg wet	50.0		114 70-130			
1,1,1-Trichloroethane	48.9	5.00	ug/kg wet	50.0		97.7 70-130			
Trichloroethene	57.7	5.00	ug/kg wet	50.0		115 70-130			

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
LCS (DJ90230-BS1)			Prepared & Analyzed: 09/30/2019						
Trichlorofluoromethane (Freon 11)	52.3	5.00	ug/kg wet	50.0		105	70-130		
1,2,3-Trichloropropane	47.0	5.00	ug/kg wet	50.0		94.1	70-130		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	53.7	5.00	ug/kg wet	50.0		107	70-130		
1,2,4-Trimethylbenzene	51.0	5.00	ug/kg wet	50.0		102	70-130		
1,3,5-Trimethylbenzene	52.6	5.00	ug/kg wet	50.0		105	70-130		
Vinyl chloride	54.3	5.00	ug/kg wet	50.0		109	70-130		
m,p-Xylene	56.2	5.00	ug/kg wet	50.0		112	70-130		
o-Xylene	54.0	5.00	ug/kg wet	50.0		108	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.3</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>44.1</i>		ug/L	<i>50.0</i>		<i>88.1</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>48.5</i>		ug/L	<i>50.0</i>		<i>97.0</i>	<i>70-130</i>		
Matrix Spike (DJ90230-MS1)			Source: D9I1977-09		Prepared & Analyzed: 09/30/2019				
Acetone	39.2	10.6	ug/kg dry	51.5	ND	76.1	70-130		
Acrylonitrile	53.9	5.31	ug/kg dry	51.5	ND	105	70-130		
Benzene	57.7	5.31	ug/kg dry	51.5	ND	112	70-130		
Bromobenzene	53.1	5.31	ug/kg dry	51.5	ND	103	70-130		
Bromochloromethane	52.6	5.31	ug/kg dry	51.5	ND	102	70-130		
Bromodichloromethane	49.9	5.31	ug/kg dry	51.5	ND	96.9	70-130		
Bromoform	48.0	5.31	ug/kg dry	51.5	ND	93.1	70-130		
Bromomethane	43.0	5.31	ug/kg dry	51.5	ND	83.4	70-130		
2-Butanone (MEK)	51.8	10.6	ug/kg dry	51.5	ND	101	70-130		
n-Butylbenzene	59.3	5.31	ug/kg dry	51.5	ND	115	70-130		
tert-Butylbenzene	54.9	5.31	ug/kg dry	51.5	ND	106	70-130		
sec-Butylbenzene	54.4	5.31	ug/kg dry	51.5	ND	106	70-130		
Carbon disulfide	29.8	5.31	ug/kg dry	51.5	ND	57.8	70-130		M2
Carbon tetrachloride	49.6	5.31	ug/kg dry	51.5	ND	96.2	70-130		



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike (DJ90230-MS1)		Source: D9I1977-09			Prepared & Analyzed: 09/30/2019					
Chlorobenzene	58.4	5.31	ug/kg dry	51.5	ND	113	70-130			
Chloroethane (Ethyl chloride)	52.4	5.31	ug/kg dry	51.5	ND	102	70-130			
Chloroform	53.5	5.31	ug/kg dry	51.5	ND	104	70-130			
Chloromethane	64.7	5.31	ug/kg dry	51.5	ND	126	70-130			
2-Chlorotoluene	51.5	5.31	ug/kg dry	51.5	ND	100	70-130			
4-Chlorotoluene	51.6	5.31	ug/kg dry	51.5	ND	100	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	39.1	5.31	ug/kg dry	51.5	ND	75.9	70-130			
Dibromochloromethane	47.8	5.31	ug/kg dry	51.5	ND	92.7	70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	52.3	5.31	ug/kg dry	51.5	ND	101	70-130			
Dibromomethane (Methylene bromide)	53.3	5.31	ug/kg dry	51.5	ND	103	70-130			
trans-1,4-Dichloro-2-butene	39.7	5.31	ug/kg dry	51.5	ND	77.0	70-130			
1,2-Dichlorobenzene	53.0	5.31	ug/kg dry	51.5	ND	103	70-130			
1,3-Dichlorobenzene	55.4	5.31	ug/kg dry	51.5	ND	107	70-130			
1,4-Dichlorobenzene	54.3	5.31	ug/kg dry	51.5	ND	105	70-130			
Dichlorodifluoromethane (Freon-12)	49.7	5.31	ug/kg dry	51.5	ND	96.5	70-130			
1,2-Dichloroethane	47.8	5.31	ug/kg dry	51.5	ND	92.7	70-130			
1,1-Dichloroethane	53.5	5.31	ug/kg dry	51.5	ND	104	70-130			
cis-1,2-Dichloroethene	57.7	5.31	ug/kg dry	51.5	ND	112	70-130			
1,1-Dichloroethene	40.9	5.31	ug/kg dry	51.5	ND	79.4	70-130			
trans-1,2-Dichloroethene	55.7	5.31	ug/kg dry	51.5	ND	108	70-130			
2,2-Dichloropropane	46.4	5.31	ug/kg dry	51.5	ND	90.0	70-130			
1,2-Dichloropropane	55.6	5.31	ug/kg dry	51.5	ND	108	70-130			
1,3-Dichloropropane	50.5	5.31	ug/kg dry	51.5	ND	97.9	70-130			
1,1-Dichloropropene	57.0	5.31	ug/kg dry	51.5	ND	111	70-130			
cis-1,3-Dichloropropene	49.7	5.31	ug/kg dry	51.5	ND	96.4	70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike (DJ90230-MS1)		Source: D911977-09			Prepared & Analyzed: 09/30/2019					
trans-1,3-Dichloropropene	49.6	5.31	ug/kg dry	51.5	ND	96.2	70-130			
Diethyl ether	27.2	5.31	ug/kg dry	51.5	ND	52.8	70-130			M2
1,4-Dioxane	67.1	5.31	ug/kg dry	51.5	ND	130	70-130			
Ethylbenzene	55.7	5.31	ug/kg dry	51.5	ND	108	70-130			
Hexachlorobutadiene	57.8	5.31	ug/kg dry	51.5	ND	112	70-130			
2-Hexanone (MBK)	47.3	10.6	ug/kg dry	51.5	ND	91.8	70-130			
Isopropylbenzene (Cumene)	52.4	5.31	ug/kg dry	51.5	ND	102	70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	54.1	5.31	ug/kg dry	51.5	ND	105	70-130			
Methyl tert-butyl ether (MTBE)	53.0	5.31	ug/kg dry	51.5	ND	103	70-130			
Methylene chloride (Dichloromethane)	58.2	21.2	ug/kg dry	51.5	ND	113	70-130			
4-Methyl-2-pentanone (MIBK)	45.5	10.6	ug/kg dry	51.5	ND	88.4	70-130			
Naphthalene	53.2	5.31	ug/kg dry	51.5	ND	103	70-130			
n-Propylbenzene	53.2	5.31	ug/kg dry	51.5	ND	103	70-130			
Styrene	56.9	5.31	ug/kg dry	51.5	ND	110	70-130			
1,1,2,2-Tetrachloroethane	45.9	5.31	ug/kg dry	51.5	ND	89.1	70-130			
1,1,1,2-Tetrachloroethane	52.6	5.31	ug/kg dry	51.5	ND	102	70-130			
Tetrachloroethene	57.5	5.31	ug/kg dry	51.5	ND	112	70-130			
Tetrahydrofuran (THF)	46.5	5.31	ug/kg dry	51.5	ND	90.2	70-130			
Toluene	54.6	5.31	ug/kg dry	51.5	ND	106	70-130			
1,2,3-Trichlorobenzene	56.0	5.31	ug/kg dry	51.5	ND	109	70-130			
1,2,4-Trichlorobenzene	57.9	5.31	ug/kg dry	51.5	ND	112	70-130			
1,1,2-Trichloroethane	56.6	5.31	ug/kg dry	51.5	ND	110	70-130			
1,1,1-Trichloroethane	50.9	5.31	ug/kg dry	51.5	ND	98.7	70-130			
Trichloroethene	63.5	5.31	ug/kg dry	51.5	ND	123	70-130			
Trichlorofluoromethane (Freon 11)	40.8	5.31	ug/kg dry	51.5	ND	79.2	70-130			

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CERTIFICATE OF ANALYSIS

D9I1977

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike (DJ90230-MS1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
1,2,3-Trichloropropane	44.2	5.31	ug/kg dry	51.5	ND	85.7	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	40.2	5.31	ug/kg dry	51.5	ND	77.9	70-130			
1,2,4-Trimethylbenzene	51.1	5.31	ug/kg dry	51.5	ND	99.1	70-130			
1,3,5-Trimethylbenzene	51.0	5.31	ug/kg dry	51.5	ND	98.9	70-130			
Vinyl chloride	57.3	5.31	ug/kg dry	51.5	ND	111	70-130			
m,p-Xylene	56.7	5.31	ug/kg dry	51.5	ND	110	70-130			
o-Xylene	54.9	5.31	ug/kg dry	51.5	ND	107	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.5</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>44.0</i>		ug/L	<i>50.0</i>		<i>88.0</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>46.2</i>		ug/L	<i>50.0</i>		<i>92.4</i>	<i>70-130</i>			
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Acetone	40.0	10.6	ug/kg dry	51.5	ND	77.7	70-130	2.09	30	
Acrylonitrile	55.8	5.31	ug/kg dry	51.5	ND	108	70-130	3.35	30	
Benzene	57.0	5.31	ug/kg dry	51.5	ND	111	70-130	1.22	30	
Bromobenzene	51.7	5.31	ug/kg dry	51.5	ND	100	70-130	2.55	30	
Bromochloromethane	51.2	5.31	ug/kg dry	51.5	ND	99.3	70-130	2.78	30	
Bromodichloromethane	49.9	5.31	ug/kg dry	51.5	ND	96.9	70-130	0.0425	30	
Bromoform	46.9	5.31	ug/kg dry	51.5	ND	90.9	70-130	2.33	30	
Bromomethane	42.7	5.31	ug/kg dry	51.5	ND	82.9	70-130	0.545	30	
2-Butanone (MEK)	51.9	10.6	ug/kg dry	51.5	ND	101	70-130	0.205	30	
n-Butylbenzene	56.4	5.31	ug/kg dry	51.5	ND	110	70-130	4.95	30	
tert-Butylbenzene	53.2	5.31	ug/kg dry	51.5	ND	103	70-130	3.02	30	
sec-Butylbenzene	52.1	5.31	ug/kg dry	51.5	ND	101	70-130	4.28	30	
Carbon disulfide	29.1	5.31	ug/kg dry	51.5	ND	56.4	70-130	2.31	30	M2
Carbon tetrachloride	47.9	5.31	ug/kg dry	51.5	ND	92.9	70-130	3.46	30	
Chlorobenzene	55.3	5.31	ug/kg dry	51.5	ND	107	70-130	5.55	30	



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CERTIFICATE OF ANALYSIS

D9I1977

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Chloroethane (Ethyl chloride)	36.9	5.31	ug/kg dry	51.5	ND	71.7	70-130	34.7	30	M2
Chloroform	53.1	5.31	ug/kg dry	51.5	ND	103	70-130	0.856	30	
Chloromethane	64.6	5.31	ug/kg dry	51.5	ND	125	70-130	0.230	30	
2-Chlorotoluene	48.8	5.31	ug/kg dry	51.5	ND	94.8	70-130	5.39	30	
4-Chlorotoluene	49.1	5.31	ug/kg dry	51.5	ND	95.3	70-130	4.85	30	
1,2-Dibromo-3-chloropropane (DBCP)	37.5	5.31	ug/kg dry	51.5	ND	72.8	70-130	4.21	30	
Dibromochloromethane	46.5	5.31	ug/kg dry	51.5	ND	90.2	70-130	2.79	30	
1,2-Dibromoethane (Ethylene dibromide, EDB)	50.6	5.31	ug/kg dry	51.5	ND	98.1	70-130	3.39	30	
Dibromomethane (Methylene bromide)	53.2	5.31	ug/kg dry	51.5	ND	103	70-130	0.179	30	
trans-1,4-Dichloro-2-butene	39.6	5.31	ug/kg dry	51.5	ND	76.9	70-130	0.161	30	
1,2-Dichlorobenzene	51.5	5.31	ug/kg dry	51.5	ND	100	70-130	2.82	30	
1,3-Dichlorobenzene	53.5	5.31	ug/kg dry	51.5	ND	104	70-130	3.51	30	
1,4-Dichlorobenzene	52.8	5.31	ug/kg dry	51.5	ND	102	70-130	2.83	30	
Dichlorodifluoromethane (Freon-12)	48.5	5.31	ug/kg dry	51.5	ND	94.1	70-130	2.44	30	
1,2-Dichloroethane	47.4	5.31	ug/kg dry	51.5	ND	91.9	70-130	0.893	30	
1,1-Dichloroethane	51.8	5.31	ug/kg dry	51.5	ND	101	70-130	3.21	30	
cis-1,2-Dichloroethene	57.1	5.31	ug/kg dry	51.5	ND	111	70-130	0.961	30	
1,1-Dichloroethene	39.9	5.31	ug/kg dry	51.5	ND	77.4	70-130	2.63	30	
trans-1,2-Dichloroethene	55.2	5.31	ug/kg dry	51.5	ND	107	70-130	0.900	30	
2,2-Dichloropropane	45.2	5.31	ug/kg dry	51.5	ND	87.7	70-130	2.53	30	
1,2-Dichloropropane	55.0	5.31	ug/kg dry	51.5	ND	107	70-130	1.06	30	
1,3-Dichloropropane	49.9	5.31	ug/kg dry	51.5	ND	96.9	70-130	1.08	30	
1,1-Dichloropropene	56.4	5.31	ug/kg dry	51.5	ND	109	70-130	1.22	30	
cis-1,3-Dichloropropene	48.3	5.31	ug/kg dry	51.5	ND	93.7	70-130	2.77	30	
trans-1,3-Dichloropropene	48.7	5.31	ug/kg dry	51.5	ND	94.5	70-130	1.86	30	

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CERTIFICATE OF ANALYSIS

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Diethyl ether	27.1	5.31	ug/kg dry	51.5	ND	52.6	70-130	0.313	30	M2
1,4-Dioxane	67.3	5.31	ug/kg dry	51.5	ND	131	70-130	0.347	30	M2
Ethylbenzene	52.7	5.31	ug/kg dry	51.5	ND	102	70-130	5.48	30	
Hexachlorobutadiene	54.3	5.31	ug/kg dry	51.5	ND	105	70-130	6.18	30	
2-Hexanone (MBK)	46.3	10.6	ug/kg dry	51.5	ND	89.9	70-130	2.11	30	
Isopropylbenzene (Cumene)	50.2	5.31	ug/kg dry	51.5	ND	97.3	70-130	4.31	30	
4-Isopropyltoluene (p-Isopropyltoluene)	51.1	5.31	ug/kg dry	51.5	ND	99.2	70-130	5.71	30	
Methyl tert-butyl ether (MTBE)	53.3	5.31	ug/kg dry	51.5	ND	103	70-130	0.639	30	
Methylene chloride (Dichloromethane)	58.5	21.2	ug/kg dry	51.5	ND	113	70-130	0.509	30	
4-Methyl-2-pentanone (MIBK)	45.3	10.6	ug/kg dry	51.5	ND	87.8	70-130	0.631	30	
Naphthalene	53.0	5.31	ug/kg dry	51.5	ND	103	70-130	0.400	30	
n-Propylbenzene	50.8	5.31	ug/kg dry	51.5	ND	98.6	70-130	4.63	30	
Styrene	54.9	5.31	ug/kg dry	51.5	ND	107	70-130	3.55	30	
1,1,2,2-Tetrachloroethane	45.0	5.31	ug/kg dry	51.5	ND	87.4	70-130	1.98	30	
1,1,1,2-Tetrachloroethane	49.3	5.31	ug/kg dry	51.5	ND	95.7	70-130	6.50	30	
Tetrachloroethene	55.3	5.31	ug/kg dry	51.5	ND	107	70-130	3.95	30	
Tetrahydrofuran (THF)	45.7	5.31	ug/kg dry	51.5	ND	88.6	70-130	1.73	30	
Toluene	53.1	5.31	ug/kg dry	51.5	ND	103	70-130	2.74	30	
1,2,3-Trichlorobenzene	56.1	5.31	ug/kg dry	51.5	ND	109	70-130	0.208	30	
1,2,4-Trichlorobenzene	56.6	5.31	ug/kg dry	51.5	ND	110	70-130	2.28	30	
1,1,2-Trichloroethane	54.7	5.31	ug/kg dry	51.5	ND	106	70-130	3.42	30	
1,1,1-Trichloroethane	49.4	5.31	ug/kg dry	51.5	ND	95.8	70-130	2.94	30	
Trichloroethene	63.0	5.31	ug/kg dry	51.5	ND	122	70-130	0.722	30	
Trichlorofluoromethane (Freon 11)	40.1	5.31	ug/kg dry	51.5	ND	77.9	70-130	1.68	30	
1,2,3-Trichloropropane	42.9	5.31	ug/kg dry	51.5	ND	83.2	70-130	2.98	30	

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CERTIFICATE OF ANALYSIS

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	38.9	5.31	ug/kg dry	51.5	ND	75.5	70-130	3.17	30	
1,2,4-Trimethylbenzene	49.6	5.31	ug/kg dry	51.5	ND	96.2	70-130	2.91	30	
1,3,5-Trimethylbenzene	48.9	5.31	ug/kg dry	51.5	ND	94.8	70-130	4.23	30	
Vinyl chloride	55.6	5.31	ug/kg dry	51.5	ND	108	70-130	2.99	30	
m,p-Xylene	54.8	5.31	ug/kg dry	51.5	ND	106	70-130	3.43	30	
o-Xylene	52.6	5.31	ug/kg dry	51.5	ND	102	70-130	4.34	30	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>43.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>87.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>47.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>94.0</i>	<i>70-130</i>			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Definitions

- AC: Reporting limit not met for Chlordane due to dilution performed.
I1: Internal standard was below quality control acceptance limits.
M: Matrix interference is present.
M2: Matrix spike recovery is below acceptance limits.
Q10: The recovery for the closing low level check standard was outside of the established quality control range.
R1: Duplicate RPD is outside acceptance criteria.
RL: Reporting Limit
RPD: Relative Percent Difference
S2: Surrogate recovery is below acceptance limits.
S3: Surrogate is diluted out.
Y: This analyte is not on the laboratory's current scope of accreditation.
Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.1°C

Cooler Inspection Checklist

Table with 4 columns: Question, Yes, No, Answer. Rows include: Ice Present or not required?, Custody seals intact or not required?, COC includes customer information?, Sample collector identified on COC?, Correct type of Containers Received, Containers Intact?, Enough sample volume for indicated tests received?, Samples arrived within hold time?, Chemical preservations checked or not required?, VOA vials have zero headspace, or not recd.?, Shipping containers sealed or not required?, Chain of Custody (COC) Present?, Relinquished and received signature on COC?, Sample type identified on COC?, Correct number of containers listed on COC?, COC includes requested analyses?, Sample labels match COC (Name, Date & Time?), Correct preservatives on COC or not required?, Preservation checks meet method requirements?

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
LAO00346

Rhode Island Department of Health

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Handwritten signature: Katherine Wall

Katherine A. Wall
Project Manager

Reported: 10/30/2019 14:44



Microbac Lat
61 Louisiana
Dayville,

Copy of Report to

CUSTOMER:
ADDRESS:
DELIVERY:
E-MAIL:
PHONE: FAX:

BILL TO: RIDEM
ADDRESS: 235 Fremont St
Rid, RI
ATTN: Rachel Simpson
PHONE: 401-222-2777 ext. 7105
E-MAIL: Rachel.Simpson@dem.ri.gov
PURCHASE ORDER #: 1525815

Sample Identification

Sample ID	Date Collected	Time Collected	Sample Matrix
EA-1-0-2	9/19/19	0835	soil
EA-1-20-24		1230	soil
EA-3-0-2		1425	
EA-3-6-10		1435	
EA-4-0-2		1450	
EA-4-2-6		1500	
EA-Duplicate		00:00	
EA-5-0-2		1530	
EA-5-6-10			
Trip Blank-091919	9/19/19		

CUSTODY TRANSFER

SAMPLER:	DATE	TIME
RECEIVED: Britta Chambers	9/19/19	1621
RELINQUISHED: NRAM	9-19-19	1621g
RECEIVED:	9-19-19	1715
RELINQUISHED:	9/19-19	1715



D 9 I 1 9 7 7
EA ENG

page 1 of 2

Lab WO #:

Project Manager: *[Signature]*

Project Information

Project: Sunnyside Ave. Site Investigation
Location: 761 R9Z Sunnyside Ave, Woonsocket RI
Project Mgr: Tom Daley - EA Engineering
E-MAIL: tdaley@eaest.com
PHONE: 401-255-9605
FAX:

Analysis

Analysis	NON-PRES	HCL	HNO ₃	H ₂ SO ₄	OTHER
VOC Standard	X				
Metals	X				
PP3	X				
PAH	X				
PCB	X				
TPH	X				
Composite	X				
Grab	X				
Bottle Qty	6				
Sample Type					
Sample Matrix					
Preservatives					

TURNAROUND TIME REQUESTED (select):

RUSH Day

Standard

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method:

E-MAIL

HARD COPY

OTHER

COMMENTS:

EA-1-20-24 likely oil contaminated
*Analyze to RIDEM G-B Sampling Limits.

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED

AMBIENT

°C Upon receipt at lab



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Dayville, CT 06241

Chain of Custody

www.microbac.com
800-334-0103

page 2 of 2

Copy of Report To

CUSTOMER:

ADDRESS:

DELIVERY:

E-MAIL:

PHONE:

FAX:

Billing Information

BILL TO: RIDEEM

ADDRESS: 235 Pro Manabe St
Rt 2, RI

ATTN: Rachel Simpson

PHONE: 401-222-2797

E-MAIL: rachel.simpson@dem.si.gov

PURCHASE ORDER #: 1525815

Project Information

Project: Sunnyside Site Investigation

Location: 261 & 92 Sunnyside Av, Woonsocket RI

Project Mgr: Tom Daley - EA Engineering
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLE ARRIVE WE SHOULD CALL

E-MAIL: tdaley@east.com

PHONE: 401-255-9605

FAX:

Sample Identification	Date Collected	Time Collected	Sample Matrix	Sample Type		Bottle Qty	TOX	PAH	PCB	PPL Metals	VOC Semivolatile	Preservatives							
				Composite	Grab							NON-PRES	HCL	HNO ₃	H ₂ SO ₄	OTHER			
EX-5-6-10-MO/MSD	9/19/19	1530	Soil		X	6										X			

CUSTODY TRANSFER

DATE TIME

TURNAROUND TIME REQUESTED (select): Standard RUSH ___ Day

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

SAMPLER:

RECEIVED:

RELINQUISHED: Britta Chambers

RECEIVED:

RELINQUISHED:

RECEIVED:

Circle Delivery Method: E-MAIL HARD COPY OTHER

COMMENTS: Analyze to RIDEEM GB criteria RL

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED

AMBIENT

4.1

°C Upon receipt at lab



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Project Description

Sunnyside Ave Site Investigation

For:

Britta Chambers

EA Engineering

301 Metro Center Blvd. Suite 102

Warwick, RI 02886

Project Manager

Katherine A. Wall

Wednesday, October 30, 2019

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Dayville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

D9I2105

Revised Report: Per client,
amended to add QC.

EA Engineering

Britta Chambers
301 Metro Center Blvd. Suite 102
Warwick, RI 02886

Project Name: Sunnyside Ave Site Investigation

Project / PO Number: 1525815
Received: 09/20/2019
Reported: 10/30/2019

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
EA-2-0-2	D9I2105-01	Soil/Sediment	Grab		09/20/19 11:20	09/20/19 17:00
EA-2-18-20	D9I2105-02	Soil/Sediment	Grab		09/20/19 12:20	09/20/19 17:00
EA-6-0-2	D9I2105-03	Soil/Sediment	Grab		09/20/19 14:40	09/20/19 17:00
EA-6-20-24	D9I2105-04	Soil/Sediment	Grab		09/20/19 15:20	09/20/19 17:00
Trip Blank-092019	D9I2105-05	Soil/Sediment	Grab		09/20/19 00:00	09/20/19 17:00



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Analytical Testing Parameters

Client Sample ID:	EA-2-0-2	Collected By:	Customer
Sample Matrix:	Soil/Sediment	Collection Date:	09/20/2019 11:20
Lab Sample ID:	D9I2105-01		

Inorganics Result RL Units Dilution Note Prepared Analyzed Analyst

SM2540 G-1997

Percent Solids	90.5		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM
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Metals, Total Result RL Units Dilution Note Prepared Analyzed Analyst

EPA 3050B/EPA 6010C

Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Arsenic	3.53	0.276	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Beryllium	0.282	0.0553	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Cadmium	<0.111	0.111	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Chromium	8.09	0.111	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Copper	13.7	0.111	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Lead	17.7	0.166	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Nickel	7.53	0.276	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Silver	<0.111	0.111	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF
Thallium	<0.276	0.276	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2050	JDF
Zinc	28.5	0.276	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1832	JDF

EPA 7471B

Mercury	<0.0365	0.0365	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1154	DLO
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Polychlorinated Biphenyls (PCBs) - GC/ECD Result RL Units Dilution Note Prepared Analyzed Analyst

EPA 3550C/EPA 8082A

Aroclor-1016 (PCB-1016)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Aroclor-1221 (PCB-1221)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Aroclor-1232 (PCB-1232)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Aroclor-1242 (PCB-1242)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Aroclor-1248 (PCB-1248)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Aroclor-1254 (PCB-1254)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Aroclor-1260 (PCB-1260)	<11.0	11.0	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1913	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	34.8	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1913	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	56.6	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1913	MRB

Petroleum Hydrocarbon Range Organics - GC/FID Result RL Units Dilution Note Prepared Analyzed Analyst

EPA 3550C/EPA 8100M

C9-C36 TPH	585	44.2	mg/kg dry	4	Y1	10/01/19 1512	10/15/19 1126	MRB
Surrogate: 1-Chlorooctadecane	62.9	Limit: 25-125	% Rec	4		10/01/19 1512	10/15/19 1126	MRB

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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 11:20
Lab Sample ID: D9I2105-01	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8270D								
Acenaphthene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Acenaphthylene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Anthracene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Benzo[a]anthracene	225	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Benzo[a]pyrene	316	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Benzo[b]fluoranthene	365	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Benzo[g,h,i]perylene	197	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Benzo[k]fluoranthene	162	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Chrysene	252	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Dibenz(a,h) anthracene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Fluoranthene	359	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Fluorene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Indeno(1,2,3-cd) pyrene	205	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
2-Methylnaphthalene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Naphthalene	<72.9	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Phenanthrene	93.5	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Pyrene	418	72.9	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1845	GMP
Surrogate: 2-Fluorobiphenyl	42.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1845	GMP
Surrogate: 2-Fluorophenol	39.0	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1845	GMP
Surrogate: Nitrobenzene-d5	40.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1845	GMP
Surrogate: Phenol-d6	41.7	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1845	GMP
Surrogate: p-Terphenyl-d14	58.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1845	GMP
Surrogate: 2,4,6-Tribromophenol	52.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1845	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<586	586	ug/kg dry	50	Y1		09/30/19 1909	JAN
Acrylonitrile	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Benzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Bromobenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Bromochloromethane	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Bromodichloromethane	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Bromoform	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Bromomethane	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
2-Butanone (MEK)	<586	586	ug/kg dry	50	Y1		09/30/19 1909	JAN
n-Butylbenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
tert-Butylbenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
sec-Butylbenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Carbon disulfide	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Carbon tetrachloride	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-0-2
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I2105-01

Collected By: Customer
Collection Date: 09/20/2019 11:20

Table with 9 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows list various compounds like Chlorobenzene, Chloroethane, etc., with their respective results and analysis dates.

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 11:20
Lab Sample ID: D9I2105-01	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Tetrahydrofuran (THF)	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Toluene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,2,3-Trichlorobenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,2,4-Trichlorobenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,1,2-Trichloroethane	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,1,1-Trichloroethane	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Trichloroethene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Trichlorofluoromethane (Freon 11)	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,2,3-Trichloropropane	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,2,4-Trimethylbenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
1,3,5-Trimethylbenzene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Vinyl chloride	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
m,p-Xylene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
o-Xylene	<293	293	ug/kg dry	50	Y1		09/30/19 1909	JAN
Surrogate: 4-Bromofluorobenzene	101	Limit: 70-130	% Rec	50			09/30/19 1909	JAN
Surrogate: 1,2-Dichloroethane-d4	87.8	Limit: 70-130	% Rec	50			09/30/19 1909	JAN
Surrogate: Toluene-d8	94.5	Limit: 70-130	% Rec	50			09/30/19 1909	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-18-20	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 12:20
Lab Sample ID: D9I2105-02	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	87.7		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Arsenic	4.73	0.285	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Beryllium	0.346	0.0570	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Cadmium	<0.114	0.114	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Chromium	7.31	0.114	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Copper	3.94	0.114	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Lead	3.32	0.171	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Nickel	4.92	0.285	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Silver	<0.114	0.114	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF
Thallium	<0.285	0.285	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2054	JDF
Zinc	15.4	0.285	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1835	JDF

EPA 7471B								
Mercury	<0.0376	0.0376	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1156	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Aroclor-1221 (PCB-1221)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Aroclor-1232 (PCB-1232)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Aroclor-1242 (PCB-1242)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Aroclor-1248 (PCB-1248)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Aroclor-1254 (PCB-1254)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Aroclor-1260 (PCB-1260)	<11.3	11.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1925	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	51.1	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1925	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	69.2	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1925	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8100M								
C9-C36 TPH	37.5	11.4	mg/kg dry	1	Y1	10/01/19 1512	10/15/19 1156	MRB
Surrogate: 1-Chlorooctadecane	75.3	Limit: 25-125	% Rec	1		10/01/19 1512	10/15/19 1156	MRB



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-18-20	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 12:20
Lab Sample ID: D9I2105-02	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8270D								
Acenaphthene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Acenaphthylene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Anthracene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Benzo[a]anthracene	517	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Benzo[a]pyrene	471	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Benzo[b]fluoranthene	604	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Benzo[g,h,i]perylene	189	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Benzo[k]fluoranthene	296	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Chrysene	518	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Dibenz(a,h) anthracene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Fluoranthene	1220	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Fluorene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Indeno(1,2,3-cd) pyrene	240	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
2-Methylnaphthalene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Naphthalene	<75.1	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Phenanthrene	229	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Pyrene	1030	75.1	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1916	GMP
Surrogate: 2-Fluorobiphenyl	61.1	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1916	GMP
Surrogate: 2-Fluorophenol	66.8	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1916	GMP
Surrogate: Nitrobenzene-d5	65.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1916	GMP
Surrogate: Phenol-d6	68.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1916	GMP
Surrogate: p-Terphenyl-d14	76.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1916	GMP
Surrogate: 2,4,6-Tribromophenol	75.6	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1916	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<628	628	ug/kg dry	50	Y1		09/30/19 1935	JAN
Acrylonitrile	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Benzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Bromobenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Bromochloromethane	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Bromodichloromethane	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Bromoform	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Bromomethane	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
2-Butanone (MEK)	<628	628	ug/kg dry	50	Y1		09/30/19 1935	JAN
n-Butylbenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
tert-Butylbenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
sec-Butylbenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Carbon disulfide	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Carbon tetrachloride	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-18-20
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I2105-02

Collected By: Customer
Collection Date: 09/20/2019 12:20

Table with 9 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows list various compounds like Chlorobenzene, Chloroethane, Chloroform, etc., with their respective results and analysis dates.

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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-2-18-20	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 12:20
Lab Sample ID: D9I2105-02	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Tetrahydrofuran (THF)	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Toluene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,2,3-Trichlorobenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,2,4-Trichlorobenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,1,2-Trichloroethane	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,1,1-Trichloroethane	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Trichloroethene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Trichlorofluoromethane (Freon 11)	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,2,3-Trichloropropane	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,2,4-Trimethylbenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
1,3,5-Trimethylbenzene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Vinyl chloride	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
m,p-Xylene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
o-Xylene	<314	314	ug/kg dry	50	Y1		09/30/19 1935	JAN
Surrogate: 4-Bromofluorobenzene	101	Limit: 70-130	% Rec	50			09/30/19 1935	JAN
Surrogate: 1,2-Dichloroethane-d4	88.5	Limit: 70-130	% Rec	50			09/30/19 1935	JAN
Surrogate: Toluene-d8	93.5	Limit: 70-130	% Rec	50			09/30/19 1935	JAN



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 14:40
Lab Sample ID: D9I2105-03	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	95.8		% by Weight	1	Y1	09/23/19 2050	09/24/19 1335	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Arsenic	3.30	0.261	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Beryllium	0.0573	0.0522	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Cadmium	0.136	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Chromium	7.10	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Copper	11.5	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Lead	54.2	0.157	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Nickel	6.84	0.261	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Silver	<0.104	0.104	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF
Thallium	<0.261	0.261	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2057	JDF
Zinc	60.3	0.261	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1848	JDF

EPA 7471B								
Mercury	<0.0345	0.0345	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1159	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Aroclor-1254 (PCB-1254)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1936	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	32.3	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1936	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	39.4	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1936	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8100M								
C9-C36 TPH	282	20.9	mg/kg dry	2	Y1	10/01/19 1512	10/15/19 1227	MRB
Surrogate: 1-Chlorooctadecane	75.8	Limit: 25-125	% Rec	2		10/01/19 1512	10/15/19 1227	MRB



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-0-2
 Sample Matrix: Soil/Sediment
 Lab Sample ID: D9I2105-03

Collected By: Customer
 Collection Date: 09/20/2019 14:40

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8270D								
Acenaphthene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Acenaphthylene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Anthracene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Benzo[a]anthracene	145	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Benzo[a]pyrene	174	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Benzo[b]fluoranthene	338	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Benzo[g,h,i]perylene	78.5	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Benzo[k]fluoranthene	124	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Chrysene	210	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Dibenz(a,h) anthracene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Fluoranthene	206	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Fluorene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Indeno(1,2,3-cd) pyrene	95.2	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
2-Methylnaphthalene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Naphthalene	<68.8	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Phenanthrene	106	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Pyrene	225	68.8	ug/kg dry	2	Y1	09/26/19 1000	10/02/19 1946	GMP
Surrogate: 2-Fluorobiphenyl	57.0	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1946	GMP
Surrogate: 2-Fluorophenol	58.5	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1946	GMP
Surrogate: Nitrobenzene-d5	58.8	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1946	GMP
Surrogate: Phenol-d6	61.2	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1946	GMP
Surrogate: p-Terphenyl-d14	73.7	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1946	GMP
Surrogate: 2,4,6-Tribromophenol	68.7	Limit: 30-130	% Rec	2		09/26/19 1000	10/02/19 1946	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<473	473	ug/kg dry	50	Y1		09/30/19 2000	JAN
Acrylonitrile	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Benzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Bromobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Bromochloromethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Bromodichloromethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Bromoform	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Bromomethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
2-Butanone (MEK)	<473	473	ug/kg dry	50	Y1		09/30/19 2000	JAN
n-Butylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
tert-Butylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
sec-Butylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Carbon disulfide	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Carbon tetrachloride	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-0-2
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I2105-03

Collected By: Customer
Collection Date: 09/20/2019 14:40

Table with 8 columns: Volatile Organic Compounds - GC/MS, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows list various compounds like Chlorobenzene, Chloroethane, Chloroform, etc., with their respective results and analysis dates.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-0-2	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 14:40
Lab Sample ID: D9I2105-03	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Tetrahydrofuran (THF)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Toluene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2,3-Trichlorobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2,4-Trichlorobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1,2-Trichloroethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1,1-Trichloroethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Trichloroethene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Trichlorofluoromethane (Freon 11)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2,3-Trichloropropane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2,4-Trimethylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,3,5-Trimethylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Vinyl chloride	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
m,p-Xylene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
o-Xylene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Surrogate: 4-Bromofluorobenzene	102	Limit: 70-130	% Rec	50			09/30/19 2000	JAN
Surrogate: 1,2-Dichloroethane-d4	89.0	Limit: 70-130	% Rec	50			09/30/19 2000	JAN
Surrogate: Toluene-d8	95.2	Limit: 70-130	% Rec	50			09/30/19 2000	JAN



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 15:20
Lab Sample ID: D9I2105-04	

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM2540 G-1997								
Percent Solids	97.2		% by Weight	1	Y1	09/24/19 2041	09/25/19 1911	CCM

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3050B/EPA 6010C								
Antimony	<0.750	0.750	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Arsenic	1.87	0.257	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Beryllium	0.0837	0.0515	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Cadmium	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Chromium	6.02	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Copper	4.01	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Lead	9.91	0.154	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Nickel	2.92	0.257	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Selenium	<1.00	1.00	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Silver	<0.103	0.103	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF
Thallium	<0.257	0.257	mg/kg dry	1	Y1	09/23/19 1455	09/24/19 2110	JDF
Zinc	24.3	0.257	mg/kg dry	1	Y1	09/23/19 1430	09/24/19 1851	JDF

EPA 7471B								
Mercury	<0.0340	0.0340	mg/kg dry	1	Y1	09/25/19 1034	09/25/19 1201	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Aroclor-1221 (PCB-1221)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Aroclor-1232 (PCB-1232)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Aroclor-1242 (PCB-1242)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Aroclor-1248 (PCB-1248)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Aroclor-1254 (PCB-1254)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Aroclor-1260 (PCB-1260)	<10.3	10.3	ug/kg dry	1	Y1	09/27/19 1000	09/30/19 1948	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	28.3	Limit: 30-150	% Rec	1	S2	09/27/19 1000	09/30/19 1948	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	49.9	Limit: 30-150	% Rec	1		09/27/19 1000	09/30/19 1948	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8100M								
C9-C36 TPH	418	20.6	mg/kg dry	2	Y1	10/01/19 1512	10/15/19 1257	MRB
Surrogate: 1-Chlorooctadecane	79.2	Limit: 25-125	% Rec	2		10/01/19 1512	10/15/19 1257	MRB



Microbac Laboratories, Inc. - Dayville

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D9I2105

Client Sample ID: EA-6-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 15:20
Lab Sample ID: D9I2105-04	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8270D								
Acenaphthene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Acenaphthylene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Anthracene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Benzo[a]anthracene	52.4	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Benzo[a]pyrene	57.9	33.9	ug/kg dry	1	I1,Y1	09/26/19 1000	10/02/19 2015	GMP
Benzo[b]fluoranthene	111	33.9	ug/kg dry	1	I1,Y1	09/26/19 1000	10/02/19 2015	GMP
Benzo[g,h,i]perylene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Benzo[k]fluoranthene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Chrysene	60.6	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Dibenz(a,h) anthracene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Fluoranthene	86.6	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Fluorene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Indeno(1,2,3-cd) pyrene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
2-Methylnaphthalene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Naphthalene	<33.9	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Phenanthrene	64.0	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Pyrene	132	33.9	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 2015	GMP
Surrogate: 2-Fluorobiphenyl	54.6	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 2015	GMP
Surrogate: 2-Fluorophenol	59.3	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 2015	GMP
Surrogate: Nitrobenzene-d5	57.1	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 2015	GMP
Surrogate: Phenol-d6	64.3	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 2015	GMP
Surrogate: p-Terphenyl-d14	94.8	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 2015	GMP
Surrogate: 2,4,6-Tribromophenol	81.1	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 2015	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<537	537	ug/kg dry	50	Y1		09/30/19 2026	JAN
Acrylonitrile	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Benzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Bromobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Bromochloromethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Bromodichloromethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Bromoform	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Bromomethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
2-Butanone (MEK)	<537	537	ug/kg dry	50	Y1		09/30/19 2026	JAN
n-Butylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
tert-Butylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
sec-Butylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Carbon disulfide	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Carbon tetrachloride	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN



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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 15:20
Lab Sample ID: D9I2105-04	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chlorobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Chloroethane (Ethyl chloride)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Chloroform	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Chloromethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
2-Chlorotoluene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
4-Chlorotoluene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Dibromochloromethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Dibromomethane (Methylene bromide)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
trans-1,4-Dichloro-2-butene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2-Dichlorobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,3-Dichlorobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,4-Dichlorobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Dichlorodifluoromethane (Freon-12)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2-Dichloroethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1-Dichloroethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
cis-1,2-Dichloroethene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1-Dichloroethene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
trans-1,2-Dichloroethene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
2,2-Dichloropropane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2-Dichloropropane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,3-Dichloropropane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1-Dichloropropene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
cis-1,3-Dichloropropene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
trans-1,3-Dichloropropene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Diethyl ether	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,4-Dioxane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Ethylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Hexachlorobutadiene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
2-Hexanone (MBK)	<537	537	ug/kg dry	50	Y1		09/30/19 2026	JAN
Isopropylbenzene (Cumene)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Methyl tert-butyl ether (MTBE)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Methylene chloride (Dichloromethane)	<1070	1070	ug/kg dry	50	Y1		09/30/19 2026	JAN
4-Methyl-2-pentanone (MIBK)	<537	537	ug/kg dry	50	Y1		09/30/19 2026	JAN
Naphthalene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
n-Propylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Styrene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1,2,2-Tetrachloroethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1,1,2-Tetrachloroethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Tetrachloroethene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN

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CERTIFICATE OF ANALYSIS

D9I2105

Client Sample ID: EA-6-20-24	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 15:20
Lab Sample ID: D9I2105-04	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Tetrahydrofuran (THF)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Toluene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2,3-Trichlorobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2,4-Trichlorobenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1,2-Trichloroethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1,1-Trichloroethane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Trichloroethene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Trichlorofluoromethane (Freon 11)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2,3-Trichloropropane	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,2,4-Trimethylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
1,3,5-Trimethylbenzene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Vinyl chloride	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
m,p-Xylene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
o-Xylene	<268	268	ug/kg dry	50	Y1		09/30/19 2026	JAN
Surrogate: 4-Bromofluorobenzene	101	Limit: 70-130	% Rec	50			09/30/19 2026	JAN
Surrogate: 1,2-Dichloroethane-d4	86.5	Limit: 70-130	% Rec	50			09/30/19 2026	JAN
Surrogate: Toluene-d8	94.7	Limit: 70-130	% Rec	50			09/30/19 2026	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Batch Quality Control Summary: Microbac Laboratories, Inc. - Dayville

Inorganics	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91531 - Wet-Solids-S - SM2540 G-1997										
Blank (DI91531-BLK1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Percent Solids	0.00		% by Weight							
Duplicate (DI91531-DUP1)				Source: D9I1977-01 Prepared: 09/23/2019 Analyzed: 09/24/2019						
Percent Solids	93.0		% by Weight		93.3			0.341	10	
Batch DI91532 - Wet-Solids-S - SM2540 G-1997										
Blank (DI91532-BLK1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Percent Solids	0.00		% by Weight							
Duplicate (DI91532-DUP1)				Source: D9I2105-03 Prepared: 09/23/2019 Analyzed: 09/24/2019						
Percent Solids	95.8		% by Weight		95.8			0.0314	10	
Batch DI91582 - Wet-Solids-S - SM2540 G-1997										
Blank (DI91582-BLK1)				Prepared: 09/24/2019 Analyzed: 09/25/2019						
Percent Solids	0.00		% by Weight							
Duplicate (DI91582-DUP1)				Source: D9I2105-04 Prepared: 09/24/2019 Analyzed: 09/25/2019						
Percent Solids	97.2		% by Weight		97.2			0.0777	10	
Batch DI91429 - 3050B S Acid ICP - EPA 6010C										
Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (DI91429-BLK1)				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Silver	<0.100	0.100	mg/kg wet							
Arsenic	<0.250	0.250	mg/kg wet							
Beryllium	<0.0500	0.0500	mg/kg wet							
Cadmium	<0.100	0.100	mg/kg wet							
Chromium	<0.100	0.100	mg/kg wet							
Copper	<0.100	0.100	mg/kg wet							
Nickel	<0.250	0.250	mg/kg wet							
Lead	<0.150	0.150	mg/kg wet							



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91429 - 3050B S Acid ICP - EPA 6010C										
Blank (DI91429-BLK1)										
				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Antimony	<0.150	0.150	mg/kg wet							
Selenium	<0.250	0.250	mg/kg wet							
Zinc	<0.250	0.250	mg/kg wet							
LCS (DI91429-BS1)										
				Prepared: 09/23/2019 Analyzed: 09/24/2019						
Silver	26.4	0.100	mg/kg wet	25.0		105	80-120			
Arsenic	25.8	0.250	mg/kg wet	25.0		103	80-120			
Beryllium	26.4	0.0500	mg/kg wet	25.0		106	80-120			
Cadmium	26.6	0.100	mg/kg wet	25.0		106	80-120			
Chromium	25.8	0.100	mg/kg wet	25.0		103	80-120			
Copper	26.1	0.100	mg/kg wet	25.0		104	80-120			
Nickel	26.2	0.250	mg/kg wet	25.0		105	80-120			
Lead	25.9	0.150	mg/kg wet	25.0		104	80-120			
Antimony	27.9	0.150	mg/kg wet	25.0		112	80-120			
Selenium	25.9	0.250	mg/kg wet	25.0		104	80-120			
Zinc	26.2	0.250	mg/kg wet	25.0		105	80-120			
Duplicate (DI91429-DUP1)										
		Source: D9I1977-09			Prepared: 09/23/2019 Analyzed: 09/24/2019					
Silver	<0.103	0.103	mg/kg dry		ND				35	
Arsenic	1.14	0.258	mg/kg dry		1.45			24.1	35	
Beryllium	0.0674	0.0515	mg/kg dry		0.0817			19.2	35	
Cadmium	<0.103	0.103	mg/kg dry		0.0548			8.94	35	
Chromium	4.91	0.103	mg/kg dry		4.28			13.7	35	
Copper	2.95	0.103	mg/kg dry		2.97			0.747	35	
Nickel	2.17	0.258	mg/kg dry		2.29			5.39	35	
Lead	2.05	0.155	mg/kg dry		1.81			12.4	35	
Antimony	<0.155	0.155	mg/kg dry		ND				35	
Selenium	<0.258	0.258	mg/kg dry		ND				35	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91429 - 3050B S Acid ICP - EPA 6010C										
Duplicate (DI91429-DUP1)		Source: D9I1977-09			Prepared: 09/23/2019 Analyzed: 09/24/2019					
Zinc	20.4	0.258	mg/kg dry		23.6			14.9	35	
Matrix Spike (DI91429-MS1)		Source: D9I1977-09			Prepared: 09/23/2019 Analyzed: 09/24/2019					
Silver	26.4	0.103	mg/kg dry	25.8	ND	102	75-125			
Arsenic	26.7	0.258	mg/kg dry	25.8	1.45	98.1	75-125			
Beryllium	26.1	0.0515	mg/kg dry	25.8	0.0817	101	75-125			
Cadmium	26.5	0.103	mg/kg dry	25.8	0.0548	103	75-125			
Chromium	30.3	0.103	mg/kg dry	25.8	4.28	101	75-125			
Copper	29.0	0.103	mg/kg dry	25.8	2.97	101	75-125			
Nickel	28.2	0.258	mg/kg dry	25.8	2.29	101	75-125			
Lead	27.7	0.155	mg/kg dry	25.8	1.81	100	75-125			
Antimony	23.6	0.155	mg/kg dry	25.8	ND	91.4	75-125			
Selenium	24.7	0.258	mg/kg dry	25.8	ND	95.8	75-125			
Zinc	45.5	0.258	mg/kg dry	25.8	23.6	84.9	75-125			
Matrix Spike Dup (DI91429-MSD1)		Source: D9I1977-09			Prepared: 09/23/2019 Analyzed: 09/24/2019					
Silver	25.8	0.103	mg/kg dry	25.8	ND	100	75-125	2.12	35	
Arsenic	27.0	0.258	mg/kg dry	25.8	1.45	99.0	75-125	0.804	35	
Beryllium	25.5	0.0515	mg/kg dry	25.8	0.0817	98.8	75-125	2.24	35	
Cadmium	26.1	0.103	mg/kg dry	25.8	0.0548	101	75-125	1.71	35	
Chromium	30.2	0.103	mg/kg dry	25.8	4.28	101	75-125	0.468	35	
Copper	29.1	0.103	mg/kg dry	25.8	2.97	101	75-125	0.556	35	
Nickel	27.8	0.258	mg/kg dry	25.8	2.29	99.1	75-125	1.40	35	
Lead	27.5	0.155	mg/kg dry	25.8	1.81	99.8	75-125	0.558	35	
Antimony	23.8	0.155	mg/kg dry	25.8	ND	92.4	75-125	0.993	35	
Selenium	24.5	0.258	mg/kg dry	25.8	ND	95.0	75-125	0.791	35	
Zinc	45.6	0.258	mg/kg dry	25.8	23.6	85.1	75-125	0.125	35	

Batch DI91430 - 3050B S Acid ICP - EPA 6010C



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Prepared: 09/23/2019 Analyzed: 09/24/2019										
Blank (DI91430-BLK1)										
Thallium	<0.250	0.250	mg/kg wet							
Prepared: 09/23/2019 Analyzed: 09/24/2019										
LCS (DI91430-BS1)										
Thallium	25.1	0.250	mg/kg wet	25.0		100	80-120			
Prepared: 09/23/2019 Analyzed: 09/24/2019										
Duplicate (DI91430-DUP1)										
Thallium	<0.258	0.258	mg/kg dry		ND				35	
Prepared: 09/23/2019 Analyzed: 09/24/2019										
Matrix Spike (DI91430-MS1)										
Thallium	20.3	0.258	mg/kg dry	25.8	ND	78.9	75-125			
Prepared: 09/23/2019 Analyzed: 09/24/2019										
Matrix Spike Dup (DI91430-MSD1)										
Thallium	21.0	0.258	mg/kg dry	25.8	ND	81.4	75-125	3.05	35	

Batch DI91610 - 7471 - EPA 7471B

Prepared & Analyzed: 09/25/2019										
Blank (DI91610-BLK1)										
Mercury	<0.0330	0.0330	mg/kg wet							
Prepared & Analyzed: 09/25/2019										
LCS (DI91610-BS1)										
Mercury	0.779	0.0330	mg/kg wet	0.833		93.5	80-120			
Prepared & Analyzed: 09/25/2019										
Matrix Spike (DI91610-MS1)										
Mercury	0.804	0.0340	mg/kg dry	0.859	ND	93.6	80-120			
Prepared & Analyzed: 09/25/2019										
Matrix Spike (DI91610-MS2)										
Mercury	0.864	0.0354	mg/kg dry	0.893	0.0496	91.1	80-120			
Prepared & Analyzed: 09/25/2019										
Matrix Spike Dup (DI91610-MSD1)										
Mercury	0.816	0.0340	mg/kg dry	0.859	ND	95.0	80-120	1.56	35	

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Prepared: 09/27/2019 Analyzed: 09/30/2019										
Batch DI91921 - 3550C Ultrasonic - EPA 8082A										
Blank (DI91921-BLK1)										
Aroclor-1016 (PCB-1016)	<10.0	10.0	ug/kg wet							
Aroclor-1221 (PCB-1221)	<10.0	10.0	ug/kg wet							
Aroclor-1232 (PCB-1232)	<10.0	10.0	ug/kg wet							
Aroclor-1242 (PCB-1242)	<10.0	10.0	ug/kg wet							
Aroclor-1248 (PCB-1248)	<10.0	10.0	ug/kg wet							



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Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91921 - 3550C Ultrasonic - EPA 8082A										
Blank (DI91921-BLK1)										
				Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1254 (PCB-1254)	<10.0	10.0	ug/kg wet							
Aroclor-1260 (PCB-1260)	<10.0	10.0	ug/kg wet							
Surrogate: Decachlorobiphenyl (BZ-209)	8.14		ug/kg wet	10.0		81.4	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	7.33		ug/kg wet	10.0		73.3	30-150			
LCS (DI91921-BS1)										
				Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1016 (PCB-1016)	73.6	10.0	ug/kg wet	100		73.6	40-140			
Aroclor-1260 (PCB-1260)	83.1	10.0	ug/kg wet	100		83.1	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	8.30		ug/kg wet	10.0		83.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	7.73		ug/kg wet	10.0		77.3	30-150			
Matrix Spike (DI91921-MS1)										
		Source: D9I1977-09		Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1016 (PCB-1016)	63.7	10.3	ug/kg dry	103	ND	61.8	40-140			
Aroclor-1260 (PCB-1260)	70.9	10.3	ug/kg dry	103	ND	68.8	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	6.58		ug/kg dry	10.3		63.8	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	6.18		ug/kg dry	10.3		60.0	30-150			
Matrix Spike Dup (DI91921-MSD1)										
		Source: D9I1977-09		Prepared: 09/27/2019 Analyzed: 09/30/2019						
Aroclor-1016 (PCB-1016)	60.5	10.3	ug/kg dry	103	ND	58.9	40-140	5.14	35	
Aroclor-1260 (PCB-1260)	60.2	10.3	ug/kg dry	103	ND	58.6	40-140	16.3	35	
Surrogate: Decachlorobiphenyl (BZ-209)	5.80		ug/kg dry	10.3		56.4	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	7.22		ug/kg dry	10.3		70.3	30-150			
Petroieum Hydrocarbon Range Organics - GC/FID										
Batch DJ90069 - 3550C Ultrasonic - EPA 8100M										
Blank (DJ90069-BLK2)										
				Prepared: 10/01/2019 Analyzed: 10/12/2019						
C9-C36 TPH	<10.0	10.0	mg/kg wet							
Surrogate: 1-Chlorooctadecane	6.00		mg/kg wet	10.0		60.0	25-125			
LCS (DJ90069-BS2)										
				Prepared: 10/01/2019 Analyzed: 10/12/2019						
C9-C36 TPH	119	10.0	mg/kg wet	140		85.3	30-130			
Surrogate: 1-Chlorooctadecane	8.86		mg/kg wet	10.0		88.6	25-125			
Matrix Spike (DJ90069-MS1)										
		Source: D9I1977-09		Prepared: 10/01/2019 Analyzed: 10/12/2019						
C9-C36 TPH	118	10.3	mg/kg dry	144	9.61	74.8	25-125			
Surrogate: 1-Chlorooctadecane	8.52		mg/kg dry	10.3		82.7	25-125			



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Petroieum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90069 - 3550C Ultrasonic - EPA 8100M

Matrix Spike Dup (DJ90069-MSD1)	Source: D9I1977-09	Prepared: 10/01/2019	Analyzed: 10/12/2019							
C9-C36 TPH	122	10.3	mg/kg dry	144	9.61	78.2	25-125	4.08	200	
Surrogate: 1-Chlorooctadecane	8.95		mg/kg dry	10.3		86.8	25-125			

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DI91946 - 3550C Ultrasonic - EPA 8270D

Blank (DI91946-BLK1)	Prepared: 09/26/2019	Analyzed: 10/02/2019								
Acenaphthene	<33.0	33.0	ug/kg wet							
Acenaphthylene	<33.0	33.0	ug/kg wet							
Anthracene	<33.0	33.0	ug/kg wet							
Benzo[a]anthracene	<33.0	33.0	ug/kg wet							
Benzo[a]pyrene	<33.0	33.0	ug/kg wet							
Benzo[b]fluoranthene	<33.0	33.0	ug/kg wet							
Benzo[g,h,i]perylene	<33.0	33.0	ug/kg wet							
Benzo[k]fluoranthene	<33.0	33.0	ug/kg wet							
Chrysene	<33.0	33.0	ug/kg wet							
Dibenz(a,h) anthracene	<33.0	33.0	ug/kg wet							
Fluoranthene	<33.0	33.0	ug/kg wet							
Fluorene	<33.0	33.0	ug/kg wet							
Indeno(1,2,3-cd) pyrene	<33.0	33.0	ug/kg wet							
2-Methylnaphthalene	<33.0	33.0	ug/kg wet							
Naphthalene	<33.0	33.0	ug/kg wet							
Phenanthrene	<33.0	33.0	ug/kg wet							
Pyrene	<33.0	33.0	ug/kg wet							
Surrogate: 2-Fluorobiphenyl	882		ug/kg wet	1670		52.9	30-130			
Surrogate: 2-Fluorophenol	969		ug/kg wet	1670		58.1	30-130			
Surrogate: Nitrobenzene-d5	913		ug/kg wet	1670		54.8	30-130			
Surrogate: Phenol-d6	964		ug/kg wet	1670		57.8	30-130			
Surrogate: p-Terphenyl-d14	1140		ug/kg wet	1670		68.6	30-130			

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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DI91946 - 3550C Ultrasonic - EPA 8270D

Blank (DI91946-BLK1) Prepared: 09/26/2019 Analyzed: 10/02/2019

Surrogate: 2,4,6-Tribromophenol	1100		ug/kg wet	1670		65.9	30-130			
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LCS (DI91946-BS1) Prepared: 09/26/2019 Analyzed: 10/02/2019

Acenaphthene	491	33.0	ug/kg wet	833		58.9	40-140			
Acenaphthylene	522	33.0	ug/kg wet	833		62.6	40-140			
Anthracene	516	33.0	ug/kg wet	833		62.0	40-140			
Benzo[a]anthracene	483	33.0	ug/kg wet	833		58.0	40-140			
Benzo[a]pyrene	588	33.0	ug/kg wet	833		70.6	40-140			
Benzo[b]fluoranthene	547	33.0	ug/kg wet	833		65.6	40-140			
Benzo[g,h,i]perylene	599	33.0	ug/kg wet	833		71.9	40-140			
Benzo[k]fluoranthene	552	33.0	ug/kg wet	833		66.2	40-140			
Chrysene	523	33.0	ug/kg wet	833		62.7	40-140			
Dibenz(a,h) anthracene	613	33.0	ug/kg wet	833		73.6	40-140			
Fluoranthene	511	33.0	ug/kg wet	833		61.3	40-140			
Fluorene	499	33.0	ug/kg wet	833		59.9	40-140			
Indeno(1,2,3-cd) pyrene	595	33.0	ug/kg wet	833		71.4	40-140			
2-Methylnaphthalene	490	33.0	ug/kg wet	833		58.8	40-140			
Naphthalene	479	33.0	ug/kg wet	833		57.5	40-140			
Phenanthrene	520	33.0	ug/kg wet	833		62.4	40-140			
Pyrene	544	33.0	ug/kg wet	833		65.2	40-140			

Surrogate: 2-Fluorobiphenyl	870		ug/kg wet	1670		52.2	30-130			
Surrogate: 2-Fluorophenol	1020		ug/kg wet	1670		61.0	30-130			
Surrogate: Nitrobenzene-d5	930		ug/kg wet	1670		55.8	30-130			
Surrogate: Phenol-d6	1010		ug/kg wet	1670		60.8	30-130			
Surrogate: p-Terphenyl-d14	1020		ug/kg wet	1670		61.0	30-130			
Surrogate: 2,4,6-Tribromophenol	1110		ug/kg wet	1670		66.5	30-130			

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90230 - 5035A VOA S - EPA 8260C



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Blank (DJ90230-BLK1)				Prepared & Analyzed: 09/30/2019					
Acetone	<10.0	10.0	ug/kg wet						
Acrylonitrile	<5.00	5.00	ug/kg wet						
Benzene	<5.00	5.00	ug/kg wet						
Bromobenzene	<5.00	5.00	ug/kg wet						
Bromochloromethane	<5.00	5.00	ug/kg wet						
Bromodichloromethane	<5.00	5.00	ug/kg wet						
Bromoform	<5.00	5.00	ug/kg wet						
Bromomethane	<5.00	5.00	ug/kg wet						
2-Butanone (MEK)	<10.0	10.0	ug/kg wet						
n-Butylbenzene	<5.00	5.00	ug/kg wet						
tert-Butylbenzene	<5.00	5.00	ug/kg wet						
sec-Butylbenzene	<5.00	5.00	ug/kg wet						
Carbon disulfide	<5.00	5.00	ug/kg wet						
Carbon tetrachloride	<5.00	5.00	ug/kg wet						
Chlorobenzene	<5.00	5.00	ug/kg wet						
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/kg wet						
Chloroform	<5.00	5.00	ug/kg wet						
Chloromethane	<5.00	5.00	ug/kg wet						
2-Chlorotoluene	<5.00	5.00	ug/kg wet						
4-Chlorotoluene	<5.00	5.00	ug/kg wet						
1,2-Dibromo-3-chloropropane (DBCP)	<5.00	5.00	ug/kg wet						
Dibromochloromethane	<5.00	5.00	ug/kg wet						
1,2-Dibromoethane (Ethylene dibromide, EDB)	<5.00	5.00	ug/kg wet						
Dibromomethane (Methylene bromide)	<5.00	5.00	ug/kg wet						
trans-1,4-Dichloro-2-butene	<5.00	5.00	ug/kg wet						

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Blank (DJ90230-BLK1)	Prepared & Analyzed: 09/30/2019								
1,2-Dichlorobenzene	<5.00	5.00	ug/kg wet						
1,3-Dichlorobenzene	<5.00	5.00	ug/kg wet						
1,4-Dichlorobenzene	<5.00	5.00	ug/kg wet						
Dichlorodifluoromethane (Freon-12)	<5.00	5.00	ug/kg wet						
1,2-Dichloroethane	<5.00	5.00	ug/kg wet						
1,1-Dichloroethane	<5.00	5.00	ug/kg wet						
cis-1,2-Dichloroethene	<5.00	5.00	ug/kg wet						
1,1-Dichloroethene	<5.00	5.00	ug/kg wet						
trans-1,2-Dichloroethene	<5.00	5.00	ug/kg wet						
2,2-Dichloropropane	<5.00	5.00	ug/kg wet						
1,2-Dichloropropane	<5.00	5.00	ug/kg wet						
1,3-Dichloropropane	<5.00	5.00	ug/kg wet						
1,1-Dichloropropene	<5.00	5.00	ug/kg wet						
cis-1,3-Dichloropropene	<5.00	5.00	ug/kg wet						
trans-1,3-Dichloropropene	<5.00	5.00	ug/kg wet						
Diethyl ether	<5.00	5.00	ug/kg wet						
1,4-Dioxane	<5.00	5.00	ug/kg wet						
Ethylbenzene	<5.00	5.00	ug/kg wet						
Hexachlorobutadiene	<5.00	5.00	ug/kg wet						
2-Hexanone (MBK)	<10.0	10.0	ug/kg wet						
Isopropylbenzene (Cumene)	<5.00	5.00	ug/kg wet						
4-Isopropyltoluene (p-Isopropyltoluene)	<5.00	5.00	ug/kg wet						
Methyl tert-butyl ether (MTBE)	<5.00	5.00	ug/kg wet						
Methylene chloride (Dichloromethane)	<20.0	20.0	ug/kg wet						
4-Methyl-2-pentanone (MIBK)	<10.0	10.0	ug/kg wet						



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Blank (DJ90230-BLK1)					Prepared & Analyzed: 09/30/2019				
Naphthalene	<5.00	5.00	ug/kg wet						
n-Propylbenzene	<5.00	5.00	ug/kg wet						
Styrene	<5.00	5.00	ug/kg wet						
1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/kg wet						
1,1,1,2-Tetrachloroethane	<5.00	5.00	ug/kg wet						
Tetrachloroethene	<5.00	5.00	ug/kg wet						
Tetrahydrofuran (THF)	<5.00	5.00	ug/kg wet						
Toluene	<5.00	5.00	ug/kg wet						
1,2,3-Trichlorobenzene	<5.00	5.00	ug/kg wet						
1,2,4-Trichlorobenzene	<5.00	5.00	ug/kg wet						
1,1,2-Trichloroethane	<5.00	5.00	ug/kg wet						
1,1,1-Trichloroethane	<5.00	5.00	ug/kg wet						
Trichloroethene	<5.00	5.00	ug/kg wet						
Trichlorofluoromethane (Freon 11)	<5.00	5.00	ug/kg wet						
1,2,3-Trichloropropane	<5.00	5.00	ug/kg wet						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<5.00	5.00	ug/kg wet						
1,2,4-Trimethylbenzene	<5.00	5.00	ug/kg wet						
1,3,5-Trimethylbenzene	<5.00	5.00	ug/kg wet						
Vinyl chloride	<5.00	5.00	ug/kg wet						
m,p-Xylene	<5.00	5.00	ug/kg wet						
o-Xylene	<5.00	5.00	ug/kg wet						
<i>Surrogate: 4-Bromofluorobenzene</i>	49.2		ug/L	50.0		98.4	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	45.0		ug/L	50.0		89.9	70-130		
<i>Surrogate: Toluene-d8</i>	49.3		ug/L	50.0		98.6	70-130		
LCS (DJ90230-BS1)					Prepared & Analyzed: 09/30/2019				
Acetone	51.6	10.0	ug/kg wet	50.0		103	70-130		



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
LCS (DJ90230-BS1)				Prepared & Analyzed: 09/30/2019					
Acrylonitrile	56.9	5.00	ug/kg wet	50.0		114 70-130			
Benzene	54.0	5.00	ug/kg wet	50.0		108 70-130			
Bromobenzene	54.5	5.00	ug/kg wet	50.0		109 70-130			
Bromochloromethane	52.0	5.00	ug/kg wet	50.0		104 70-130			
Bromodichloromethane	51.6	5.00	ug/kg wet	50.0		103 70-130			
Bromoform	49.0	5.00	ug/kg wet	50.0		97.9 70-130			
Bromomethane	54.1	5.00	ug/kg wet	50.0		108 70-130			
2-Butanone (MEK)	52.5	10.0	ug/kg wet	50.0		105 70-130			
n-Butylbenzene	55.2	5.00	ug/kg wet	50.0		110 70-130			
tert-Butylbenzene	55.7	5.00	ug/kg wet	50.0		111 70-130			
sec-Butylbenzene	55.1	5.00	ug/kg wet	50.0		110 70-130			
Carbon disulfide	50.3	5.00	ug/kg wet	50.0		101 70-130			
Carbon tetrachloride	50.0	5.00	ug/kg wet	50.0		99.9 70-130			
Chlorobenzene	57.0	5.00	ug/kg wet	50.0		114 70-130			
Chloroethane (Ethyl chloride)	48.0	5.00	ug/kg wet	50.0		96.0 70-130			
Chloroform	52.6	5.00	ug/kg wet	50.0		105 70-130			
Chloromethane	55.5	5.00	ug/kg wet	50.0		111 70-130			
2-Chlorotoluene	53.3	5.00	ug/kg wet	50.0		107 70-130			
4-Chlorotoluene	52.5	5.00	ug/kg wet	50.0		105 70-130			
1,2-Dibromo-3-chloropropane (DBCP)	41.3	5.00	ug/kg wet	50.0		82.7 70-130			
Dibromochloromethane	50.7	5.00	ug/kg wet	50.0		101 70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	52.4	5.00	ug/kg wet	50.0		105 70-130			
Dibromomethane (Methylene bromide)	51.4	5.00	ug/kg wet	50.0		103 70-130			
trans-1,4-Dichloro-2-butene	42.6	5.00	ug/kg wet	50.0		85.1 70-130			
1,2-Dichlorobenzene	52.3	5.00	ug/kg wet	50.0		105 70-130			



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
LCS (DJ90230-BS1)	Prepared & Analyzed: 09/30/2019								
1,3-Dichlorobenzene	55.0	5.00	ug/kg wet	50.0		110 70-130			
1,4-Dichlorobenzene	53.2	5.00	ug/kg wet	50.0		106 70-130			
Dichlorodifluoromethane (Freon-12)	46.4	5.00	ug/kg wet	50.0		92.8 70-130			
1,2-Dichloroethane	46.8	5.00	ug/kg wet	50.0		93.5 70-130			
1,1-Dichloroethane	52.9	5.00	ug/kg wet	50.0		106 70-130			
cis-1,2-Dichloroethene	53.4	5.00	ug/kg wet	50.0		107 70-130			
1,1-Dichloroethene	58.2	5.00	ug/kg wet	50.0		116 70-130			
trans-1,2-Dichloroethene	53.2	5.00	ug/kg wet	50.0		106 70-130			
2,2-Dichloropropane	48.2	5.00	ug/kg wet	50.0		96.5 70-130			
1,2-Dichloropropane	53.1	5.00	ug/kg wet	50.0		106 70-130			
1,3-Dichloropropane	50.7	5.00	ug/kg wet	50.0		101 70-130			
1,1-Dichloropropene	53.6	5.00	ug/kg wet	50.0		107 70-130			
cis-1,3-Dichloropropene	51.7	5.00	ug/kg wet	50.0		103 70-130			
trans-1,3-Dichloropropene	51.6	5.00	ug/kg wet	50.0		103 70-130			
Diethyl ether	52.1	5.00	ug/kg wet	50.0		104 70-130			
1,4-Dioxane	60.5	5.00	ug/kg wet	50.0		121 70-130			
Ethylbenzene	54.2	5.00	ug/kg wet	50.0		108 70-130			
Hexachlorobutadiene	51.6	5.00	ug/kg wet	50.0		103 70-130			
2-Hexanone (MBK)	48.4	10.0	ug/kg wet	50.0		96.7 70-130			
Isopropylbenzene (Cumene)	52.5	5.00	ug/kg wet	50.0		105 70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	53.0	5.00	ug/kg wet	50.0		106 70-130			
Methyl tert-butyl ether (MTBE)	50.2	5.00	ug/kg wet	50.0		100 70-130			
Methylene chloride (Dichloromethane)	56.6	20.0	ug/kg wet	50.0		113 70-130			
4-Methyl-2-pentanone (MIBK)	48.2	10.0	ug/kg wet	50.0		96.3 70-130			
Naphthalene	49.2	5.00	ug/kg wet	50.0		98.4 70-130			



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
LCS (DJ90230-BS1)				Prepared & Analyzed: 09/30/2019					
n-Propylbenzene	55.0	5.00	ug/kg wet	50.0		110 70-130			
Styrene	55.1	5.00	ug/kg wet	50.0		110 70-130			
1,1,2,2-Tetrachloroethane	51.4	5.00	ug/kg wet	50.0		103 70-130			
1,1,1,2-Tetrachloroethane	52.7	5.00	ug/kg wet	50.0		105 70-130			
Tetrachloroethene	56.1	5.00	ug/kg wet	50.0		112 70-130			
Tetrahydrofuran (THF)	47.4	5.00	ug/kg wet	50.0		94.9 70-130			
Toluene	55.0	5.00	ug/kg wet	50.0		110 70-130			
1,2,3-Trichlorobenzene	50.5	5.00	ug/kg wet	50.0		101 70-130			
1,2,4-Trichlorobenzene	51.1	5.00	ug/kg wet	50.0		102 70-130			
1,1,2-Trichloroethane	57.2	5.00	ug/kg wet	50.0		114 70-130			
1,1,1-Trichloroethane	48.9	5.00	ug/kg wet	50.0		97.7 70-130			
Trichloroethene	57.7	5.00	ug/kg wet	50.0		115 70-130			
Trichlorofluoromethane (Freon 11)	52.3	5.00	ug/kg wet	50.0		105 70-130			
1,2,3-Trichloropropane	47.0	5.00	ug/kg wet	50.0		94.1 70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	53.7	5.00	ug/kg wet	50.0		107 70-130			
1,2,4-Trimethylbenzene	51.0	5.00	ug/kg wet	50.0		102 70-130			
1,3,5-Trimethylbenzene	52.6	5.00	ug/kg wet	50.0		105 70-130			
Vinyl chloride	54.3	5.00	ug/kg wet	50.0		109 70-130			
m,p-Xylene	56.2	5.00	ug/kg wet	50.0		112 70-130			
o-Xylene	54.0	5.00	ug/kg wet	50.0		108 70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.3</i>		ug/L	<i>50.0</i>		<i>103 70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>44.1</i>		ug/L	<i>50.0</i>		<i>88.1 70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>48.5</i>		ug/L	<i>50.0</i>		<i>97.0 70-130</i>			
Matrix Spike (DJ90230-MS1)		Source: D9I1977-09		Prepared & Analyzed: 09/30/2019					
Acetone	39.2	10.6	ug/kg dry	51.5	ND	76.1 70-130			
Acrylonitrile	53.9	5.31	ug/kg dry	51.5	ND	105 70-130			



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike (DJ90230-MS1)		Source: D9I1977-09		Prepared & Analyzed: 09/30/2019						
Benzene	57.7	5.31	ug/kg dry	51.5	ND	112	70-130			
Bromobenzene	53.1	5.31	ug/kg dry	51.5	ND	103	70-130			
Bromochloromethane	52.6	5.31	ug/kg dry	51.5	ND	102	70-130			
Bromodichloromethane	49.9	5.31	ug/kg dry	51.5	ND	96.9	70-130			
Bromoform	48.0	5.31	ug/kg dry	51.5	ND	93.1	70-130			
Bromomethane	43.0	5.31	ug/kg dry	51.5	ND	83.4	70-130			
2-Butanone (MEK)	51.8	10.6	ug/kg dry	51.5	ND	101	70-130			
n-Butylbenzene	59.3	5.31	ug/kg dry	51.5	ND	115	70-130			
tert-Butylbenzene	54.9	5.31	ug/kg dry	51.5	ND	106	70-130			
sec-Butylbenzene	54.4	5.31	ug/kg dry	51.5	ND	106	70-130			
Carbon disulfide	29.8	5.31	ug/kg dry	51.5	ND	57.8	70-130			M2
Carbon tetrachloride	49.6	5.31	ug/kg dry	51.5	ND	96.2	70-130			
Chlorobenzene	58.4	5.31	ug/kg dry	51.5	ND	113	70-130			
Chloroethane (Ethyl chloride)	52.4	5.31	ug/kg dry	51.5	ND	102	70-130			
Chloroform	53.5	5.31	ug/kg dry	51.5	ND	104	70-130			
Chloromethane	64.7	5.31	ug/kg dry	51.5	ND	126	70-130			
2-Chlorotoluene	51.5	5.31	ug/kg dry	51.5	ND	100	70-130			
4-Chlorotoluene	51.6	5.31	ug/kg dry	51.5	ND	100	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	39.1	5.31	ug/kg dry	51.5	ND	75.9	70-130			
Dibromochloromethane	47.8	5.31	ug/kg dry	51.5	ND	92.7	70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	52.3	5.31	ug/kg dry	51.5	ND	101	70-130			
Dibromomethane (Methylene bromide)	53.3	5.31	ug/kg dry	51.5	ND	103	70-130			
trans-1,4-Dichloro-2-butene	39.7	5.31	ug/kg dry	51.5	ND	77.0	70-130			
1,2-Dichlorobenzene	53.0	5.31	ug/kg dry	51.5	ND	103	70-130			
1,3-Dichlorobenzene	55.4	5.31	ug/kg dry	51.5	ND	107	70-130			



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C									
Matrix Spike (DJ90230-MS1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019					
1,4-Dichlorobenzene	54.3	5.31	ug/kg dry	51.5	ND	105	70-130		
Dichlorodifluoromethane (Freon-12)	49.7	5.31	ug/kg dry	51.5	ND	96.5	70-130		
1,2-Dichloroethane	47.8	5.31	ug/kg dry	51.5	ND	92.7	70-130		
1,1-Dichloroethane	53.5	5.31	ug/kg dry	51.5	ND	104	70-130		
cis-1,2-Dichloroethene	57.7	5.31	ug/kg dry	51.5	ND	112	70-130		
1,1-Dichloroethene	40.9	5.31	ug/kg dry	51.5	ND	79.4	70-130		
trans-1,2-Dichloroethene	55.7	5.31	ug/kg dry	51.5	ND	108	70-130		
2,2-Dichloropropane	46.4	5.31	ug/kg dry	51.5	ND	90.0	70-130		
1,2-Dichloropropane	55.6	5.31	ug/kg dry	51.5	ND	108	70-130		
1,3-Dichloropropane	50.5	5.31	ug/kg dry	51.5	ND	97.9	70-130		
1,1-Dichloropropene	57.0	5.31	ug/kg dry	51.5	ND	111	70-130		
cis-1,3-Dichloropropene	49.7	5.31	ug/kg dry	51.5	ND	96.4	70-130		
trans-1,3-Dichloropropene	49.6	5.31	ug/kg dry	51.5	ND	96.2	70-130		
Diethyl ether	27.2	5.31	ug/kg dry	51.5	ND	52.8	70-130		M2
1,4-Dioxane	67.1	5.31	ug/kg dry	51.5	ND	130	70-130		
Ethylbenzene	55.7	5.31	ug/kg dry	51.5	ND	108	70-130		
Hexachlorobutadiene	57.8	5.31	ug/kg dry	51.5	ND	112	70-130		
2-Hexanone (MBK)	47.3	10.6	ug/kg dry	51.5	ND	91.8	70-130		
Isopropylbenzene (Cumene)	52.4	5.31	ug/kg dry	51.5	ND	102	70-130		
4-Isopropyltoluene (p-Isopropyltoluene)	54.1	5.31	ug/kg dry	51.5	ND	105	70-130		
Methyl tert-butyl ether (MTBE)	53.0	5.31	ug/kg dry	51.5	ND	103	70-130		
Methylene chloride (Dichloromethane)	58.2	21.2	ug/kg dry	51.5	ND	113	70-130		
4-Methyl-2-pentanone (MIBK)	45.5	10.6	ug/kg dry	51.5	ND	88.4	70-130		
Naphthalene	53.2	5.31	ug/kg dry	51.5	ND	103	70-130		
n-Propylbenzene	53.2	5.31	ug/kg dry	51.5	ND	103	70-130		

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike (DJ90230-MS1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Styrene	56.9	5.31	ug/kg dry	51.5	ND	110	70-130			
1,1,2,2-Tetrachloroethane	45.9	5.31	ug/kg dry	51.5	ND	89.1	70-130			
1,1,1,2-Tetrachloroethane	52.6	5.31	ug/kg dry	51.5	ND	102	70-130			
Tetrachloroethene	57.5	5.31	ug/kg dry	51.5	ND	112	70-130			
Tetrahydrofuran (THF)	46.5	5.31	ug/kg dry	51.5	ND	90.2	70-130			
Toluene	54.6	5.31	ug/kg dry	51.5	ND	106	70-130			
1,2,3-Trichlorobenzene	56.0	5.31	ug/kg dry	51.5	ND	109	70-130			
1,2,4-Trichlorobenzene	57.9	5.31	ug/kg dry	51.5	ND	112	70-130			
1,1,2-Trichloroethane	56.6	5.31	ug/kg dry	51.5	ND	110	70-130			
1,1,1-Trichloroethane	50.9	5.31	ug/kg dry	51.5	ND	98.7	70-130			
Trichloroethene	63.5	5.31	ug/kg dry	51.5	ND	123	70-130			
Trichlorofluoromethane (Freon 11)	40.8	5.31	ug/kg dry	51.5	ND	79.2	70-130			
1,2,3-Trichloropropane	44.2	5.31	ug/kg dry	51.5	ND	85.7	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	40.2	5.31	ug/kg dry	51.5	ND	77.9	70-130			
1,2,4-Trimethylbenzene	51.1	5.31	ug/kg dry	51.5	ND	99.1	70-130			
1,3,5-Trimethylbenzene	51.0	5.31	ug/kg dry	51.5	ND	98.9	70-130			
Vinyl chloride	57.3	5.31	ug/kg dry	51.5	ND	111	70-130			
m,p-Xylene	56.7	5.31	ug/kg dry	51.5	ND	110	70-130			
o-Xylene	54.9	5.31	ug/kg dry	51.5	ND	107	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>44.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>88.0</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>46.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>92.4</i>	<i>70-130</i>			
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Acetone	40.0	10.6	ug/kg dry	51.5	ND	77.7	70-130	2.09	30	
Acrylonitrile	55.8	5.31	ug/kg dry	51.5	ND	108	70-130	3.35	30	
Benzene	57.0	5.31	ug/kg dry	51.5	ND	111	70-130	1.22	30	



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Bromobenzene	51.7	5.31	ug/kg dry	51.5	ND	100	70-130	2.55	30	
Bromochloromethane	51.2	5.31	ug/kg dry	51.5	ND	99.3	70-130	2.78	30	
Bromodichloromethane	49.9	5.31	ug/kg dry	51.5	ND	96.9	70-130	0.0425	30	
Bromoform	46.9	5.31	ug/kg dry	51.5	ND	90.9	70-130	2.33	30	
Bromomethane	42.7	5.31	ug/kg dry	51.5	ND	82.9	70-130	0.545	30	
2-Butanone (MEK)	51.9	10.6	ug/kg dry	51.5	ND	101	70-130	0.205	30	
n-Butylbenzene	56.4	5.31	ug/kg dry	51.5	ND	110	70-130	4.95	30	
tert-Butylbenzene	53.2	5.31	ug/kg dry	51.5	ND	103	70-130	3.02	30	
sec-Butylbenzene	52.1	5.31	ug/kg dry	51.5	ND	101	70-130	4.28	30	
Carbon disulfide	29.1	5.31	ug/kg dry	51.5	ND	56.4	70-130	2.31	30	M2
Carbon tetrachloride	47.9	5.31	ug/kg dry	51.5	ND	92.9	70-130	3.46	30	
Chlorobenzene	55.3	5.31	ug/kg dry	51.5	ND	107	70-130	5.55	30	
Chloroethane (Ethyl chloride)	36.9	5.31	ug/kg dry	51.5	ND	71.7	70-130	34.7	30	M2
Chloroform	53.1	5.31	ug/kg dry	51.5	ND	103	70-130	0.856	30	
Chloromethane	64.6	5.31	ug/kg dry	51.5	ND	125	70-130	0.230	30	
2-Chlorotoluene	48.8	5.31	ug/kg dry	51.5	ND	94.8	70-130	5.39	30	
4-Chlorotoluene	49.1	5.31	ug/kg dry	51.5	ND	95.3	70-130	4.85	30	
1,2-Dibromo-3-chloropropane (DBCP)	37.5	5.31	ug/kg dry	51.5	ND	72.8	70-130	4.21	30	
Dibromochloromethane	46.5	5.31	ug/kg dry	51.5	ND	90.2	70-130	2.79	30	
1,2-Dibromoethane (Ethylene dibromide, EDB)	50.6	5.31	ug/kg dry	51.5	ND	98.1	70-130	3.39	30	
Dibromomethane (Methylene bromide)	53.2	5.31	ug/kg dry	51.5	ND	103	70-130	0.179	30	
trans-1,4-Dichloro-2-butene	39.6	5.31	ug/kg dry	51.5	ND	76.9	70-130	0.161	30	
1,2-Dichlorobenzene	51.5	5.31	ug/kg dry	51.5	ND	100	70-130	2.82	30	
1,3-Dichlorobenzene	53.5	5.31	ug/kg dry	51.5	ND	104	70-130	3.51	30	
1,4-Dichlorobenzene	52.8	5.31	ug/kg dry	51.5	ND	102	70-130	2.83	30	



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike Dup (DJ90230-MSD1)	Source: D9I1977-09			Prepared & Analyzed: 09/30/2019						
Dichlorodifluoromethane (Freon-12)	48.5	5.31	ug/kg dry	51.5	ND	94.1	70-130	2.44	30	
1,2-Dichloroethane	47.4	5.31	ug/kg dry	51.5	ND	91.9	70-130	0.893	30	
1,1-Dichloroethane	51.8	5.31	ug/kg dry	51.5	ND	101	70-130	3.21	30	
cis-1,2-Dichloroethene	57.1	5.31	ug/kg dry	51.5	ND	111	70-130	0.961	30	
1,1-Dichloroethene	39.9	5.31	ug/kg dry	51.5	ND	77.4	70-130	2.63	30	
trans-1,2-Dichloroethene	55.2	5.31	ug/kg dry	51.5	ND	107	70-130	0.900	30	
2,2-Dichloropropane	45.2	5.31	ug/kg dry	51.5	ND	87.7	70-130	2.53	30	
1,2-Dichloropropane	55.0	5.31	ug/kg dry	51.5	ND	107	70-130	1.06	30	
1,3-Dichloropropane	49.9	5.31	ug/kg dry	51.5	ND	96.9	70-130	1.08	30	
1,1-Dichloropropene	56.4	5.31	ug/kg dry	51.5	ND	109	70-130	1.22	30	
cis-1,3-Dichloropropene	48.3	5.31	ug/kg dry	51.5	ND	93.7	70-130	2.77	30	
trans-1,3-Dichloropropene	48.7	5.31	ug/kg dry	51.5	ND	94.5	70-130	1.86	30	
Diethyl ether	27.1	5.31	ug/kg dry	51.5	ND	52.6	70-130	0.313	30	M2
1,4-Dioxane	67.3	5.31	ug/kg dry	51.5	ND	131	70-130	0.347	30	M2
Ethylbenzene	52.7	5.31	ug/kg dry	51.5	ND	102	70-130	5.48	30	
Hexachlorobutadiene	54.3	5.31	ug/kg dry	51.5	ND	105	70-130	6.18	30	
2-Hexanone (MBK)	46.3	10.6	ug/kg dry	51.5	ND	89.9	70-130	2.11	30	
Isopropylbenzene (Cumene)	50.2	5.31	ug/kg dry	51.5	ND	97.3	70-130	4.31	30	
4-Isopropyltoluene (p-Isopropyltoluene)	51.1	5.31	ug/kg dry	51.5	ND	99.2	70-130	5.71	30	
Methyl tert-butyl ether (MTBE)	53.3	5.31	ug/kg dry	51.5	ND	103	70-130	0.639	30	
Methylene chloride (Dichloromethane)	58.5	21.2	ug/kg dry	51.5	ND	113	70-130	0.509	30	
4-Methyl-2-pentanone (MIBK)	45.3	10.6	ug/kg dry	51.5	ND	87.8	70-130	0.631	30	
Naphthalene	53.0	5.31	ug/kg dry	51.5	ND	103	70-130	0.400	30	
n-Propylbenzene	50.8	5.31	ug/kg dry	51.5	ND	98.6	70-130	4.63	30	
Styrene	54.9	5.31	ug/kg dry	51.5	ND	107	70-130	3.55	30	



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90230 - 5035A VOA S - EPA 8260C										
Matrix Spike Dup (DJ90230-MSD1)		Source: D9I1977-09		Prepared & Analyzed: 09/30/2019						
1,1,2,2-Tetrachloroethane	45.0	5.31	ug/kg dry	51.5	ND	87.4	70-130	1.98	30	
1,1,1,2-Tetrachloroethane	49.3	5.31	ug/kg dry	51.5	ND	95.7	70-130	6.50	30	
Tetrachloroethene	55.3	5.31	ug/kg dry	51.5	ND	107	70-130	3.95	30	
Tetrahydrofuran (THF)	45.7	5.31	ug/kg dry	51.5	ND	88.6	70-130	1.73	30	
Toluene	53.1	5.31	ug/kg dry	51.5	ND	103	70-130	2.74	30	
1,2,3-Trichlorobenzene	56.1	5.31	ug/kg dry	51.5	ND	109	70-130	0.208	30	
1,2,4-Trichlorobenzene	56.6	5.31	ug/kg dry	51.5	ND	110	70-130	2.28	30	
1,1,2-Trichloroethane	54.7	5.31	ug/kg dry	51.5	ND	106	70-130	3.42	30	
1,1,1-Trichloroethane	49.4	5.31	ug/kg dry	51.5	ND	95.8	70-130	2.94	30	
Trichloroethene	63.0	5.31	ug/kg dry	51.5	ND	122	70-130	0.722	30	
Trichlorofluoromethane (Freon 11)	40.1	5.31	ug/kg dry	51.5	ND	77.9	70-130	1.68	30	
1,2,3-Trichloropropane	42.9	5.31	ug/kg dry	51.5	ND	83.2	70-130	2.98	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	38.9	5.31	ug/kg dry	51.5	ND	75.5	70-130	3.17	30	
1,2,4-Trimethylbenzene	49.6	5.31	ug/kg dry	51.5	ND	96.2	70-130	2.91	30	
1,3,5-Trimethylbenzene	48.9	5.31	ug/kg dry	51.5	ND	94.8	70-130	4.23	30	
Vinyl chloride	55.6	5.31	ug/kg dry	51.5	ND	108	70-130	2.99	30	
m,p-Xylene	54.8	5.31	ug/kg dry	51.5	ND	106	70-130	3.43	30	
o-Xylene	52.6	5.31	ug/kg dry	51.5	ND	102	70-130	4.34	30	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>43.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>87.6</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>47.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>94.0</i>	<i>70-130</i>			



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Definitions

- I1: Internal standard was below quality control acceptance limits.
M2: Matrix spike recovery is below acceptance limits.
RL: Reporting Limit
RPD: Relative Percent Difference
S2: Surrogate recovery is below acceptance limits.
Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 3.4°C

Cooler Inspection Checklist

Table with 4 columns: Item, Yes, Item, Yes. Rows include: Ice Present or not required?, Custody seals intact or not required?, COC includes customer information?, Sample collector identified on COC?, Correct type of Containers Received, Containers Intact?, Enough sample volume for indicated tests received?, Samples arrived within hold time?, Chemical preservations checked or not required?, VOA vials have zero headspace, or not recd.?, Shipping containers sealed or not required?, Chain of Custody (COC) Present?, Relinquished and received signature on COC?, Sample type identified on COC?, Correct number of containers listed on COC?, COC includes requested analyses?, Sample labels match COC (Name, Date & Time?), Correct preservatives on COC or not required?, Preservation checks meet method requirements?

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
LAO00346

Rhode Island Department of Health

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Handwritten signature: Katherine Wall

Katherine A. Wall
Project Manager

Reported: 10/30/2019 14:48



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Project Description

Sunnyside Ave Site Investigation

For:

Britta Chambers

EA Engineering

301 Metro Center Blvd. Suite 102

Warwick, RI 02886

Project Manager

Katherine A. Wall

Thursday, October 31, 2019

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Dayville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

61 Louisa Viens Drive | Dayville, CT 06241 | 860.774.6814 p | www.microbac.com



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Revised Report: Per client,
amended to add QC.

EA Engineering

Britta Chambers
301 Metro Center Blvd. Suite 102
Warwick, RI 02886

Project Name: Sunnyside Ave Site Investigation

Project / PO Number: 1525815
Received: 09/24/2019
Reported: 10/31/2019

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
Rinsate-092419	D9I2401-01	Groundwater	Grab		09/24/19 07:30	09/24/19 17:45
MW-206	D9I2401-02	Groundwater	Grab		09/24/19 10:40	09/24/19 17:45
MW-210	D9I2401-03	Groundwater	Grab		09/24/19 13:40	09/24/19 17:45
MW-EA-1	D9I2401-04	Groundwater	Grab		09/24/19 15:15	09/24/19 17:45
Trip Blank-092419	D9I2401-05	Groundwater	Grab		09/24/19 00:00	09/24/19 17:45



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Analytical Testing Parameters

Client Sample ID:	Rinsate-092419	Collected By:	Customer
Sample Matrix:	Groundwater	Collection Date:	09/24/2019 7:30
Lab Sample ID:	D9I2401-01		

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 6010C								
Antimony	<0.00300	0.00300	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Arsenic	<0.0050	0.0050	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Beryllium	<0.00100	0.00100	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Cadmium	<0.0020	0.0020	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Chromium	<0.0020	0.0020	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Copper	<0.0020	0.0020	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Lead	<0.0030	0.0030	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Nickel	<0.0050	0.0050	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Selenium	<0.0050	0.0050	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Silver	<0.0020	0.0020	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Thallium	<0.00500	0.00500	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF
Zinc	0.0098	0.0050	mg/L	1	Y1	09/25/19 1029	09/26/19 1251	JDF

EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	09/26/19 1243	09/26/19 1430	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD

Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst	
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Aroclor-1248 (PCB-1248)	0.202	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L	1	Y1	09/30/19 1000	10/08/19 1850	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	39.4	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1850	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	37.3	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1850	MRB

Petroleum Hydrocarbon Range Organics - GC/FID

Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst	
EPA 3510C/EPA 8100M								
C9-C36 TPH	0.122	0.100	mg/L	1	Y1	10/01/19 1000	10/13/19 0653	MRB
Surrogate: 1-Chlorooctadecane	64.2	Limit: 25-125	% Rec	1		10/01/19 1000	10/13/19 0653	MRB

Semi-Volatile Organic Compounds - GC/MS

EPA 3510C/EPA 8270D								
Acenaphthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: Rinsate-092419

Sample Matrix: Groundwater

Lab Sample ID: D9I2401-01

Collected By: Customer

Collection Date: 09/24/2019 7:30

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Acenaphthylene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Benzo[a]anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Benzo[a]pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Benzo[b]fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Benzo[g,h,i]perylene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Benzo[k]fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Chrysene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Dibenz(a,h) anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Fluorene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Indeno(1,2,3-cd) pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
2-Methylnaphthalene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Naphthalene	1.33	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Phenanthrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP
Surrogate: 2-Fluorobiphenyl	36.5	Limit: 12-90	% Rec	1		09/25/19 1100	10/03/19 2204	GMP
Surrogate: 2-Fluorophenol	14.0	Limit: 10-49	% Rec	1		09/25/19 1100	10/03/19 2204	GMP
Surrogate: Nitrobenzene-d5	44.6	Limit: 10-90	% Rec	1		09/25/19 1100	10/03/19 2204	GMP
Surrogate: Phenol-d6	14.2	Limit: 10-37	% Rec	1		09/25/19 1100	10/03/19 2204	GMP
Surrogate: p-Terphenyl-d14	60.5	Limit: 42-107	% Rec	1		09/25/19 1100	10/03/19 2204	GMP
Surrogate: 2,4,6-Tribromophenol	66.4	Limit: 14-123	% Rec	1		09/25/19 1100	10/03/19 2204	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<5.00	5.00	ug/L	1	Y1		10/02/19 1601	JAN
Acrylonitrile	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Benzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Bromobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Bromoform	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Bromomethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
2-Butanone (MEK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1601	JAN
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: Rinsate-092419

Sample Matrix: Groundwater

Lab Sample ID: D9I2401-01

Collected By: Customer

Collection Date: 09/24/2019 7:30

Volatiles Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chloroform	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Chloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 1601	JAN
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1601	JAN
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1601	JAN
Naphthalene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Toluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: Rinsate-092419	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 7:30
Lab Sample ID: D9I2401-01	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Trichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
o-Xylene	<1.00	1.00	ug/L	1	Y1		10/02/19 1601	JAN
Surrogate: 4-Bromofluorobenzene	99.2	Limit: 70-130	% Rec	1			10/02/19 1601	JAN
Surrogate: 1,2-Dichloroethane-d4	85.1	Limit: 70-130	% Rec	1			10/02/19 1601	JAN
Surrogate: Toluene-d8	94.3	Limit: 70-130	% Rec	1			10/02/19 1601	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-206	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 10:40
Lab Sample ID: D9I2401-02	

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 6010C								
Antimony	<0.00300	0.00300	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Arsenic	<0.0050	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Beryllium	<0.00100	0.00100	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Cadmium	<0.0020	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Chromium	<0.0020	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Copper	0.0024	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Lead	<0.0030	0.0030	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Nickel	<0.0050	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Selenium	<0.0050	0.0050	mg/L	1	Y1	09/26/19 1428	09/30/19 1442	NJP
Silver	<0.0020	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Thallium	<0.00500	0.00500	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF
Zinc	0.332	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1221	JDF

EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	09/26/19 1243	09/26/19 1432	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Aroclor-1221 (PCB-1221)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Aroclor-1232 (PCB-1232)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Aroclor-1242 (PCB-1242)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Aroclor-1248 (PCB-1248)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Aroclor-1254 (PCB-1254)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Aroclor-1260 (PCB-1260)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1902	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	64.5	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1902	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	41.1	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1902	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8100M								
C9-C36 TPH	0.596	0.100	mg/L	1	Y1	10/01/19 1000	10/13/19 0725	MRB
Surrogate: 1-Chlorooctadecane	57.9	Limit: 25-125	% Rec	1		10/01/19 1000	10/13/19 0725	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8270D								
Acenaphthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Acenaphthylene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-206	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 10:40
Lab Sample ID: D9I2401-02	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Benzo[a]anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Benzo[a]pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Benzo[b]fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Benzo[g,h,i]perylene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Benzo[k]fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Chrysene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Dibenz(a,h) anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Fluorene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Indeno(1,2,3-cd) pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
2-Methylnaphthalene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Naphthalene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Phenanthrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2234	GMP
Surrogate: 2-Fluorobiphenyl	46.8	Limit: 12-90	% Rec	1		09/25/19 1100	10/03/19 2234	GMP
Surrogate: 2-Fluorophenol	25.8	Limit: 10-49	% Rec	1		09/25/19 1100	10/03/19 2234	GMP
Surrogate: Nitrobenzene-d5	53.1	Limit: 10-90	% Rec	1		09/25/19 1100	10/03/19 2234	GMP
Surrogate: Phenol-d6	18.8	Limit: 10-37	% Rec	1		09/25/19 1100	10/03/19 2234	GMP
Surrogate: p-Terphenyl-d14	60.6	Limit: 42-107	% Rec	1		09/25/19 1100	10/03/19 2234	GMP
Surrogate: 2,4,6-Tribromophenol	58.8	Limit: 14-123	% Rec	1		09/25/19 1100	10/03/19 2234	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	26.9	5.00	ug/L	1	Y1		10/02/19 1627	JAN
Acrylonitrile	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Benzene	1.02	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Bromobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Bromoform	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Bromomethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
2-Butanone (MEK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1627	JAN
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Chloroform	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-206	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 10:40
Lab Sample ID: D9I2401-02	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2-Dichlorobenzene	1.21	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 1627	JAN
Ethylbenzene	380	10.0	ug/L	20	Y1		10/02/19 1954	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1627	JAN
Isopropylbenzene (Cumene)	8.39	1.00	ug/L	1	Y1		10/02/19 1627	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1627	JAN
Naphthalene	4.46	1.00	ug/L	1	Y1		10/02/19 1627	JAN
n-Propylbenzene	3.31	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Toluene	51.5	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN

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CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-206	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 10:40
Lab Sample ID: D9I2401-02	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Trichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,3,5-Trimethylbenzene	11.8	1.00	ug/L	1	Y1		10/02/19 1627	JAN
1,2,4-Trimethylbenzene	21.1	1.00	ug/L	1	Y1		10/02/19 1627	JAN
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1627	JAN
m,p-Xylene	727	20.0	ug/L	20	Y1		10/02/19 1954	JAN
o-Xylene	504	10.0	ug/L	20	Y1		10/02/19 1954	JAN
Surrogate: 4-Bromofluorobenzene	100	Limit: 70-130	% Rec	20			10/02/19 1954	JAN
Surrogate: 4-Bromofluorobenzene	98.6	Limit: 70-130	% Rec	1			10/02/19 1627	JAN
Surrogate: 1,2-Dichloroethane-d4	84.3	Limit: 70-130	% Rec	20			10/02/19 1954	JAN
Surrogate: 1,2-Dichloroethane-d4	83.9	Limit: 70-130	% Rec	1			10/02/19 1627	JAN
Surrogate: Toluene-d8	96.9	Limit: 70-130	% Rec	1			10/02/19 1627	JAN
Surrogate: Toluene-d8	95.8	Limit: 70-130	% Rec	20			10/02/19 1954	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-210	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 13:40
Lab Sample ID: D9I2401-03	

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 6010C								
Antimony	<0.00300	0.00300	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Arsenic	0.0171	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Beryllium	<0.00100	0.00100	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Cadmium	0.0139	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Chromium	0.0508	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Copper	0.0607	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Lead	0.0292	0.0030	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Nickel	0.0352	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Selenium	<0.0050	0.0050	mg/L	1	Y1	09/26/19 1428	09/30/19 1445	NJP
Silver	<0.0020	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Thallium	<0.00500	0.00500	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF
Zinc	3.46	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1225	JDF

EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	09/26/19 1243	09/26/19 1434	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Aroclor-1221 (PCB-1221)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Aroclor-1232 (PCB-1232)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Aroclor-1242 (PCB-1242)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Aroclor-1248 (PCB-1248)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Aroclor-1254 (PCB-1254)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Aroclor-1260 (PCB-1260)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1913	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	72.7	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1913	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	31.0	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1913	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8100M								
C9-C36 TPH	1.78	0.100	mg/L	1	Y1	10/01/19 1000	10/13/19 0757	MRB
Surrogate: 1-Chlorooctadecane	67.8	Limit: 25-125	% Rec	1		10/01/19 1000	10/13/19 0757	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8270D								
Acenaphthene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Acenaphthylene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-210	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 13:40
Lab Sample ID: D9I2401-03	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Anthracene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Benzo[a]anthracene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Benzo[a]pyrene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Benzo[b]fluoranthene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Benzo[g,h,i]perylene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Benzo[k]fluoranthene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Chrysene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Dibenz(a,h) anthracene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Fluoranthene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Fluorene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Indeno(1,2,3-cd) pyrene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
2-Methylnaphthalene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Naphthalene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Phenanthrene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Pyrene	<20.0	20.0	ug/L	10	Y1	09/25/19 1100	10/03/19 2333	GMP
Surrogate: 2-Fluorobiphenyl	47.0	Limit: 12-90	% Rec	10		09/25/19 1100	10/03/19 2333	GMP
Surrogate: 2-Fluorophenol	13.6	Limit: 10-49	% Rec	10		09/25/19 1100	10/03/19 2333	GMP
Surrogate: Nitrobenzene-d5	44.2	Limit: 10-90	% Rec	10		09/25/19 1100	10/03/19 2333	GMP
Surrogate: Phenol-d6	14.0	Limit: 10-37	% Rec	10		09/25/19 1100	10/03/19 2333	GMP
Surrogate: p-Terphenyl-d14	60.2	Limit: 42-107	% Rec	10		09/25/19 1100	10/03/19 2333	GMP
Surrogate: 2,4,6-Tribromophenol	49.2	Limit: 14-123	% Rec	10		09/25/19 1100	10/03/19 2333	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	14.3	5.00	ug/L	1	Y1		10/02/19 1653	JAN
Acrylonitrile	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Benzene	2.68	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Bromobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Bromoform	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Bromomethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
2-Butanone (MEK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1653	JAN
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Chloroform	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-210
 Sample Matrix: Groundwater
 Lab Sample ID: D9I2401-03

Collected By: Customer
 Collection Date: 09/24/2019 13:40

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	M2,Y1		10/02/19 1653	JAN
1,4-Dichlorobenzene	2.64	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2-Dichlorobenzene	15.5	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	M2,Y1		10/02/19 1653	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 1653	JAN
Ethylbenzene	3920	50.0	ug/L	100	M2,Y1		10/02/19 2020	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1653	JAN
Isopropylbenzene (Cumene)	67.9	1.00	ug/L	1	Y1		10/02/19 1653	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	12.4	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1653	JAN
Naphthalene	25.6	1.00	ug/L	1	Y1		10/02/19 1653	JAN
n-Propylbenzene	37.4	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Toluene	127	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN

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CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-210	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 13:40
Lab Sample ID: D9I2401-03	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Trichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,3,5-Trimethylbenzene	124	1.00	ug/L	1	Y1		10/02/19 1653	JAN
1,2,4-Trimethylbenzene	243	100	ug/L	100	Y1		10/02/19 2020	JAN
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1653	JAN
m,p-Xylene	10100	100	ug/L	100	M2,Y1		10/02/19 2020	JAN
o-Xylene	5670	50.0	ug/L	100	M2,Y1		10/02/19 2020	JAN
Surrogate: 4-Bromofluorobenzene	102	Limit: 70-130	% Rec	100			10/02/19 2020	JAN
Surrogate: 4-Bromofluorobenzene	96.9	Limit: 70-130	% Rec	1			10/02/19 1653	JAN
Surrogate: 1,2-Dichloroethane-d4	86.7	Limit: 70-130	% Rec	1			10/02/19 1653	JAN
Surrogate: 1,2-Dichloroethane-d4	84.9	Limit: 70-130	% Rec	100			10/02/19 2020	JAN
Surrogate: Toluene-d8	94.9	Limit: 70-130	% Rec	1			10/02/19 1653	JAN
Surrogate: Toluene-d8	96.6	Limit: 70-130	% Rec	100			10/02/19 2020	JAN



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CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-EA-1	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 15:15
Lab Sample ID: D9I2401-04	

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 6010C								
Antimony	<0.00300	0.00300	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Arsenic	0.0104	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Beryllium	<0.00100	0.00100	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Cadmium	0.0020	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Chromium	0.0691	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Copper	0.0320	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Lead	0.0997	0.0030	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Nickel	0.0173	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Selenium	<0.0050	0.0050	mg/L	1	Y1	09/26/19 1428	09/30/19 1448	NJP
Silver	<0.0020	0.0020	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Thallium	<0.00500	0.00500	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF
Zinc	0.240	0.0050	mg/L	1	Y1	09/26/19 1428	09/27/19 1228	JDF

EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	09/26/19 1243	09/26/19 1440	DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Aroclor-1221 (PCB-1221)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Aroclor-1232 (PCB-1232)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Aroclor-1242 (PCB-1242)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Aroclor-1248 (PCB-1248)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Aroclor-1254 (PCB-1254)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Aroclor-1260 (PCB-1260)	<0.500	0.500	ug/L	1	Y1	09/30/19 1000	10/08/19 1925	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	46.0	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1925	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	31.1	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1925	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8100M								
C9-C36 TPH	4.61	0.400	mg/L	4	Y1	10/01/19 1000	10/15/19 1727	MRB
Surrogate: 1-Chlorooctadecane	35.2	Limit: 25-125	% Rec	4		10/01/19 1000	10/15/19 1727	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8270D								
Acenaphthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Acenaphthylene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP

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CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-EA-1	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 15:15
Lab Sample ID: D9I2401-04	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Benzo[a]anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Benzo[a]pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Benzo[b]fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Benzo[g,h,i]perylene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Benzo[k]fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Chrysene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Dibenz(a,h) anthracene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Fluoranthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Fluorene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Indeno(1,2,3-cd) pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
2-Methylnaphthalene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Naphthalene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Phenanthrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Pyrene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2303	GMP
Surrogate: 2-Fluorobiphenyl	41.1	Limit: 12-90	% Rec	1		09/25/19 1100	10/03/19 2303	GMP
Surrogate: 2-Fluorophenol	33.3	Limit: 10-49	% Rec	1		09/25/19 1100	10/03/19 2303	GMP
Surrogate: Nitrobenzene-d5	43.7	Limit: 10-90	% Rec	1		09/25/19 1100	10/03/19 2303	GMP
Surrogate: Phenol-d6	26.5	Limit: 10-37	% Rec	1		09/25/19 1100	10/03/19 2303	GMP
Surrogate: p-Terphenyl-d14	63.2	Limit: 42-107	% Rec	1		09/25/19 1100	10/03/19 2303	GMP
Surrogate: 2,4,6-Tribromophenol	57.9	Limit: 14-123	% Rec	1		09/25/19 1100	10/03/19 2303	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	18.2	5.00	ug/L	1	Y1		10/02/19 1719	JAN
Acrylonitrile	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Benzene	49.6	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Bromobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Bromoform	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Bromomethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
2-Butanone (MEK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1719	JAN
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Chlorobenzene	4.80	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Chloroform	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-EA-1	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 15:15
Lab Sample ID: D9I2401-04	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
2-Chlorotoluene	2.40	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
4-Chlorotoluene	3.44	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,2-Dichlorobenzene	2.62	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 17:19	JAN
Ethylbenzene	45.6	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 17:19	JAN
Isopropylbenzene (Cumene)	6.50	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	2.84	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 17:19	JAN
Naphthalene	95.6	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
n-Propylbenzene	8.97	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
Toluene	13.1	1.00	ug/L	1	Y1		10/02/19 17:19	JAN
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 17:19	JAN

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CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: MW-EA-1	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 15:15
Lab Sample ID: D9I2401-04	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Trichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,3,5-Trimethylbenzene	24.4	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2,4-Trimethylbenzene	91.7	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
m,p-Xylene	97.4	1.00	ug/L	1	Y1		10/02/19 1719	JAN
o-Xylene	54.5	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Surrogate: 4-Bromofluorobenzene	102	Limit: 70-130	% Rec	1			10/02/19 1719	JAN
Surrogate: 1,2-Dichloroethane-d4	85.1	Limit: 70-130	% Rec	1			10/02/19 1719	JAN
Surrogate: Toluene-d8	95.2	Limit: 70-130	% Rec	1			10/02/19 1719	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: Trip Blank-092419

Sample Matrix: Groundwater

Lab Sample ID: D9I2401-05

Collected By: Customer

Collection Date: 09/24/2019

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<5.00	5.00	ug/L	1	Y1		10/02/19 1509	JAN
Acrylonitrile	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Benzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Bromobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Bromoform	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Bromomethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
2-Butanone (MEK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1509	JAN
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Chloroform	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Chloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Client Sample ID: Trip Blank-092419	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019
Lab Sample ID: D9I2401-05	

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 1509	JAN
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1509	JAN
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1509	JAN
Naphthalene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Toluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Trichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
o-Xylene	<1.00	1.00	ug/L	1	Y1		10/02/19 1509	JAN
Surrogate: 4-Bromofluorobenzene	103	Limit: 70-130	% Rec	1			10/02/19 1509	JAN
Surrogate: 1,2-Dichloroethane-d4	83.3	Limit: 70-130	% Rec	1			10/02/19 1509	JAN
Surrogate: Toluene-d8	98.0	Limit: 70-130	% Rec	1			10/02/19 1509	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Batch Quality Control Summary: Microbac Laboratories, Inc. - Dayville

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91615 - 200.7 - W - EPA 6010C										
Blank (DI91615-BLK1) Prepared: 09/25/2019 Analyzed: 09/26/2019										
Silver	<0.0020	0.0020	mg/L							
Arsenic	<0.0050	0.0050	mg/L							
Beryllium	<0.00100	0.00100	mg/L							
Cadmium	<0.0020	0.0020	mg/L							
Chromium	<0.0020	0.0020	mg/L							
Copper	<0.0020	0.0020	mg/L							
Nickel	<0.0050	0.0050	mg/L							
Lead	<0.0030	0.0030	mg/L							
Antimony	0.00683	0.00300	mg/L							
Selenium	<0.0050	0.0050	mg/L							
Thallium	<0.00500	0.00500	mg/L							
Zinc	<0.0050	0.0050	mg/L							
LCS (DI91615-BS1) Prepared: 09/25/2019 Analyzed: 09/26/2019										
Silver	0.515	0.0020	mg/L	0.500		103	80-120			
Arsenic	0.506	0.0050	mg/L	0.500		101	80-120			
Beryllium	0.521	0.00100	mg/L	0.500		104	80-120			
Cadmium	0.520	0.0020	mg/L	0.500		104	80-120			
Chromium	0.504	0.0020	mg/L	0.500		101	80-120			
Copper	0.510	0.0020	mg/L	0.500		102	80-120			
Nickel	0.512	0.0050	mg/L	0.500		102	80-120			
Lead	0.516	0.0030	mg/L	0.500		103	80-120			
Antimony	0.445	0.00300	mg/L	0.500		88.9	80-120			
Selenium	0.509	0.0050	mg/L	0.500		102	80-120			
Thallium	0.516	0.00500	mg/L	0.500		103	80-120			
Zinc	0.514	0.0050	mg/L	0.500		103	80-120			
Duplicate (DI91615-DUP1) Source: D9I2378-01 Prepared: 09/25/2019 Analyzed: 09/26/2019										
Silver	<0.0020	0.0020	mg/L		ND				20	
Arsenic	<0.0050	0.0050	mg/L		0.0004				20	
Beryllium	<0.00100	0.00100	mg/L		ND				20	
Cadmium	0.0073	0.0020	mg/L		0.0074			1.25	20	
Chromium	0.728	0.0020	mg/L		0.731			0.443	20	
Copper	0.104	0.0020	mg/L		0.126			19.6	20	
Nickel	0.0814	0.0050	mg/L		0.0822			0.999	20	
Lead	0.0133	0.0030	mg/L		0.0154			14.2	20	
Selenium	<0.0050	0.0050	mg/L		0.0044				20	
Thallium	<0.00500	0.00500	mg/L		ND				20	
Zinc	0.387	0.0050	mg/L		0.403			4.00	20	
Matrix Spike (DI91615-MS1) Source: D9I2378-01 Prepared: 09/25/2019 Analyzed: 09/26/2019										
Silver	0.502	0.0020	mg/L	0.500	ND	100	75-125			
Arsenic	0.509	0.0050	mg/L	0.500	0.0004	102	75-125			
Beryllium	0.518	0.00100	mg/L	0.500	ND	104	75-125			

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91615 - 200.7 - W - EPA 6010C										
Matrix Spike (DI91615-MS1)		Source: D9I2378-01			Prepared: 09/25/2019 Analyzed: 09/26/2019					
Cadmium	0.524	0.0020	mg/L	0.500	0.0074	103	75-125			
Chromium	1.21	0.0020	mg/L	0.500	0.731	96.7	75-125			
Copper	0.607	0.0020	mg/L	0.500	0.126	96.2	75-125			
Nickel	0.589	0.0050	mg/L	0.500	0.0822	101	75-125			
Lead	0.526	0.0030	mg/L	0.500	0.0154	102	75-125			
Antimony	0.552	0.00300	mg/L	0.500	0.0365	103	75-125			
Selenium	0.502	0.0050	mg/L	0.500	0.0044	99.6	75-125			
Thallium	0.505	0.00500	mg/L	0.500	ND	101	75-125			
Zinc	0.886	0.0050	mg/L	0.500	0.403	96.7	75-125			
Matrix Spike (DI91615-MS2)		Source: L9I0361-01			Prepared: 09/25/2019 Analyzed: 09/26/2019					
Silver	0.515	0.0020	mg/L	0.500	0.0004	103	75-125			
Arsenic	0.507	0.0050	mg/L	0.500	0.0051	100	75-125			
Beryllium	0.520	0.00100	mg/L	0.500	0.000020	104	75-125			
Cadmium	0.516	0.0020	mg/L	0.500	0.0002	103	75-125			
Chromium	0.503	0.0020	mg/L	0.500	ND	101	75-125			
Copper	0.670	0.0020	mg/L	0.500	0.161	102	75-125			
Nickel	0.512	0.0050	mg/L	0.500	ND	102	75-125			
Lead	0.511	0.0030	mg/L	0.500	ND	102	75-125			
Antimony	0.467	0.00300	mg/L	0.500	0.00781	91.9	75-125			
Selenium	0.511	0.0050	mg/L	0.500	ND	102	75-125			
Thallium	0.502	0.00500	mg/L	0.500	ND	100	75-125			
Zinc	0.525	0.0050	mg/L	0.500	0.0124	102	75-125			
Batch DI91725 - 245 HG W - EPA 7470A										
Blank (DI91725-BLK1)		Prepared & Analyzed: 09/26/2019								
Mercury	<0.00020	0.00020	mg/L							
LCS (DI91725-BS1)		Prepared & Analyzed: 09/26/2019								
Mercury	0.00497	0.00020	mg/L	0.00500		99.4	80-120			
Matrix Spike (DI91725-MS1)		Source: D9I2062-01			Prepared & Analyzed: 09/26/2019					
Mercury	0.00478	0.00020	mg/L	0.00500	ND	95.6	75-125			
Matrix Spike Dup (DI91725-MSD1)		Source: D9I2062-01			Prepared & Analyzed: 09/26/2019					
Mercury	0.00469	0.00020	mg/L	0.00500	ND	93.8	75-125	1.89	20	
Batch DI91738 - 200.7 - W - EPA 6010C										
Blank (DI91738-BLK1)		Prepared: 09/26/2019 Analyzed: 09/27/2019								
Silver	<0.0020	0.0020	mg/L							
Arsenic	<0.0050	0.0050	mg/L							
Beryllium	<0.00100	0.00100	mg/L							
Cadmium	<0.0020	0.0020	mg/L							
Chromium	<0.0020	0.0020	mg/L							
Copper	<0.0020	0.0020	mg/L							
Nickel	<0.0050	0.0050	mg/L							



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Notes
Batch DI91738 - 200.7 - W - EPA 6010C										
Blank (DI91738-BLK1)				Prepared: 09/26/2019 Analyzed: 09/27/2019						
Lead	<0.0030	0.0030	mg/L							
Antimony	<0.00300	0.00300	mg/L							
Thallium	<0.00500	0.00500	mg/L							
Zinc	<0.0050	0.0050	mg/L							
Blank (DI91738-BLK2)				Prepared: 09/26/2019 Analyzed: 09/30/2019						
Selenium	<0.0050	0.0050	mg/L							
LCS (DI91738-BS1)				Prepared: 09/26/2019 Analyzed: 09/27/2019						
Silver	0.516	0.0020	mg/L	0.500		103	80-120			
Arsenic	0.505	0.0050	mg/L	0.500		101	80-120			
Beryllium	0.523	0.00100	mg/L	0.500		105	80-120			
Cadmium	0.519	0.0020	mg/L	0.500		104	80-120			
Chromium	0.505	0.0020	mg/L	0.500		101	80-120			
Copper	0.515	0.0020	mg/L	0.500		103	80-120			
Nickel	0.516	0.0050	mg/L	0.500		103	80-120			
Lead	0.515	0.0030	mg/L	0.500		103	80-120			
Antimony	0.490	0.00300	mg/L	0.500		98.0	80-120			
Thallium	0.508	0.00500	mg/L	0.500		102	80-120			
Zinc	0.516	0.0050	mg/L	0.500		103	80-120			
LCS (DI91738-BS2)				Prepared: 09/26/2019 Analyzed: 09/30/2019						
Selenium	0.484	0.0050	mg/L	0.500		96.8	80-120			
Duplicate (DI91738-DUP1)				Source: D9I2372-01			Prepared: 09/26/2019 Analyzed: 09/27/2019			
Silver	<0.0020	0.0020	mg/L		ND					20
Arsenic	<0.0050	0.0050	mg/L		ND					20
Beryllium	<0.00100	0.00100	mg/L		ND					20
Cadmium	<0.0020	0.0020	mg/L		ND					20
Chromium	0.0108	0.0020	mg/L		0.0108			0.190		20
Copper	0.0068	0.0020	mg/L		0.0068			0.513		20
Nickel	0.0794	0.0050	mg/L		0.0778			2.00		20
Lead	<0.0030	0.0030	mg/L		0.0024					20
Thallium	<0.00500	0.00500	mg/L		ND					20
Zinc	0.0734	0.0050	mg/L		0.0729			0.670		20
Duplicate (DI91738-DUP2)				Source: D9I2372-01			Prepared: 09/26/2019 Analyzed: 09/30/2019			
Selenium	0.0095	0.0050	mg/L		ND					20
Matrix Spike (DI91738-MS1)				Source: D9I2374-01			Prepared: 09/26/2019 Analyzed: 09/27/2019			
Silver	0.520	0.0020	mg/L	0.500	0.0009	104	75-125			
Arsenic	0.520	0.0050	mg/L	0.500	ND	104	75-125			
Beryllium	0.529	0.00100	mg/L	0.500	ND	106	75-125			
Cadmium	0.516	0.0020	mg/L	0.500	0.0002	103	75-125			
Chromium	0.503	0.0020	mg/L	0.500	ND	101	75-125			
Copper	0.522	0.0020	mg/L	0.500	0.0030	104	75-125			
Nickel	0.544	0.0050	mg/L	0.500	0.0319	102	75-125			
Lead	0.511	0.0030	mg/L	0.500	ND	102	75-125			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91738 - 200.7 - W - EPA 6010C										
Matrix Spike (DI91738-MS1)		Source: D9I2374-01			Prepared: 09/26/2019 Analyzed: 09/27/2019					
Antimony	0.581	0.00300	mg/L	0.500	0.00385	115	75-125			
Thallium	0.441	0.00500	mg/L	0.500	0.000409	88.1	75-125			
Zinc	0.566	0.0050	mg/L	0.500	0.0551	102	75-125			
Matrix Spike (DI91738-MS2)		Source: D9I2432-01			Prepared: 09/26/2019 Analyzed: 09/27/2019					
Silver	0.519	0.0020	mg/L	0.500	0.0008	104	75-125			
Arsenic	0.516	0.0050	mg/L	0.500	0.0048	102	75-125			
Beryllium	0.531	0.00100	mg/L	0.500	ND	106	75-125			
Cadmium	0.516	0.0020	mg/L	0.500	0.0003	103	75-125			
Chromium	0.507	0.0020	mg/L	0.500	0.0028	101	75-125			
Copper	0.643	0.0020	mg/L	0.500	0.126	103	75-125			
Nickel	0.519	0.0050	mg/L	0.500	0.0067	103	75-125			
Lead	0.518	0.0030	mg/L	0.500	0.0074	102	75-125			
Antimony	0.570	0.00300	mg/L	0.500	ND	114	75-125			
Thallium	0.444	0.00500	mg/L	0.500	0.000492	88.6	75-125			
Zinc	0.745	0.0050	mg/L	0.500	0.235	102	75-125			
Matrix Spike (DI91738-MS3)		Source: D9I2374-01			Prepared: 09/26/2019 Analyzed: 09/30/2019					
Selenium	0.493	0.0050	mg/L	0.500	ND	98.6	75-125			
Matrix Spike (DI91738-MS4)		Source: D9I2374-01			Prepared: 09/26/2019 Analyzed: 09/30/2019					
Selenium	0.443	0.0050	mg/L	0.500	ND	88.6	75-125			
Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90046 - 3510C W Sep Funnel - EPA 8082A										
Blank (DJ90046-BLK1)				Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L							
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L							
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L							
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L							
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L							
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L							
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L							
Surrogate: Decachlorobiphenyl (BZ-209)	0.0760		ug/L	0.100		76.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0558		ug/L	0.100		55.8	30-150			
LCS (DJ90046-BS1)				Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	0.620	0.100	ug/L	1.00		62.0	40-140			
Aroclor-1260 (PCB-1260)	0.715	0.100	ug/L	1.00		71.5	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	0.0688		ug/L	0.100		68.8	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0541		ug/L	0.100		54.1	30-150			
Matrix Spike (DJ90046-MS1)		Source: D9I2724-02			Prepared: 09/30/2019 Analyzed: 10/08/2019					
Aroclor-1016 (PCB-1016)	1.97	0.333	ug/L	3.33	ND	59.2	40-140			
Aroclor-1260 (PCB-1260)	2.33	0.333	ug/L	3.33	ND	70.0	40-140			



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Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90046 - 3510C W Sep Funnel - EPA 8082A

Matrix Spike (DJ90046-MS1)	Source: D9I2724-02			Prepared: 09/30/2019 Analyzed: 10/08/2019						
Surrogate: Decachlorobiphenyl (BZ-209)	0.229		ug/L	0.333		68.7	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0894		ug/L	0.333		26.8	30-150			S2
Matrix Spike Dup (DJ90046-MSD1)	Source: D9I2724-02			Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	1.89	0.333	ug/L	3.33	ND	56.6	40-140	4.53	20	
Aroclor-1260 (PCB-1260)	2.25	0.333	ug/L	3.33	ND	67.5	40-140	3.72	20	
Surrogate: Decachlorobiphenyl (BZ-209)	0.234		ug/L	0.333		70.1	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.121		ug/L	0.333		36.4	30-150			

Petroieum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90071 - 3510C W Sep Funnel - EPA 8100M

Blank (DJ90071-BLK1)	Prepared: 10/01/2019 Analyzed: 10/13/2019									
C9-C36 TPH	<0.100	0.100	mg/L							
Surrogate: 1-Chlorooctadecane	0.0506		mg/L	0.100		50.6	25-125			
LCS (DJ90071-BS1)	Prepared: 10/01/2019 Analyzed: 10/13/2019									
C9-C36 TPH	0.745	0.100	mg/L	1.40		53.2	30-130			
Surrogate: 1-Chlorooctadecane	0.0590		mg/L	0.100		59.0	25-125			
Matrix Spike (DJ90071-MS2)	Source: D9I2724-02RE1			Prepared: 10/01/2019 Analyzed: 10/15/2019						
C9-C36 TPH	2.60	0.200	mg/L	1.40	1.63	68.7	25-125			
Surrogate: 1-Chlorooctadecane	0.0672		mg/L	0.100		67.2	25-125			
Matrix Spike Dup (DJ90071-MSD2)	Source: D9I2724-02RE1			Prepared: 10/01/2019 Analyzed: 10/15/2019						
C9-C36 TPH	2.81	0.200	mg/L	1.40	1.63	83.9	25-125	7.89	200	
Surrogate: 1-Chlorooctadecane	0.0725		mg/L	0.100		72.5	25-125			

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DI91943 - 3510C W Sep Funnel - EPA 8270D

Blank (DI91943-BLK1)	Prepared: 09/25/2019 Analyzed: 10/03/2019									
Acenaphthene	<1.00	1.00	ug/L							
Acenaphthylene	<1.00	1.00	ug/L							
Anthracene	<1.00	1.00	ug/L							
Benzo[a]anthracene	<1.00	1.00	ug/L							
Benzo[a]pyrene	<1.00	1.00	ug/L							
Benzo[b]fluoranthene	<1.00	1.00	ug/L							
Benzo[g,h,i]perylene	<1.00	1.00	ug/L							
Benzo[k]fluoranthene	<1.00	1.00	ug/L							
Chrysene	<1.00	1.00	ug/L							
Dibenz(a,h) anthracene	<1.00	1.00	ug/L							
Fluoranthene	<1.00	1.00	ug/L							



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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DI91943 - 3510C W Sep Funnel - EPA 8270D

Blank (DI91943-BLK1)										
Prepared: 09/25/2019 Analyzed: 10/03/2019										
Fluorene	<1.00	1.00	ug/L							
Indeno(1,2,3-cd) pyrene	<1.00	1.00	ug/L							
2-Methylnaphthalene	<1.00	1.00	ug/L							
Naphthalene	<1.00	1.00	ug/L							
Phenanthrene	<1.00	1.00	ug/L							
Pyrene	<1.00	1.00	ug/L							
Surrogate: 2-Fluorobiphenyl	22.4		ug/L	50.0		44.9	12-90			
Surrogate: 2-Fluorophenol	14.6		ug/L	50.0		29.2	10-49			
Surrogate: Nitrobenzene-d5	26.8		ug/L	50.0		53.6	10-90			
Surrogate: Phenol-d6	10.3		ug/L	50.0		20.6	10-37			
Surrogate: p-Terphenyl-d14	33.3		ug/L	50.0		66.7	42-107			
Surrogate: 2,4,6-Tribromophenol	31.1		ug/L	50.0		62.1	14-123			

LCS (DI91943-BS1)										
Prepared: 09/25/2019 Analyzed: 10/03/2019										
Acenaphthene	14.2	1.00	ug/L	25.0		56.6	26-94			
Acenaphthylene	15.7	1.00	ug/L	25.0		63.0	30-130			
Anthracene	18.4	1.00	ug/L	25.0		73.8	54-82			
Benzo[a]anthracene	18.3	1.00	ug/L	25.0		73.2	58-95			
Benzo[a]pyrene	21.9	1.00	ug/L	25.0		87.5	61-103			
Benzo[b]fluoranthene	20.6	1.00	ug/L	25.0		82.2	59-98			
Benzo[g,h,i]perylene	23.4	1.00	ug/L	25.0		93.6	53-109			
Benzo[k]fluoranthene	20.4	1.00	ug/L	25.0		81.7	57-94			
Chrysene	19.8	1.00	ug/L	25.0		79.3	44-89			
Dibenz(a,h) anthracene	24.4	1.00	ug/L	25.0		97.6	52-104			
Fluoranthene	20.5	1.00	ug/L	25.0		82.1	48-84			
Fluorene	16.3	1.00	ug/L	25.0		65.2	36-77			
Indeno(1,2,3-cd) pyrene	23.7	1.00	ug/L	25.0		95.0	50-106			
2-Methylnaphthalene	13.3	1.00	ug/L	25.0		53.0	30-130			
Naphthalene	13.5	1.00	ug/L	25.0		54.0	27-80			
Phenanthrene	17.3	1.00	ug/L	25.0		69.0	45-82			
Pyrene	19.2	1.00	ug/L	25.0		76.6	49-91			
Surrogate: 2-Fluorobiphenyl	26.9		ug/L	50.0		53.8	12-90			
Surrogate: 2-Fluorophenol	17.5		ug/L	50.0		34.9	10-49			
Surrogate: Nitrobenzene-d5	29.5		ug/L	50.0		59.0	10-90			
Surrogate: Phenol-d6	11.9		ug/L	50.0		23.7	10-37			
Surrogate: p-Terphenyl-d14	36.6		ug/L	50.0		73.2	42-107			
Surrogate: 2,4,6-Tribromophenol	41.1		ug/L	50.0		82.2	14-123			

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90389 - 5030C VOA W - EPA 8260C

Blank (DJ90389-BLK1)										
Prepared & Analyzed: 10/02/2019										
Acetone	<5.00	5.00	ug/L							



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
Blank (DJ90389-BLK1)				Prepared & Analyzed: 10/02/2019					
Acrylonitrile	<1.00	1.00	ug/L						
Benzene	<1.00	1.00	ug/L						
Bromobenzene	<1.00	1.00	ug/L						
Bromochloromethane	<1.00	1.00	ug/L						
Bromodichloromethane	<1.00	1.00	ug/L						
Bromoform	<1.00	1.00	ug/L						
Bromomethane	<1.00	1.00	ug/L						
2-Butanone (MEK)	<5.00	5.00	ug/L						
sec-Butylbenzene	<1.00	1.00	ug/L						
tert-Butylbenzene	<1.00	1.00	ug/L						
n-Butylbenzene	<1.00	1.00	ug/L						
Carbon disulfide	<1.00	1.00	ug/L						
Carbon tetrachloride	<1.00	1.00	ug/L						
Chlorobenzene	<1.00	1.00	ug/L						
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L						
Chloroform	<1.00	1.00	ug/L						
Chloromethane	<1.00	1.00	ug/L						
2-Chlorotoluene	<1.00	1.00	ug/L						
4-Chlorotoluene	<1.00	1.00	ug/L						
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L						
Dibromochloromethane	<1.00	1.00	ug/L						
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L						
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L						
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L						
1,4-Dichlorobenzene	<1.00	1.00	ug/L						
1,3-Dichlorobenzene	<1.00	1.00	ug/L						
1,2-Dichlorobenzene	<1.00	1.00	ug/L						
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L						
1,2-Dichloroethane	<1.00	1.00	ug/L						
1,1-Dichloroethane	<1.00	1.00	ug/L						
trans-1,2-Dichloroethene	<1.00	1.00	ug/L						
1,1-Dichloroethene	<1.00	1.00	ug/L						
cis-1,2-Dichloroethene	<1.00	1.00	ug/L						
1,3-Dichloropropane	<1.00	1.00	ug/L						
1,2-Dichloropropane	<1.00	1.00	ug/L						
2,2-Dichloropropane	<1.00	1.00	ug/L						
trans-1,3-Dichloropropene	<1.00	1.00	ug/L						
cis-1,3-Dichloropropene	<1.00	1.00	ug/L						
1,1-Dichloropropene	<1.00	1.00	ug/L						
Diethyl ether	<1.00	1.00	ug/L						
1,4-Dioxane	<20.0	20.0	ug/L						

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
Blank (DJ90389-BLK1)				Prepared & Analyzed: 10/02/2019					
Ethylbenzene	<1.00	1.00	ug/L						
Hexachlorobutadiene	<1.00	1.00	ug/L						
2-Hexanone (MBK)	<5.00	5.00	ug/L						
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L						
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L						
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L						
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L						
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L						
Naphthalene	<1.00	1.00	ug/L						
n-Propylbenzene	<1.00	1.00	ug/L						
Styrene	<1.00	1.00	ug/L						
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L						
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L						
Tetrachloroethene	<1.00	1.00	ug/L						
Tetrahydrofuran (THF)	<1.00	1.00	ug/L						
Toluene	<1.00	1.00	ug/L						
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L						
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L						
1,1,1-Trichloroethane	<1.00	1.00	ug/L						
1,1,2-Trichloroethane	<1.00	1.00	ug/L						
Trichloroethene	<1.00	1.00	ug/L						
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L						
1,2,3-Trichloropropane	<1.00	1.00	ug/L						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L						
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L						
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L						
Vinyl chloride	<1.00	1.00	ug/L						
m,p-Xylene	<1.00	1.00	ug/L						
o-Xylene	<1.00	1.00	ug/L						
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>50.7</i>		ug/L	<i>50.0</i>		<i>101</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>43.0</i>		ug/L	<i>50.0</i>		<i>86.1</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>47.3</i>		ug/L	<i>50.0</i>		<i>94.6</i>	<i>70-130</i>		
LCS (DJ90389-BS1)				Prepared & Analyzed: 10/02/2019					
Acetone	52.0	5.00	ug/L	50.0		104	70-130		
Acrylonitrile	57.4	1.00	ug/L	50.0		115	70-130		
Benzene	55.9	1.00	ug/L	50.0		112	70-130		
Bromobenzene	56.7	1.00	ug/L	50.0		113	70-130		
Bromochloromethane	53.9	1.00	ug/L	50.0		108	70-130		
Bromodichloromethane	51.8	1.00	ug/L	50.0		104	70-130		
Bromoform	52.6	1.00	ug/L	50.0		105	70-130		
Bromomethane	56.9	1.00	ug/L	50.0		114	70-130		

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
LCS (DJ90389-BS1)				Prepared & Analyzed: 10/02/2019					
2-Butanone (MEK)	52.1	5.00	ug/L	50.0		104	70-130		
sec-Butylbenzene	57.2	1.00	ug/L	50.0		114	70-130		
tert-Butylbenzene	55.6	1.00	ug/L	50.0		111	70-130		
n-Butylbenzene	61.4	1.00	ug/L	50.0		123	70-130		
Carbon disulfide	46.9	1.00	ug/L	50.0		93.9	70-130		
Carbon tetrachloride	50.8	1.00	ug/L	50.0		102	70-130		
Chlorobenzene	59.8	1.00	ug/L	50.0		120	70-130		
Chloroethane (Ethyl chloride)	52.3	1.00	ug/L	50.0		105	70-130		
Chloroform	54.0	1.00	ug/L	50.0		108	70-130		
Chloromethane	59.2	1.00	ug/L	50.0		118	70-130		
2-Chlorotoluene	53.5	1.00	ug/L	50.0		107	70-130		
4-Chlorotoluene	54.2	1.00	ug/L	50.0		108	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	41.1	1.00	ug/L	50.0		82.2	70-130		
Dibromochloromethane	52.2	1.00	ug/L	50.0		104	70-130		
1,2-Dibromoethane (Ethylene dibromide, EDB)	54.6	1.00	ug/L	50.0		109	70-130		
Dibromomethane (Methylene bromide)	52.2	1.00	ug/L	50.0		104	70-130		
trans-1,4-Dichloro-2-butene	41.4	1.00	ug/L	50.0		82.8	70-130		
1,4-Dichlorobenzene	57.0	1.00	ug/L	50.0		114	70-130		
1,3-Dichlorobenzene	57.6	1.00	ug/L	50.0		115	70-130		
1,2-Dichlorobenzene	55.0	1.00	ug/L	50.0		110	70-130		
Dichlorodifluoromethane (Freon-12)	47.5	1.00	ug/L	50.0		95.0	70-130		
1,2-Dichloroethane	46.2	1.00	ug/L	50.0		92.3	70-130		
1,1-Dichloroethane	53.4	1.00	ug/L	50.0		107	70-130		
trans-1,2-Dichloroethene	53.8	1.00	ug/L	50.0		108	70-130		
1,1-Dichloroethene	58.3	1.00	ug/L	50.0		117	70-130		
cis-1,2-Dichloroethene	57.0	1.00	ug/L	50.0		114	70-130		
1,3-Dichloropropane	53.5	1.00	ug/L	50.0		107	70-130		
1,2-Dichloropropane	54.8	1.00	ug/L	50.0		110	70-130		
2,2-Dichloropropane	49.9	1.00	ug/L	50.0		99.9	70-130		
trans-1,3-Dichloropropene	53.3	1.00	ug/L	50.0		107	70-130		
cis-1,3-Dichloropropene	53.8	1.00	ug/L	50.0		108	70-130		
1,1-Dichloropropene	55.2	1.00	ug/L	50.0		110	70-130		
Diethyl ether	53.0	1.00	ug/L	50.0		106	70-130		
1,4-Dioxane	63.2	20.0	ug/L	50.0		126	70-130		
Ethylbenzene	56.2	1.00	ug/L	50.0		112	70-130		
Hexachlorobutadiene	55.0	1.00	ug/L	50.0		110	70-130		
2-Hexanone (MBK)	50.0	5.00	ug/L	50.0		100	70-130		
Isopropylbenzene (Cumene)	55.3	1.00	ug/L	50.0		111	70-130		
4-Isopropyltoluene (p-Isopropyltoluene)	56.0	1.00	ug/L	50.0		112	70-130		
Methyl tert-butyl ether (MTBE)	52.6	1.00	ug/L	50.0		105	70-130		

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
LCS (DJ90389-BS1)				Prepared & Analyzed: 10/02/2019					
Methylene chloride (Dichloromethane)	57.2	1.00	ug/L	50.0		114 70-130			
4-Methyl-2-pentanone (MIBK)	48.8	5.00	ug/L	50.0		97.6 70-130			
Naphthalene	51.7	1.00	ug/L	50.0		103 70-130			
n-Propylbenzene	56.6	1.00	ug/L	50.0		113 70-130			
Styrene	58.8	1.00	ug/L	50.0		118 70-130			
1,1,1,2-Tetrachloroethane	54.5	1.00	ug/L	50.0		109 70-130			
1,1,1,2-Tetrachloroethane	51.4	1.00	ug/L	50.0		103 70-130			
Tetrachloroethene	60.0	1.00	ug/L	50.0		120 70-130			
Tetrahydrofuran (THF)	47.6	1.00	ug/L	50.0		95.2 70-130			
Toluene	57.5	1.00	ug/L	50.0		115 70-130			
1,2,4-Trichlorobenzene	55.3	1.00	ug/L	50.0		111 70-130			
1,2,3-Trichlorobenzene	54.3	1.00	ug/L	50.0		109 70-130			
1,1,1-Trichloroethane	50.4	1.00	ug/L	50.0		101 70-130			
1,1,2-Trichloroethane	59.4	1.00	ug/L	50.0		119 70-130			
Trichloroethene	60.5	1.00	ug/L	50.0		121 70-130			
Trichlorofluoromethane (Freon 11)	53.4	1.00	ug/L	50.0		107 70-130			
1,2,3-Trichloropropane	47.9	1.00	ug/L	50.0		95.7 70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	56.9	1.00	ug/L	50.0		114 70-130			
1,3,5-Trimethylbenzene	51.9	1.00	ug/L	50.0		104 70-130			
1,2,4-Trimethylbenzene	53.2	1.00	ug/L	50.0		106 70-130			
Vinyl chloride	55.9	1.00	ug/L	50.0		112 70-130			
m,p-Xylene	58.4	1.00	ug/L	50.0		117 70-130			
o-Xylene	56.2	1.00	ug/L	50.0		112 70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>103 70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>41.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>82.3 70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.1 70-130</i>			
Matrix Spike (DJ90389-MS1)		Source: D9I2401-03		Prepared & Analyzed: 10/02/2019					
Acetone	4220	500	ug/L	5000	14.3	84.2 70-130			
Acrylonitrile	4810	50.0	ug/L	5000	ND	96.2 70-130			
Benzene	4710	50.0	ug/L	5000	ND	94.3 70-130			
Bromobenzene	4910	50.0	ug/L	5000	ND	98.2 70-130			
Bromochloromethane	4460	50.0	ug/L	5000	ND	89.2 70-130			
Bromodichloromethane	4410	50.0	ug/L	5000	ND	88.2 70-130			
Bromoform	4570	50.0	ug/L	5000	ND	91.4 70-130			
Bromomethane	3520	50.0	ug/L	5000	ND	70.3 70-130			
2-Butanone (MEK)	4300	500	ug/L	5000	2.22	85.9 70-130			
sec-Butylbenzene	4800	50.0	ug/L	5000	ND	96.0 70-130			
tert-Butylbenzene	5010	100	ug/L	5000	ND	100 70-130			
n-Butylbenzene	5060	50.0	ug/L	5000	ND	101 70-130			
Carbon disulfide	3870	100	ug/L	5000	ND	77.4 70-130			
Carbon tetrachloride	4250	50.0	ug/L	5000	ND	85.0 70-130			

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CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
Chlorobenzene	5130	50.0	ug/L	5000	ND	103	70-130			
Chloroethane (Ethyl chloride)	4030	50.0	ug/L	5000	ND	80.6	70-130			
Chloroform	4530	50.0	ug/L	5000	ND	90.6	70-130			
Chloromethane	4420	50.0	ug/L	5000	ND	88.4	70-130			
2-Chlorotoluene	4690	50.0	ug/L	5000	ND	93.8	70-130			
4-Chlorotoluene	4700	50.0	ug/L	5000	ND	94.1	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	3630	20.0	ug/L	5000	ND	72.5	70-130			
Dibromochloromethane	4570	50.0	ug/L	5000	ND	91.3	70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	4780	5.00	ug/L	5000	ND	95.6	70-130			
Dibromomethane (Methylene bromide)	4570	50.0	ug/L	5000	ND	91.5	70-130			
trans-1,4-Dichloro-2-butene	3320	50.0	ug/L	5000	ND	66.3	70-130			M2
1,4-Dichlorobenzene	4920	50.0	ug/L	5000	2.64	98.3	70-130			
1,3-Dichlorobenzene	4890	50.0	ug/L	5000	ND	97.8	70-130			
1,2-Dichlorobenzene	4700	50.0	ug/L	5000	15.5	93.7	70-130			
Dichlorodifluoromethane (Freon-12)	3960	50.0	ug/L	5000	ND	79.2	70-130			
1,2-Dichloroethane	4000	50.0	ug/L	5000	ND	80.0	70-130			
1,1-Dichloroethane	4510	50.0	ug/L	5000	ND	90.2	70-130			
trans-1,2-Dichloroethene	4620	50.0	ug/L	5000	ND	92.3	70-130			
1,1-Dichloroethene	4980	50.0	ug/L	5000	ND	99.7	70-130			
cis-1,2-Dichloroethene	4710	50.0	ug/L	5000	ND	94.1	70-130			
1,3-Dichloropropane	4660	50.0	ug/L	5000	ND	93.2	70-130			
1,2-Dichloropropane	4690	50.0	ug/L	5000	ND	93.9	70-130			
2,2-Dichloropropane	3460	50.0	ug/L	5000	ND	69.1	70-130			M2
trans-1,3-Dichloropropene	4460	50.0	ug/L	5000	ND	89.2	70-130			
cis-1,3-Dichloropropene	4420	50.0	ug/L	5000	ND	88.4	70-130			
1,1-Dichloropropene	4560	50.0	ug/L	5000	ND	91.1	70-130			
Diethyl ether	4530	50.0	ug/L	5000	ND	90.5	70-130			
1,4-Dioxane	5730	2000	ug/L	5000	1.70	115	70-130			
Ethylbenzene	8500	50.0	ug/L	5000	688	156	70-130			M2
Hexachlorobutadiene	4540	50.0	ug/L	5000	ND	90.8	70-130			
2-Hexanone (MBK)	4330	500	ug/L	5000	ND	86.6	70-130			
Isopropylbenzene (Cumene)	4810	50.0	ug/L	5000	67.9	94.9	70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	4760	50.0	ug/L	5000	ND	95.2	70-130			
Methyl tert-butyl ether (MTBE)	4410	50.0	ug/L	5000	ND	88.1	70-130			
Methylene chloride (Dichloromethane)	4840	50.0	ug/L	5000	ND	96.8	70-130			
4-Methyl-2-pentanone (MIBK)	4260	500	ug/L	5000	ND	85.1	70-130			
Naphthalene	4620	50.0	ug/L	5000	ND	92.3	70-130			
n-Propylbenzene	4880	50.0	ug/L	5000	37.4	96.8	70-130			
Styrene	5120	50.0	ug/L	5000	ND	102	70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
1,1,1,2-Tetrachloroethane	4700	100	ug/L	5000	ND	94.0	70-130			
1,1,1,2-Tetrachloroethane	4540	50.0	ug/L	5000	ND	90.7	70-130			
Tetrachloroethene	5040	50.0	ug/L	5000	ND	101	70-130			
Tetrahydrofuran (THF)	4130	50.0	ug/L	5000	ND	82.7	70-130			
Toluene	4950	50.0	ug/L	5000	127	96.5	70-130			
1,2,4-Trichlorobenzene	4850	100	ug/L	5000	ND	97.0	70-130			
1,2,3-Trichlorobenzene	4700	100	ug/L	5000	ND	93.9	70-130			
1,1,1-Trichloroethane	4240	100	ug/L	5000	ND	84.9	70-130			
1,1,2-Trichloroethane	5220	100	ug/L	5000	ND	104	70-130			
Trichloroethene	5100	50.0	ug/L	5000	ND	102	70-130			
Trichlorofluoromethane (Freon 11)	4540	50.0	ug/L	5000	ND	90.8	70-130			
1,2,3-Trichloropropane	4120	100	ug/L	5000	ND	82.3	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4800	100	ug/L	5000	ND	95.9	70-130			
1,3,5-Trimethylbenzene	4640	100	ug/L	5000	124	90.3	70-130			
1,2,4-Trimethylbenzene	4860	100	ug/L	5000	245	92.4	70-130			
Vinyl chloride	4590	50.0	ug/L	5000	ND	91.7	70-130			
m,p-Xylene	14500	100	ug/L	5000	1230	265	70-130			M2
o-Xylene	10300	50.0	ug/L	5000	902	189	70-130			M2
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>52.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>42.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>84.2</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>49.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.1</i>	<i>70-130</i>			
Matrix Spike (DJ90389-MS2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					
Acetone	4640	500	ug/L	5000	ND	92.8	70-130			
Acrylonitrile	5310	50.0	ug/L	5000	ND	106	70-130			
Benzene	5060	50.0	ug/L	5000	ND	101	70-130			
Bromobenzene	5110	50.0	ug/L	5000	ND	102	70-130			
Bromochloromethane	4880	50.0	ug/L	5000	ND	97.6	70-130			
Bromodichloromethane	4670	50.0	ug/L	5000	ND	93.5	70-130			
Bromoform	4720	50.0	ug/L	5000	ND	94.4	70-130			
Bromomethane	4630	50.0	ug/L	5000	ND	92.6	70-130			
2-Butanone (MEK)	4730	500	ug/L	5000	ND	94.6	70-130			
sec-Butylbenzene	4930	50.0	ug/L	5000	ND	98.5	70-130			
tert-Butylbenzene	5030	100	ug/L	5000	ND	101	70-130			
n-Butylbenzene	5220	50.0	ug/L	5000	ND	104	70-130			
Carbon disulfide	4280	100	ug/L	5000	ND	85.6	70-130			
Carbon tetrachloride	4470	50.0	ug/L	5000	ND	89.4	70-130			
Chlorobenzene	5390	50.0	ug/L	5000	ND	108	70-130			
Chloroethane (Ethyl chloride)	4770	50.0	ug/L	5000	ND	95.3	70-130			
Chloroform	4990	50.0	ug/L	5000	ND	99.8	70-130			
Chloromethane	5170	50.0	ug/L	5000	ND	103	70-130			
2-Chlorotoluene	4730	50.0	ug/L	5000	ND	94.5	70-130			
4-Chlorotoluene	4740	50.0	ug/L	5000	ND	94.7	70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
Matrix Spike (DJ90389-MS2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019				
1,2-Dibromo-3-chloropropane (DBCP)	3790	20.0	ug/L	5000	ND	75.7 70-130			
Dibromochloromethane	4770	50.0	ug/L	5000	ND	95.5 70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	5030	5.00	ug/L	5000	ND	101 70-130			
Dibromomethane (Methylene bromide)	4910	50.0	ug/L	5000	ND	98.1 70-130			
trans-1,4-Dichloro-2-butene	3460	50.0	ug/L	5000	ND	69.2 70-130			M2
1,4-Dichlorobenzene	5070	50.0	ug/L	5000	ND	101 70-130			
1,3-Dichlorobenzene	5050	50.0	ug/L	5000	ND	101 70-130			
1,2-Dichlorobenzene	5010	50.0	ug/L	5000	ND	100 70-130			
Dichlorodifluoromethane (Freon-12)	4460	50.0	ug/L	5000	ND	89.2 70-130			
1,2-Dichloroethane	4320	50.0	ug/L	5000	ND	86.4 70-130			
1,1-Dichloroethane	4840	50.0	ug/L	5000	ND	96.8 70-130			
trans-1,2-Dichloroethene	4860	50.0	ug/L	5000	ND	97.2 70-130			
1,1-Dichloroethene	5210	50.0	ug/L	5000	ND	104 70-130			
cis-1,2-Dichloroethene	5120	50.0	ug/L	5000	ND	102 70-130			
1,3-Dichloropropane	4800	50.0	ug/L	5000	ND	96.1 70-130			
1,2-Dichloropropane	5030	50.0	ug/L	5000	ND	101 70-130			
2,2-Dichloropropane	3590	50.0	ug/L	5000	ND	71.8 70-130			
trans-1,3-Dichloropropene	4630	50.0	ug/L	5000	ND	92.5 70-130			
cis-1,3-Dichloropropene	4630	50.0	ug/L	5000	ND	92.7 70-130			
1,1-Dichloropropene	4980	50.0	ug/L	5000	ND	99.7 70-130			
Diethyl ether	4980	50.0	ug/L	5000	ND	99.5 70-130			
1,4-Dioxane	6460	2000	ug/L	5000	ND	129 70-130			
Ethylbenzene	9010	50.0	ug/L	5000	5470	70.7 70-130			
Hexachlorobutadiene	4780	50.0	ug/L	5000	ND	95.6 70-130			
2-Hexanone (MBK)	4580	500	ug/L	5000	ND	91.5 70-130			
Isopropylbenzene (Cumene)	4910	50.0	ug/L	5000	ND	98.2 70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	4770	50.0	ug/L	5000	ND	95.3 70-130			
Methyl tert-butyl ether (MTBE)	4800	50.0	ug/L	5000	ND	96.1 70-130			
Methylene chloride (Dichloromethane)	5270	50.0	ug/L	5000	ND	105 70-130			
4-Methyl-2-pentanone (MIBK)	4460	500	ug/L	5000	ND	89.2 70-130			
Naphthalene	4890	50.0	ug/L	5000	ND	97.8 70-130			
n-Propylbenzene	4940	50.0	ug/L	5000	ND	98.8 70-130			
Styrene	5200	50.0	ug/L	5000	ND	104 70-130			
1,1,1,2-Tetrachloroethane	4870	100	ug/L	5000	ND	97.3 70-130			
1,1,1,2,2-Tetrachloroethane	4730	50.0	ug/L	5000	ND	94.6 70-130			
Tetrachloroethene	5210	50.0	ug/L	5000	ND	104 70-130			
Tetrahydrofuran (THF)	4480	50.0	ug/L	5000	ND	89.6 70-130			
Toluene	5160	50.0	ug/L	5000	135	100 70-130			
1,2,4-Trichlorobenzene	5000	100	ug/L	5000	ND	100 70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					
1,2,3-Trichlorobenzene	5040	100	ug/L	5000	ND	101	70-130			
1,1,1-Trichloroethane	4530	100	ug/L	5000	ND	90.5	70-130			
1,1,2-Trichloroethane	5440	100	ug/L	5000	ND	109	70-130			
Trichloroethene	5430	50.0	ug/L	5000	ND	109	70-130			
Trichlorofluoromethane (Freon 11)	5110	50.0	ug/L	5000	ND	102	70-130			
1,2,3-Trichloropropane	4200	100	ug/L	5000	ND	84.0	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	5260	100	ug/L	5000	ND	105	70-130			
1,3,5-Trimethylbenzene	4680	100	ug/L	5000	121	91.2	70-130			
1,2,4-Trimethylbenzene	4880	100	ug/L	5000	281	92.0	70-130			
Vinyl chloride	5320	50.0	ug/L	5000	ND	106	70-130			
m,p-Xylene	15400	100	ug/L	5000	13500	38.1	70-130			M2
o-Xylene	10700	50.0	ug/L	5000	7350	66.1	70-130			M2
Surrogate: 4-Bromofluorobenzene	51.9		ug/L	50.0		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	43.0		ug/L	50.0		85.9	70-130			
Surrogate: Toluene-d8	48.5		ug/L	50.0		97.0	70-130			
Matrix Spike Dup (DJ90389-MSD1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
Acetone	4630	500	ug/L	5000	14.3	92.4	70-130	9.28	20	
Acrylonitrile	5350	50.0	ug/L	5000	ND	107	70-130	10.6	20	
Benzene	4850	50.0	ug/L	5000	ND	97.0	70-130	2.91	20	
Bromobenzene	4980	50.0	ug/L	5000	ND	99.6	70-130	1.46	20	
Bromochloromethane	4680	50.0	ug/L	5000	ND	93.6	70-130	4.88	20	
Bromodichloromethane	4610	50.0	ug/L	5000	ND	92.1	70-130	4.33	20	
Bromoform	4630	50.0	ug/L	5000	ND	92.6	70-130	1.33	20	
Bromomethane	4100	50.0	ug/L	5000	ND	82.0	70-130	15.3	20	
2-Butanone (MEK)	4730	500	ug/L	5000	2.22	94.5	70-130	9.55	20	
sec-Butylbenzene	4960	50.0	ug/L	5000	ND	99.2	70-130	3.24	20	
tert-Butylbenzene	4890	100	ug/L	5000	ND	97.8	70-130	2.28	20	
n-Butylbenzene	5140	50.0	ug/L	5000	ND	103	70-130	1.67	20	
Carbon disulfide	3970	100	ug/L	5000	ND	79.3	70-130	2.45	20	
Carbon tetrachloride	4340	50.0	ug/L	5000	ND	86.9	70-130	2.21	20	
Chlorobenzene	5200	50.0	ug/L	5000	ND	104	70-130	1.20	20	
Chloroethane (Ethyl chloride)	4070	50.0	ug/L	5000	ND	81.4	70-130	1.04	20	
Chloroform	4760	50.0	ug/L	5000	ND	95.2	70-130	4.95	20	
Chloromethane	4670	50.0	ug/L	5000	ND	93.3	70-130	5.35	20	
2-Chlorotoluene	4760	50.0	ug/L	5000	ND	95.2	70-130	1.44	20	
4-Chlorotoluene	4710	50.0	ug/L	5000	ND	94.2	70-130	0.170	20	
1,2-Dibromo-3-chloropropane (DBCP)	3850	20.0	ug/L	5000	ND	77.0	70-130	5.99	20	
Dibromochloromethane	4630	50.0	ug/L	5000	ND	92.5	70-130	1.28	20	
1,2-Dibromoethane (Ethylene dibromide, EDB)	4860	5.00	ug/L	5000	ND	97.2	70-130	1.60	20	
Dibromomethane (Methylene bromide)	4750	50.0	ug/L	5000	ND	94.9	70-130	3.71	20	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD1)	Source: D9I2401-03			Prepared & Analyzed: 10/02/2019						
trans-1,4-Dichloro-2-butene	3350	50.0	ug/L	5000	ND	67.0	70-130	0.960	20	M2
1,4-Dichlorobenzene	5000	50.0	ug/L	5000	2.64	99.9	70-130	1.67	20	
1,3-Dichlorobenzene	5140	50.0	ug/L	5000	ND	103	70-130	4.99	20	
1,2-Dichlorobenzene	4920	50.0	ug/L	5000	15.5	98.1	70-130	4.59	20	
Dichlorodifluoromethane (Freon-12)	4200	50.0	ug/L	5000	ND	84.0	70-130	5.98	20	
1,2-Dichloroethane	4270	50.0	ug/L	5000	ND	85.4	70-130	6.53	20	
1,1-Dichloroethane	4700	50.0	ug/L	5000	ND	93.9	70-130	4.04	20	
trans-1,2-Dichloroethene	4720	50.0	ug/L	5000	ND	94.4	70-130	2.27	20	
1,1-Dichloroethene	5090	50.0	ug/L	5000	ND	102	70-130	2.05	20	
cis-1,2-Dichloroethene	4980	50.0	ug/L	5000	ND	99.5	70-130	5.56	20	
1,3-Dichloropropane	4750	50.0	ug/L	5000	ND	94.9	70-130	1.83	20	
1,2-Dichloropropane	4900	50.0	ug/L	5000	ND	98.1	70-130	4.38	20	
2,2-Dichloropropane	3530	50.0	ug/L	5000	ND	70.6	70-130	2.12	20	
trans-1,3-Dichloropropene	4610	50.0	ug/L	5000	ND	92.2	70-130	3.33	20	
cis-1,3-Dichloropropene	4540	50.0	ug/L	5000	ND	90.9	70-130	2.77	20	
1,1-Dichloropropene	4780	50.0	ug/L	5000	ND	95.6	70-130	4.82	20	
Diethyl ether	4820	50.0	ug/L	5000	ND	96.4	70-130	6.23	20	
1,4-Dioxane	6360	2000	ug/L	5000	1.70	127	70-130	10.4	20	
Ethylbenzene	8560	50.0	ug/L	5000	688	157	70-130	0.657	20	M2
Hexachlorobutadiene	4760	50.0	ug/L	5000	ND	95.2	70-130	4.69	20	
2-Hexanone (MBK)	4500	500	ug/L	5000	ND	90.1	70-130	3.92	20	
Isopropylbenzene (Cumene)	4960	50.0	ug/L	5000	67.9	97.9	70-130	3.03	20	
4-Isopropyltoluene (p-Isopropyltoluene)	4880	50.0	ug/L	5000	ND	97.6	70-130	2.53	20	
Methyl tert-butyl ether (MTBE)	4690	50.0	ug/L	5000	ND	93.8	70-130	6.22	20	
Methylene chloride (Dichloromethane)	5050	50.0	ug/L	5000	ND	101	70-130	4.21	20	
4-Methyl-2-pentanone (MIBK)	4450	500	ug/L	5000	ND	89.0	70-130	4.48	20	
Naphthalene	4850	50.0	ug/L	5000	ND	96.9	70-130	4.86	20	
n-Propylbenzene	4950	50.0	ug/L	5000	37.4	98.2	70-130	1.34	20	
Styrene	5140	50.0	ug/L	5000	ND	103	70-130	0.331	20	
1,1,1,2-Tetrachloroethane	4740	100	ug/L	5000	ND	94.9	70-130	0.932	20	
1,1,1,2,2-Tetrachloroethane	4790	50.0	ug/L	5000	ND	95.7	70-130	5.36	20	
Tetrachloroethene	5110	50.0	ug/L	5000	ND	102	70-130	1.40	20	
Tetrahydrofuran (THF)	4530	50.0	ug/L	5000	ND	90.6	70-130	9.21	20	
Toluene	5010	50.0	ug/L	5000	127	97.7	70-130	1.18	20	
1,2,4-Trichlorobenzene	4950	100	ug/L	5000	ND	99.0	70-130	2.06	20	
1,2,3-Trichlorobenzene	4970	100	ug/L	5000	ND	99.4	70-130	5.63	20	
1,1,1-Trichloroethane	4320	100	ug/L	5000	ND	86.4	70-130	1.75	20	
1,1,2-Trichloroethane	5400	100	ug/L	5000	ND	108	70-130	3.26	20	
Trichloroethene	5250	50.0	ug/L	5000	ND	105	70-130	2.82	20	
Trichlorofluoromethane (Freon 11)	4710	50.0	ug/L	5000	ND	94.3	70-130	3.76	20	
1,2,3-Trichloropropane	4370	100	ug/L	5000	ND	87.3	70-130	5.90	20	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4930	100	ug/L	5000	ND	98.6	70-130	2.69	20	
1,3,5-Trimethylbenzene	4780	100	ug/L	5000	124	93.2	70-130	3.10	20	
1,2,4-Trimethylbenzene	4850	100	ug/L	5000	245	92.0	70-130	0.350	20	
Vinyl chloride	4730	50.0	ug/L	5000	ND	94.6	70-130	3.11	20	
m,p-Xylene	14700	100	ug/L	5000	1230	269	70-130	1.60	20	M2
o-Xylene	10300	50.0	ug/L	5000	902	187	70-130	0.718	20	M2
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>42.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>85.4</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>47.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.4</i>	<i>70-130</i>			
Matrix Spike Dup (DJ90389-MSD2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					
Acetone	4650	500	ug/L	5000	ND	93.0	70-130	0.237	20	
Acrylonitrile	5280	50.0	ug/L	5000	ND	106	70-130	0.642	20	
Benzene	4720	50.0	ug/L	5000	ND	94.3	70-130	7.08	20	
Bromobenzene	4760	50.0	ug/L	5000	ND	95.3	70-130	7.01	20	
Bromochloromethane	4640	50.0	ug/L	5000	ND	92.8	70-130	5.06	20	
Bromodichloromethane	4520	50.0	ug/L	5000	ND	90.4	70-130	3.39	20	
Bromoform	4460	50.0	ug/L	5000	ND	89.2	70-130	5.62	20	
Bromomethane	4390	50.0	ug/L	5000	ND	87.9	70-130	5.27	20	
2-Butanone (MEK)	4760	500	ug/L	5000	ND	95.3	70-130	0.738	20	
sec-Butylbenzene	4720	50.0	ug/L	5000	ND	94.4	70-130	4.25	20	
tert-Butylbenzene	4740	100	ug/L	5000	ND	94.9	70-130	5.81	20	
n-Butylbenzene	4920	50.0	ug/L	5000	ND	98.3	70-130	6.07	20	
Carbon disulfide	3930	100	ug/L	5000	ND	78.6	70-130	8.50	20	
Carbon tetrachloride	4240	50.0	ug/L	5000	ND	84.8	70-130	5.26	20	
Chlorobenzene	5080	50.0	ug/L	5000	ND	102	70-130	5.85	20	
Chloroethane (Ethyl chloride)	4410	50.0	ug/L	5000	ND	88.2	70-130	7.74	20	
Chloroform	4700	50.0	ug/L	5000	ND	93.9	70-130	6.13	20	
Chloromethane	4930	50.0	ug/L	5000	ND	98.6	70-130	4.87	20	
2-Chlorotoluene	4500	50.0	ug/L	5000	ND	89.9	70-130	4.99	20	
4-Chlorotoluene	4560	50.0	ug/L	5000	ND	91.1	70-130	3.90	20	
1,2-Dibromo-3-chloropropane (DBCP)	3760	20.0	ug/L	5000	ND	75.1	70-130	0.796	20	
Dibromochloromethane	4460	50.0	ug/L	5000	ND	89.1	70-130	6.85	20	
1,2-Dibromoethane (Ethylene dibromide, EDB)	4720	5.00	ug/L	5000	ND	94.4	70-130	6.30	20	
Dibromomethane (Methylene bromide)	4680	50.0	ug/L	5000	ND	93.6	70-130	4.76	20	
trans-1,4-Dichloro-2-butene	3350	50.0	ug/L	5000	ND	66.9	70-130	3.38	20	M2
1,4-Dichlorobenzene	4830	50.0	ug/L	5000	ND	96.6	70-130	4.85	20	
1,3-Dichlorobenzene	4860	50.0	ug/L	5000	ND	97.2	70-130	3.86	20	
1,2-Dichlorobenzene	4660	50.0	ug/L	5000	ND	93.3	70-130	7.09	20	
Dichlorodifluoromethane (Freon-12)	4210	50.0	ug/L	5000	ND	84.1	70-130	5.86	20	
1,2-Dichloroethane	4120	50.0	ug/L	5000	ND	82.3	70-130	4.79	20	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD2)	Source: D9I2724-02			Prepared & Analyzed: 10/03/2019						
1,1-Dichloroethane	4610	50.0	ug/L	5000	ND	92.2	70-130	4.85	20	
trans-1,2-Dichloroethene	4710	50.0	ug/L	5000	ND	94.1	70-130	3.20	20	
1,1-Dichloroethene	4860	50.0	ug/L	5000	ND	97.2	70-130	6.93	20	
cis-1,2-Dichloroethene	4920	50.0	ug/L	5000	ND	98.5	70-130	3.98	20	
1,3-Dichloropropane	4600	50.0	ug/L	5000	ND	92.0	70-130	4.32	20	
1,2-Dichloropropane	4750	50.0	ug/L	5000	ND	95.1	70-130	5.66	20	
2,2-Dichloropropane	3270	50.0	ug/L	5000	ND	65.3	70-130	9.48	20	M2
trans-1,3-Dichloropropene	4400	50.0	ug/L	5000	ND	87.9	70-130	5.05	20	
cis-1,3-Dichloropropene	4350	50.0	ug/L	5000	ND	86.9	70-130	6.39	20	
1,1-Dichloropropene	4620	50.0	ug/L	5000	ND	92.3	70-130	7.67	20	
Diethyl ether	4820	50.0	ug/L	5000	ND	96.4	70-130	3.19	20	
1,4-Dioxane	6290	2000	ug/L	5000	ND	126	70-130	2.66	20	
Ethylbenzene	8380	50.0	ug/L	5000	5470	58.2	70-130	7.22	20	M2
Hexachlorobutadiene	4490	50.0	ug/L	5000	ND	89.9	70-130	6.21	20	
2-Hexanone (MBK)	4440	500	ug/L	5000	ND	88.8	70-130	2.97	20	
Isopropylbenzene (Cumene)	4680	50.0	ug/L	5000	ND	93.5	70-130	4.88	20	
4-Isopropyltoluene (p-Isopropyltoluene)	4660	50.0	ug/L	5000	ND	93.1	70-130	2.34	20	
Methyl tert-butyl ether (MTBE)	4640	50.0	ug/L	5000	ND	92.8	70-130	3.45	20	
Methylene chloride (Dichloromethane)	4990	50.0	ug/L	5000	ND	99.7	70-130	5.54	20	
4-Methyl-2-pentanone (MIBK)	4320	500	ug/L	5000	ND	86.3	70-130	3.26	20	
Naphthalene	4670	50.0	ug/L	5000	ND	93.4	70-130	4.58	20	
n-Propylbenzene	4660	50.0	ug/L	5000	ND	93.3	70-130	5.73	20	
Styrene	4870	50.0	ug/L	5000	ND	97.4	70-130	6.59	20	
1,1,1,2-Tetrachloroethane	4550	100	ug/L	5000	ND	90.9	70-130	6.80	20	
1,1,1,2,2-Tetrachloroethane	4610	50.0	ug/L	5000	ND	92.1	70-130	2.68	20	
Tetrachloroethene	4900	50.0	ug/L	5000	ND	98.1	70-130	6.01	20	
Tetrahydrofuran (THF)	4470	50.0	ug/L	5000	ND	89.4	70-130	0.268	20	
Toluene	4660	50.0	ug/L	5000	135	90.6	70-130	10.0	20	
1,2,4-Trichlorobenzene	4740	100	ug/L	5000	ND	94.9	70-130	5.24	20	
1,2,3-Trichlorobenzene	4590	100	ug/L	5000	ND	91.9	70-130	9.22	20	
1,1,1-Trichloroethane	4200	100	ug/L	5000	ND	83.9	70-130	7.52	20	
1,1,2-Trichloroethane	5160	100	ug/L	5000	ND	103	70-130	5.15	20	
Trichloroethene	5040	50.0	ug/L	5000	ND	101	70-130	7.48	20	
Trichlorofluoromethane (Freon 11)	4840	50.0	ug/L	5000	ND	96.8	70-130	5.49	20	
1,2,3-Trichloropropane	4140	100	ug/L	5000	ND	82.7	70-130	1.51	20	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4960	100	ug/L	5000	ND	99.2	70-130	5.91	20	
1,3,5-Trimethylbenzene	4550	100	ug/L	5000	121	88.5	70-130	2.84	20	
1,2,4-Trimethylbenzene	4670	100	ug/L	5000	281	87.9	70-130	4.29	20	
Vinyl chloride	4840	50.0	ug/L	5000	ND	96.7	70-130	9.61	20	
m,p-Xylene	14200	100	ug/L	5000	13500	13.3	70-130	8.36	20	M2
o-Xylene	9880	50.0	ug/L	5000	7350	50.5	70-130	7.58	20	M2



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD2)										
	Source: D9I2724-02			Prepared & Analyzed: 10/03/2019						
<i>Surrogate: 4-Bromofluorobenzene</i>	50.3		ug/L	50.0		101	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	43.6		ug/L	50.0		87.2	70-130			
<i>Surrogate: Toluene-d8</i>	47.7		ug/L	50.0		95.4	70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2401

Definitions

- M2: Matrix spike recovery is below acceptance limits.
RL: Reporting Limit
RPD: Relative Percent Difference
S2: Surrogate recovery is below acceptance limits.
Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.1°C

Cooler Inspection Checklist

Table with 4 columns: Item, Yes, No, and Yes. Rows include: Ice Present or not required?, Custody seals intact or not required?, COC includes customer information?, Sample collector identified on COC?, Correct type of Containers Received, Containers Intact?, Enough sample volume for indicated tests received?, Samples arrived within hold time?, Chemical preservations checked or not required?, VOA vials have zero headspace, or not recd.?, Shipping containers sealed or not required?, Chain of Custody (COC) Present?, Relinquished and received signature on COC?, Sample type identified on COC?, Correct number of containers listed on COC?, COC includes requested analyses?, Sample labels match COC (Name, Date & Time?), Correct preservatives on COC or not required?, Preservation checks meet method requirements?

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
LAO00346

Rhode Island Department of Health

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

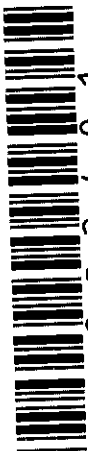
Handwritten signature: Katherine Wall

Katherine A. Wall
Project Manager

Reported: 10/31/2019 15:57



Microbac I
61 Loui.
Dayvil



D 9 I 2 4 0 1

EA ENG

page 1 of 1

Copy of Report to

CUSTOMER:

ADDRESS:

DELIVERY:

E-MAIL:

PHONE:

FAX:

BILL TO: RIDEEM

ADDRESS: 235 Promenade St

ATTN: Rachel Simpson

PHONE: 401-222-2797 & 4105

E-MAIL: Rachel.Simpson@dem.r.i.gov

PURCHASE ORDER #: 1525815

Project: Sunnyvale Ave SIR

Location: 761, 97 Sunnyvale Ave. Norwalk, CT

Project Mgr: Tom Daley

E-MAIL: TDaley@earth.com

PHONE:

FAX:

Sample Identification

Date Collected

Time Collected

Sample Matrix

Composite

Grab

Bottle Qty

TPH

PAH

PCB

Metals

Analysis

Preservatives

Rinsate-092419

MW-206

MW-210

MW-EA-1

Trip Blank-092419

9/24/19 0730

1040

1340

1515

GW

↓

↓

↓

X

X

X

X

9

9

6

9

X

X

X

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X

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X

X

X

X

PRESERVATIVE VERIFIED Initials: ML

CUSTODY TRANSFER

DATE

TIME

TURNAROUND TIME REQUESTED (select):

Standard

RUSH Day

SAMPLER: B. Chambers

RECEIVED:

RELINQUISHED: B. Chambers

RECEIVED:

RELINQUISHED: A. Daley

RECEIVED:

RELINQUISHED: A. Daley

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method:

E-MAIL

HARD COPY

OTHER

COMMENTS:

Analyze to RIDEEM GB RLs
MW-EA-1 likely petroleum contamination

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED

AMBIENT

4.1

°C Upon receipt at lab



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Project Description

Sunnyside Ave Site Investigation

For:

Britta Chambers

EA Engineering

301 Metro Center Blvd. Suite 102

Warwick, RI 02886

Project Manager

Katherine A. Wall

Thursday, October 31, 2019

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc. - Dayville. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

61 Louisa Viens Drive | Dayville, CT 06241 | 860.774.6814 p | www.microbac.com



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Revised Report: Per client,
amended to add QC

EA Engineering

Britta Chambers
301 Metro Center Blvd. Suite 102
Warwick, RI 02886

Project Name: Sunnyside Ave Site Investigation

Project / PO Number: 1525815
Received: 09/26/2019
Reported: 10/31/2019

Sample Summary Report

<u>Sample Name</u>	<u>Laboratory ID</u>	<u>Client Matrix</u>	<u>Sample Type</u>	<u>Sample Begin</u>	<u>Sample Taken</u>	<u>Lab Received</u>
Duplicate	D9I2724-01	Groundwater	Grab		09/25/19 00:00	09/26/19 16:00
MW-210-MS/MSD	D9I2724-02	Groundwater	Grab		09/25/19 10:00	09/26/19 16:00
Trip Blank	D9I2724-03	Groundwater	Grab		09/26/19 09:00	09/26/19 16:00
IDW	D9I2724-04	Groundwater	Grab		09/24/19 17:00	09/26/19 16:00



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D912724

Analytical Testing Parameters

Client Sample ID:	Duplicate	Collected By:	Customer
Sample Matrix:	Groundwater	Collection Date:	09/25/2019
Lab Sample ID:	D912724-01		

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Antimony	<0.00300	0.00300	mg/L	1	Y1	10/03/19 1327	10/08/19 1206	JDF
Arsenic	0.0173	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Beryllium	<0.00100	0.00100	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Cadmium	0.0096	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Chromium	0.0527	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Copper	0.0576	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Lead	0.0287	0.0030	mg/L	1	Y1	10/03/19 1327	10/08/19 1206	JDF
Nickel	0.0357	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Selenium	<0.0050	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Silver	<0.0020	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Thallium	<0.00500	0.00500	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
Zinc	1.82	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1106	JDF
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	10/04/19 1159	10/04/19 1357	JDF
Polychlorinated Biphenyls (PCBs) - GC/ECD								
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Aroclor-1221 (PCB-1221)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Aroclor-1232 (PCB-1232)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Aroclor-1242 (PCB-1242)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Aroclor-1248 (PCB-1248)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Aroclor-1254 (PCB-1254)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Aroclor-1260 (PCB-1260)	<0.200	0.200	ug/L	1	Y1	09/30/19 1000	10/08/19 1948	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	70.5	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1948	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	39.0	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 1948	MRB
Petroleum Hydrocarbon Range Organics - GC/FID								
EPA 3510C/EPA 8100M								
C9-C36 TPH	1.82	0.100	mg/L	1	Y1	10/01/19 1000	10/13/19 0900	MRB
Surrogate: 1-Chlorooctadecane	63.7	Limit: 25-125	% Rec	1		10/01/19 1000	10/13/19 0900	MRB
Semi-Volatile Organic Compounds - GC/MS								
EPA 3510C/EPA 8270D								
Acenaphthene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: Duplicate	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019
Lab Sample ID: D9I2724-01	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Acenaphthylene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Anthracene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Benzo[a]anthracene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Benzo[a]pyrene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Benzo[b]fluoranthene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Benzo[g,h,i]perylene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Benzo[k]fluoranthene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Chrysene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Dibenz(a,h) anthracene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Fluoranthene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Fluorene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Indeno(1,2,3-cd) pyrene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
2-Methylnaphthalene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Naphthalene	8.04	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Phenanthrene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Pyrene	<1.00	1.00	ug/L	1	Y1	10/02/19 1000	10/04/19 1711	GMP
Surrogate: 2-Fluorobiphenyl	25.7	Limit: 12-90	% Rec	1		10/02/19 1000	10/04/19 1711	GMP
Surrogate: 2-Fluorophenol	3.68	Limit: 10-49	% Rec	1	S2	10/02/19 1000	10/04/19 1711	GMP
Surrogate: Nitrobenzene-d5	24.0	Limit: 10-90	% Rec	1		10/02/19 1000	10/04/19 1711	GMP
Surrogate: Phenol-d6	11.2	Limit: 10-37	% Rec	1		10/02/19 1000	10/04/19 1711	GMP
Surrogate: p-Terphenyl-d14	47.8	Limit: 42-107	% Rec	1		10/02/19 1000	10/04/19 1711	GMP
Surrogate: 2,4,6-Tribromophenol	43.3	Limit: 14-123	% Rec	1		10/02/19 1000	10/04/19 1711	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<500	500	ug/L	100	Y1		10/02/19 2229	JAN
Acrylonitrile	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Benzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Bromobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Bromochloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Bromodichloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Bromoform	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Bromomethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
2-Butanone (MEK)	<500	500	ug/L	100	Y1		10/02/19 2229	JAN
sec-Butylbenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
tert-Butylbenzene	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
n-Butylbenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Carbon disulfide	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
Carbon tetrachloride	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Chlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Chloroethane (Ethyl chloride)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: Duplicate	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019
Lab Sample ID: D9I2724-01	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chloroform	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Chloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
2-Chlorotoluene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
4-Chlorotoluene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<20.0	20.0	ug/L	100	Y1		10/02/19 2229	JAN
Dibromochloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<5.00	5.00	ug/L	100	Y1		10/02/19 2229	JAN
Dibromomethane (Methylene bromide)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
trans-1,4-Dichloro-2-butene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,4-Dichlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,3-Dichlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,2-Dichlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Dichlorodifluoromethane (Freon-12)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,2-Dichloroethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,1-Dichloroethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
trans-1,2-Dichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,1-Dichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
cis-1,2-Dichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,3-Dichloropropane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,2-Dichloropropane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
2,2-Dichloropropane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
trans-1,3-Dichloropropene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
cis-1,3-Dichloropropene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,1-Dichloropropene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Diethyl ether	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,4-Dioxane	<2000	2000	ug/L	100	Y1		10/02/19 2229	JAN
Ethylbenzene	5420	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Hexachlorobutadiene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
2-Hexanone (MBK)	<500	500	ug/L	100	Y1		10/02/19 2229	JAN
Isopropylbenzene (Cumene)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Methyl tert-butyl ether (MTBE)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Methylene chloride (Dichloromethane)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
4-Methyl-2-pentanone (MIBK)	<500	500	ug/L	100	Y1		10/02/19 2229	JAN
Naphthalene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
n-Propylbenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Styrene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,1,1,2-Tetrachloroethane	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
1,1,1,2,2-Tetrachloroethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Tetrachloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Tetrahydrofuran (THF)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Toluene	154	50.0	ug/L	100	Y1		10/02/19 2229	JAN

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CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: Duplicate	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019
Lab Sample ID: D9I2724-01	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2,4-Trichlorobenzene	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
1,2,3-Trichlorobenzene	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
1,1,1-Trichloroethane	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
1,1,2-Trichloroethane	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
Trichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Trichlorofluoromethane (Freon 11)	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
1,2,3-Trichloropropane	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<100	100	ug/L	100	Y1		10/02/19 2229	JAN
1,3,5-Trimethylbenzene	128	100	ug/L	100	Y1		10/02/19 2229	JAN
1,2,4-Trimethylbenzene	301	100	ug/L	100	Y1		10/02/19 2229	JAN
Vinyl chloride	<50.0	50.0	ug/L	100	Y1		10/02/19 2229	JAN
m,p-Xylene	13700	100	ug/L	100	Y1		10/02/19 2229	JAN
o-Xylene	7480	50.0	ug/L	100	Y1		10/02/19 2229	JAN
Surrogate: 4-Bromofluorobenzene	99.8	Limit: 70-130	% Rec	100			10/02/19 2229	JAN
Surrogate: 1,2-Dichloroethane-d4	88.6	Limit: 70-130	% Rec	100			10/02/19 2229	JAN
Surrogate: Toluene-d8	94.5	Limit: 70-130	% Rec	100			10/02/19 2229	JAN



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CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: MW-210-MS/MSD	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019 10:00
Lab Sample ID: D9I2724-02	

Metals, Total	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Antimony	<0.00300	0.00300	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Arsenic	0.0130	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Beryllium	<0.00100	0.00100	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Cadmium	0.0038	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Chromium	0.0185	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Copper	0.0124	0.0020	mg/L	1	Y1	10/03/19 1327	10/08/19 1213	JDF
Lead	0.0054	0.0030	mg/L	1	Y1	10/03/19 1327	10/08/19 1213	JDF
Nickel	0.0126	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Selenium	<0.0050	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Silver	<0.0020	0.0020	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Thallium	<0.00500	0.00500	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF
Zinc	0.388	0.0050	mg/L	1	Y1	10/03/19 1327	10/07/19 1112	JDF

EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	10/04/19 1159	10/04/19 1342	JDF

Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Aroclor-1221 (PCB-1221)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Aroclor-1232 (PCB-1232)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Aroclor-1242 (PCB-1242)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Aroclor-1248 (PCB-1248)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Aroclor-1254 (PCB-1254)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Aroclor-1260 (PCB-1260)	<0.333	0.333	ug/L	1	Y1	09/30/19 1000	10/08/19 2000	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	84.5	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 2000	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	43.9	Limit: 30-150	% Rec	1		09/30/19 1000	10/08/19 2000	MRB

Petroleum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8100M								
C9-C36 TPH	1.63	0.200	mg/L	2	Y1	10/01/19 1000	10/15/19 1757	MRB
Surrogate: 1-Chlorooctadecane	62.9	Limit: 25-125	% Rec	2		10/01/19 1000	10/15/19 1757	MRB

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3510C/EPA 8270D								
Acenaphthene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Acenaphthylene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: MW-210-MS/MSD	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019 10:00
Lab Sample ID: D9I2724-02	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Anthracene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Benzo[a]anthracene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Benzo[a]pyrene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Benzo[b]fluoranthene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Benzo[g,h,i]perylene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Benzo[k]fluoranthene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Chrysene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Dibenz(a,h) anthracene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Fluoranthene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Fluorene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Indeno(1,2,3-cd) pyrene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
2-Methylnaphthalene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Naphthalene	7.71	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Phenanthrene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Pyrene	<1.25	1.25	ug/L	1	Y1	10/02/19 1000	10/04/19 1741	GMP
Surrogate: 2-Fluorobiphenyl	35.0	Limit: 12-90	% Rec	1		10/02/19 1000	10/04/19 1741	GMP
Surrogate: 2-Fluorophenol	4.44	Limit: 10-49	% Rec	1	S2	10/02/19 1000	10/04/19 1741	GMP
Surrogate: Nitrobenzene-d5	31.9	Limit: 10-90	% Rec	1		10/02/19 1000	10/04/19 1741	GMP
Surrogate: Phenol-d6	15.8	Limit: 10-37	% Rec	1		10/02/19 1000	10/04/19 1741	GMP
Surrogate: p-Terphenyl-d14	57.1	Limit: 42-107	% Rec	1		10/02/19 1000	10/04/19 1741	GMP
Surrogate: 2,4,6-Tribromophenol	58.0	Limit: 14-123	% Rec	1		10/02/19 1000	10/04/19 1741	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<500	500	ug/L	100	Y1		10/02/19 2255	JAN
Acrylonitrile	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Benzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Bromobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Bromochloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Bromodichloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Bromoform	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Bromomethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
2-Butanone (MEK)	<500	500	ug/L	100	Y1		10/02/19 2255	JAN
sec-Butylbenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
tert-Butylbenzene	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
n-Butylbenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Carbon disulfide	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
Carbon tetrachloride	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Chlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Chloroethane (Ethyl chloride)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Chloroform	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: MW-210-MS/MSD	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019 10:00
Lab Sample ID: D9I2724-02	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
2-Chlorotoluene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
4-Chlorotoluene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<20.0	20.0	ug/L	100	Y1		10/02/19 2255	JAN
Dibromochloromethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<5.00	5.00	ug/L	100	Y1		10/02/19 2255	JAN
Dibromomethane (Methylene bromide)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
trans-1,4-Dichloro-2-butene	<50.0	50.0	ug/L	100	M2,Y1		10/02/19 2255	JAN
1,4-Dichlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,3-Dichlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2-Dichlorobenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Dichlorodifluoromethane (Freon-12)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2-Dichloroethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,1-Dichloroethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
trans-1,2-Dichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,1-Dichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
cis-1,2-Dichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,3-Dichloropropane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2-Dichloropropane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
2,2-Dichloropropane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
trans-1,3-Dichloropropene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
cis-1,3-Dichloropropene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,1-Dichloropropene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Diethyl ether	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,4-Dioxane	<2000	2000	ug/L	100	Y1		10/02/19 2255	JAN
Ethylbenzene	5470	50.0	ug/L	100	M2,Y1		10/02/19 2255	JAN
Hexachlorobutadiene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
2-Hexanone (MBK)	<500	500	ug/L	100	Y1		10/02/19 2255	JAN
Isopropylbenzene (Cumene)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Methyl tert-butyl ether (MTBE)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Methylene chloride (Dichloromethane)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
4-Methyl-2-pentanone (MIBK)	<500	500	ug/L	100	Y1		10/02/19 2255	JAN
Naphthalene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
n-Propylbenzene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Styrene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,1,1,2-Tetrachloroethane	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
1,1,1,2,2-Tetrachloroethane	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Tetrachloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Tetrahydrofuran (THF)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Toluene	135	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2,4-Trichlorobenzene	<100	100	ug/L	100	Y1		10/02/19 2255	JAN

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: MW-210-MS/MSD	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019 10:00
Lab Sample ID: D9I2724-02	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2,3-Trichlorobenzene	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
1,1,1-Trichloroethane	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
1,1,2-Trichloroethane	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
Trichloroethene	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
Trichlorofluoromethane (Freon 11)	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
1,2,3-Trichloropropane	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<100	100	ug/L	100	Y1		10/02/19 2255	JAN
1,3,5-Trimethylbenzene	121	100	ug/L	100	Y1		10/02/19 2255	JAN
1,2,4-Trimethylbenzene	281	100	ug/L	100	Y1		10/02/19 2255	JAN
Vinyl chloride	<50.0	50.0	ug/L	100	Y1		10/02/19 2255	JAN
m,p-Xylene	13500	100	ug/L	100	M2,Y1		10/02/19 2255	JAN
o-Xylene	7350	50.0	ug/L	100	M2,Y1		10/02/19 2255	JAN
Surrogate: 4-Bromofluorobenzene	100	Limit: 70-130	% Rec	100			10/02/19 2255	JAN
Surrogate: 1,2-Dichloroethane-d4	87.8	Limit: 70-130	% Rec	100			10/02/19 2255	JAN
Surrogate: Toluene-d8	93.5	Limit: 70-130	% Rec	100			10/02/19 2255	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: Trip Blank
 Sample Matrix: Groundwater
 Lab Sample ID: D9I2724-03

Collected By: Customer
 Collection Date: 09/26/2019 9:00

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<5.00	5.00	ug/L	1	Y1		10/02/19 1535	JAN
Acrylonitrile	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Benzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Bromobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Bromoform	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Bromomethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
2-Butanone (MEK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1535	JAN
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Chloroform	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Chloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN

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CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: Trip Blank	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/26/2019 9:00
Lab Sample ID: D9I2724-03	

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 1535	JAN
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1535	JAN
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1535	JAN
Naphthalene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Toluene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Trichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
o-Xylene	<1.00	1.00	ug/L	1	Y1		10/02/19 1535	JAN
Surrogate: 4-Bromofluorobenzene	99.8	Limit: 70-130	% Rec	1			10/02/19 1535	JAN
Surrogate: 1,2-Dichloroethane-d4	86.4	Limit: 70-130	% Rec	1			10/02/19 1535	JAN
Surrogate: Toluene-d8	97.2	Limit: 70-130	% Rec	1			10/02/19 1535	JAN



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: IDW	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/24/2019 17:00
Lab Sample ID: D9I2724-04	

General Parameters	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Wet Chem - W/EPA 1010A								
Flashpoint	> 160		°F	1	Y1		10/04/19 1700	KJE
Wet Chem - W/SM4500 H+ B-2011								
pH	6.97		pH Units	1	H		09/26/19 2100	CEO
Temperature for pH	18.8		°C	1			09/26/19 2100	CEO

Analyses Subcontracted to: New England Testing Laboratory

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 7.3.3.2								
Reactive Cyanide	<0.01	0.01	mg/L	1			10/04/19 0000	SUB
EPA 7.3.4.2								
Reactive Sulfide	<0.01	0.01	mg/L	1			10/03/19 0000	SUB



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Batch Quality Control Summary: Microbac Laboratories, Inc. - Dayville

General Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DI91785 - Wet Chem - W - SM4500 H+ B-2011										
Duplicate (DI91785-DUP1)			Source: D9I2658-01		Prepared & Analyzed: 09/26/2019					
pH	7.51		pH Units		7.40			1.48	20	
Metals, Total										
Batch DJ90223 - 3010A - EPA 6010C										
Blank (DJ90223-BLK1)			Prepared: 10/03/2019 Analyzed: 10/07/2019							
Silver	<0.0020	0.0020	mg/L							
Arsenic	<0.0050	0.0050	mg/L							
Beryllium	<0.00100	0.00100	mg/L							
Cadmium	<0.0020	0.0020	mg/L							
Chromium	<0.0020	0.0020	mg/L							
Copper	<0.0020	0.0020	mg/L							
Nickel	<0.0050	0.0050	mg/L							
Lead	<0.0030	0.0030	mg/L							
Antimony	<0.00300	0.00300	mg/L							
Selenium	<0.0050	0.0050	mg/L							
Thallium	<0.00500	0.00500	mg/L							
Zinc	<0.0050	0.0050	mg/L							
Blank (DJ90223-BLK2)			Prepared: 10/03/2019 Analyzed: 10/08/2019							
Copper	<0.0020	0.0020	mg/L							
Lead	<0.0030	0.0030	mg/L							
Antimony	0.00387	0.00300	mg/L							
LCS (DJ90223-BS1)			Prepared: 10/03/2019 Analyzed: 10/07/2019							
Silver	0.505	0.0020	mg/L	0.500		101	80-120			
Arsenic	0.502	0.0050	mg/L	0.500		100	80-120			
Beryllium	0.516	0.00100	mg/L	0.500		103	80-120			
Cadmium	0.515	0.0020	mg/L	0.500		103	80-120			
Chromium	0.496	0.0020	mg/L	0.500		99.3	80-120			
Copper	0.505	0.0020	mg/L	0.500		101	80-120			
Nickel	0.506	0.0050	mg/L	0.500		101	80-120			
Lead	0.506	0.0030	mg/L	0.500		101	80-120			
Antimony	0.505	0.00300	mg/L	0.500		101	80-120			
Selenium	0.492	0.0050	mg/L	0.500		98.3	80-120			
Thallium	0.501	0.00500	mg/L	0.500		100	80-120			
Zinc	0.509	0.0050	mg/L	0.500		102	80-120			
LCS (DJ90223-BS2)			Prepared: 10/03/2019 Analyzed: 10/08/2019							
Copper	0.506	0.0020	mg/L	0.500		101	80-120			
Lead	0.505	0.0030	mg/L	0.500		101	80-120			
Antimony	0.499	0.00300	mg/L	0.500		99.9	80-120			
Duplicate (DJ90223-DUP1)			Source: D9I2724-01		Prepared: 10/03/2019 Analyzed: 10/07/2019					



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90223 - 3010A - EPA 6010C										
Duplicate (DJ90223-DUP1) Source: D9I2724-01 Prepared: 10/03/2019 Analyzed: 10/07/2019										
Silver	<0.0020	0.0020	mg/L		0.0006			5.96	20	
Arsenic	0.0151	0.0050	mg/L		0.0173			13.5	20	
Beryllium	<0.00100	0.00100	mg/L		0.000441			8.42	20	
Cadmium	0.0094	0.0020	mg/L		0.0096			2.66	20	
Chromium	0.0513	0.0020	mg/L		0.0527			2.55	20	
Copper	0.0554	0.0020	mg/L		0.0576			3.91	20	
Nickel	0.0340	0.0050	mg/L		0.0357			4.88	20	
Selenium	<0.0050	0.0050	mg/L		ND				20	
Thallium	<0.00500	0.00500	mg/L		0.00110			89.3	20	
Zinc	1.81	0.0050	mg/L		1.82			0.955	20	
Duplicate (DJ90223-DUP2) Source: D9I2724-01 Prepared: 10/03/2019 Analyzed: 10/08/2019										
Copper	0.0549	0.0020	mg/L		0.0576			4.74	20	
Lead	0.0246	0.0030	mg/L		0.0287			15.5	20	
Antimony	<0.00300	0.00300	mg/L		ND				20	
Matrix Spike (DJ90223-MS2) Source: D9J0311-01 Prepared: 10/03/2019 Analyzed: 10/07/2019										
Silver	0.519	0.0020	mg/L	0.500	0.0007	104	75-125			
Arsenic	0.516	0.0050	mg/L	0.500	0.0028	103	75-125			
Beryllium	0.531	0.00100	mg/L	0.500	0.000328	106	75-125			
Cadmium	0.515	0.0020	mg/L	0.500	ND	103	75-125			
Chromium	0.500	0.0020	mg/L	0.500	0.0010	99.9	75-125			
Nickel	0.528	0.0050	mg/L	0.500	0.0205	101	75-125			
Lead	0.502	0.0030	mg/L	0.500	0.0008	100	75-125			
Antimony	0.572	0.00300	mg/L	0.500	ND	114	75-125			
Selenium	0.517	0.0050	mg/L	0.500	0.0125	101	75-125			
Thallium	0.371	0.00500	mg/L	0.500	0.000597	74.0	75-125			
Zinc	0.567	0.0050	mg/L	0.500	0.0581	102	75-125			
Matrix Spike (DJ90223-MS3) Source: D9I2724-02 Prepared: 10/03/2019 Analyzed: 10/08/2019										
Copper	0.525	0.0020	mg/L	0.500	0.0124	103	75-125			
Lead	0.505	0.0030	mg/L	0.500	0.0054	99.9	75-125			
Antimony	0.452	0.00300	mg/L	0.500	0.00180	90.0	75-125			
Matrix Spike (DJ90223-MS4) Source: D9J0311-01 Prepared: 10/03/2019 Analyzed: 10/08/2019										
Copper	0.533	0.0020	mg/L	0.500	0.0074	105	75-125			
Lead	0.506	0.0030	mg/L	0.500	0.0008	101	75-125			
Antimony	0.553	0.00300	mg/L	0.500	ND	111	75-125			
Batch DJ90304 - 245 HG W - EPA 7470A										
Blank (DJ90304-BLK1) Prepared & Analyzed: 10/04/2019										
Mercury	<0.00020	0.00020	mg/L							
Blank (DJ90304-BLK2) Prepared & Analyzed: 10/04/2019										
Mercury	<0.00023	0.00023	mg/L							
LCS (DJ90304-BS1) Prepared & Analyzed: 10/04/2019										
Mercury	0.00476	0.00020	mg/L	0.00500		95.3	80-120			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90304 - 245 HG W - EPA 7470A										
LCS (DJ90304-BS2)				Prepared & Analyzed: 10/04/2019						
Mercury	0.00518	0.00023	mg/L	0.00500		104	80-120			
Matrix Spike (DJ90304-MS1)				Source: D9I2724-02 Prepared & Analyzed: 10/04/2019						
Mercury	0.00504	0.00020	mg/L	0.00500	ND	101	75-125			
Matrix Spike (DJ90304-MS2)				Source: D9J0229-01 Prepared & Analyzed: 10/04/2019						
Mercury	0.00479	0.00020	mg/L	0.00500	ND	95.9	75-125			
Matrix Spike Dup (DJ90304-MSD1)				Source: D9I2724-02 Prepared & Analyzed: 10/04/2019						
Mercury	0.00514	0.00020	mg/L	0.00500	ND	103	75-125	1.92	20	
Polychlorinated Biphenyls (PCBs) - GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90046 - 3510C W Sep Funnel - EPA 8082A										
Blank (DJ90046-BLK1)				Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L							
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L							
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L							
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L							
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L							
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L							
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L							
Surrogate: Decachlorobiphenyl (BZ-209)	0.0760		ug/L	0.100		76.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0558		ug/L	0.100		55.8	30-150			
LCS (DJ90046-BS1)				Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	0.620	0.100	ug/L	1.00		62.0	40-140			
Aroclor-1260 (PCB-1260)	0.715	0.100	ug/L	1.00		71.5	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	0.0688		ug/L	0.100		68.8	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0541		ug/L	0.100		54.1	30-150			
Matrix Spike (DJ90046-MS1)				Source: D9I2724-02 Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	1.97	0.333	ug/L	3.33	ND	59.2	40-140			
Aroclor-1260 (PCB-1260)	2.33	0.333	ug/L	3.33	ND	70.0	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	0.229		ug/L	0.333		68.7	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0894		ug/L	0.333		26.8	30-150			S2
Matrix Spike Dup (DJ90046-MSD1)				Source: D9I2724-02 Prepared: 09/30/2019 Analyzed: 10/08/2019						
Aroclor-1016 (PCB-1016)	1.89	0.333	ug/L	3.33	ND	56.6	40-140	4.53	20	
Aroclor-1260 (PCB-1260)	2.25	0.333	ug/L	3.33	ND	67.5	40-140	3.72	20	
Surrogate: Decachlorobiphenyl (BZ-209)	0.234		ug/L	0.333		70.1	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.121		ug/L	0.333		36.4	30-150			
Petroieum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90071 - 3510C W Sep Funnel - EPA 8100M										



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Petroieum Hydrocarbon Range Organics - GC/FID	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90071 - 3510C W Sep Funnel - EPA 8100M									
Blank (DJ90071-BLK1)				Prepared: 10/01/2019 Analyzed: 10/13/2019					
C9-C36 TPH	<0.100	0.100	mg/L						
Surrogate: 1-Chlorooctadecane	0.0506		mg/L	0.100		50.6	25-125		
LCS (DJ90071-BS1)				Prepared: 10/01/2019 Analyzed: 10/13/2019					
C9-C36 TPH	0.745	0.100	mg/L	1.40		53.2	30-130		
Surrogate: 1-Chlorooctadecane	0.0590		mg/L	0.100		59.0	25-125		
Matrix Spike (DJ90071-MS2)				Source: D9I2724-02RE1		Prepared: 10/01/2019 Analyzed: 10/15/2019			
C9-C36 TPH	2.60	0.200	mg/L	1.40	1.63	68.7	25-125		
Surrogate: 1-Chlorooctadecane	0.0672		mg/L	0.100		67.2	25-125		
Matrix Spike Dup (DJ90071-MSD2)				Source: D9I2724-02RE1		Prepared: 10/01/2019 Analyzed: 10/15/2019			
C9-C36 TPH	2.81	0.200	mg/L	1.40	1.63	83.9	25-125	7.89	200
Surrogate: 1-Chlorooctadecane	0.0725		mg/L	0.100		72.5	25-125		
Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90119 - 3510C W Sep Funnel - EPA 8270D									
Blank (DJ90119-BLK1)				Prepared: 10/02/2019 Analyzed: 10/04/2019					
Acenaphthene	<1.00	1.00	ug/L						
Acenaphthylene	<1.00	1.00	ug/L						
Anthracene	<1.00	1.00	ug/L						
Benzo[a]anthracene	<1.00	1.00	ug/L						
Benzo[a]pyrene	<1.00	1.00	ug/L						
Benzo[b]fluoranthene	<1.00	1.00	ug/L						
Benzo[g,h,i]perylene	<1.00	1.00	ug/L						
Benzo[k]fluoranthene	<1.00	1.00	ug/L						
Chrysene	<1.00	1.00	ug/L						
Dibenz(a,h) anthracene	<1.00	1.00	ug/L						
Fluoranthene	<1.00	1.00	ug/L						
Fluorene	<1.00	1.00	ug/L						
Indeno(1,2,3-cd) pyrene	<1.00	1.00	ug/L						
2-Methylnaphthalene	<1.00	1.00	ug/L						
Naphthalene	<1.00	1.00	ug/L						
Phenanthrene	<1.00	1.00	ug/L						
Pyrene	<1.00	1.00	ug/L						
Surrogate: 2-Fluorobiphenyl	24.7		ug/L	50.0		49.5	12-90		
Surrogate: 2-Fluorophenol	15.4		ug/L	50.0		30.7	10-49		
Surrogate: Nitrobenzene-d5	25.8		ug/L	50.0		51.6	10-90		
Surrogate: Phenol-d6	10.7		ug/L	50.0		21.4	10-37		
Surrogate: p-Terphenyl-d14	37.5		ug/L	50.0		75.0	42-107		
Surrogate: 2,4,6-Tribromophenol	33.7		ug/L	50.0		67.5	14-123		
LCS (DJ90119-BS1)				Prepared: 10/02/2019 Analyzed: 10/04/2019					
Acenaphthene	13.6	1.00	ug/L	25.0		54.4	26-94		

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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90119 - 3510C W Sep Funnel - EPA 8270D										
LCS (DJ90119-BS1)										
				Prepared: 10/02/2019 Analyzed: 10/04/2019						
Acenaphthylene	15.3	1.00	ug/L	25.0		61.0	30-130			
Anthracene	20.8	1.00	ug/L	25.0		83.3	54-82			
Benzo[a]anthracene	20.3	1.00	ug/L	25.0		81.2	58-95			
Benzo[a]pyrene	24.1	1.00	ug/L	25.0		96.5	61-103			
Benzo[b]fluoranthene	22.4	1.00	ug/L	25.0		89.6	59-98			
Benzo[g,h,i]perylene	26.8	1.00	ug/L	25.0		107	53-109			
Benzo[k]fluoranthene	24.4	1.00	ug/L	25.0		97.4	57-94			
Chrysene	21.7	1.00	ug/L	25.0		86.9	44-89			
Dibenz(a,h) anthracene	23.7	1.00	ug/L	25.0		94.6	52-104			
Fluoranthene	22.0	1.00	ug/L	25.0		88.1	48-84			
Fluorene	16.7	1.00	ug/L	25.0		66.7	36-77			
Indeno(1,2,3-cd) pyrene	24.7	1.00	ug/L	25.0		98.7	50-106			
2-Methylnaphthalene	12.5	1.00	ug/L	25.0		50.2	30-130			
Naphthalene	11.2	1.00	ug/L	25.0		44.8	27-80			
Phenanthrene	20.4	1.00	ug/L	25.0		81.4	45-82			
Pyrene	22.0	1.00	ug/L	25.0		88.0	49-91			
Surrogate: 2-Fluorobiphenyl	23.5		ug/L	50.0		46.9	12-90			
Surrogate: 2-Fluorophenol	13.7		ug/L	50.0		27.4	10-49			
Surrogate: Nitrobenzene-d5	23.1		ug/L	50.0		46.1	10-90			
Surrogate: Phenol-d6	9.40		ug/L	50.0		18.8	10-37			
Surrogate: p-Terphenyl-d14	41.2		ug/L	50.0		82.5	42-107			
Surrogate: 2,4,6-Tribromophenol	39.1		ug/L	50.0		78.2	14-123			
Matrix Spike (DJ90119-MS1)										
			Source: D9I2724-02		Prepared: 10/02/2019 Analyzed: 10/04/2019					
Acenaphthene	18.4	1.25	ug/L	31.3	ND	58.8	23-82			
Acenaphthylene	18.8	1.25	ug/L	31.3	ND	60.3	30-130			
Anthracene	22.2	1.25	ug/L	31.3	ND	70.9	23-93			
Benzo[a]anthracene	22.0	1.25	ug/L	31.3	ND	70.5	30-99			
Benzo[a]pyrene	26.9	1.25	ug/L	31.3	ND	85.9	34-105			
Benzo[b]fluoranthene	25.4	1.25	ug/L	31.3	ND	81.2	35-104			
Benzo[g,h,i]perylene	22.7	1.25	ug/L	31.3	ND	72.6	31-98			
Benzo[k]fluoranthene	25.8	1.25	ug/L	31.3	ND	82.7	37-94			
Chrysene	23.9	1.25	ug/L	31.3	ND	76.5	37-86			
Dibenz(a,h) anthracene	23.6	1.25	ug/L	31.3	ND	75.5	31-100			
Fluoranthene	24.2	1.25	ug/L	31.3	ND	77.6	34-89			
Fluorene	20.2	1.25	ug/L	31.3	ND	64.6	26-83			
Indeno(1,2,3-cd) pyrene	24.5	1.25	ug/L	31.3	ND	78.4	28-103			
2-Methylnaphthalene	18.6	1.25	ug/L	31.3	ND	59.6	30-130			
Naphthalene	30.5	1.25	ug/L	31.3	7.71	73.0	21-72			M1
Phenanthrene	21.9	1.25	ug/L	31.3	ND	70.1	32-89			
Pyrene	25.0	1.25	ug/L	31.3	ND	80.0	34-93			
Surrogate: 2-Fluorobiphenyl	32.3		ug/L	62.5		51.7	12-90			
Surrogate: 2-Fluorophenol	2.66		ug/L	62.5		4.26	10-49			S2
Surrogate: Nitrobenzene-d5	32.6		ug/L	62.5		52.2	10-90			
Surrogate: Phenol-d6	16.2		ug/L	62.5		25.9	10-37			

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Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90119 - 3510C W Sep Funnel - EPA 8270D

Matrix Spike (DJ90119-MS1) Source: D9I2724-02 Prepared: 10/02/2019 Analyzed: 10/04/2019

Surrogate: p-Terphenyl-d14	48.2		ug/L	62.5		77.1	42-107			
Surrogate: 2,4,6-Tribromophenol	52.0		ug/L	62.5		83.2	14-123			

Matrix Spike Dup (DJ90119-MSD1) Source: D9I2724-02 Prepared: 10/02/2019 Analyzed: 10/04/2019

Acenaphthene	15.8	1.25	ug/L	31.3	ND	50.4	23-82	15.2	20	
Acenaphthylene	16.4	1.25	ug/L	31.3	ND	52.4	30-130	14.1	20	
Anthracene	17.0	1.25	ug/L	31.3	ND	54.5	23-93	26.1	20	R1
Benzo[a]anthracene	16.5	1.25	ug/L	31.3	ND	52.7	30-99	28.9	20	R1
Benzo[a]pyrene	18.9	1.25	ug/L	31.3	ND	60.5	34-105	34.7	20	R1
Benzo[b]fluoranthene	19.5	1.25	ug/L	31.3	ND	62.4	35-104	26.2	20	R1
Benzo[g,h,i]perylene	15.8	1.25	ug/L	31.3	ND	50.6	31-98	35.7	20	R1
Benzo[k]fluoranthene	19.2	1.25	ug/L	31.3	ND	61.4	37-94	29.5	20	R1
Chrysene	18.4	1.25	ug/L	31.3	ND	58.8	37-86	26.2	20	R1
Dibenz(a,h) anthracene	16.2	1.25	ug/L	31.3	ND	51.7	31-100	37.5	20	R1
Fluoranthene	18.0	1.25	ug/L	31.3	ND	57.7	34-89	29.4	20	R1
Fluorene	16.6	1.25	ug/L	31.3	ND	53.1	26-83	19.5	20	
Indeno(1,2,3-cd) pyrene	16.5	1.25	ug/L	31.3	ND	52.7	28-103	39.1	20	R1
2-Methylnaphthalene	15.8	1.25	ug/L	31.3	ND	50.6	30-130	16.3	20	
Naphthalene	25.0	1.25	ug/L	31.3	7.71	55.4	21-72	19.8	20	
Phenanthrene	16.9	1.25	ug/L	31.3	ND	54.1	32-89	25.8	20	R1
Pyrene	20.0	1.25	ug/L	31.3	ND	64.1	34-93	22.1	20	R1

Surrogate: 2-Fluorobiphenyl	28.9		ug/L	62.5		46.2	12-90			
Surrogate: 2-Fluorophenol	2.65		ug/L	62.5		4.24	10-49			S2
Surrogate: Nitrobenzene-d5	28.1		ug/L	62.5		45.0	10-90			
Surrogate: Phenol-d6	13.3		ug/L	62.5		21.3	10-37			
Surrogate: p-Terphenyl-d14	38.6		ug/L	62.5		61.8	42-107			
Surrogate: 2,4,6-Tribromophenol	37.9		ug/L	62.5		60.6	14-123			

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DJ90389 - 5030C VOA W - EPA 8260C

Blank (DJ90389-BLK1) Prepared & Analyzed: 10/02/2019

Acetone	<5.00	5.00	ug/L							
Acrylonitrile	<1.00	1.00	ug/L							
Benzene	<1.00	1.00	ug/L							
Bromobenzene	<1.00	1.00	ug/L							
Bromochloromethane	<1.00	1.00	ug/L							
Bromodichloromethane	<1.00	1.00	ug/L							
Bromoform	<1.00	1.00	ug/L							
Bromomethane	<1.00	1.00	ug/L							
2-Butanone (MEK)	<5.00	5.00	ug/L							
sec-Butylbenzene	<1.00	1.00	ug/L							
tert-Butylbenzene	<1.00	1.00	ug/L							



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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
Blank (DJ90389-BLK1)				Prepared & Analyzed: 10/02/2019					
n-Butylbenzene	<1.00	1.00	ug/L						
Carbon disulfide	<1.00	1.00	ug/L						
Carbon tetrachloride	<1.00	1.00	ug/L						
Chlorobenzene	<1.00	1.00	ug/L						
Chloroethane (Ethyl chloride)	<1.00	1.00	ug/L						
Chloroform	<1.00	1.00	ug/L						
Chloromethane	<1.00	1.00	ug/L						
2-Chlorotoluene	<1.00	1.00	ug/L						
4-Chlorotoluene	<1.00	1.00	ug/L						
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L						
Dibromochloromethane	<1.00	1.00	ug/L						
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L						
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L						
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L						
1,4-Dichlorobenzene	<1.00	1.00	ug/L						
1,3-Dichlorobenzene	<1.00	1.00	ug/L						
1,2-Dichlorobenzene	<1.00	1.00	ug/L						
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L						
1,2-Dichloroethane	<1.00	1.00	ug/L						
1,1-Dichloroethane	<1.00	1.00	ug/L						
trans-1,2-Dichloroethene	<1.00	1.00	ug/L						
1,1-Dichloroethene	<1.00	1.00	ug/L						
cis-1,2-Dichloroethene	<1.00	1.00	ug/L						
1,3-Dichloropropane	<1.00	1.00	ug/L						
1,2-Dichloropropane	<1.00	1.00	ug/L						
2,2-Dichloropropane	<1.00	1.00	ug/L						
trans-1,3-Dichloropropene	<1.00	1.00	ug/L						
cis-1,3-Dichloropropene	<1.00	1.00	ug/L						
1,1-Dichloropropene	<1.00	1.00	ug/L						
Diethyl ether	<1.00	1.00	ug/L						
1,4-Dioxane	<20.0	20.0	ug/L						
Ethylbenzene	<1.00	1.00	ug/L						
Hexachlorobutadiene	<1.00	1.00	ug/L						
2-Hexanone (MBK)	<5.00	5.00	ug/L						
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L						
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L						
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L						
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L						
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L						

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Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
Blank (DJ90389-BLK1)				Prepared & Analyzed: 10/02/2019					
Naphthalene	<1.00	1.00	ug/L						
n-Propylbenzene	<1.00	1.00	ug/L						
Styrene	<1.00	1.00	ug/L						
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L						
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L						
Tetrachloroethene	<1.00	1.00	ug/L						
Tetrahydrofuran (THF)	<1.00	1.00	ug/L						
Toluene	<1.00	1.00	ug/L						
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L						
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L						
1,1,1-Trichloroethane	<1.00	1.00	ug/L						
1,1,2-Trichloroethane	<1.00	1.00	ug/L						
Trichloroethene	<1.00	1.00	ug/L						
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L						
1,2,3-Trichloropropane	<1.00	1.00	ug/L						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L						
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L						
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L						
Vinyl chloride	<1.00	1.00	ug/L						
m,p-Xylene	<1.00	1.00	ug/L						
o-Xylene	<1.00	1.00	ug/L						
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>50.7</i>		ug/L	<i>50.0</i>		<i>101</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>43.0</i>		ug/L	<i>50.0</i>		<i>86.1</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>47.3</i>		ug/L	<i>50.0</i>		<i>94.6</i>	<i>70-130</i>		
LCS (DJ90389-BS1)				Prepared & Analyzed: 10/02/2019					
Acetone	52.0	5.00	ug/L	50.0		104	70-130		
Acrylonitrile	57.4	1.00	ug/L	50.0		115	70-130		
Benzene	55.9	1.00	ug/L	50.0		112	70-130		
Bromobenzene	56.7	1.00	ug/L	50.0		113	70-130		
Bromochloromethane	53.9	1.00	ug/L	50.0		108	70-130		
Bromodichloromethane	51.8	1.00	ug/L	50.0		104	70-130		
Bromoform	52.6	1.00	ug/L	50.0		105	70-130		
Bromomethane	56.9	1.00	ug/L	50.0		114	70-130		
2-Butanone (MEK)	52.1	5.00	ug/L	50.0		104	70-130		
sec-Butylbenzene	57.2	1.00	ug/L	50.0		114	70-130		
tert-Butylbenzene	55.6	1.00	ug/L	50.0		111	70-130		
n-Butylbenzene	61.4	1.00	ug/L	50.0		123	70-130		
Carbon disulfide	46.9	1.00	ug/L	50.0		93.9	70-130		
Carbon tetrachloride	50.8	1.00	ug/L	50.0		102	70-130		
Chlorobenzene	59.8	1.00	ug/L	50.0		120	70-130		
Chloroethane (Ethyl chloride)	52.3	1.00	ug/L	50.0		105	70-130		
Chloroform	54.0	1.00	ug/L	50.0		108	70-130		



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D912724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
LCS (DJ90389-BS1)	Prepared & Analyzed: 10/02/2019								
Chloromethane	59.2	1.00	ug/L	50.0		118 70-130			
2-Chlorotoluene	53.5	1.00	ug/L	50.0		107 70-130			
4-Chlorotoluene	54.2	1.00	ug/L	50.0		108 70-130			
1,2-Dibromo-3-chloropropane (DBCP)	41.1	1.00	ug/L	50.0		82.2 70-130			
Dibromochloromethane	52.2	1.00	ug/L	50.0		104 70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	54.6	1.00	ug/L	50.0		109 70-130			
Dibromomethane (Methylene bromide)	52.2	1.00	ug/L	50.0		104 70-130			
trans-1,4-Dichloro-2-butene	41.4	1.00	ug/L	50.0		82.8 70-130			
1,4-Dichlorobenzene	57.0	1.00	ug/L	50.0		114 70-130			
1,3-Dichlorobenzene	57.6	1.00	ug/L	50.0		115 70-130			
1,2-Dichlorobenzene	55.0	1.00	ug/L	50.0		110 70-130			
Dichlorodifluoromethane (Freon-12)	47.5	1.00	ug/L	50.0		95.0 70-130			
1,2-Dichloroethane	46.2	1.00	ug/L	50.0		92.3 70-130			
1,1-Dichloroethane	53.4	1.00	ug/L	50.0		107 70-130			
trans-1,2-Dichloroethene	53.8	1.00	ug/L	50.0		108 70-130			
1,1-Dichloroethene	58.3	1.00	ug/L	50.0		117 70-130			
cis-1,2-Dichloroethene	57.0	1.00	ug/L	50.0		114 70-130			
1,3-Dichloropropane	53.5	1.00	ug/L	50.0		107 70-130			
1,2-Dichloropropane	54.8	1.00	ug/L	50.0		110 70-130			
2,2-Dichloropropane	49.9	1.00	ug/L	50.0		99.9 70-130			
trans-1,3-Dichloropropene	53.3	1.00	ug/L	50.0		107 70-130			
cis-1,3-Dichloropropene	53.8	1.00	ug/L	50.0		108 70-130			
1,1-Dichloropropene	55.2	1.00	ug/L	50.0		110 70-130			
Diethyl ether	53.0	1.00	ug/L	50.0		106 70-130			
1,4-Dioxane	63.2	20.0	ug/L	50.0		126 70-130			
Ethylbenzene	56.2	1.00	ug/L	50.0		112 70-130			
Hexachlorobutadiene	55.0	1.00	ug/L	50.0		110 70-130			
2-Hexanone (MBK)	50.0	5.00	ug/L	50.0		100 70-130			
Isopropylbenzene (Cumene)	55.3	1.00	ug/L	50.0		111 70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	56.0	1.00	ug/L	50.0		112 70-130			
Methyl tert-butyl ether (MTBE)	52.6	1.00	ug/L	50.0		105 70-130			
Methylene chloride (Dichloromethane)	57.2	1.00	ug/L	50.0		114 70-130			
4-Methyl-2-pentanone (MIBK)	48.8	5.00	ug/L	50.0		97.6 70-130			
Naphthalene	51.7	1.00	ug/L	50.0		103 70-130			
n-Propylbenzene	56.6	1.00	ug/L	50.0		113 70-130			
Styrene	58.8	1.00	ug/L	50.0		118 70-130			
1,1,1,2-Tetrachloroethane	54.5	1.00	ug/L	50.0		109 70-130			
1,1,2,2-Tetrachloroethane	51.4	1.00	ug/L	50.0		103 70-130			
Tetrachloroethene	60.0	1.00	ug/L	50.0		120 70-130			

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CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C									
LCS (DJ90389-BS1)				Prepared & Analyzed: 10/02/2019					
Tetrahydrofuran (THF)	47.6	1.00	ug/L	50.0		95.2 70-130			
Toluene	57.5	1.00	ug/L	50.0		115 70-130			
1,2,4-Trichlorobenzene	55.3	1.00	ug/L	50.0		111 70-130			
1,2,3-Trichlorobenzene	54.3	1.00	ug/L	50.0		109 70-130			
1,1,1-Trichloroethane	50.4	1.00	ug/L	50.0		101 70-130			
1,1,2-Trichloroethane	59.4	1.00	ug/L	50.0		119 70-130			
Trichloroethene	60.5	1.00	ug/L	50.0		121 70-130			
Trichlorofluoromethane (Freon 11)	53.4	1.00	ug/L	50.0		107 70-130			
1,2,3-Trichloropropane	47.9	1.00	ug/L	50.0		95.7 70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	56.9	1.00	ug/L	50.0		114 70-130			
1,3,5-Trimethylbenzene	51.9	1.00	ug/L	50.0		104 70-130			
1,2,4-Trimethylbenzene	53.2	1.00	ug/L	50.0		106 70-130			
Vinyl chloride	55.9	1.00	ug/L	50.0		112 70-130			
m,p-Xylene	58.4	1.00	ug/L	50.0		117 70-130			
o-Xylene	56.2	1.00	ug/L	50.0		112 70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.3</i>		ug/L	<i>50.0</i>		<i>103 70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>41.2</i>		ug/L	<i>50.0</i>		<i>82.3 70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>48.6</i>		ug/L	<i>50.0</i>		<i>97.1 70-130</i>			
Matrix Spike (DJ90389-MS1)		Source: D9I2401-03		Prepared & Analyzed: 10/02/2019					
Acetone	4220	500	ug/L	5000	14.3	84.2 70-130			
Acrylonitrile	4810	50.0	ug/L	5000	ND	96.2 70-130			
Benzene	4710	50.0	ug/L	5000	ND	94.3 70-130			
Bromobenzene	4910	50.0	ug/L	5000	ND	98.2 70-130			
Bromochloromethane	4460	50.0	ug/L	5000	ND	89.2 70-130			
Bromodichloromethane	4410	50.0	ug/L	5000	ND	88.2 70-130			
Bromoform	4570	50.0	ug/L	5000	ND	91.4 70-130			
Bromomethane	3520	50.0	ug/L	5000	ND	70.3 70-130			
2-Butanone (MEK)	4300	500	ug/L	5000	2.22	85.9 70-130			
sec-Butylbenzene	4800	50.0	ug/L	5000	ND	96.0 70-130			
tert-Butylbenzene	5010	100	ug/L	5000	ND	100 70-130			
n-Butylbenzene	5060	50.0	ug/L	5000	ND	101 70-130			
Carbon disulfide	3870	100	ug/L	5000	ND	77.4 70-130			
Carbon tetrachloride	4250	50.0	ug/L	5000	ND	85.0 70-130			
Chlorobenzene	5130	50.0	ug/L	5000	ND	103 70-130			
Chloroethane (Ethyl chloride)	4030	50.0	ug/L	5000	ND	80.6 70-130			
Chloroform	4530	50.0	ug/L	5000	ND	90.6 70-130			
Chloromethane	4420	50.0	ug/L	5000	ND	88.4 70-130			
2-Chlorotoluene	4690	50.0	ug/L	5000	ND	93.8 70-130			
4-Chlorotoluene	4700	50.0	ug/L	5000	ND	94.1 70-130			
1,2-Dibromo-3-chloropropane (DBCP)	3630	20.0	ug/L	5000	ND	72.5 70-130			
Dibromochloromethane	4570	50.0	ug/L	5000	ND	91.3 70-130			

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CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
1,2-Dibromoethane (Ethylene dibromide, EDB)	4780	5.00	ug/L	5000	ND	95.6	70-130			
Dibromomethane (Methylene bromide)	4570	50.0	ug/L	5000	ND	91.5	70-130			
trans-1,4-Dichloro-2-butene	3320	50.0	ug/L	5000	ND	66.3	70-130			M2
1,4-Dichlorobenzene	4920	50.0	ug/L	5000	2.64	98.3	70-130			
1,3-Dichlorobenzene	4890	50.0	ug/L	5000	ND	97.8	70-130			
1,2-Dichlorobenzene	4700	50.0	ug/L	5000	15.5	93.7	70-130			
Dichlorodifluoromethane (Freon-12)	3960	50.0	ug/L	5000	ND	79.2	70-130			
1,2-Dichloroethane	4000	50.0	ug/L	5000	ND	80.0	70-130			
1,1-Dichloroethane	4510	50.0	ug/L	5000	ND	90.2	70-130			
trans-1,2-Dichloroethene	4620	50.0	ug/L	5000	ND	92.3	70-130			
1,1-Dichloroethene	4980	50.0	ug/L	5000	ND	99.7	70-130			
cis-1,2-Dichloroethene	4710	50.0	ug/L	5000	ND	94.1	70-130			
1,3-Dichloropropane	4660	50.0	ug/L	5000	ND	93.2	70-130			
1,2-Dichloropropane	4690	50.0	ug/L	5000	ND	93.9	70-130			
2,2-Dichloropropane	3460	50.0	ug/L	5000	ND	69.1	70-130			M2
trans-1,3-Dichloropropene	4460	50.0	ug/L	5000	ND	89.2	70-130			
cis-1,3-Dichloropropene	4420	50.0	ug/L	5000	ND	88.4	70-130			
1,1-Dichloropropene	4560	50.0	ug/L	5000	ND	91.1	70-130			
Diethyl ether	4530	50.0	ug/L	5000	ND	90.5	70-130			
1,4-Dioxane	5730	2000	ug/L	5000	1.70	115	70-130			
Ethylbenzene	8500	50.0	ug/L	5000	688	156	70-130			M2
Hexachlorobutadiene	4540	50.0	ug/L	5000	ND	90.8	70-130			
2-Hexanone (MBK)	4330	500	ug/L	5000	ND	86.6	70-130			
Isopropylbenzene (Cumene)	4810	50.0	ug/L	5000	67.9	94.9	70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	4760	50.0	ug/L	5000	ND	95.2	70-130			
Methyl tert-butyl ether (MTBE)	4410	50.0	ug/L	5000	ND	88.1	70-130			
Methylene chloride (Dichloromethane)	4840	50.0	ug/L	5000	ND	96.8	70-130			
4-Methyl-2-pentanone (MIBK)	4260	500	ug/L	5000	ND	85.1	70-130			
Naphthalene	4620	50.0	ug/L	5000	ND	92.3	70-130			
n-Propylbenzene	4880	50.0	ug/L	5000	37.4	96.8	70-130			
Styrene	5120	50.0	ug/L	5000	ND	102	70-130			
1,1,1,2-Tetrachloroethane	4700	100	ug/L	5000	ND	94.0	70-130			
1,1,1,2,2-Tetrachloroethane	4540	50.0	ug/L	5000	ND	90.7	70-130			
Tetrachloroethene	5040	50.0	ug/L	5000	ND	101	70-130			
Tetrahydrofuran (THF)	4130	50.0	ug/L	5000	ND	82.7	70-130			
Toluene	4950	50.0	ug/L	5000	127	96.5	70-130			
1,2,4-Trichlorobenzene	4850	100	ug/L	5000	ND	97.0	70-130			
1,2,3-Trichlorobenzene	4700	100	ug/L	5000	ND	93.9	70-130			
1,1,1-Trichloroethane	4240	100	ug/L	5000	ND	84.9	70-130			
1,1,2-Trichloroethane	5220	100	ug/L	5000	ND	104	70-130			

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CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
Trichloroethene	5100	50.0	ug/L	5000	ND	102	70-130			
Trichlorofluoromethane (Freon 11)	4540	50.0	ug/L	5000	ND	90.8	70-130			
1,2,3-Trichloropropane	4120	100	ug/L	5000	ND	82.3	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4800	100	ug/L	5000	ND	95.9	70-130			
1,3,5-Trimethylbenzene	4640	100	ug/L	5000	124	90.3	70-130			
1,2,4-Trimethylbenzene	4860	100	ug/L	5000	245	92.4	70-130			
Vinyl chloride	4590	50.0	ug/L	5000	ND	91.7	70-130			
m,p-Xylene	14500	100	ug/L	5000	1230	265	70-130			M2
o-Xylene	10300	50.0	ug/L	5000	902	189	70-130			M2
<i>Surrogate: 4-Bromofluorobenzene</i>	52.1		ug/L	50.0		104	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	42.1		ug/L	50.0		84.2	70-130			
<i>Surrogate: Toluene-d8</i>	49.6		ug/L	50.0		99.1	70-130			
Matrix Spike (DJ90389-MS2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					
Acetone	4640	500	ug/L	5000	ND	92.8	70-130			
Acrylonitrile	5310	50.0	ug/L	5000	ND	106	70-130			
Benzene	5060	50.0	ug/L	5000	ND	101	70-130			
Bromobenzene	5110	50.0	ug/L	5000	ND	102	70-130			
Bromochloromethane	4880	50.0	ug/L	5000	ND	97.6	70-130			
Bromodichloromethane	4670	50.0	ug/L	5000	ND	93.5	70-130			
Bromoform	4720	50.0	ug/L	5000	ND	94.4	70-130			
Bromomethane	4630	50.0	ug/L	5000	ND	92.6	70-130			
2-Butanone (MEK)	4730	500	ug/L	5000	ND	94.6	70-130			
sec-Butylbenzene	4930	50.0	ug/L	5000	ND	98.5	70-130			
tert-Butylbenzene	5030	100	ug/L	5000	ND	101	70-130			
n-Butylbenzene	5220	50.0	ug/L	5000	ND	104	70-130			
Carbon disulfide	4280	100	ug/L	5000	ND	85.6	70-130			
Carbon tetrachloride	4470	50.0	ug/L	5000	ND	89.4	70-130			
Chlorobenzene	5390	50.0	ug/L	5000	ND	108	70-130			
Chloroethane (Ethyl chloride)	4770	50.0	ug/L	5000	ND	95.3	70-130			
Chloroform	4990	50.0	ug/L	5000	ND	99.8	70-130			
Chloromethane	5170	50.0	ug/L	5000	ND	103	70-130			
2-Chlorotoluene	4730	50.0	ug/L	5000	ND	94.5	70-130			
4-Chlorotoluene	4740	50.0	ug/L	5000	ND	94.7	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	3790	20.0	ug/L	5000	ND	75.7	70-130			
Dibromochloromethane	4770	50.0	ug/L	5000	ND	95.5	70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	5030	5.00	ug/L	5000	ND	101	70-130			
Dibromomethane (Methylene bromide)	4910	50.0	ug/L	5000	ND	98.1	70-130			
trans-1,4-Dichloro-2-butene	3460	50.0	ug/L	5000	ND	69.2	70-130			M2
1,4-Dichlorobenzene	5070	50.0	ug/L	5000	ND	101	70-130			
1,3-Dichlorobenzene	5050	50.0	ug/L	5000	ND	101	70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					
1,2-Dichlorobenzene	5010	50.0	ug/L	5000	ND	100	70-130			
Dichlorodifluoromethane (Freon-12)	4460	50.0	ug/L	5000	ND	89.2	70-130			
1,2-Dichloroethane	4320	50.0	ug/L	5000	ND	86.4	70-130			
1,1-Dichloroethane	4840	50.0	ug/L	5000	ND	96.8	70-130			
trans-1,2-Dichloroethene	4860	50.0	ug/L	5000	ND	97.2	70-130			
1,1-Dichloroethene	5210	50.0	ug/L	5000	ND	104	70-130			
cis-1,2-Dichloroethene	5120	50.0	ug/L	5000	ND	102	70-130			
1,3-Dichloropropane	4800	50.0	ug/L	5000	ND	96.1	70-130			
1,2-Dichloropropane	5030	50.0	ug/L	5000	ND	101	70-130			
2,2-Dichloropropane	3590	50.0	ug/L	5000	ND	71.8	70-130			
trans-1,3-Dichloropropene	4630	50.0	ug/L	5000	ND	92.5	70-130			
cis-1,3-Dichloropropene	4630	50.0	ug/L	5000	ND	92.7	70-130			
1,1-Dichloropropene	4980	50.0	ug/L	5000	ND	99.7	70-130			
Diethyl ether	4980	50.0	ug/L	5000	ND	99.5	70-130			
1,4-Dioxane	6460	2000	ug/L	5000	ND	129	70-130			
Ethylbenzene	9010	50.0	ug/L	5000	5470	70.7	70-130			
Hexachlorobutadiene	4780	50.0	ug/L	5000	ND	95.6	70-130			
2-Hexanone (MBK)	4580	500	ug/L	5000	ND	91.5	70-130			
Isopropylbenzene (Cumene)	4910	50.0	ug/L	5000	ND	98.2	70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	4770	50.0	ug/L	5000	ND	95.3	70-130			
Methyl tert-butyl ether (MTBE)	4800	50.0	ug/L	5000	ND	96.1	70-130			
Methylene chloride (Dichloromethane)	5270	50.0	ug/L	5000	ND	105	70-130			
4-Methyl-2-pentanone (MIBK)	4460	500	ug/L	5000	ND	89.2	70-130			
Naphthalene	4890	50.0	ug/L	5000	ND	97.8	70-130			
n-Propylbenzene	4940	50.0	ug/L	5000	ND	98.8	70-130			
Styrene	5200	50.0	ug/L	5000	ND	104	70-130			
1,1,1,2-Tetrachloroethane	4870	100	ug/L	5000	ND	97.3	70-130			
1,1,1,2,2-Tetrachloroethane	4730	50.0	ug/L	5000	ND	94.6	70-130			
Tetrachloroethene	5210	50.0	ug/L	5000	ND	104	70-130			
Tetrahydrofuran (THF)	4480	50.0	ug/L	5000	ND	89.6	70-130			
Toluene	5160	50.0	ug/L	5000	135	100	70-130			
1,2,4-Trichlorobenzene	5000	100	ug/L	5000	ND	100	70-130			
1,2,3-Trichlorobenzene	5040	100	ug/L	5000	ND	101	70-130			
1,1,1-Trichloroethane	4530	100	ug/L	5000	ND	90.5	70-130			
1,1,2-Trichloroethane	5440	100	ug/L	5000	ND	109	70-130			
Trichloroethene	5430	50.0	ug/L	5000	ND	109	70-130			
Trichlorofluoromethane (Freon 11)	5110	50.0	ug/L	5000	ND	102	70-130			
1,2,3-Trichloropropane	4200	100	ug/L	5000	ND	84.0	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	5260	100	ug/L	5000	ND	105	70-130			
1,3,5-Trimethylbenzene	4680	100	ug/L	5000	121	91.2	70-130			
1,2,4-Trimethylbenzene	4880	100	ug/L	5000	281	92.0	70-130			

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CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike (DJ90389-MS2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					
Vinyl chloride	5320	50.0	ug/L	5000	ND	106	70-130			
m,p-Xylene	15400	100	ug/L	5000	13500	38.1	70-130			M2
o-Xylene	10700	50.0	ug/L	5000	7350	66.1	70-130			M2
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.9</i>		ug/L	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>43.0</i>		ug/L	<i>50.0</i>		<i>85.9</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>48.5</i>		ug/L	<i>50.0</i>		<i>97.0</i>	<i>70-130</i>			
Matrix Spike Dup (DJ90389-MSD1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
Acetone	4630	500	ug/L	5000	14.3	92.4	70-130	9.28	20	
Acrylonitrile	5350	50.0	ug/L	5000	ND	107	70-130	10.6	20	
Benzene	4850	50.0	ug/L	5000	ND	97.0	70-130	2.91	20	
Bromobenzene	4980	50.0	ug/L	5000	ND	99.6	70-130	1.46	20	
Bromochloromethane	4680	50.0	ug/L	5000	ND	93.6	70-130	4.88	20	
Bromodichloromethane	4610	50.0	ug/L	5000	ND	92.1	70-130	4.33	20	
Bromoform	4630	50.0	ug/L	5000	ND	92.6	70-130	1.33	20	
Bromomethane	4100	50.0	ug/L	5000	ND	82.0	70-130	15.3	20	
2-Butanone (MEK)	4730	500	ug/L	5000	2.22	94.5	70-130	9.55	20	
sec-Butylbenzene	4960	50.0	ug/L	5000	ND	99.2	70-130	3.24	20	
tert-Butylbenzene	4890	100	ug/L	5000	ND	97.8	70-130	2.28	20	
n-Butylbenzene	5140	50.0	ug/L	5000	ND	103	70-130	1.67	20	
Carbon disulfide	3970	100	ug/L	5000	ND	79.3	70-130	2.45	20	
Carbon tetrachloride	4340	50.0	ug/L	5000	ND	86.9	70-130	2.21	20	
Chlorobenzene	5200	50.0	ug/L	5000	ND	104	70-130	1.20	20	
Chloroethane (Ethyl chloride)	4070	50.0	ug/L	5000	ND	81.4	70-130	1.04	20	
Chloroform	4760	50.0	ug/L	5000	ND	95.2	70-130	4.95	20	
Chloromethane	4670	50.0	ug/L	5000	ND	93.3	70-130	5.35	20	
2-Chlorotoluene	4760	50.0	ug/L	5000	ND	95.2	70-130	1.44	20	
4-Chlorotoluene	4710	50.0	ug/L	5000	ND	94.2	70-130	0.170	20	
1,2-Dibromo-3-chloropropane (DBCP)	3850	20.0	ug/L	5000	ND	77.0	70-130	5.99	20	
Dibromochloromethane	4630	50.0	ug/L	5000	ND	92.5	70-130	1.28	20	
1,2-Dibromoethane (Ethylene dibromide, EDB)	4860	5.00	ug/L	5000	ND	97.2	70-130	1.60	20	
Dibromomethane (Methylene bromide)	4750	50.0	ug/L	5000	ND	94.9	70-130	3.71	20	
trans-1,4-Dichloro-2-butene	3350	50.0	ug/L	5000	ND	67.0	70-130	0.960	20	M2
1,4-Dichlorobenzene	5000	50.0	ug/L	5000	2.64	99.9	70-130	1.67	20	
1,3-Dichlorobenzene	5140	50.0	ug/L	5000	ND	103	70-130	4.99	20	
1,2-Dichlorobenzene	4920	50.0	ug/L	5000	15.5	98.1	70-130	4.59	20	
Dichlorodifluoromethane (Freon-12)	4200	50.0	ug/L	5000	ND	84.0	70-130	5.98	20	
1,2-Dichloroethane	4270	50.0	ug/L	5000	ND	85.4	70-130	6.53	20	
1,1-Dichloroethane	4700	50.0	ug/L	5000	ND	93.9	70-130	4.04	20	
trans-1,2-Dichloroethene	4720	50.0	ug/L	5000	ND	94.4	70-130	2.27	20	
1,1-Dichloroethene	5090	50.0	ug/L	5000	ND	102	70-130	2.05	20	
cis-1,2-Dichloroethene	4980	50.0	ug/L	5000	ND	99.5	70-130	5.56	20	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD1)		Source: D9I2401-03			Prepared & Analyzed: 10/02/2019					
1,3-Dichloropropane	4750	50.0	ug/L	5000	ND	94.9	70-130	1.83	20	
1,2-Dichloropropane	4900	50.0	ug/L	5000	ND	98.1	70-130	4.38	20	
2,2-Dichloropropane	3530	50.0	ug/L	5000	ND	70.6	70-130	2.12	20	
trans-1,3-Dichloropropene	4610	50.0	ug/L	5000	ND	92.2	70-130	3.33	20	
cis-1,3-Dichloropropene	4540	50.0	ug/L	5000	ND	90.9	70-130	2.77	20	
1,1-Dichloropropene	4780	50.0	ug/L	5000	ND	95.6	70-130	4.82	20	
Diethyl ether	4820	50.0	ug/L	5000	ND	96.4	70-130	6.23	20	
1,4-Dioxane	6360	2000	ug/L	5000	1.70	127	70-130	10.4	20	
Ethylbenzene	8560	50.0	ug/L	5000	688	157	70-130	0.657	20	M2
Hexachlorobutadiene	4760	50.0	ug/L	5000	ND	95.2	70-130	4.69	20	
2-Hexanone (MBK)	4500	500	ug/L	5000	ND	90.1	70-130	3.92	20	
Isopropylbenzene (Cumene)	4960	50.0	ug/L	5000	67.9	97.9	70-130	3.03	20	
4-Isopropyltoluene (p-Isopropyltoluene)	4880	50.0	ug/L	5000	ND	97.6	70-130	2.53	20	
Methyl tert-butyl ether (MTBE)	4690	50.0	ug/L	5000	ND	93.8	70-130	6.22	20	
Methylene chloride (Dichloromethane)	5050	50.0	ug/L	5000	ND	101	70-130	4.21	20	
4-Methyl-2-pentanone (MIBK)	4450	500	ug/L	5000	ND	89.0	70-130	4.48	20	
Naphthalene	4850	50.0	ug/L	5000	ND	96.9	70-130	4.86	20	
n-Propylbenzene	4950	50.0	ug/L	5000	37.4	98.2	70-130	1.34	20	
Styrene	5140	50.0	ug/L	5000	ND	103	70-130	0.331	20	
1,1,1,2-Tetrachloroethane	4740	100	ug/L	5000	ND	94.9	70-130	0.932	20	
1,1,2,2-Tetrachloroethane	4790	50.0	ug/L	5000	ND	95.7	70-130	5.36	20	
Tetrachloroethene	5110	50.0	ug/L	5000	ND	102	70-130	1.40	20	
Tetrahydrofuran (THF)	4530	50.0	ug/L	5000	ND	90.6	70-130	9.21	20	
Toluene	5010	50.0	ug/L	5000	127	97.7	70-130	1.18	20	
1,2,4-Trichlorobenzene	4950	100	ug/L	5000	ND	99.0	70-130	2.06	20	
1,2,3-Trichlorobenzene	4970	100	ug/L	5000	ND	99.4	70-130	5.63	20	
1,1,1-Trichloroethane	4320	100	ug/L	5000	ND	86.4	70-130	1.75	20	
1,1,2-Trichloroethane	5400	100	ug/L	5000	ND	108	70-130	3.26	20	
Trichloroethene	5250	50.0	ug/L	5000	ND	105	70-130	2.82	20	
Trichlorofluoromethane (Freon 11)	4710	50.0	ug/L	5000	ND	94.3	70-130	3.76	20	
1,2,3-Trichloropropane	4370	100	ug/L	5000	ND	87.3	70-130	5.90	20	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4930	100	ug/L	5000	ND	98.6	70-130	2.69	20	
1,3,5-Trimethylbenzene	4780	100	ug/L	5000	124	93.2	70-130	3.10	20	
1,2,4-Trimethylbenzene	4850	100	ug/L	5000	245	92.0	70-130	0.350	20	
Vinyl chloride	4730	50.0	ug/L	5000	ND	94.6	70-130	3.11	20	
m,p-Xylene	14700	100	ug/L	5000	1230	269	70-130	1.60	20	M2
o-Xylene	10300	50.0	ug/L	5000	902	187	70-130	0.718	20	M2
Surrogate: 4-Bromofluorobenzene	51.0		ug/L	50.0		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	42.7		ug/L	50.0		85.4	70-130			
Surrogate: Toluene-d8	47.7		ug/L	50.0		95.4	70-130			
Matrix Spike Dup (DJ90389-MSD2)		Source: D9I2724-02			Prepared & Analyzed: 10/03/2019					



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD2)	Source: D9I2724-02			Prepared & Analyzed: 10/03/2019						
Acetone	4650	500	ug/L	5000	ND	93.0	70-130	0.237	20	
Acrylonitrile	5280	50.0	ug/L	5000	ND	106	70-130	0.642	20	
Benzene	4720	50.0	ug/L	5000	ND	94.3	70-130	7.08	20	
Bromobenzene	4760	50.0	ug/L	5000	ND	95.3	70-130	7.01	20	
Bromochloromethane	4640	50.0	ug/L	5000	ND	92.8	70-130	5.06	20	
Bromodichloromethane	4520	50.0	ug/L	5000	ND	90.4	70-130	3.39	20	
Bromoform	4460	50.0	ug/L	5000	ND	89.2	70-130	5.62	20	
Bromomethane	4390	50.0	ug/L	5000	ND	87.9	70-130	5.27	20	
2-Butanone (MEK)	4760	500	ug/L	5000	ND	95.3	70-130	0.738	20	
sec-Butylbenzene	4720	50.0	ug/L	5000	ND	94.4	70-130	4.25	20	
tert-Butylbenzene	4740	100	ug/L	5000	ND	94.9	70-130	5.81	20	
n-Butylbenzene	4920	50.0	ug/L	5000	ND	98.3	70-130	6.07	20	
Carbon disulfide	3930	100	ug/L	5000	ND	78.6	70-130	8.50	20	
Carbon tetrachloride	4240	50.0	ug/L	5000	ND	84.8	70-130	5.26	20	
Chlorobenzene	5080	50.0	ug/L	5000	ND	102	70-130	5.85	20	
Chloroethane (Ethyl chloride)	4410	50.0	ug/L	5000	ND	88.2	70-130	7.74	20	
Chloroform	4700	50.0	ug/L	5000	ND	93.9	70-130	6.13	20	
Chloromethane	4930	50.0	ug/L	5000	ND	98.6	70-130	4.87	20	
2-Chlorotoluene	4500	50.0	ug/L	5000	ND	89.9	70-130	4.99	20	
4-Chlorotoluene	4560	50.0	ug/L	5000	ND	91.1	70-130	3.90	20	
1,2-Dibromo-3-chloropropane (DBCP)	3760	20.0	ug/L	5000	ND	75.1	70-130	0.796	20	
Dibromochloromethane	4460	50.0	ug/L	5000	ND	89.1	70-130	6.85	20	
1,2-Dibromoethane (Ethylene dibromide, EDB)	4720	5.00	ug/L	5000	ND	94.4	70-130	6.30	20	
Dibromomethane (Methylene bromide)	4680	50.0	ug/L	5000	ND	93.6	70-130	4.76	20	
trans-1,4-Dichloro-2-butene	3350	50.0	ug/L	5000	ND	66.9	70-130	3.38	20	M2
1,4-Dichlorobenzene	4830	50.0	ug/L	5000	ND	96.6	70-130	4.85	20	
1,3-Dichlorobenzene	4860	50.0	ug/L	5000	ND	97.2	70-130	3.86	20	
1,2-Dichlorobenzene	4660	50.0	ug/L	5000	ND	93.3	70-130	7.09	20	
Dichlorodifluoromethane (Freon-12)	4210	50.0	ug/L	5000	ND	84.1	70-130	5.86	20	
1,2-Dichloroethane	4120	50.0	ug/L	5000	ND	82.3	70-130	4.79	20	
1,1-Dichloroethane	4610	50.0	ug/L	5000	ND	92.2	70-130	4.85	20	
trans-1,2-Dichloroethene	4710	50.0	ug/L	5000	ND	94.1	70-130	3.20	20	
1,1-Dichloroethene	4860	50.0	ug/L	5000	ND	97.2	70-130	6.93	20	
cis-1,2-Dichloroethene	4920	50.0	ug/L	5000	ND	98.5	70-130	3.98	20	
1,3-Dichloropropane	4600	50.0	ug/L	5000	ND	92.0	70-130	4.32	20	
1,2-Dichloropropane	4750	50.0	ug/L	5000	ND	95.1	70-130	5.66	20	
2,2-Dichloropropane	3270	50.0	ug/L	5000	ND	65.3	70-130	9.48	20	M2
trans-1,3-Dichloropropene	4400	50.0	ug/L	5000	ND	87.9	70-130	5.05	20	
cis-1,3-Dichloropropene	4350	50.0	ug/L	5000	ND	86.9	70-130	6.39	20	
1,1-Dichloropropene	4620	50.0	ug/L	5000	ND	92.3	70-130	7.67	20	
Diethyl ether	4820	50.0	ug/L	5000	ND	96.4	70-130	3.19	20	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Volatile Organic Compounds - GC/MS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DJ90389 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DJ90389-MSD2)	Source: D9I2724-02			Prepared & Analyzed: 10/03/2019						
1,4-Dioxane	6290	2000	ug/L	5000	ND	126	70-130	2.66	20	
Ethylbenzene	8380	50.0	ug/L	5000	5470	58.2	70-130	7.22	20	M2
Hexachlorobutadiene	4490	50.0	ug/L	5000	ND	89.9	70-130	6.21	20	
2-Hexanone (MBK)	4440	500	ug/L	5000	ND	88.8	70-130	2.97	20	
Isopropylbenzene (Cumene)	4680	50.0	ug/L	5000	ND	93.5	70-130	4.88	20	
4-Isopropyltoluene (p-Isopropyltoluene)	4660	50.0	ug/L	5000	ND	93.1	70-130	2.34	20	
Methyl tert-butyl ether (MTBE)	4640	50.0	ug/L	5000	ND	92.8	70-130	3.45	20	
Methylene chloride (Dichloromethane)	4990	50.0	ug/L	5000	ND	99.7	70-130	5.54	20	
4-Methyl-2-pentanone (MIBK)	4320	500	ug/L	5000	ND	86.3	70-130	3.26	20	
Naphthalene	4670	50.0	ug/L	5000	ND	93.4	70-130	4.58	20	
n-Propylbenzene	4660	50.0	ug/L	5000	ND	93.3	70-130	5.73	20	
Styrene	4870	50.0	ug/L	5000	ND	97.4	70-130	6.59	20	
1,1,1,2-Tetrachloroethane	4550	100	ug/L	5000	ND	90.9	70-130	6.80	20	
1,1,2,2-Tetrachloroethane	4610	50.0	ug/L	5000	ND	92.1	70-130	2.68	20	
Tetrachloroethene	4900	50.0	ug/L	5000	ND	98.1	70-130	6.01	20	
Tetrahydrofuran (THF)	4470	50.0	ug/L	5000	ND	89.4	70-130	0.268	20	
Toluene	4660	50.0	ug/L	5000	135	90.6	70-130	10.0	20	
1,2,4-Trichlorobenzene	4740	100	ug/L	5000	ND	94.9	70-130	5.24	20	
1,2,3-Trichlorobenzene	4590	100	ug/L	5000	ND	91.9	70-130	9.22	20	
1,1,1-Trichloroethane	4200	100	ug/L	5000	ND	83.9	70-130	7.52	20	
1,1,2-Trichloroethane	5160	100	ug/L	5000	ND	103	70-130	5.15	20	
Trichloroethene	5040	50.0	ug/L	5000	ND	101	70-130	7.48	20	
Trichlorofluoromethane (Freon 11)	4840	50.0	ug/L	5000	ND	96.8	70-130	5.49	20	
1,2,3-Trichloropropane	4140	100	ug/L	5000	ND	82.7	70-130	1.51	20	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	4960	100	ug/L	5000	ND	99.2	70-130	5.91	20	
1,3,5-Trimethylbenzene	4550	100	ug/L	5000	121	88.5	70-130	2.84	20	
1,2,4-Trimethylbenzene	4670	100	ug/L	5000	281	87.9	70-130	4.29	20	
Vinyl chloride	4840	50.0	ug/L	5000	ND	96.7	70-130	9.61	20	
m,p-Xylene	14200	100	ug/L	5000	13500	13.3	70-130	8.36	20	M2
o-Xylene	9880	50.0	ug/L	5000	7350	50.5	70-130	7.58	20	M2
Surrogate: 4-Bromofluorobenzene	50.3		ug/L	50.0		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	43.6		ug/L	50.0		87.2	70-130			
Surrogate: Toluene-d8	47.7		ug/L	50.0		95.4	70-130			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2724

Definitions

- H: Sample was analyzed past holding time.
M1: Matrix spike recovery is above acceptance limits.
M2: Matrix spike recovery is below acceptance limits.
R1: Duplicate RPD is outside acceptance criteria.
RL: Reporting Limit
RPD: Relative Percent Difference
S2: Surrogate recovery is below acceptance limits.
Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 2.9°C

Cooler Inspection Checklist

Table with 4 columns: Question, Yes, No, and Answer. Rows include: Ice Present or not required?, Custody seals intact or not required?, COC includes customer information?, Sample collector identified on COC?, Correct type of Containers Received, Containers Intact?, Enough sample volume for indicated tests received?, Samples arrived within hold time?, Chemical preservations checked or not required?, VOA vials have zero headspace, or not recd.?, Shipping containers sealed or not required?, Chain of Custody (COC) Present?, Relinquished and received signature on COC?, Sample type identified on COC?, Correct number of containers listed on COC?, COC includes requested analyses?, Sample labels match COC (Name, Date & Time?), Correct preservatives on COC or not required?, Preservation checks meet method requirements?

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
LAO00346
New England Testing Laboratory
PH-0740
Rhode Island Department of Health
Connecticut Deparaatment of Public Health

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Katherine Wall (handwritten signature)

Katherine A. Wall
Project Manager
Reported: 10/31/2019 15:59



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9I30004
Client Project: Reactivity

Report Date: 07-October-2019

Prepared for:

Katherine A. Wall
Microbac Laboratories, Inc.
61 Louisa Viens Drive
Dayville, CT 02467

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted:

The samples listed below were submitted to New England Testing Laboratory on 09/30/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9I30004. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled
9I30004-01	D9I2724-04	Water	09/24/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

D9I2724-04

Reactive Sulfide	SM REACTIVITY
Reactive Cyanide	SM REACTIVITY

The analytical methods provided are documented in the following references:

Manual of Methods for Chemical Analysis of Water and Water Wastes, EPA-600/4-79-020 (Revised 1983), USEPA/EMSL.

Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, APHA, AWWA-WPCF.

40 CFR 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act*, Office of Federal Register National Archives and Records Administration.

Results:

Sample: D9I2724-04
9I30004-01 (Water)

Reactivity

	Result	Reporting Limit	Units	Date Analyzed
Reactive Cyanide	ND	0.01	mg/L	10/04/19
Reactive Sulfide	ND	0.01	mg/L	10/03/19

Case Narrative

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

All samples were analyzed in accordance with 40 CFR 136 approved methodologies.



SUBC



9 I 3 0004 f



SENDING LABORATORY:

Microbac Laboratories, Inc. - Dayville
61 Louisa Viens Drive
Dayville, CT 06241
Phone: 860.774.6814
Lab Manager: Katherine A. Wall
Email: Katie.Wall@microbac.com

RECEIVING LABORATORY:

New England Testing Laboratory
59 Greenhill Street
West Warwick, RI 02893
Phone: 888-863-8522

Project Info:

Project Type: ENV-Remediation Report TAT: 10
Project Location: Rhode Island Due: 10/10/2019 17:00

Sample ID: D9I2724-04

Sampled: 09/24/2019 17:00

Matrix: Aqueous

Sampler: Customer

Analysis	Method	Analysis Due	Expires
CN Reactive	EPA 7.3.3.2	10/10/2019 16:00	10/22/2019 17:00
Sulfide Reactive	EPA 7.3.4.2	10/10/2019 16:00	10/22/2019 17:00

Released By	Date	Received By	Date
<i>Michael G. Cote</i>	9/30/19	<i>Michael G. Cote</i>	9/30/19 0815
Released By	Date	Received By	Date
<i>Michael G. Cote</i>	9/30/19	<i>J. Wall</i>	9/30/19 9:54 5°



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

EA Engineering, Science & Tech
225 Schilling Circle
Hunt Valley MD 21031

Report Date: March 16, 2020 07:26

Project: RIDEM - 92 Sunnyside Ave

Account #: 10784
Group Number: 2091750
PO Number: 20397
State of Sample Origin: RI

Electronic Copy To EA Engineering, Science & Tech

Attn: Catherine Maxwell

Respectfully Submitted,



Kay Hower

(717) 556-7364

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
LNAPL MW-EA-1 Grab Solid	03/03/2020 13:30	1277516

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: LNAPL MW-EA-1 Grab Solid
RIDEM - 92 Sunnyside Ave

EA Engineering, Science & Tech
ELLE Sample #: G4 1277516
ELLE Group #: 2091750
Matrix: Solid

Project Name: RIDEM - 92 Sunnyside Ave

Submittal Date/Time: 03/11/2020 10:41
Collection Date/Time: 03/03/2020 13:30

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC Petroleum Hydrocarbons		SW-846 8015C Rev3 Feb 2007 Mod	see below	see below	
02535	Quantitative GC Fingerprint	n.a.	N.D.	100	100
<p>The GC fingerprint for this sample is most similar to our #6 Fuel oil reference standard. The matrix of the sample is very thick and viscous and the sample was difficult to weigh out for the GC fingerprint analysis. When we calculate total sample area in the C8-C40 normal hydrocarbon range as petroleum distillate, it is present at 10% by weight. #6 fuel oil contains components which elute beyond the scope of this analysis and could contribute to the low recovery. The product in the sample does not appear to be weathered.</p>					

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02535	Quantitative GC Fingerprint	SW-846 8015C Rev3 Feb 2007 Mod	1	200720018A	03/13/2020 02:32	Heather E Williams	100

Quality Control Summary

Client Name: EA Engineering, Science & Tech
Reported: 03/16/2020 07:26

Group Number: 2091750

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Quantitative GC Fingerprint
Batch number: 200720018A

	Chlorobenzene	Orthoterphenyl
1277516	108	104
Limits:	50-150	50-150

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



Client: EA ENGINEERING

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Date: 03/11/2020
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: Rhode Island

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Julissa Rivera-Santa

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	46730061WS	4.6	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Type VI Data Package

Prepared for:

EA Engineering, Science & Tech
225 Schilling Circle
Hunt Valley MD 21031

Project: RIDEM - 92 Sunnyside Ave
Solid Sample
Collected on 03/03/20

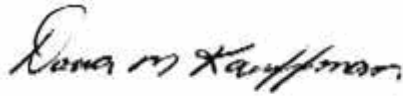
SDG# RID01

GROUP	SAMPLE NUMBERS
2091750	1277516

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-20-35
AZ Cert. # AZ0780

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by:



Date: 03/25/2020

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Kay Hower at (717) 556-7364.

**Sample Reference List for SDG Number RID01
with a Data Package Type of VI**

10784 - EA Engineering, Science & Tech

Project: RIDEM - 92 Sunnyside Ave

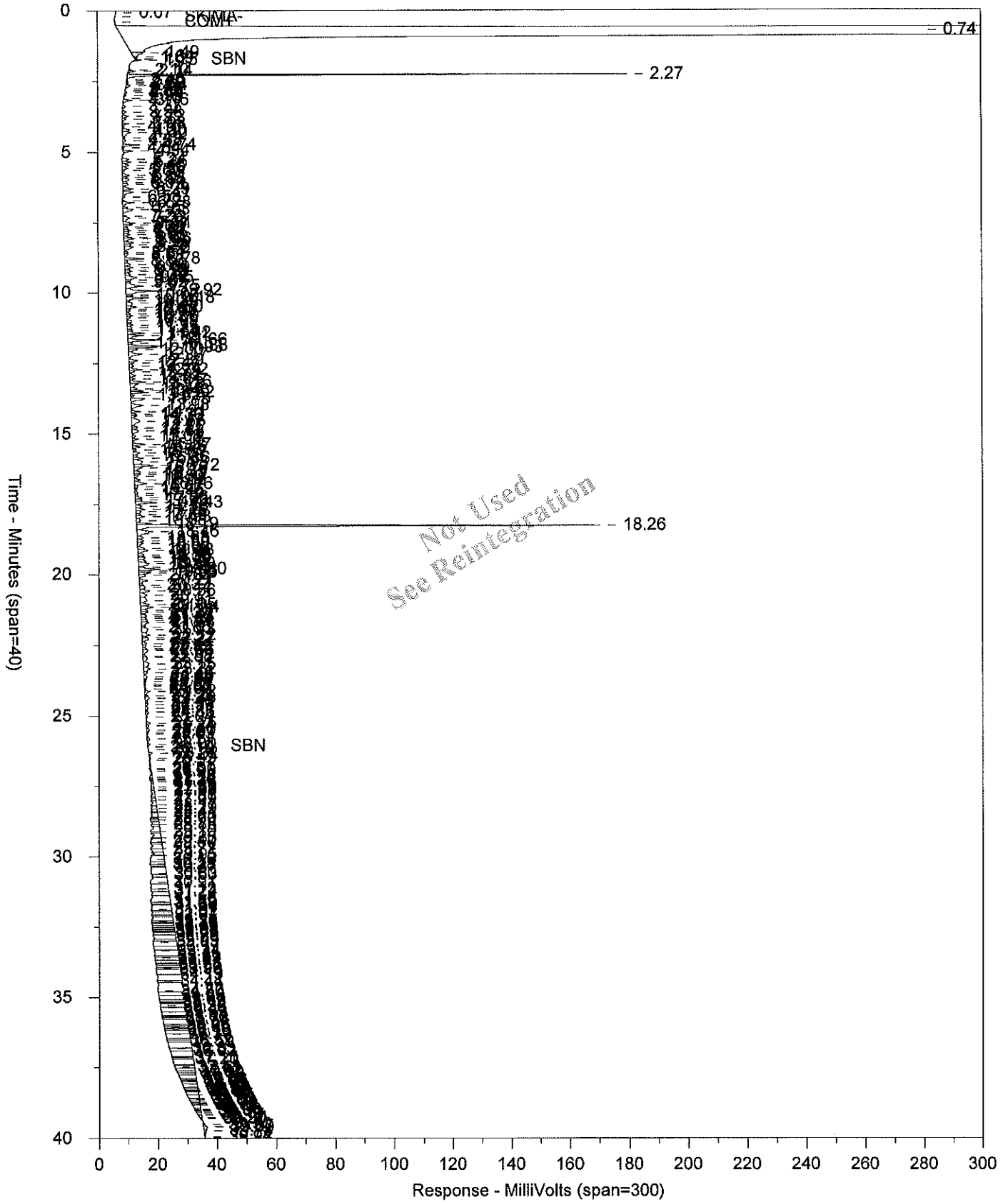
Lab Sample Number	Client Sample ID	Collection Date	Date Received
1277516	LNAPL MW-EA-1	03/03/2020 13:30	03/11/2020 10:41

GC Fingerprint Data

Chrom Perfect Chromatogram Report

Sample ID: 1277516 DF10 ABLNAPL T 200720018A 02535
File: ABTPH_19123048B.022.RAW

SW-846 8015D Rev.4, June 2003



Chrom Perfect Chromatogram Report

Sample ID: 1277516 DF10 ABLNAPL T 200720018A 02535

SW-846 8015D Rev.4, June 2003

Instrument ID: CPAB-10254B
 Volume Inj. per Column: 1
 Oven Parameters: 40C for 1min; 8C/min to 340C; hold 1min
 Sample Amount: 0.1079

Injected on: 3/13/2020 2:32:08 AM
 GC Column: ZB5 30m X 0.32mm X 0.25um
 Dilution Factor: 100

Analyst: 2027

Peak #	Ret Time (min)	Peak Name	Amount PPM	Peak Area
6	1.749	C-8	171.7896	4819.1
9	2.273	Chlorobenzene	12023.0700	270734.9
19	3.162	C-9	376.7969	11000.0
32	4.945	C-10	356.9533	10695.3
64	8.544	C-12	128.8652	3924.3
96	11.783	C-14	141.0375	4341.5
120	14.754	C-16	238.0053	7343.9
144	17.329	C-18	297.3501	9188.4
153	18.260	o-Terphenyl SURR	12534.7500	422620.6
165	19.730	C-20	174.7658	5430.9
186	21.934	C-22	589.5131	18424.3
203	23.927	C-24	45.3747	1466.6
219	25.807	C-26	233.4298	7317.7
235	27.593	C-28	130.1532	4086.3
274	32.270	C-34	1807.3830	56275.4
290	33.590	C-36	1804.8840	54955.0
301	34.930	C-38	2479.3660	72587.2
314	36.133	C-40	836.7292	25028.1

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
Total TPH	1.62	36.23	21676.360	5979714.0
Chlorobenzene	2.21	2.31	1297.2890	270734.9
O-terphenyl	18.24	18.34	1352.4990	422620.6

***** PRELIM. RESULTS TABLE *****

TPH AREA = 5286359
 TPH AMT = 172091.6 PPM

Reviewed by:

Verified by:

Date: _____

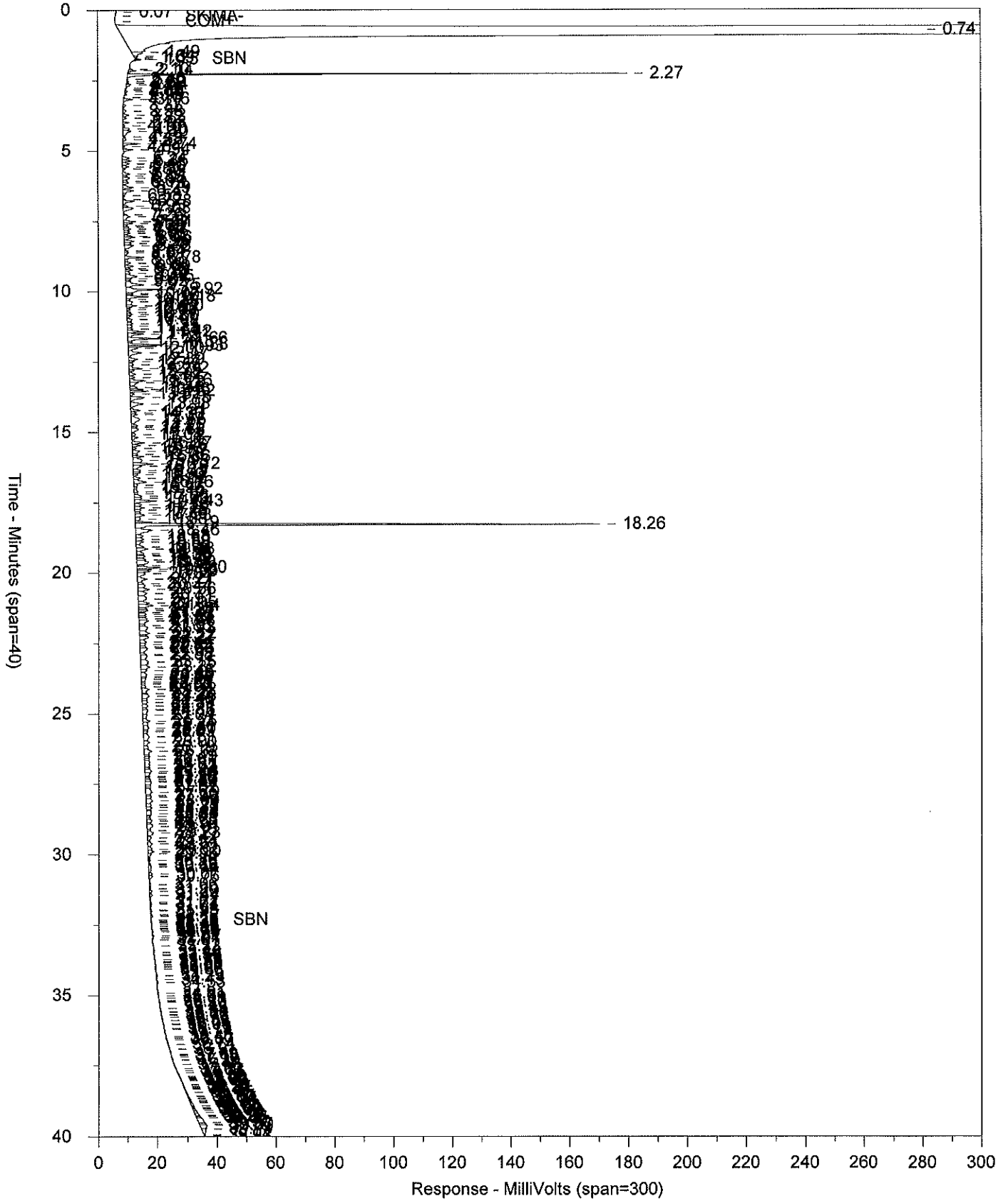
Date: _____

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 Method File: TPHBSUM.MET
 Calibration File: TPHB123C.CAL
 Format File: TPHBSUM.FMT
 Area file created on: 3/13/2020 3:12:09 AM
 File reported on: 3/13/2020 at 3:12:14 AM

Sample ID: 1277516 DF10 ABLNAPL T 200720018A 02535
File: ABTPH_19123048B.022.RAW

SW-846 8015D Rev.4, June 2003



Chrom Perfect Chromatogram Report

Sample ID: 1277516 DF10 ABLNAPL T 200720018A 02535 SW-846 8015D Rev.4, June 2003

Instrument ID: CPAB-10254B
 Volume Inj. per Column: 1
 Oven Parameters: 40C for 1min; 8C/min to 340C; hold 1min
 Sample Amount: 0.1079

Injected on: 3/13/2020 2:32:08 AM
 GC Column: ZB5 30m X 0.32mm X 0.25um
 Dilution Factor: 100

Analyst: 2027

Peak #	Ret Time (min)	Peak Name	Amount PPM	Peak Area
6	1.749	C-8	171.7896	4819.1
9	2.273	Chlorobenzene	12023.0700	270734.9
19	3.162	C-9	376.7969	11000.0
32	4.945	C-10	356.9533	10695.3
64	8.544	C-12	128.8652	3924.3
96	11.783	C-14	149.2798	4595.2
120	14.754	C-16	270.7462	8354.2
144	17.329	C-18	351.2079	10852.7
153	18.260	o-Terphenyl SURR	12678.1600	427455.7
165	19.730	C-20	226.7731	7047.0
186	21.934	C-22	833.1091	26037.4
203	23.927	C-24	170.2713	5503.7
219	25.807	C-26	772.7714	24225.5
234	27.566	C-28	231.8045	7277.7
250	29.234	C-30	508.9719	15932.5
262	30.763	C-32	259.0829	8089.7
273	32.174	C-34	107.7323	3354.4
289	33.570	C-36	25.0342	762.2
299	34.911	C-38	39.3181	1151.1
313	36.167	C-40	2.9965	89.6

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
Total TPH	1.62	36.23	13476.950	3704876.0
Chlorobenzene	2.21	2.31	1297.2890	270734.9
O-terphenyl	18.24	18.34	1367.9730	427455.7

***** PRELIM. RESULTS TABLE *****

TPH AREA = 3006686
 TPH AMT = 97879.37 PPM

Reviewed by:

Verified by:

MW

Ganic & Brillhart
 Analyst

MAR 16 2020

Date:

3/13/20

Date:

FILES:

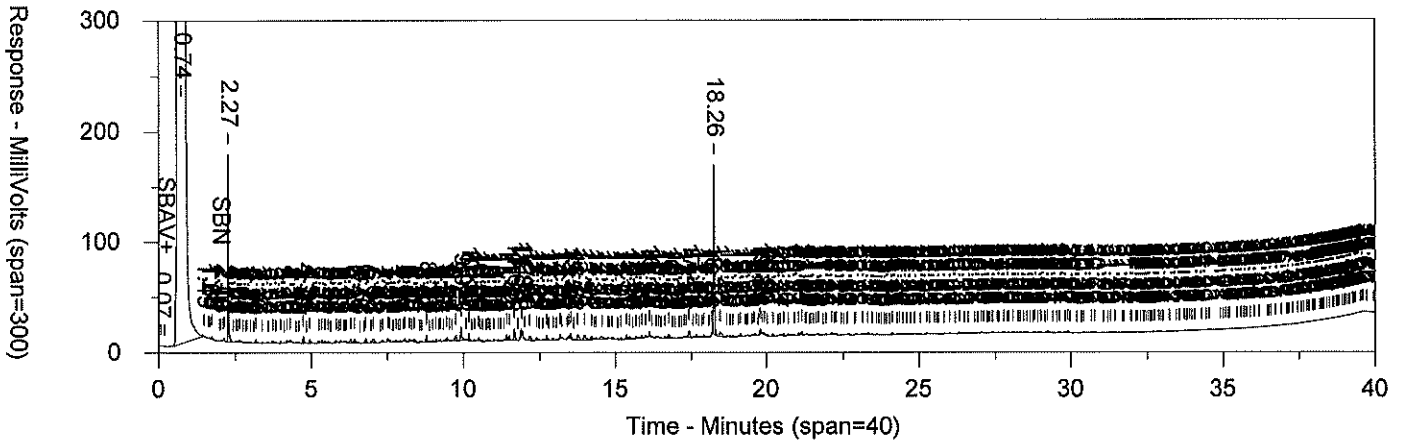
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 Calibration File: TPHB123C.CAL
 Format File: TPHBSUM.FMT
 Area file created on: 3/13/2020 6:45:11 PM
 File reported on: 3/13/2020 at 6:45:13 PM

Annually Integrated
 Analyst *MW* 3/13/20
 Approved by *Feb 27 3-16-2020*
 1 - Missed Peak
 2 - Improper Baseline
 3 - RT Update
 4 - Other

Chrom Perfect Chromatogram Report

Sample ID:1277516 DF10 ABLNAPL T 200720018A 02535
 File: ABTPH_19123048B.022.RAW

SW-846 8015D Rev.4, June 2003 Replot



Instrument ID:CPAB-10254B
 Volume Inj. per Column: 1
 Oven Parameters: 40C for 2min; 8C/min to 340; hold 1 min
 Sample Amount: 0.1079
 Analyst: 2027

Injected on: 3/13/2020 2:32:08 AM
 GC Column: ZB5 30m X 0.32mm X 0.25um
 Dilution Factor: 100

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
6	1.749	C-8	238.2543	6683.6
10	2.273	Chlorobenzene	12023.0700	270734.9
20	3.162	C-9	326.0835	9519.5
33	4.945	C-10	356.9533	10695.3
65	8.544	C-12	72.8593	2218.8
97	11.783	C-14	39.0141	1200.9
121	14.754	C-16	64.1204	1978.5
145	17.329	C-18	60.1021	1857.2
154	18.260	o-Terphenyl SURR	11528.1600	388682.5
166	19.730	C-20	16.1161	500.8
187	21.934	C-22	200.5648	6268.3
204	23.927	C-24	18.9539	612.6
220	25.807	C-26	197.7321	6198.7
235	27.566	C-28	16.3437	513.1
251	29.234	C-30	182.4119	5710.1
263	30.763	C-32	79.6051	2485.6
274	32.174	C-34	64.1574	1997.6
290	33.570	C-36	25.0342	762.2
300	34.911	C-38	39.3181	1151.1
314	36.167	C-40	2.9965	89.6

Preliminary Surrogate Recoveries:

SW CHLOROBENZENE % RECOVERY = 2162.148 %
 SW O-TERPHENYL % RECOVERY = 2073.147 %
 SW CHLOROBENZENE SURR ADDED = 556.0704
 SW O-TERPHENYL SURR ADDED = 556.0704

 WW CHLOROBENZENE % RECOVERY = 10810.74 %
 WW O-TERPHENYL % RECOVERY = 10365.74 %
 WW CHLOROBENZENE SURR ADDED = 111.2141
 WW O-TERPHENYL SURR ADDED = 111.2141

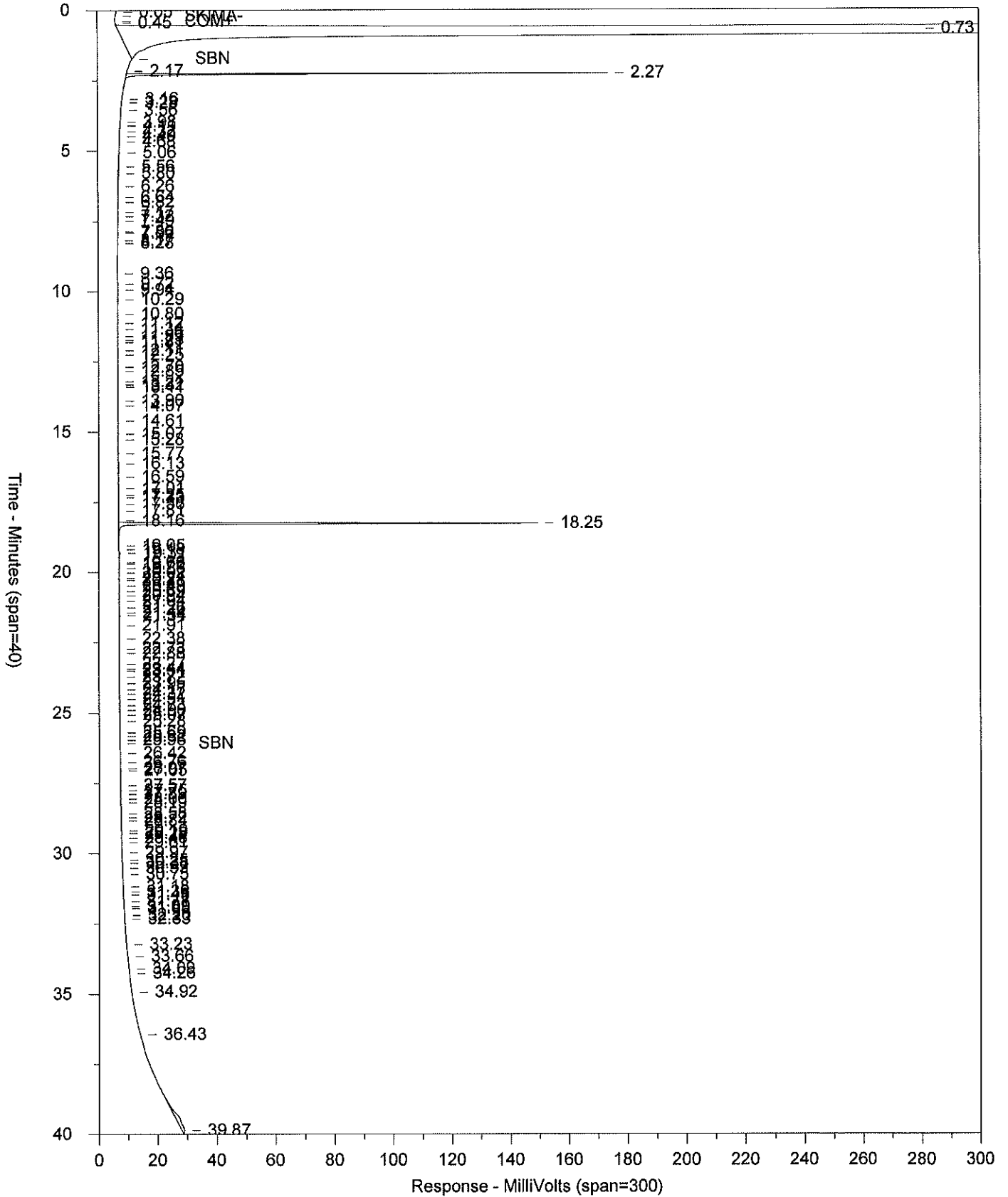
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Area File: ABTPH_19123048B.022.RAW
 Method File: RETPHB.MET
 Calibration File: TPHB123C.CAL
 Format File: RETPHB.FMT
 Area file created on: 3/13/2020 3:12:09 AM
 File reported on: 3/13/2020 at 3:12:22 AM

Chrom Perfect Chromatogram Report

Sample ID: BLANKA 3/12/20 AAPBLK18072 BLK 200720018A 02535
File: ABTPH_19123048B.021.RAW

SW-846 8015D Rev.4, June 2003



Chrom Perfect Chromatogram Report

Sample ID: BLANKA 3/12/20 AAPBLK18072 BLK 200720018A 02535

SW-846 8015D Rev.4, June 2003

Instrument ID: CPAB-10254B
 Volume Inj. per Column: 1
 Oven Parameters: 40C for 1min; 8C/min to 340C; hold 1min
 Sample Amount: 1

Injected on: 3/13/2020 1:43:47 AM
 GC Column: ZB5 30m X 0.32mm X 0.25um

Dilution Factor: 1

Analyst: 2027

Peak #	Ret Time (min)	Peak Name	Amount PPM	Peak Area
5	2.265	Chlorobenzene	12.7741	266585.5
6	3.158	C-9	0.0094	255.3
36	11.811	C-14	0.0113	321.2
54	17.333	C-18	0.0253	725.6
58	18.254	o-Terphenyl SURR	12.5412	391878.2
63	19.716	C-20	0.0202	580.5
75	21.911	C-22	0.0121	350.1
83	23.950	C-24	0.0138	413.1
92	25.822	C-26	0.0060	175.7
98	27.573	C-28	0.0058	169.9
106	29.193	C-30	0.0066	190.1
114	30.747	C-32	0.0160	462.6
121	32.196	C-34	0.0172	496.9
127	34.920	C-38	0.0279	756.7

Slice Name	Start Time	Stop Time	Slice Amount	Slice Area
Total TPH	1.62	36.23	27.3656	715532.9
Chlorobenzene	2.21	2.31	12.7741	266585.5
O-terphenyl	18.24	18.34	12.5412	391878.2

***** PRELIM. RESULTS TABLE *****

TPH AREA = 57069.19
 TPH AMT = 2.004593 PPM

Reviewed by:

Verified by:

M. V. 2027

Jamie L. Brillhart
 Jamie L. Brillhart
 Senior Chemist

Date:

3/13/20

Date:

MAR 16 2020

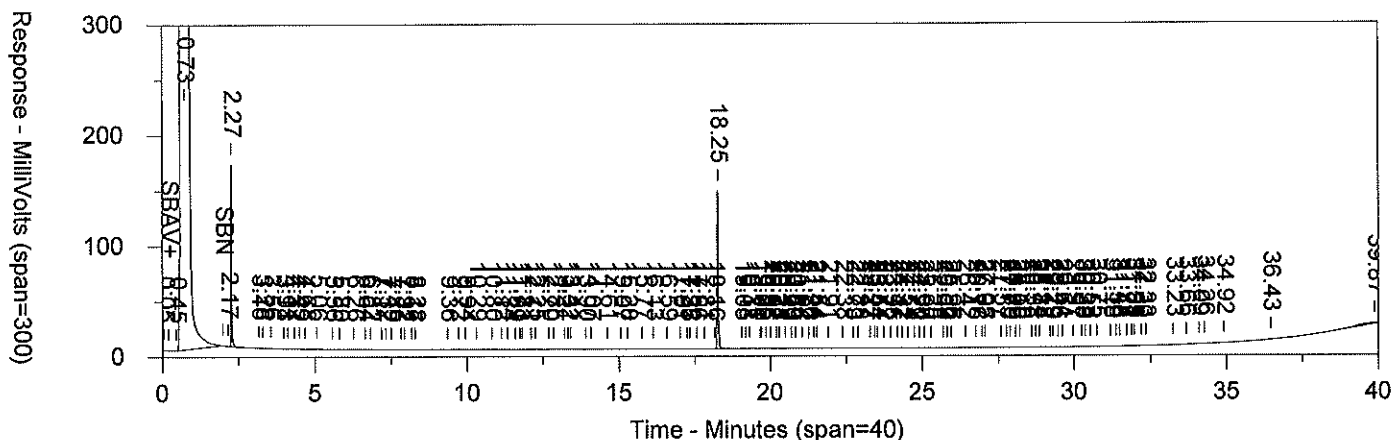
FILES:

Area File: ABTPH_19123048B.021.RAW
 Method File: TPHBSUM.MET
 Calibration File: TPHB123C.CAL
 Format File: TPHBSUM.FMT
 Area file created on: 3/13/2020 2:23:47 AM
 File reported on: 3/13/2020 at 2:23:49 AM

Chrom Perfect Chromatogram Report

Sample ID:BLANKA 3/12/20 AAPBLK18072 BLK 200720018A 02535
 File: ABTPH_19123048B.021.RAW

SW-846 8015D Rev.4, June 2003 Replot



Instrument ID:CPAB-10254B
 Volume Inj. per Column: 1
 Oven Parameters: 40C for 2min; 8C/min to 340; hold 1 min
 Sample Amount: 1
 Analyst: 2027

Injected on: 3/13/2020 1:43:47 AM
 GC Column: ZB5 30m X 0.32mm X 0.25um

Dilution Factor: 1

Peak	Ret Time (min)	Peak Name	Amount (PPM)	Area
5	2.265	Chlorobenzene	12.7741	266585.5
6	3.158	C-9	0.0094	255.3
36	11.811	C-14	0.0066	187.6
54	17.333	C-18	0.0104	299.0
58	18.254	o-Terphenyl SURR	12.4635	389452.3
63	19.716	C-20	0.0037	105.9
75	21.911	C-22	0.0050	145.3
83	23.950	C-24	0.0051	152.7
92	25.822	C-26	0.0034	98.9
98	27.573	C-28	0.0058	169.9
106	29.193	C-30	0.0066	190.1
114	30.747	C-32	0.0160	462.6
121	32.196	C-34	0.0172	496.9
127	34.920	C-38	0.0279	756.7

Preliminary Surrogate Recoveries:

SW CHLOROBENZENE % RECOVERY = 21.29011 %
 SW O-TERPHENYL % RECOVERY = 20.77253 %
 SW CHLOROBENZENE SURR ADDED = 60
 SW O-TERPHENYL SURR ADDED = 60

WW CHLOROBENZENE % RECOVERY = 106.4505 %
 WW O-TERPHENYL % RECOVERY = 103.8627 %
 WW CHLOROBENZENE SURR ADDED = 12
 WW O-TERPHENYL SURR ADDED = 12

FILES:

Area File: ABTPH_19123048B.021.RAW
 Method File: RETPHB.MET
 Calibration File: TPHB123C.CAL
 Format File: RETPHB.FMT
 Area file created on: 3/13/2020 2:23:47 AM
 File reported on: 3/13/2020 at 2:23:56 AM



CERTIFICATE OF ANALYSIS

Jonathan Alvarez
EA Engineering, Science, and Technology
301 Metro Center Blvd, Suite 102
Warwick, RI 02886

RE: RIDEM-TAC-Sunnyside Phase II (1525817)
ESS Laboratory Work Order Number: 20C0703-20C0704-20C0705-20C0708

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:03 pm, Mar 31, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

SAMPLE RECEIPT

The following samples were received on March 20, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
20C0703-01	EA-DUP-Hazmat 2	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

SAMPLE RECEIPT

The following samples were received on March 20, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on March 20, 2020 at 2002.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0704-01	EA-9-0-2.5	Soil	6010C, 8015C, 8260B Low
20C0704-02	EA-9-25-27.5	Soil	6010C, 8015C, 8260B Low
20C0704-03	EA-10-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0704-04	EA-10-15-17.5	Soil	6010C, 7471B, 8100M, 8260B, 8270D
20C0704-05	EA-17-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0704-06	EA-17-15-17.5	Soil	6010C, 7471B, 8100M, 8260B, 8260B Low, 8270D
20C0704-07	EA-13-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0704-08	EA-13-20-22.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0704-09	EA-14-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0704-10	EA-14-15-17.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

SAMPLE RECEIPT

The following samples were received on March 20, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on March 20, 2020 at 20:23.

For VOA Low Level analysis, sample -01 sample was rerun with similar internal standard results. The second analysis was not reported due to carryover.

Lab Number	Sample Name	Matrix	Analysis
20C0705-01	EA-15-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0705-02	EA-15-12.5-15	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0705-03	EA-16-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0705-04	EA-16-14.5-17	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0705-05	EA-18-0-2.5	Soil	6010C, 6020A, 7471B, 8100M, 8260B, 8270D
20C0705-06	EA-18-7.5-10	Soil	6010C, 6020A, 7471B, 8100M, 8260B, 8270D
20C0705-07	EA-19-0-2.5	Soil	2580, 6010C, 6020A, 7196A, 7471B, 8100M, 8260B Low, 8270D, 9045
20C0705-08	EA-19-2.5-5.0	Soil	2580, 6010C, 7196A, 7471B, 8100M, 8260B, 8270D, 9045
20C0705-09	EA-7-0-2.5	Soil	6010C, 8015C, 8260B Low
20C0705-10	EA-7-10-15	Soil	[CALC], 6010C, 8015C, 8260B, 8260B Low
20C0705-11	EA-8-0-2.5	Soil	6010C, 8015C, 8260B Low
20C0705-12	EA-8-15-20	Soil	[CALC], 6010C, 8015C, 8260B
20C0705-13	EA-20-0-2.5	Soil	6010C, 6020A, 7471B, 8100M, 8260B Low, 8270D
20C0705-14	EA-20-15-17.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0705-15	EA-DUP-PT	Soil	[CALC], 6010C, 8015C, 8260B, 8260B Low
20C0705-16	EA-TRIP BLANK-031920	Soil	8260B Low



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

SAMPLE RECEIPT

The following samples were received on March 23, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
20C0708-01	EA-21-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0708-02	EA-21-32.5-35	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0708-03	Trip Blank-032020	Soil	8260B Low



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

- D0C0387-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (87% @ 80-120%), 4,6-Dinitro-2-Methylphenol (88% @ 80-120%), Benzoic Acid (85% @ 80-120%)
- D0C0387-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Pyridine (24% @ 20%)
- D0C0387-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexachlorocyclopentadiene (45% @ 20%)
- D0C0387-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Hexachlorocyclopentadiene
- DC02308-BS1 **Blank Spike recovery is below lower control limit (B-).**
Hexachlorocyclopentadiene (38% @ 40-140%)
- DC02308-BSD1 **Blank Spike recovery is below lower control limit (B-).**
Hexachlorocyclopentadiene (29% @ 40-140%)

No other observations noted.

End of Project Narrative.

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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

20C0704-03 Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).

1,4-Dichlorobenzene-D4 (29% @ 50-200%)

20C0704-06 Reported above the quantitation limit; Estimated value (E).

Xylene O

D0C0462-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).

Acetone (35% @ 30%)

5035/8260B Volatile Organic Compounds / Methanol

D0C0421-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).

1,4-Dioxane - Screen (48% @ 30%)

8270D Semi-Volatile Organic Compounds

D0C0387-CCV1 Calibration required quadratic regression (Q).

2,4-Dinitrophenol (87% @ 80-120%), 4,6-Dinitro-2-Methylphenol (88% @ 80-120%), Benzoic Acid (85% @ 80-120%)

D0C0387-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).

Pyridine (24% @ 20%)

D0C0387-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).

Hexachlorocyclopentadiene (45% @ 20%)

D0C0387-CCV1 Initial Calibration Verification recovery is below lower control limit (ICV-).

Hexachlorocyclopentadiene

D0C0428-CCV1 Calibration required quadratic regression (Q).

2,4-Dinitrophenol (100% @ 80-120%), 4,6-Dinitro-2-Methylphenol (99% @ 80-120%), Benzoic Acid (79% @ 80-120%), Pentachlorophenol (97% @ 80-120%)

D0C0428-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).

4-Nitrophenol (21% @ 20%), Benzoic Acid (21% @ 20%), Hexachlorocyclopentadiene (30% @ 20%)

D0C0428-CCV1 Initial Calibration Verification recovery is below lower control limit (ICV-).

Hexachlorocyclopentadiene

D0C0458-CCV1 Calibration required quadratic regression (Q).

2,4-Dinitrophenol (104% @ 80-120%), 4,6-Dinitro-2-Methylphenol (104% @ 80-120%), Benzoic Acid (114% @ 80-120%), Pentachlorophenol (105% @ 80-120%)

DC02308-BS1 Blank Spike recovery is below lower control limit (B-).

Hexachlorocyclopentadiene (38% @ 40-140%)

DC02308-BSD1 Blank Spike recovery is below lower control limit (B-).

Hexachlorocyclopentadiene (29% @ 40-140%)

DC02309-BS1 Blank Spike recovery is below lower control limit (B-).

4-Chloroaniline (31% @ 40-140%)

DC02309-BSD1 Blank Spike recovery is below lower control limit (B-).

4-Chloroaniline (27% @ 40-140%), Aniline (35% @ 40-140%)



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

No other observations noted.

End of Project Narrative.

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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

- 20C0705-01 Internal Standard(s) outside of criteria (I).
1,4-Dichlorobenzene-D4 (31% @ 50-200%)
- 20C0705-10 Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
1,4-Dichlorobenzene-D4 (48% @ 50-200%)
- 20C0705-10 Reported above the quantitation limit; Estimated value (E).
Ethylbenzene , Toluene , Xylene O , Xylene P,M
- 20C0705-13 Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
1,4-Dichlorobenzene-D4 (38% @ 50-200%)
- 20C0705-15 Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
1,4-Dichlorobenzene-D4 (20% @ 50-200%)
- 20C0705-15 Reported above the quantitation limit; Estimated value (E).
Ethylbenzene , Xylene O , Xylene P,M
- 20C0705-15 Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
Toluene-d8 (140% @ 70-130%)
- DC02645-MS1 Matrix spike recovery(ies) outside of criteria. Reanalysis confirms. (MC-)
- DC02645-MSD1 Matrix spike recovery(ies) outside of criteria. Reanalysis confirms. (MC-)
- DC02742-BSD1 Relative percent difference for duplicate is outside of criteria (D+).
1,4-Dioxane (27% @ 20%)
- DC02742-MS1 Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
1,4-Dichlorobenzene-D4 (31% @ 50-200%)
- DC02742-MS1 Majority of matrix spike compounds are outside of criteria due to matrix interferences (MM).
- DC02742-MSD1 Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
1,4-Dichlorobenzene-D4 (32% @ 50-200%)
- DC02742-MSD1 Majority of matrix spike compounds are outside of criteria due to matrix interferences (MM).

5035/8260B Volatile Organic Compounds / Methanol

- 20C0705-15 Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
4-Bromofluorobenzene (42% @ 70-130%), Toluene-d8 (46% @ 70-130%)

8015C Diesel Range Organics

- 20C0705-10 Surrogate recovery(ies) diluted below the MRL (SD).
O-Terphenyl (% @ 40-140%)
- 20C0705-12 Surrogate recovery(ies) diluted below the MRL (SD).
O-Terphenyl (% @ 40-140%)
- 20C0705-15 Surrogate recovery(ies) diluted below the MRL (SD).
O-Terphenyl (% @ 40-140%)
- DC02311-MS1 Due to high target values, matrix spike analyte(s) is masked (MT).
- DC02311-MSD1 Due to high target values, matrix spike analyte(s) is masked (MT).

8100M Total Petroleum Hydrocarbons

- 20C0705-06 Surrogate recovery(ies) diluted below the MRL (SD).



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology

Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

- 20C0705-07 Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
O-Terphenyl (% @ 40-140%)
- 20C0705-08 Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
O-Terphenyl (302% @ 40-140%)
- 20C0705-08 Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
O-Terphenyl (376% @ 40-140%)

8270D Semi-Volatile Organic Compounds

- 20C0705-05 Elevated Method Reporting Limits due to sample matrix (EL).
Chrysene , Dibenzo(a,h)Anthracene , Hexachlorobenzene
- 20C0705-06 Elevated Method Reporting Limits due to sample matrix (EL).
Dibenzo(a,h)Anthracene , Hexachlorobenzene
- 20C0705-07 Elevated Method Reporting Limits due to sample matrix (EL).
Hexachlorobenzene
- D0C0387-CCV1 Calibration required quadratic regression (Q).
2,4-Dinitrophenol (87% @ 80-120%), 4,6-Dinitro-2-Methylphenol (88% @ 80-120%), Benzoic Acid (85% @ 80-120%)
- D0C0387-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).
Pyridine (24% @ 20%)
- D0C0387-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).
Hexachlorocyclopentadiene (45% @ 20%)
- D0C0387-CCV1 Initial Calibration Verification recovery is below lower control limit (ICV-).
Hexachlorocyclopentadiene
- D0C0428-CCV1 Calibration required quadratic regression (Q).
2,4-Dinitrophenol (100% @ 80-120%), 4,6-Dinitro-2-Methylphenol (99% @ 80-120%), Benzoic Acid (79% @ 80-120%), Pentachlorophenol (97% @ 80-120%)
- D0C0428-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).
4-Nitrophenol (21% @ 20%), Benzoic Acid (21% @ 20%), Hexachlorocyclopentadiene (30% @ 20%)
- D0C0428-CCV1 Initial Calibration Verification recovery is below lower control limit (ICV-).
Hexachlorocyclopentadiene
- D0C0458-CCV1 Calibration required quadratic regression (Q).
2,4-Dinitrophenol (104% @ 80-120%), 4,6-Dinitro-2-Methylphenol (104% @ 80-120%), Benzoic Acid (114% @ 80-120%), Pentachlorophenol (105% @ 80-120%)
- DC02308-BS1 Blank Spike recovery is below lower control limit (B-).
Hexachlorocyclopentadiene (38% @ 40-140%)
- DC02308-BSD1 Blank Spike recovery is below lower control limit (B-).
Hexachlorocyclopentadiene (29% @ 40-140%)
- DC02308-MS1 Matrix Spike recovery is below lower control limit (M-).
2,4-Dinitrophenol (0% @ 30-130%), 4,6-Dinitro-2-Methylphenol (15% @ 30-130%), Benzoic Acid (0% @ 40-140%)
- DC02308-MSD1 Matrix Spike recovery is below lower control limit (M-).
2,4-Dinitrophenol (0% @ 30-130%), 4,6-Dinitro-2-Methylphenol (12% @ 30-130%), Benzoic Acid (25% @ 40-140%), Hexachlorocyclopentadiene (13% @ 40-140%)
- DC02308-MSD1 Relative percent difference for duplicate is outside of criteria (D+).
1,2-Dichlorobenzene (32% @ 30%), 1,4-Dichlorobenzene (32% @ 30%), 2-Chlorophenol (32% @ 30%), Benzoic Acid (200% @ 30%), Hexachlorocyclopentadiene (37% @ 30%), Hexachloroethane (31% @ 30%)



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology

Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

DC02309-BS1 **Blank Spike recovery is below lower control limit (B-).**

4-Chloroaniline (31% @ 40-140%)

DC02309-BSD1 **Blank Spike recovery is below lower control limit (B-).**

4-Chloroaniline (27% @ 40-140%), Aniline (35% @ 40-140%)

DC02309-MS1 **Matrix Spike recovery is below lower control limit (M-).**

Hexachlorocyclopentadiene (29% @ 40-140%)

DC02309-MSD1 **Matrix Spike recovery is below lower control limit (M-).**

Hexachlorocyclopentadiene (26% @ 40-140%), N-Nitrosodimethylamine (39% @ 40-140%)

DC02309-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**

Pyridine (31% @ 30%)

No other observations noted.

End of Project Narrative.

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[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

- D0C0428-CCV1 [Calibration required quadratic regression \(O\).](#)
2,4-Dinitrophenol (100% @ 80-120%), 4,6-Dinitro-2-Methylphenol (99% @ 80-120%), Benzoic Acid (79% @ 80-120%), Pentachlorophenol (97% @ 80-120%)
- D0C0428-CCV1 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
4-Nitrophenol (21% @ 20%), Benzoic Acid (21% @ 20%), Hexachlorocyclopentadiene (30% @ 20%)
- D0C0428-CCV1 [Initial Calibration Verification recovery is below lower control limit \(ICV-\).](#)
Hexachlorocyclopentadiene
- DC02309-BS1 [Blank Spike recovery is below lower control limit \(B-\).](#)
4-Chloroaniline (31% @ 40-140%)
- DC02309-BSD1 [Blank Spike recovery is below lower control limit \(B-\).](#)
4-Chloroaniline (27% @ 40-140%), Aniline (35% @ 40-140%)

Total Metals

- DC02430-BSD1 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)
Antimony (31% @ 20%)

No other observations noted.

End of Project Narrative.

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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-Hazmat 2
Date Sampled: 03/19/20 00:00
Percent Solids: 81

ESS Laboratory Work Order: 20C0703
ESS Laboratory Sample ID: 20C0703-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.62)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Arsenic	ND (2.31)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Beryllium	0.12 (0.10)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Cadmium	ND (0.46)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Chromium	2.93 (0.92)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Copper	2.74 (2.31)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Lead	ND (4.62)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Mercury	ND (0.019)		7471B		1	MKS	03/24/20 7:40	1.31	40	DC02342
Nickel	ND (2.31)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Selenium	ND (4.62)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Silver	ND (0.46)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Thallium	ND (4.62)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341
Zinc	6.12 (2.31)		6010C		1	BJV	03/23/20 20:41	2.66	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 4.9
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1,4-Dioxane	ND (0.125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
1-Chlorohexane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
2-Butanone	ND (0.0627)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
2-Chlorotoluene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
2-Hexanone	ND (0.0627)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
4-Chlorotoluene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0627)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Acetone	ND (0.0627)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Benzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 4.9
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Bromochloromethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Bromodichloromethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Bromoform	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Bromomethane	ND (0.0125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Carbon Disulfide	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Chlorobenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Chloroethane	ND (0.0125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Chloroform	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Chloromethane	ND (0.0125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Dibromochloromethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Dibromomethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Diethyl Ether	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Di-isopropyl ether	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Ethylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Isopropylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Methylene Chloride	ND (0.0313)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Naphthalene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
n-Butylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
n-Propylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
sec-Butylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Styrene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
tert-Butylbenzene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 4.9
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrachloroethene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Tetrahydrofuran	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Toluene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Trichloroethene	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Vinyl Acetate	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Vinyl Chloride	ND (0.0125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Xylene O	ND (0.0063)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Xylene P,M	ND (0.0125)		8260B Low		1	03/23/20 19:24	D0C0405	DC02338
Xylenes (Total)	ND (0.0125)		8260B Low		1	03/23/20 19:24		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	111 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	99 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	105 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 20.7
 Final Volume: 1
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (44.5)		8100M		1	03/23/20 13:40	DOC0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>90 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 14.9
 Final Volume: 0.5
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: TJ
 Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,4-Dinitrophenol	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2-Chloronaphthalene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2-Chlorophenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2-Methylnaphthalene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2-Methylphenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2-Nitroaniline	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
2-Nitrophenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.825)		8270D		1	03/23/20 22:15	D0C0387	DC02308
3+4-Methylphenol	ND (0.825)		8270D		1	03/23/20 22:15	D0C0387	DC02308
3-Nitroaniline	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4-Chloroaniline	ND (0.825)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4-Nitroaniline	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
4-Nitrophenol	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Acenaphthene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Acenaphthylene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 14.9
 Final Volume: 0.5
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: TJ
 Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Acetophenone	ND (0.825)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Aniline	ND (0.825)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Anthracene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Azobenzene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzo(a)anthracene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzo(a)pyrene	ND (0.207)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzoic Acid	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Benzyl Alcohol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Butylbenzylphthalate	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Carbazole	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Chrysene	ND (0.207)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.207)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Dibenzofuran	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Diethylphthalate	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Dimethylphthalate	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Di-n-butylphthalate	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Di-n-octylphthalate	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Fluoranthene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Fluorene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Hexachlorobenzene	ND (0.207)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Hexachlorobutadiene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Hexachloroethane	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-Hazmat 2
 Date Sampled: 03/19/20 00:00
 Percent Solids: 81
 Initial Volume: 14.9
 Final Volume: 0.5
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0703
 ESS Laboratory Sample ID: 20C0703-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: TJ
 Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Isophorone	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Naphthalene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Nitrobenzene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Pentachlorophenol	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Phenanthrene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Phenol	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Pyrene	ND (0.412)		8270D		1	03/23/20 22:15	D0C0387	DC02308
Pyridine	ND (2.07)		8270D		1	03/23/20 22:15	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	85 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	82 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	90 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	86 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	86 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	79 %		30-130
<i>Surrogate: Phenol-d6</i>	90 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	92 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-9-0-2.5
Date Sampled: 03/19/20 09:10
Percent Solids: 94

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	2530 (40.0)		6010C		10	KJK	03/24/20 11:08	2.65	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-9-0-2.5
 Date Sampled: 03/19/20 09:10
 Percent Solids: 94
 Initial Volume: 6
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.0044)		8260B Low		1	03/23/20 15:33	D0C0405	DC02338
Ethylbenzene	ND (0.0044)		8260B Low		1	03/23/20 15:33	D0C0405	DC02338
Toluene	ND (0.0044)		8260B Low		1	03/23/20 15:33	D0C0405	DC02338
Xylene O	ND (0.0044)		8260B Low		1	03/23/20 15:33	D0C0405	DC02338
Xylene P,M	ND (0.0088)		8260B Low		1	03/23/20 15:33	D0C0405	DC02338
Xylenes (Total)	ND (0.00883)		8260B Low		1	03/23/20 15:33		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>92 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-9-0-2.5
Date Sampled: 03/19/20 09:10
Percent Solids: 94
Initial Volume: 19.8
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	263 (16.1)		8015C		1	03/23/20 17:01	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		97 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-9-0-2.5
 Date Sampled: 03/19/20 09:10
 Percent Solids: 94
 Initial Volume: 15.5
 Final Volume: 15
 Extraction Method: 5030B

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK
 Prepared: 3/26/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	ND (5.43)		8015C		1	03/26/20 14:56	D0C0485	DC02647
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		93 %		70-130				
<i>Surrogate: Trifluorotoluene - FID</i>		109 %		70-130				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-9-25-27.5
Date Sampled: 03/19/20 10:00
Percent Solids: 91

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	ND (4.09)		6010C		1	BJV	03/23/20 20:48	2.69	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-9-25-27.5
 Date Sampled: 03/19/20 10:00
 Percent Solids: 91
 Initial Volume: 4.8
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.0057)		8260B Low		1	03/23/20 15:59	D0C0405	DC02338
Ethylbenzene	ND (0.0057)		8260B Low		1	03/23/20 15:59	D0C0405	DC02338
Toluene	ND (0.0057)		8260B Low		1	03/23/20 15:59	D0C0405	DC02338
Xylene O	ND (0.0057)		8260B Low		1	03/23/20 15:59	D0C0405	DC02338
Xylene P,M	ND (0.0115)		8260B Low		1	03/23/20 15:59	D0C0405	DC02338
Xylenes (Total)	ND (0.0115)		8260B Low		1	03/23/20 15:59		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>94 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-9-25-27.5
Date Sampled: 03/19/20 10:00
Percent Solids: 91
Initial Volume: 20.9
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	ND (15.8)		8015C		1	03/23/20 17:33	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		79 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-9-25-27.5
Date Sampled: 03/19/20 10:00
Percent Solids: 91
Initial Volume: 11.3
Final Volume: 15
Extraction Method: 5030B

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK
Prepared: 3/25/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	ND (7.81)		8015C		1	03/25/20 16:27	D0C0460	DC02536
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		<i>98 %</i>		<i>70-130</i>				
<i>Surrogate: Trifluorotoluene - FID</i>		<i>101 %</i>		<i>70-130</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.10)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Arsenic	5.59 (2.05)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Beryllium	0.40 (0.09)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Cadmium	ND (0.41)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Chromium	6.79 (0.82)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Copper	21.7 (2.05)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Lead	31.1 (4.10)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Mercury	ND (0.030)		7471B		1	MKS	03/24/20 7:55	0.73	40	DC02342
Nickel	8.76 (2.05)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Selenium	ND (4.10)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Silver	ND (0.41)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Thallium	ND (4.10)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341
Zinc	32.9 (2.05)		6010C		1	BJV	03/23/20 20:52	2.67	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1,4-Dioxane	ND (0.112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
1-Chlorohexane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
2-Butanone	ND (0.0559)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
2-Chlorotoluene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
2-Hexanone	ND (0.0559)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
4-Chlorotoluene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0559)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Acetone	ND (0.0559)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Benzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Bromobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-10-0-2.5
 Date Sampled: 03/19/20 10:45
 Percent Solids: 91
 Initial Volume: 4.9
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Bromodichloromethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Bromoform	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Bromomethane	ND (0.0112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Carbon Disulfide	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Chlorobenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Chloroethane	ND (0.0112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Chloroform	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Chloromethane	ND (0.0112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Dibromochloromethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Dibromomethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Diethyl Ether	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Di-isopropyl ether	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Ethylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Isopropylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Methylene Chloride	ND (0.0279)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Naphthalene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
n-Butylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
n-Propylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
sec-Butylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Styrene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
tert-Butylbenzene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Tetrachloroethene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Tetrahydrofuran	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Trichloroethene	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Vinyl Acetate	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Vinyl Chloride	ND (0.0112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Xylene O	ND (0.0056)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Xylene P,M	ND (0.0112)		8260B Low		1	03/23/20 16:25	D0C0405	DC02338
Xylenes (Total)	ND (0.0112)		8260B Low		1	03/23/20 16:25		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>75 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>117 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91
Initial Volume: 19.8
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	252 (41.5)		8100M		1	03/24/20 1:46	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		99 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.180)		8270D		1	03/26/20 4:14	D0C0458	DC02309
1,2,4-Trichlorobenzene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
1,2-Dichlorobenzene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
1,3-Dichlorobenzene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
1,4-Dichlorobenzene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,3,4,6-Tetrachlorophenol	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,4,5-Trichlorophenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,4,6-Trichlorophenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,4-Dichlorophenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,4-Dimethylphenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,4-Dinitrophenol	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,4-Dinitrotoluene	ND (0.180)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2,6-Dinitrotoluene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2-Chloronaphthalene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2-Chlorophenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2-Methylnaphthalene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2-Methylphenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2-Nitroaniline	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
2-Nitrophenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
3,3'-Dichlorobenzidine	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
3+4-Methylphenol	ND (0.721)		8270D		1	03/26/20 4:14	D0C0458	DC02309
3-Nitroaniline	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4,6-Dinitro-2-Methylphenol	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4-Bromophenyl-phenylether	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4-Chloro-3-Methylphenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4-Chloroaniline	ND (0.721)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4-Chloro-phenyl-phenyl ether	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4-Nitroaniline	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
4-Nitrophenol	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Acenaphthene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Acenaphthylene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Acetophenone	ND (0.721)		8270D		1	03/26/20 4:14	D0C0458	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.721)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Anthracene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Azobenzene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzo(a)anthracene	ND (0.119)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzo(a)pyrene	ND (0.180)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzo(b)fluoranthene	ND (0.108)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzo(g,h,i)perylene	ND (0.108)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzo(k)fluoranthene	ND (0.108)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzoic Acid	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Benzyl Alcohol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
bis(2-Chloroethoxy)methane	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
bis(2-Chloroethyl)ether	ND (0.108)		8270D		1	03/26/20 4:14	D0C0458	DC02309
bis(2-chloroisopropyl)Ether	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
bis(2-Ethylhexyl)phthalate	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Butylbenzylphthalate	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Carbazole	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Chrysene	0.119 (0.090)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Dibenzo(a,h)Anthracene	ND (0.090)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Dibenzofuran	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Diethylphthalate	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Dimethylphthalate	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Di-n-butylphthalate	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Di-n-octylphthalate	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Fluoranthene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Fluorene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Hexachlorobenzene	ND (0.180)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Hexachlorobutadiene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Hexachlorocyclopentadiene	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Hexachloroethane	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Indeno(1,2,3-cd)Pyrene	ND (0.119)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Isophorone	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Naphthalene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-0-2.5
Date Sampled: 03/19/20 10:45
Percent Solids: 91
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
N-Nitrosodimethylamine	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
N-Nitroso-Di-n-Propylamine	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
N-nitrosodiphenylamine	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Pentachlorophenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Phenanthrene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Phenol	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Pyrene	ND (0.360)		8270D		1	03/26/20 4:14	D0C0458	DC02309
Pyridine	ND (1.80)		8270D		1	03/26/20 4:14	D0C0458	DC02309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	77 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	92 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	81 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	76 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	78 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	78 %		30-130
<i>Surrogate: Phenol-d6</i>	79 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	88 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.14)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Arsenic	ND (2.07)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Beryllium	0.12 (0.09)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Cadmium	ND (0.41)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Chromium	4.50 (0.83)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Copper	2.64 (2.07)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Lead	ND (4.14)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Mercury	ND (0.021)		7471B		1	MKS	03/24/20 7:57	1	40	DC02342
Nickel	3.68 (2.07)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Selenium	ND (4.14)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Silver	ND (0.41)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Thallium	ND (4.14)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341
Zinc	5.65 (2.07)		6010C		1	BJV	03/23/20 20:56	2.61	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,1,1-Trichloroethane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,1,2,2-Tetrachloroethane	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,1,2-Trichloroethane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,1-Dichloroethane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,1-Dichloroethene	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,1-Dichloropropene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2,3-Trichlorobenzene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2,3-Trichloropropane	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2,4-Trichlorobenzene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2,4-Trimethylbenzene	19.7 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2-Dibromo-3-Chloropropane	ND (1.20)	0.239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2-Dibromoethane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2-Dichlorobenzene	J 0.0503 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2-Dichloroethane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,2-Dichloropropane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,3,5-Trimethylbenzene	6.04 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,3-Dichlorobenzene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,3-Dichloropropane	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,4-Dichlorobenzene	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
1,4-Dioxane - Screen	ND (47.9)	45.5	8260B		1	03/24/20 14:55	D0C0421	DC02424
1-Chlorohexane	ND (0.239)	0.0957	8260B		1	03/24/20 14:55	D0C0421	DC02424
2,2-Dichloropropane	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
2-Butanone	ND (1.20)	0.814	8260B		1	03/24/20 14:55	D0C0421	DC02424
2-Chlorotoluene	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
2-Hexanone	ND (1.20)	0.359	8260B		1	03/24/20 14:55	D0C0421	DC02424
4-Chlorotoluene	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
4-Isopropyltoluene	1.82 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
4-Methyl-2-Pentanone	ND (1.20)	0.383	8260B		1	03/24/20 14:55	D0C0421	DC02424
Acetone	ND (1.20)	0.646	8260B		1	03/24/20 14:55	D0C0421	DC02424
Benzene	0.287 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Bromobenzene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
Bromodichloromethane	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Bromoform	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Bromomethane	ND (0.239)	0.0957	8260B		1	03/24/20 14:55	D0C0421	DC02424
Carbon Disulfide	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Carbon Tetrachloride	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Chlorobenzene	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Chloroethane	ND (0.239)	0.0957	8260B		1	03/24/20 14:55	D0C0421	DC02424
Chloroform	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Chloromethane	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
cis-1,2-Dichloroethene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
cis-1,3-Dichloropropene	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
Dibromochloromethane	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Dibromomethane	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
Dichlorodifluoromethane	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
Diethyl Ether	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
Di-isopropyl ether	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Ethyl tertiary-butyl ether	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Ethylbenzene	3.48 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Hexachlorobutadiene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Isopropylbenzene	1.23 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Methyl tert-Butyl Ether	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
Methylene Chloride	ND (0.479)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Naphthalene	13.8 (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
n-Butylbenzene	3.62 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
n-Propylbenzene	2.41 (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
sec-Butylbenzene	1.22 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Styrene	ND (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
tert-Butylbenzene	J 0.0694 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Tertiary-amyl methyl ether	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Tetrachloroethene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Tetrahydrofuran	ND (1.20)	0.383	8260B		1	03/24/20 14:55	D0C0421	DC02424



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	J 0.0574 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
trans-1,2-Dichloroethene	ND (0.239)	0.0718	8260B		1	03/24/20 14:55	D0C0421	DC02424
trans-1,3-Dichloropropene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Trichloroethene	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Trichlorofluoromethane	ND (0.239)	0.0957	8260B		1	03/24/20 14:55	D0C0421	DC02424
Vinyl Acetate	ND (0.239)	0.120	8260B		1	03/24/20 14:55	D0C0421	DC02424
Vinyl Chloride	ND (0.239)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Xylene O	J 0.225 (0.239)	0.0239	8260B		1	03/24/20 14:55	D0C0421	DC02424
Xylene P,M	14.6 (0.479)	0.0479	8260B		1	03/24/20 14:55	D0C0421	DC02424
Xylenes (Total)	14.8 (0.479)		8260B		1	03/24/20 14:55		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	11700 (401)		8100M		10	03/24/20 5:04	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		114 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	0.927 (0.694)		8270D		2	03/26/20 4:41	D0C0458	DC02309
1,2,4-Trichlorobenzene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
1,2-Dichlorobenzene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
1,3-Dichlorobenzene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
1,4-Dichlorobenzene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,3,4,6-Tetrachlorophenol	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,4,5-Trichlorophenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,4,6-Trichlorophenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,4-Dichlorophenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,4-Dimethylphenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,4-Dinitrophenol	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,4-Dinitrotoluene	ND (0.692)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2,6-Dinitrotoluene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2-Chloronaphthalene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2-Chlorophenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2-Methylnaphthalene	19.4 (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2-Methylphenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2-Nitroaniline	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
2-Nitrophenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
3,3'-Dichlorobenzidine	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
3+4-Methylphenol	ND (2.77)		8270D		2	03/26/20 4:41	D0C0458	DC02309
3-Nitroaniline	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4,6-Dinitro-2-Methylphenol	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4-Bromophenyl-phenylether	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4-Chloro-3-Methylphenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4-Chloroaniline	ND (2.77)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4-Chloro-phenyl-phenyl ether	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4-Nitroaniline	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
4-Nitrophenol	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Acenaphthene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Acenaphthylene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Acetophenone	ND (2.77)		8270D		2	03/26/20 4:41	D0C0458	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (2.77)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Anthracene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Azobenzene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzo(a)anthracene	0.692 (0.457)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzo(a)pyrene	ND (0.694)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzo(b)fluoranthene	ND (0.415)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzo(g,h,i)perylene	ND (0.415)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzo(k)fluoranthene	ND (0.415)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzoic Acid	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Benzyl Alcohol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
bis(2-Chloroethoxy)methane	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
bis(2-Chloroethyl)ether	ND (0.415)		8270D		2	03/26/20 4:41	D0C0458	DC02309
bis(2-chloroisopropyl)Ether	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
bis(2-Ethylhexyl)phthalate	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Butylbenzylphthalate	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Carbazole	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Chrysene	1.44 (0.346)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Dibenzo(a,h)Anthracene	ND (0.346)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Dibenzofuran	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Diethylphthalate	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Dimethylphthalate	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Di-n-butylphthalate	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Di-n-octylphthalate	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Fluoranthene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Fluorene	1.95 (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Hexachlorobenzene	ND (0.694)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Hexachlorobutadiene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Hexachlorocyclopentadiene	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Hexachloroethane	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Indeno(1,2,3-cd)Pyrene	ND (0.457)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Isophorone	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Naphthalene	5.59 (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-10-15-17.5
Date Sampled: 03/19/20 11:45
Percent Solids: 93
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
N-Nitrosodimethylamine	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
N-Nitroso-Di-n-Propylamine	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
N-nitrosodiphenylamine	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Pentachlorophenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Phenanthrene	6.41 (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Phenol	ND (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Pyrene	1.39 (1.38)		8270D		2	03/26/20 4:41	D0C0458	DC02309
Pyridine	ND (6.94)		8270D		2	03/26/20 4:41	D0C0458	DC02309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	61 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	80 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	60 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	60 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	69 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	65 %		30-130
<i>Surrogate: Phenol-d6</i>	56 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	76 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.09)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Arsenic	5.00 (2.05)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Beryllium	0.25 (0.09)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Cadmium	1.52 (0.41)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Chromium	9.95 (0.82)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Copper	24.9 (2.05)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Lead	115 (4.09)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Mercury	0.095 (0.030)		7471B		1	MKS	03/24/20 7:59	0.78	40	DC02342
Nickel	20.9 (2.05)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Selenium	ND (4.09)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Silver	ND (0.41)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Thallium	ND (4.09)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341
Zinc	316 (2.05)		6010C		1	BJV	03/23/20 21:00	2.86	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1,4-Dioxane	ND (0.119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
1-Chlorohexane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
2-Butanone	ND (0.0597)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
2-Chlorotoluene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
2-Hexanone	ND (0.0597)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
4-Chlorotoluene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0597)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Acetone	ND (0.0597)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Benzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Bromobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Bromodichloromethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Bromoform	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Bromomethane	ND (0.0119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Carbon Disulfide	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Chlorobenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Chloroethane	ND (0.0119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Chloroform	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Chloromethane	ND (0.0119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Dibromochloromethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Dibromomethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Diethyl Ether	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Di-isopropyl ether	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Ethylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Isopropylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Methylene Chloride	ND (0.0299)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Naphthalene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
n-Butylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
n-Propylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
sec-Butylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Styrene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
tert-Butylbenzene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Tetrachloroethene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Tetrahydrofuran	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Trichloroethene	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Vinyl Acetate	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Vinyl Chloride	ND (0.0119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Xylene O	ND (0.0060)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Xylene P,M	ND (0.0119)		8260B Low		1	03/23/20 16:50	D0C0405	DC02338
Xylenes (Total)	ND (0.0119)		8260B Low		1	03/23/20 16:50		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 20.1
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	128 (43.7)		8100M		1	03/24/20 2:19	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		93 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 15.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.186)		8270D		1	03/26/20 0:35	D0C0458	DC02446
1,2,4-Trichlorobenzene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
1,2-Dichlorobenzene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
1,3-Dichlorobenzene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
1,4-Dichlorobenzene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,3,4,6-Tetrachlorophenol	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,4,5-Trichlorophenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,4,6-Trichlorophenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,4-Dichlorophenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,4-Dimethylphenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,4-Dinitrophenol	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,4-Dinitrotoluene	ND (0.185)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2,6-Dinitrotoluene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2-Chloronaphthalene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2-Chlorophenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2-Methylnaphthalene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2-Methylphenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2-Nitroaniline	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
2-Nitrophenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
3,3'-Dichlorobenzidine	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
3+4-Methylphenol	ND (0.742)		8270D		1	03/26/20 0:35	D0C0458	DC02446
3-Nitroaniline	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4,6-Dinitro-2-Methylphenol	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4-Bromophenyl-phenylether	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4-Chloro-3-Methylphenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4-Chloroaniline	ND (0.742)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4-Chloro-phenyl-phenyl ether	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4-Nitroaniline	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
4-Nitrophenol	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Acenaphthene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Acenaphthylene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Acetophenone	ND (0.742)		8270D		1	03/26/20 0:35	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 15.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.742)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Anthracene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Azobenzene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzo(a)anthracene	0.358 (0.122)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzo(a)pyrene	0.442 (0.186)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzo(b)fluoranthene	0.496 (0.111)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzo(g,h,i)perylene	0.273 (0.111)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzo(k)fluoranthene	0.308 (0.111)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzoic Acid	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Benzyl Alcohol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
bis(2-Chloroethoxy)methane	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
bis(2-Chloroethyl)ether	ND (0.111)		8270D		1	03/26/20 0:35	D0C0458	DC02446
bis(2-chloroisopropyl)Ether	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
bis(2-Ethylhexyl)phthalate	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Butylbenzylphthalate	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Carbazole	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Chrysene	0.431 (0.093)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Dibenzo(a,h)Anthracene	ND (0.093)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Dibenzofuran	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Diethylphthalate	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Dimethylphthalate	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Di-n-butylphthalate	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Di-n-octylphthalate	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Fluoranthene	0.472 (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Fluorene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Hexachlorobenzene	ND (0.186)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Hexachlorobutadiene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Hexachlorocyclopentadiene	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Hexachloroethane	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Indeno(1,2,3-cd)Pyrene	0.249 (0.122)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Isophorone	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Naphthalene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-0-2.5
Date Sampled: 03/19/20 12:30
Percent Solids: 85
Initial Volume: 15.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
N-Nitrosodimethylamine	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
N-Nitroso-Di-n-Propylamine	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
N-nitrosodiphenylamine	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Pentachlorophenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Phenanthrene	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Phenol	ND (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Pyrene	0.407 (0.370)		8270D		1	03/26/20 0:35	D0C0458	DC02446
Pyridine	ND (1.86)		8270D		1	03/26/20 0:35	D0C0458	DC02446

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	73 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	90 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	77 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	71 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	77 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	76 %		30-130
<i>Surrogate: Phenol-d6</i>	78 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	88 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.21)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Arsenic	2.30 (2.10)		6010C		1	KJK	03/24/20 11:14	2.79	100	DC02341
Beryllium	0.19 (0.09)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Cadmium	ND (0.42)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Chromium	3.22 (0.84)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Copper	2.70 (2.10)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Lead	ND (4.21)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Mercury	ND (0.017)		7471B		1	MKS	03/24/20 8:01	1.37	40	DC02342
Nickel	2.85 (2.10)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Selenium	ND (4.21)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Silver	ND (0.42)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Thallium	ND (4.21)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341
Zinc	45.4 (2.10)		6010C		1	BJV	03/23/20 21:16	2.79	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2,4-Trichlorobenzene	0.0252 (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1,4-Dioxane	ND (0.0876)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
1-Chlorohexane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
2-Butanone	ND (0.0438)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
2-Chlorotoluene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
2-Hexanone	ND (0.0438)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
4-Chlorotoluene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0438)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Acetone	0.0551 (0.0438)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Benzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Bromobenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Bromodichloromethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Bromoform	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Bromomethane	ND (0.0088)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Carbon Disulfide	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Chlorobenzene	0.0112 (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Chloroethane	ND (0.0088)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Chloroform	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Chloromethane	ND (0.0088)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Dibromochloromethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Dibromomethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0088)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Diethyl Ether	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Di-isopropyl ether	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Ethylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Isopropylbenzene	0.0105 (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Methylene Chloride	ND (0.0219)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Naphthalene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
n-Butylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
n-Propylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
sec-Butylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Styrene	0.0069 (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
tert-Butylbenzene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Tetrachloroethene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Tetrahydrofuran	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Trichloroethene	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Vinyl Acetate	ND (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Vinyl Chloride	ND (0.0088)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Xylene O	E 0.237 (0.0044)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Xylene P,M	ND (0.0088)		8260B Low		1	03/23/20 17:16	D0C0405	DC02338
Xylenes (Total)	0.237 (0.00876)		8260B Low		1	03/23/20 17:16		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 14.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,1,1-Trichloroethane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,1,2,2-Tetrachloroethane	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,1,2-Trichloroethane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,1-Dichloroethane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,1-Dichloroethene	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,1-Dichloropropene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2,3-Trichlorobenzene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2,3-Trichloropropane	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2,4-Trichlorobenzene	J 0.175 (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2,4-Trimethylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2-Dibromo-3-Chloropropane	ND (1.36)	0.273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2-Dibromoethane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2-Dichlorobenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2-Dichloroethane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,2-Dichloropropane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,3,5-Trimethylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,3-Dichlorobenzene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,3-Dichloropropane	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,4-Dichlorobenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
1,4-Dioxane - Screen	ND (54.5)	51.8	8260B		1	03/24/20 12:15	D0C0421	DC02424
1-Chlorohexane	ND (0.273)	0.109	8260B		1	03/24/20 12:15	D0C0421	DC02424
2,2-Dichloropropane	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
2-Butanone	ND (1.36)	0.927	8260B		1	03/24/20 12:15	D0C0421	DC02424
2-Chlorotoluene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
2-Hexanone	ND (1.36)	0.409	8260B		1	03/24/20 12:15	D0C0421	DC02424
4-Chlorotoluene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
4-Isopropyltoluene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
4-Methyl-2-Pentanone	ND (1.36)	0.436	8260B		1	03/24/20 12:15	D0C0421	DC02424
Acetone	ND (1.36)	0.736	8260B		1	03/24/20 12:15	D0C0421	DC02424
Benzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Bromobenzene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 14.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
Bromodichloromethane	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Bromoform	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Bromomethane	ND (0.273)	0.109	8260B		1	03/24/20 12:15	D0C0421	DC02424
Carbon Disulfide	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Carbon Tetrachloride	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Chlorobenzene	J 0.0355 (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Chloroethane	ND (0.273)	0.109	8260B		1	03/24/20 12:15	D0C0421	DC02424
Chloroform	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Chloromethane	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
cis-1,2-Dichloroethene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
cis-1,3-Dichloropropene	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
Dibromochloromethane	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Dibromomethane	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
Dichlorodifluoromethane	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
Diethyl Ether	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
Di-isopropyl ether	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Ethyl tertiary-butyl ether	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Ethylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Hexachlorobutadiene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Isopropylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Methyl tert-Butyl Ether	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
Methylene Chloride	ND (0.545)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Naphthalene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
n-Butylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
n-Propylbenzene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
sec-Butylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Styrene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
tert-Butylbenzene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Tertiary-amyl methyl ether	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Tetrachloroethene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Tetrahydrofuran	ND (1.36)	0.436	8260B		1	03/24/20 12:15	D0C0421	DC02424



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-17-15-17.5
 Date Sampled: 03/19/20 13:00
 Percent Solids: 85
 Initial Volume: 14.8
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
trans-1,2-Dichloroethene	ND (0.273)	0.0818	8260B		1	03/24/20 12:15	D0C0421	DC02424
trans-1,3-Dichloropropene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Trichloroethene	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Trichlorofluoromethane	ND (0.273)	0.109	8260B		1	03/24/20 12:15	D0C0421	DC02424
Vinyl Acetate	ND (0.273)	0.136	8260B		1	03/24/20 12:15	D0C0421	DC02424
Vinyl Chloride	ND (0.273)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Xylene O	0.565 (0.273)	0.0273	8260B		1	03/24/20 12:15	D0C0421	DC02424
Xylene P,M	ND (0.545)	0.0545	8260B		1	03/24/20 12:15	D0C0421	DC02424
Xylenes (Total)	0.565 (0.545)		8260B		1	03/24/20 12:15		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 20.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (42.9)		8100M		1	03/23/20 18:06	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>98 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.197)		8270D		1	03/24/20 0:11	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,4-Dinitrophenol	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.197)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2-Chloronaphthalene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2-Chlorophenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2-Methylnaphthalene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2-Methylphenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2-Nitroaniline	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
2-Nitrophenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
3+4-Methylphenol	ND (0.788)		8270D		1	03/24/20 0:11	D0C0387	DC02308
3-Nitroaniline	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4-Chloroaniline	ND (0.788)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4-Nitroaniline	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
4-Nitrophenol	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Acenaphthene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Acenaphthylene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Acetophenone	ND (0.788)		8270D		1	03/24/20 0:11	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.788)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Anthracene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Azobenzene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzo(a)anthracene	ND (0.130)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzo(a)pyrene	ND (0.197)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.118)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.118)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.118)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzoic Acid	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Benzyl Alcohol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.118)		8270D		1	03/24/20 0:11	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Butylbenzylphthalate	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Carbazole	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Chrysene	ND (0.098)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.098)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Dibenzofuran	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Diethylphthalate	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Dimethylphthalate	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Di-n-butylphthalate	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Di-n-octylphthalate	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Fluoranthene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Fluorene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Hexachlorobenzene	ND (0.197)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Hexachlorobutadiene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Hexachloroethane	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.130)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Isophorone	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Naphthalene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-17-15-17.5
Date Sampled: 03/19/20 13:00
Percent Solids: 85
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Pentachlorophenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Phenanthrene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Phenol	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Pyrene	ND (0.394)		8270D		1	03/24/20 0:11	D0C0387	DC02308
Pyridine	ND (1.97)		8270D		1	03/24/20 0:11	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	52 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	65 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	60 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	54 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	55 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	49 %		30-130
<i>Surrogate: Phenol-d6</i>	61 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	72 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.14)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Arsenic	4.85 (2.07)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Beryllium	0.20 (0.09)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Cadmium	ND (0.41)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Chromium	9.57 (0.83)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Copper	7.18 (2.07)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Lead	9.41 (4.14)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Mercury	ND (0.015)		7471B		1	MKS	03/24/20 8:03	1.4	40	DC02342
Nickel	2.95 (2.07)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Selenium	ND (4.14)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Silver	ND (0.41)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Thallium	ND (4.14)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341
Zinc	28.6 (2.07)		6010C		1	BJV	03/23/20 21:20	2.59	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 4.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1,4-Dioxane	ND (0.122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
1-Chlorohexane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
2-Butanone	ND (0.0609)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
2-Chlorotoluene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
2-Hexanone	ND (0.0609)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
4-Chlorotoluene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0609)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Acetone	ND (0.0609)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Benzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Bromobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 4.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Bromodichloromethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Bromoform	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Bromomethane	ND (0.0122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Carbon Disulfide	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Chlorobenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Chloroethane	ND (0.0122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Chloroform	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Chloromethane	ND (0.0122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Dibromochloromethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Dibromomethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Diethyl Ether	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Di-isopropyl ether	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Ethylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Isopropylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Methylene Chloride	ND (0.0305)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Naphthalene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
n-Butylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
n-Propylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
sec-Butylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Styrene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
tert-Butylbenzene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Tetrachloroethene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Tetrahydrofuran	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 4.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Trichloroethene	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Vinyl Acetate	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Vinyl Chloride	ND (0.0122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Xylene O	ND (0.0061)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Xylene P,M	ND (0.0122)		8260B Low		1	03/23/20 17:42	D0C0405	DC02338
Xylenes (Total)	ND (0.0122)		8260B Low		1	03/23/20 17:42		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>94 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 20.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (39.2)		8100M		1	03/23/20 18:38	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		93 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.178)		8270D		1	03/24/20 0:40	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,4-Dinitrophenol	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.178)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2-Chloronaphthalene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2-Chlorophenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2-Methylnaphthalene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2-Methylphenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2-Nitroaniline	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
2-Nitrophenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
3+4-Methylphenol	ND (0.711)		8270D		1	03/24/20 0:40	D0C0387	DC02308
3-Nitroaniline	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4-Chloroaniline	ND (0.711)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4-Nitroaniline	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
4-Nitrophenol	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Acenaphthene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Acenaphthylene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Acetophenone	ND (0.711)		8270D		1	03/24/20 0:40	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.711)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Anthracene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Azobenzene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzo(a)anthracene	ND (0.117)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzo(a)pyrene	ND (0.178)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.107)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.107)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.107)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzoic Acid	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Benzyl Alcohol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.107)		8270D		1	03/24/20 0:40	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Butylbenzylphthalate	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Carbazole	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Chrysene	ND (0.089)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.089)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Dibenzofuran	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Diethylphthalate	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Dimethylphthalate	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Di-n-butylphthalate	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Di-n-octylphthalate	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Fluoranthene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Fluorene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Hexachlorobenzene	ND (0.178)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Hexachlorobutadiene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Hexachloroethane	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.117)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Isophorone	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Naphthalene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-0-2.5
Date Sampled: 03/19/20 15:15
Percent Solids: 93
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Pentachlorophenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Phenanthrene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Phenol	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Pyrene	ND (0.355)		8270D		1	03/24/20 0:40	D0C0387	DC02308
Pyridine	ND (1.78)		8270D		1	03/24/20 0:40	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	85 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	82 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	95 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	82 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	90 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	78 %		30-130
<i>Surrogate: Phenol-d6</i>	94 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	97 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (3.81)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Arsenic	ND (1.90)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Beryllium	0.11 (0.08)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Cadmium	ND (0.38)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Chromium	2.87 (0.76)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Copper	2.68 (1.90)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Lead	ND (3.81)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Mercury	ND (0.019)		7471B		1	MKS	03/24/20 8:05	1.23	40	DC02342
Nickel	2.16 (1.90)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Selenium	ND (3.81)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Silver	ND (0.38)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Thallium	ND (3.81)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341
Zinc	5.93 (1.90)		6010C		1	BJV	03/23/20 21:24	3.17	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83
Initial Volume: 6.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1,4-Dioxane	ND (0.0973)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
1-Chlorohexane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
2-Butanone	ND (0.0487)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
2-Chlorotoluene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
2-Hexanone	ND (0.0487)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
4-Chlorotoluene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0487)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Acetone	ND (0.0487)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Benzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Bromobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83
Initial Volume: 6.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Bromodichloromethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Bromoform	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Bromomethane	ND (0.0097)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Carbon Disulfide	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Chlorobenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Chloroethane	ND (0.0097)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Chloroform	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Chloromethane	ND (0.0097)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Dibromochloromethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Dibromomethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0097)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Diethyl Ether	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Di-isopropyl ether	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Ethylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Isopropylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Methylene Chloride	ND (0.0243)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Naphthalene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
n-Butylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
n-Propylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
sec-Butylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Styrene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
tert-Butylbenzene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Tetrachloroethene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Tetrahydrofuran	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83
Initial Volume: 6.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Trichloroethene	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Vinyl Acetate	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Vinyl Chloride	ND (0.0097)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Xylene O	ND (0.0049)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Xylene P,M	ND (0.0097)		8260B Low		1	03/23/20 18:07	D0C0405	DC02338
Xylenes (Total)	ND (0.00973)		8260B Low		1	03/23/20 18:07		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>94 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-13-20-22.5
 Date Sampled: 03/19/20 15:30
 Percent Solids: 83
 Initial Volume: 20.8
 Final Volume: 1
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (43.5)		8100M		1	03/23/20 19:12	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		87 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83
Initial Volume: 15.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.193)		8270D		1	03/24/20 1:09	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,4-Dinitrophenol	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.192)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2-Chloronaphthalene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2-Chlorophenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2-Methylnaphthalene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2-Methylphenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2-Nitroaniline	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
2-Nitrophenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
3+4-Methylphenol	ND (0.769)		8270D		1	03/24/20 1:09	D0C0387	DC02308
3-Nitroaniline	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4-Chloroaniline	ND (0.769)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4-Nitroaniline	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
4-Nitrophenol	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Acenaphthene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Acenaphthylene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Acetophenone	ND (0.769)		8270D		1	03/24/20 1:09	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83
Initial Volume: 15.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.769)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Anthracene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Azobenzene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzo(a)anthracene	ND (0.127)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzo(a)pyrene	ND (0.193)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.115)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.115)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.115)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzoic Acid	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Benzyl Alcohol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.115)		8270D		1	03/24/20 1:09	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Butylbenzylphthalate	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Carbazole	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Chrysene	ND (0.096)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.096)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Dibenzofuran	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Diethylphthalate	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Dimethylphthalate	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Di-n-butylphthalate	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Di-n-octylphthalate	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Fluoranthene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Fluorene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Hexachlorobenzene	ND (0.193)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Hexachlorobutadiene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Hexachloroethane	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.127)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Isophorone	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Naphthalene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-13-20-22.5
Date Sampled: 03/19/20 15:30
Percent Solids: 83
Initial Volume: 15.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Pentachlorophenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Phenanthrene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Phenol	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Pyrene	ND (0.384)		8270D		1	03/24/20 1:09	D0C0387	DC02308
Pyridine	ND (1.93)		8270D		1	03/24/20 1:09	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>84 %</i>		<i>30-130</i>
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>70 %</i>		<i>30-130</i>
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>93 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>80 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorophenol</i>	<i>90 %</i>		<i>30-130</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>75 %</i>		<i>30-130</i>
<i>Surrogate: Phenol-d6</i>	<i>91 %</i>		<i>30-130</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>95 %</i>		<i>30-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.56)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Arsenic	ND (2.28)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Beryllium	0.17 (0.10)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Cadmium	ND (0.46)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Chromium	3.34 (0.91)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Copper	4.19 (2.28)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Lead	8.03 (4.56)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Mercury	ND (0.022)		7471B		1	MKS	03/24/20 8:07	0.96	40	DC02342
Nickel	2.42 (2.28)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Selenium	ND (4.56)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Silver	ND (0.46)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Thallium	ND (4.56)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341
Zinc	19.2 (2.28)		6010C		1	BJV	03/23/20 21:27	2.31	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95
Initial Volume: 4.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1,4-Dioxane	ND (0.110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
1-Chlorohexane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
2-Butanone	ND (0.0549)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
2-Chlorotoluene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
2-Hexanone	ND (0.0549)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
4-Chlorotoluene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0549)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Acetone	ND (0.0549)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Benzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Bromobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95
Initial Volume: 4.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Bromodichloromethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Bromoform	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Bromomethane	ND (0.0110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Carbon Disulfide	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Chlorobenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Chloroethane	ND (0.0110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Chloroform	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Chloromethane	ND (0.0110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Dibromochloromethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Dibromomethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Diethyl Ether	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Di-isopropyl ether	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Ethylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Isopropylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Methylene Chloride	ND (0.0274)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Naphthalene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
n-Butylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
n-Propylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
sec-Butylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Styrene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
tert-Butylbenzene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Tetrachloroethene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Tetrahydrofuran	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-14-0-2.5
 Date Sampled: 03/19/20 16:15
 Percent Solids: 95
 Initial Volume: 4.8
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
 ESS Laboratory Sample ID: 20C0704-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Trichloroethene	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Vinyl Acetate	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Vinyl Chloride	ND (0.0110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Xylene O	ND (0.0055)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Xylene P,M	ND (0.0110)		8260B Low		1	03/23/20 18:33	D0C0405	DC02338
Xylenes (Total)	ND (0.0110)		8260B Low		1	03/23/20 18:33		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95
Initial Volume: 20.1
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (39.3)		8100M		1	03/24/20 2:52	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		95 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.174)		8270D		1	03/24/20 1:38	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,4-Dinitrophenol	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.173)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2-Chloronaphthalene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2-Chlorophenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2-Methylnaphthalene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2-Methylphenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2-Nitroaniline	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
2-Nitrophenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
3+4-Methylphenol	ND (0.694)		8270D		1	03/24/20 1:38	D0C0387	DC02308
3-Nitroaniline	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4-Chloroaniline	ND (0.694)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4-Nitroaniline	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
4-Nitrophenol	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Acenaphthene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Acenaphthylene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Acetophenone	ND (0.694)		8270D		1	03/24/20 1:38	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.694)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Anthracene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Azobenzene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzo(a)anthracene	ND (0.114)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzo(a)pyrene	ND (0.174)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.104)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.104)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.104)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzoic Acid	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Benzyl Alcohol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.104)		8270D		1	03/24/20 1:38	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Butylbenzylphthalate	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Carbazole	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Chrysene	ND (0.087)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.087)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Dibenzofuran	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Diethylphthalate	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Dimethylphthalate	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Di-n-butylphthalate	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Di-n-octylphthalate	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Fluoranthene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Fluorene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Hexachlorobenzene	ND (0.174)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Hexachlorobutadiene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Hexachloroethane	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.114)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Isophorone	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Naphthalene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-0-2.5
Date Sampled: 03/19/20 16:15
Percent Solids: 95
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Pentachlorophenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Phenanthrene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Phenol	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Pyrene	ND (0.346)		8270D		1	03/24/20 1:38	D0C0387	DC02308
Pyridine	ND (1.74)		8270D		1	03/24/20 1:38	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	86 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	90 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	98 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	85 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	93 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	80 %		30-130
<i>Surrogate: Phenol-d6</i>	98 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	99 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.72)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Arsenic	ND (2.36)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Beryllium	0.12 (0.10)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Cadmium	ND (0.47)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Chromium	3.00 (0.94)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Copper	ND (2.36)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Lead	ND (4.72)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Mercury	ND (0.036)		7471B		1	MKS	03/24/20 8:13	0.65	40	DC02342
Nickel	ND (2.36)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Selenium	ND (4.72)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Silver	ND (0.47)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Thallium	ND (4.72)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341
Zinc	7.33 (2.36)		6010C		1	BJV	03/23/20 21:31	2.48	100	DC02341



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,1,1-Trichloroethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,1,2,2-Tetrachloroethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,1,2-Trichloroethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,1-Dichloroethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,1-Dichloroethene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,1-Dichloropropene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2,3-Trichlorobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2,3-Trichloropropane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2,4-Trichlorobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2,4-Trimethylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2-Dibromo-3-Chloropropane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2-Dibromoethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2-Dichlorobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2-Dichloroethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,2-Dichloropropane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,3,5-Trimethylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,3-Dichlorobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,3-Dichloropropane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,4-Dichlorobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1,4-Dioxane	ND (0.125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
1-Chlorohexane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
2,2-Dichloropropane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
2-Butanone	ND (0.0623)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
2-Chlorotoluene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
2-Hexanone	ND (0.0623)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
4-Chlorotoluene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
4-Isopropyltoluene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
4-Methyl-2-Pentanone	ND (0.0623)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Acetone	ND (0.0623)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Benzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Bromobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Bromodichloromethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Bromoform	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Bromomethane	ND (0.0125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Carbon Disulfide	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Carbon Tetrachloride	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Chlorobenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Chloroethane	ND (0.0125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Chloroform	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Chloromethane	ND (0.0125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
cis-1,2-Dichloroethene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
cis-1,3-Dichloropropene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Dibromochloromethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Dibromomethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Dichlorodifluoromethane	ND (0.0125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Diethyl Ether	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Di-isopropyl ether	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Ethyl tertiary-butyl ether	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Ethylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Hexachlorobutadiene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Isopropylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Methyl tert-Butyl Ether	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Methylene Chloride	ND (0.0311)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Naphthalene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
n-Butylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
n-Propylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
sec-Butylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Styrene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
tert-Butylbenzene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Tertiary-amyl methyl ether	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Tetrachloroethene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Tetrahydrofuran	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
trans-1,2-Dichloroethene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
trans-1,3-Dichloropropene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Trichloroethene	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Trichlorofluoromethane	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Vinyl Acetate	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Vinyl Chloride	ND (0.0125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Xylene O	ND (0.0062)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Xylene P,M	ND (0.0125)		8260B Low		1	03/23/20 18:59	D0C0405	DC02338
Xylenes (Total)	ND (0.0125)		8260B Low		1	03/23/20 18:59		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>94 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (45.0)		8100M		1	03/23/20 19:44	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		84 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.198)		8270D		1	03/24/20 2:07	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,4-Dinitrophenol	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.198)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2-Chloronaphthalene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2-Chlorophenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2-Methylnaphthalene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2-Methylphenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2-Nitroaniline	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
2-Nitrophenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
3+4-Methylphenol	ND (0.791)		8270D		1	03/24/20 2:07	D0C0387	DC02308
3-Nitroaniline	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4-Chloroaniline	ND (0.791)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4-Nitroaniline	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
4-Nitrophenol	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Acenaphthene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Acenaphthylene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Acetophenone	ND (0.791)		8270D		1	03/24/20 2:07	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.791)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Anthracene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Azobenzene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzo(a)anthracene	ND (0.130)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzo(a)pyrene	ND (0.198)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.119)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.119)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.119)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzoic Acid	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Benzyl Alcohol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.119)		8270D		1	03/24/20 2:07	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Butylbenzylphthalate	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Carbazole	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Chrysene	ND (0.099)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.099)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Dibenzofuran	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Diethylphthalate	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Dimethylphthalate	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Di-n-butylphthalate	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Di-n-octylphthalate	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Fluoranthene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Fluorene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Hexachlorobenzene	ND (0.198)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Hexachlorobutadiene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Hexachloroethane	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.130)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Isophorone	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Naphthalene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-14-15-17.5
Date Sampled: 03/19/20 16:25
Percent Solids: 85
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0704
ESS Laboratory Sample ID: 20C0704-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Pentachlorophenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Phenanthrene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Phenol	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Pyrene	ND (0.395)		8270D		1	03/24/20 2:07	D0C0387	DC02308
Pyridine	ND (1.98)		8270D		1	03/24/20 2:07	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	62 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	57 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	71 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	63 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	67 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	58 %		30-130
<i>Surrogate: Phenol-d6</i>	71 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	82 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.70)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Arsenic	ND (2.35)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Beryllium	0.22 (0.10)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Cadmium	ND (0.47)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Chromium	6.17 (0.94)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Copper	12.7 (2.35)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Lead	20.1 (4.70)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Mercury	0.051 (0.033)		7471B		1	MKS	03/24/20 8:30	0.7	40	DC02344
Nickel	7.10 (2.35)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Selenium	ND (4.70)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Silver	ND (0.47)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Thallium	ND (4.70)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343
Zinc	22.8 (2.35)		6010C		1	BJV	03/23/20 22:42	2.45	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 5.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,1,1-Trichloroethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,1,2,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,1,2-Trichloroethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,1-Dichloroethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,1-Dichloroethene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,1-Dichloropropene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2,3-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2,3-Trichloropropane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2,4-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2,4-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2-Dibromoethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2-Dichloroethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,3,5-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,3-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,3-Dichloropropane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,4-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1,4-Dioxane	ND (0.101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
1-Chlorohexane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
2,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
2-Butanone	ND (0.0505)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
2-Chlorotoluene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
2-Hexanone	ND (0.0505)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
4-Chlorotoluene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
4-Isopropyltoluene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
4-Methyl-2-Pentanone	ND (0.0505)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Acetone	ND (0.0505)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Benzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Bromobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 5.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Bromodichloromethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Bromoform	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Bromomethane	ND (0.0101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Carbon Disulfide	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Carbon Tetrachloride	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Chlorobenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Chloroethane	ND (0.0101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Chloroform	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Chloromethane	ND (0.0101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
cis-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
cis-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Dibromochloromethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Dibromomethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Dichlorodifluoromethane	ND (0.0101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Diethyl Ether	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Di-isopropyl ether	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Ethyl tertiary-butyl ether	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Ethylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Hexachlorobutadiene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Isopropylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Methyl tert-Butyl Ether	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Methylene Chloride	ND (0.0252)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Naphthalene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
n-Butylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
n-Propylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
sec-Butylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Styrene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
tert-Butylbenzene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Tertiary-amyl methyl ether	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Tetrachloroethene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Tetrahydrofuran	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 5.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
trans-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
trans-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Trichloroethene	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Trichlorofluoromethane	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Vinyl Acetate	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Vinyl Chloride	ND (0.0101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Xylene O	ND (0.0050)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Xylene P,M	ND (0.0101)		8260B Low		1	03/27/20 14:17	D0C0508	DC02742
Xylenes (Total)	ND (0.0101)		8260B Low		1	03/27/20 14:17		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>70 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>127 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 19.8
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	68.9 (43.6)		8100M		1	03/24/20 3:58	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		90 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
1,2,4-Trichlorobenzene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
1,2-Dichlorobenzene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
1,3-Dichlorobenzene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
1,4-Dichlorobenzene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,3,4,6-Tetrachlorophenol	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,4,5-Trichlorophenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,4,6-Trichlorophenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,4-Dichlorophenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,4-Dimethylphenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,4-Dinitrophenol	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,4-Dinitrotoluene	ND (0.131)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2,6-Dinitrotoluene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2-Chloronaphthalene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2-Chlorophenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2-Methylnaphthalene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2-Methylphenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2-Nitroaniline	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
2-Nitrophenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
3,3'-Dichlorobenzidine	ND (0.199)		8270D		1	03/26/20 1:02	D0C0458	DC02446
3+4-Methylphenol	ND (0.794)		8270D		1	03/26/20 1:02	D0C0458	DC02446
3-Nitroaniline	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4,6-Dinitro-2-Methylphenol	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4-Bromophenyl-phenylether	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4-Chloro-3-Methylphenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4-Chloroaniline	ND (0.794)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4-Chloro-phenyl-phenyl ether	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4-Nitroaniline	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
4-Nitrophenol	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Acenaphthene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Acenaphthylene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Acetophenone	ND (0.794)		8270D		1	03/26/20 1:02	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.794)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Anthracene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Azobenzene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzo(a)anthracene	ND (0.131)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzo(a)pyrene	0.194 (0.119)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzo(b)fluoranthene	0.171 (0.119)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzo(g,h,i)perylene	0.125 (0.119)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzo(k)fluoranthene	0.125 (0.119)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzoic Acid	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Benzyl Alcohol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
bis(2-Chloroethoxy)methane	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
bis(2-Chloroethyl)ether	ND (0.119)		8270D		1	03/26/20 1:02	D0C0458	DC02446
bis(2-chloroisopropyl)Ether	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
bis(2-Ethylhexyl)phthalate	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Butylbenzylphthalate	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Carbazole	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Chrysene	0.135 (0.099)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Dibenzo(a,h)Anthracene	ND (0.099)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Dibenzofuran	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Diethylphthalate	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Dimethylphthalate	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Di-n-butylphthalate	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Di-n-octylphthalate	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Fluoranthene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Fluorene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Hexachlorobenzene	ND (0.199)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Hexachlorobutadiene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Hexachlorocyclopentadiene	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Hexachloroethane	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Indeno(1,2,3-cd)Pyrene	ND (0.131)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Isophorone	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Naphthalene	ND (0.099)		8270D		1	03/26/20 1:02	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-0-2.5
Date Sampled: 03/19/20 17:20
Percent Solids: 87
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
N-Nitrosodimethylamine	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
N-Nitroso-Di-n-Propylamine	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
N-nitrosodiphenylamine	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Pentachlorophenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Phenanthrene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Phenol	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Pyrene	ND (0.397)		8270D		1	03/26/20 1:02	D0C0458	DC02446
Pyridine	ND (1.99)		8270D		1	03/26/20 1:02	D0C0458	DC02446

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	71 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	83 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	75 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	72 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	77 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	76 %		30-130
<i>Surrogate: Phenol-d6</i>	78 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	79 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.60)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Arsenic	ND (2.30)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Beryllium	0.14 (0.10)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Cadmium	ND (0.46)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Chromium	3.05 (0.92)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Copper	2.99 (2.30)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Lead	ND (4.60)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Mercury	ND (0.030)		7471B		1	MKS	03/24/20 8:44	0.76	40	DC02344
Nickel	2.52 (2.30)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Selenium	ND (4.60)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Silver	ND (0.46)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Thallium	ND (4.60)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343
Zinc	7.79 (2.30)		6010C		1	BJV	03/23/20 22:59	2.54	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 3.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,1,1-Trichloroethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,1,2,2-Tetrachloroethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,1,2-Trichloroethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,1-Dichloroethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,1-Dichloroethene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,1-Dichloropropene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2,3-Trichlorobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2,3-Trichloropropane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2,4-Trichlorobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2,4-Trimethylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2-Dibromo-3-Chloropropane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2-Dibromoethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2-Dichlorobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2-Dichloroethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,2-Dichloropropane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,3,5-Trimethylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,3-Dichlorobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,3-Dichloropropane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,4-Dichlorobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1,4-Dioxane	ND (0.150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
1-Chlorohexane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
2,2-Dichloropropane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
2-Butanone	ND (0.0750)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
2-Chlorotoluene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
2-Hexanone	ND (0.0750)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
4-Chlorotoluene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
4-Isopropyltoluene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
4-Methyl-2-Pentanone	ND (0.0750)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Acetone	ND (0.0750)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Benzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Bromobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 3.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Bromodichloromethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Bromoform	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Bromomethane	ND (0.0150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Carbon Disulfide	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Carbon Tetrachloride	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Chlorobenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Chloroethane	ND (0.0150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Chloroform	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Chloromethane	ND (0.0150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
cis-1,2-Dichloroethene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
cis-1,3-Dichloropropene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Dibromochloromethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Dibromomethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Dichlorodifluoromethane	ND (0.0150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Diethyl Ether	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Di-isopropyl ether	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Ethyl tertiary-butyl ether	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Ethylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Hexachlorobutadiene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Isopropylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Methyl tert-Butyl Ether	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Methylene Chloride	ND (0.0375)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Naphthalene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
n-Butylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
n-Propylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
sec-Butylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Styrene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
tert-Butylbenzene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Tertiary-amyl methyl ether	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Tetrachloroethene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Tetrahydrofuran	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 3.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
trans-1,2-Dichloroethene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
trans-1,3-Dichloropropene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Trichloroethene	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Trichlorofluoromethane	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Vinyl Acetate	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Vinyl Chloride	ND (0.0150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Xylene O	ND (0.0075)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Xylene P,M	ND (0.0150)		8260B Low		1	03/26/20 18:25	D0C0483	DC02645
Xylenes (Total)	ND (0.0150)		8260B Low		1	03/26/20 18:25		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 19.4
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (45.2)		8100M		1	03/23/20 20:17	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		94 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,4-Dinitrophenol	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.138)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2-Chloronaphthalene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2-Chlorophenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2-Methylnaphthalene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2-Methylphenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2-Nitroaniline	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
2-Nitrophenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.209)		8270D		1	03/24/20 3:05	D0C0387	DC02308
3+4-Methylphenol	ND (0.836)		8270D		1	03/24/20 3:05	D0C0387	DC02308
3-Nitroaniline	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4-Chloroaniline	ND (0.836)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4-Nitroaniline	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
4-Nitrophenol	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Acenaphthene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Acenaphthylene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Acetophenone	ND (0.836)		8270D		1	03/24/20 3:05	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.836)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Anthracene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Azobenzene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzo(a)anthracene	ND (0.138)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzo(a)pyrene	ND (0.125)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.125)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.125)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.125)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzoic Acid	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Benzyl Alcohol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.125)		8270D		1	03/24/20 3:05	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Butylbenzylphthalate	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Carbazole	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Chrysene	ND (0.104)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.104)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Dibenzofuran	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Diethylphthalate	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Dimethylphthalate	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Di-n-butylphthalate	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Di-n-octylphthalate	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Fluoranthene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Fluorene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Hexachlorobenzene	ND (0.104)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Hexachlorobutadiene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Hexachloroethane	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.138)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Isophorone	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Naphthalene	ND (0.104)		8270D		1	03/24/20 3:05	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-15-12.5-15
Date Sampled: 03/19/20 17:35
Percent Solids: 86
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Pentachlorophenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Phenanthrene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Phenol	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Pyrene	ND (0.417)		8270D		1	03/24/20 3:05	D0C0387	DC02308
Pyridine	ND (2.09)		8270D		1	03/24/20 3:05	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	78 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	66 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	86 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	76 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	82 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	70 %		30-130
<i>Surrogate: Phenol-d6</i>	85 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	98 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (3.95)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Arsenic	6.70 (1.97)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Beryllium	0.32 (0.09)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Cadmium	ND (0.39)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Chromium	7.67 (0.79)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Copper	5.75 (1.97)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Lead	72.4 (3.95)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Mercury	0.047 (0.028)		7471B		1	MKS	03/24/20 8:47	0.8	40	DC02344
Nickel	6.43 (1.97)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Selenium	ND (3.95)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Silver	ND (0.39)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Thallium	ND (3.95)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343
Zinc	30.9 (1.97)		6010C		1	BJV	03/23/20 23:02	2.88	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 5.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,1,1-Trichloroethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,1,2,2-Tetrachloroethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,1,2-Trichloroethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,1-Dichloroethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,1-Dichloroethene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,1-Dichloropropene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2,3-Trichlorobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2,3-Trichloropropane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2,4-Trichlorobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2,4-Trimethylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2-Dibromo-3-Chloropropane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2-Dibromoethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2-Dichlorobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2-Dichloroethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,2-Dichloropropane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,3,5-Trimethylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,3-Dichlorobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,3-Dichloropropane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,4-Dichlorobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1,4-Dioxane	ND (0.0964)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
1-Chlorohexane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
2,2-Dichloropropane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
2-Butanone	ND (0.0482)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
2-Chlorotoluene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
2-Hexanone	ND (0.0482)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
4-Chlorotoluene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
4-Isopropyltoluene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
4-Methyl-2-Pentanone	ND (0.0482)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Acetone	ND (0.0482)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Benzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Bromobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 5.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Bromodichloromethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Bromoform	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Bromomethane	ND (0.0096)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Carbon Disulfide	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Carbon Tetrachloride	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Chlorobenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Chloroethane	ND (0.0096)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Chloroform	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Chloromethane	ND (0.0096)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
cis-1,2-Dichloroethene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
cis-1,3-Dichloropropene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Dibromochloromethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Dibromomethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Dichlorodifluoromethane	ND (0.0096)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Diethyl Ether	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Di-isopropyl ether	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Ethyl tertiary-butyl ether	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Ethylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Hexachlorobutadiene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Isopropylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Methyl tert-Butyl Ether	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Methylene Chloride	ND (0.0241)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Naphthalene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
n-Butylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
n-Propylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
sec-Butylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Styrene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
tert-Butylbenzene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Tertiary-amyl methyl ether	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Tetrachloroethene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Tetrahydrofuran	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 5.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
trans-1,2-Dichloroethene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
trans-1,3-Dichloropropene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Trichloroethene	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Trichlorofluoromethane	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Vinyl Acetate	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Vinyl Chloride	ND (0.0096)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Xylene O	ND (0.0048)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Xylene P,M	ND (0.0096)		8260B Low		1	03/26/20 18:51	D0C0483	DC02645
Xylenes (Total)	ND (0.00964)		8260B Low		1	03/26/20 18:51		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>92 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 20.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (42.0)		8100M		1	03/23/20 20:50	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		79 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,4-Dinitrophenol	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.133)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2-Chloronaphthalene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2-Chlorophenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2-Methylnaphthalene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2-Methylphenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2-Nitroaniline	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
2-Nitrophenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.202)		8270D		1	03/24/20 3:34	D0C0387	DC02308
3+4-Methylphenol	ND (0.807)		8270D		1	03/24/20 3:34	D0C0387	DC02308
3-Nitroaniline	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4-Chloroaniline	ND (0.807)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4-Nitroaniline	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
4-Nitrophenol	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Acenaphthene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Acenaphthylene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Acetophenone	ND (0.807)		8270D		1	03/24/20 3:34	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.807)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Anthracene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Azobenzene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzo(a)anthracene	ND (0.133)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzo(a)pyrene	ND (0.121)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.121)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.121)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.121)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzoic Acid	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Benzyl Alcohol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.121)		8270D		1	03/24/20 3:34	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Butylbenzylphthalate	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Carbazole	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Chrysene	ND (0.101)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.101)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Dibenzofuran	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Diethylphthalate	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Dimethylphthalate	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Di-n-butylphthalate	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Di-n-octylphthalate	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Fluoranthene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Fluorene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Hexachlorobenzene	ND (0.101)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Hexachlorobutadiene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Hexachloroethane	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.133)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Isophorone	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Naphthalene	ND (0.101)		8270D		1	03/24/20 3:34	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-0-2.5
Date Sampled: 03/20/20 08:40
Percent Solids: 88
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Pentachlorophenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Phenanthrene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Phenol	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Pyrene	ND (0.403)		8270D		1	03/24/20 3:34	D0C0387	DC02308
Pyridine	ND (2.02)		8270D		1	03/24/20 3:34	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	64 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	72 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	72 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	66 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	67 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	61 %		30-130
<i>Surrogate: Phenol-d6</i>	74 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	90 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.75)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Arsenic	ND (2.37)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Beryllium	0.13 (0.10)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Cadmium	ND (0.47)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Chromium	2.43 (0.95)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Copper	2.52 (2.37)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Lead	7.23 (4.75)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Mercury	ND (0.036)		7471B		1	MKS	03/24/20 8:49	0.63	40	DC02344
Nickel	ND (2.37)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Selenium	ND (4.75)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Silver	ND (0.47)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Thallium	ND (4.75)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343
Zinc	9.86 (2.37)		6010C		1	BJV	03/23/20 23:06	2.43	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87
Initial Volume: 5.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,1,1-Trichloroethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,1,2,2-Tetrachloroethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,1,2-Trichloroethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,1-Dichloroethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,1-Dichloroethene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,1-Dichloropropene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2,3-Trichlorobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2,3-Trichloropropane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2,4-Trichlorobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2,4-Trimethylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2-Dibromo-3-Chloropropane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2-Dibromoethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2-Dichlorobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2-Dichloroethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,2-Dichloropropane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,3,5-Trimethylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,3-Dichlorobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,3-Dichloropropane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,4-Dichlorobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1,4-Dioxane	ND (0.103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
1-Chlorohexane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
2,2-Dichloropropane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
2-Butanone	ND (0.0515)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
2-Chlorotoluene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
2-Hexanone	ND (0.0515)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
4-Chlorotoluene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
4-Isopropyltoluene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
4-Methyl-2-Pentanone	ND (0.0515)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Acetone	ND (0.0515)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Benzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Bromobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87
Initial Volume: 5.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Bromodichloromethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Bromoform	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Bromomethane	ND (0.0103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Carbon Disulfide	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Carbon Tetrachloride	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Chlorobenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Chloroethane	ND (0.0103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Chloroform	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Chloromethane	ND (0.0103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
cis-1,2-Dichloroethene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
cis-1,3-Dichloropropene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Dibromochloromethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Dibromomethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Dichlorodifluoromethane	ND (0.0103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Diethyl Ether	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Di-isopropyl ether	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Ethyl tertiary-butyl ether	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Ethylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Hexachlorobutadiene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Isopropylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Methyl tert-Butyl Ether	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Methylene Chloride	ND (0.0258)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Naphthalene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
n-Butylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
n-Propylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
sec-Butylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Styrene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
tert-Butylbenzene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Tertiary-amyl methyl ether	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Tetrachloroethene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Tetrahydrofuran	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-16-14.5-17
 Date Sampled: 03/20/20 08:50
 Percent Solids: 87
 Initial Volume: 5.6
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
trans-1,2-Dichloroethene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
trans-1,3-Dichloropropene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Trichloroethene	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Trichlorofluoromethane	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Vinyl Acetate	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Vinyl Chloride	ND (0.0103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Xylene O	ND (0.0052)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Xylene P,M	ND (0.0103)		8260B Low		1	03/26/20 19:16	D0C0483	DC02645
Xylenes (Total)	ND (0.0103)		8260B Low		1	03/26/20 19:16		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	99 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	96 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	98 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87
Initial Volume: 20.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (42.0)		8100M		1	03/23/20 21:23	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		89 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
1,2,4-Trichlorobenzene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
1,2-Dichlorobenzene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
1,3-Dichlorobenzene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
1,4-Dichlorobenzene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,3,4,6-Tetrachlorophenol	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,4,5-Trichlorophenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,4,6-Trichlorophenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,4-Dichlorophenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,4-Dimethylphenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,4-Dinitrophenol	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,4-Dinitrotoluene	ND (0.124)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2,6-Dinitrotoluene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2-Chloronaphthalene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2-Chlorophenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2-Methylnaphthalene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2-Methylphenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2-Nitroaniline	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
2-Nitrophenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
3,3'-Dichlorobenzidine	ND (0.188)		8270D		1	03/24/20 4:03	D0C0387	DC02308
3+4-Methylphenol	ND (0.750)		8270D		1	03/24/20 4:03	D0C0387	DC02308
3-Nitroaniline	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4,6-Dinitro-2-Methylphenol	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4-Bromophenyl-phenylether	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4-Chloro-3-Methylphenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4-Chloroaniline	ND (0.750)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4-Chloro-phenyl-phenyl ether	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4-Nitroaniline	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
4-Nitrophenol	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Acenaphthene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Acenaphthylene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Acetophenone	ND (0.750)		8270D		1	03/24/20 4:03	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.750)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Anthracene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Azobenzene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzo(a)anthracene	ND (0.124)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzo(a)pyrene	ND (0.112)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzo(b)fluoranthene	ND (0.112)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzo(g,h,i)perylene	ND (0.112)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzo(k)fluoranthene	ND (0.112)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzoic Acid	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Benzyl Alcohol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
bis(2-Chloroethoxy)methane	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
bis(2-Chloroethyl)ether	ND (0.112)		8270D		1	03/24/20 4:03	D0C0387	DC02308
bis(2-chloroisopropyl)Ether	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
bis(2-Ethylhexyl)phthalate	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Butylbenzylphthalate	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Carbazole	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Chrysene	ND (0.094)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Dibenzo(a,h)Anthracene	ND (0.094)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Dibenzofuran	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Diethylphthalate	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Dimethylphthalate	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Di-n-butylphthalate	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Di-n-octylphthalate	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Fluoranthene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Fluorene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Hexachlorobenzene	ND (0.094)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Hexachlorobutadiene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Hexachlorocyclopentadiene	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Hexachloroethane	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Indeno(1,2,3-cd)Pyrene	ND (0.124)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Isophorone	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Naphthalene	ND (0.094)		8270D		1	03/24/20 4:03	D0C0387	DC02308



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-16-14.5-17
Date Sampled: 03/20/20 08:50
Percent Solids: 87
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 9:58

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
N-Nitrosodimethylamine	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
N-Nitroso-Di-n-Propylamine	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
N-nitrosodiphenylamine	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Pentachlorophenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Phenanthrene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Phenol	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Pyrene	ND (0.374)		8270D		1	03/24/20 4:03	D0C0387	DC02308
Pyridine	ND (1.88)		8270D		1	03/24/20 4:03	D0C0387	DC02308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	77 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	62 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	82 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	75 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	79 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	69 %		30-130
<i>Surrogate: Phenol-d6</i>	82 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	107 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	4.05 (0.47)		6020A		1	KJK	03/24/20 15:14	2.87	100	DC02343
Arsenic	6.43 (2.34)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Beryllium	0.16 (0.10)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Cadmium	1.49 (0.47)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Chromium	34.2 (0.94)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Copper	30.3 (2.34)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Lead	139 (4.68)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Mercury	0.203 (0.043)		7471B		1	MKS	03/24/20 9:03	0.62	40	DC02344
Nickel	12.3 (2.34)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Selenium	ND (4.68)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Silver	0.62 (0.47)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343
Thallium	ND (0.47)		6020A		1	KJK	03/24/20 15:14	2.87	100	DC02343
Zinc	946 (2.34)		6010C		1	BJV	03/23/20 23:27	2.87	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74
Initial Volume: 14.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,1,1-Trichloroethane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,1,2,2-Tetrachloroethane	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,1,2-Trichloroethane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,1-Dichloroethane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,1-Dichloroethene	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,1-Dichloropropene	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2,3-Trichlorobenzene	0.486 (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2,3-Trichloropropane	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2,4-Trichlorobenzene	3.98 (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2,4-Trimethylbenzene	1.19 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2-Dibromo-3-Chloropropane	ND (1.72)	0.345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2-Dibromoethane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2-Dichlorobenzene	10.5 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2-Dichloroethane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,2-Dichloropropane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,3,5-Trimethylbenzene	0.552 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,3-Dichlorobenzene	J 0.110 (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,3-Dichloropropane	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,4-Dichlorobenzene	1.11 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
1,4-Dioxane - Screen	ND (69.0)	65.5	8260B		1	03/27/20 13:27	D0C0501	DC02725
1-Chlorohexane	ND (0.345)	0.138	8260B		1	03/27/20 13:27	D0C0501	DC02725
2,2-Dichloropropane	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
2-Butanone	ND (1.72)	1.17	8260B		1	03/27/20 13:27	D0C0501	DC02725
2-Chlorotoluene	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
2-Hexanone	ND (1.72)	0.517	8260B		1	03/27/20 13:27	D0C0501	DC02725
4-Chlorotoluene	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
4-Isopropyltoluene	J 0.283 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
4-Methyl-2-Pentanone	ND (1.72)	0.552	8260B		1	03/27/20 13:27	D0C0501	DC02725
Acetone	ND (1.72)	0.931	8260B		1	03/27/20 13:27	D0C0501	DC02725
Benzene	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Bromobenzene	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74
Initial Volume: 14.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
Bromodichloromethane	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Bromoform	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Bromomethane	ND (0.345)	0.138	8260B		1	03/27/20 13:27	D0C0501	DC02725
Carbon Disulfide	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Carbon Tetrachloride	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Chlorobenzene	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Chloroethane	ND (0.345)	0.138	8260B		1	03/27/20 13:27	D0C0501	DC02725
Chloroform	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Chloromethane	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
cis-1,2-Dichloroethene	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
cis-1,3-Dichloropropene	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
Dibromochloromethane	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Dibromomethane	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
Dichlorodifluoromethane	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
Diethyl Ether	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
Di-isopropyl ether	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Ethyl tertiary-butyl ether	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Ethylbenzene	4.58 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Hexachlorobutadiene	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Isopropylbenzene	J 0.0621 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Methyl tert-Butyl Ether	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
Methylene Chloride	ND (0.690)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Naphthalene	J 0.210 (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
n-Butylbenzene	J 0.224 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
n-Propylbenzene	J 0.121 (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
sec-Butylbenzene	J 0.0759 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Styrene	ND (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
tert-Butylbenzene	J 0.0483 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Tertiary-amyl methyl ether	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Tetrachloroethene	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Tetrahydrofuran	ND (1.72)	0.552	8260B		1	03/27/20 13:27	D0C0501	DC02725



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-18-0-2.5
 Date Sampled: 03/20/20 09:25
 Percent Solids: 74
 Initial Volume: 14.6
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	J 0.0793 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
trans-1,2-Dichloroethene	ND (0.345)	0.103	8260B		1	03/27/20 13:27	D0C0501	DC02725
trans-1,3-Dichloropropene	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Trichloroethene	J 0.266 (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Trichlorofluoromethane	ND (0.345)	0.138	8260B		1	03/27/20 13:27	D0C0501	DC02725
Vinyl Acetate	ND (0.345)	0.172	8260B		1	03/27/20 13:27	D0C0501	DC02725
Vinyl Chloride	ND (0.345)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Xylene O	4.82 (0.345)	0.0345	8260B		1	03/27/20 13:27	D0C0501	DC02725
Xylene P,M	21.7 (0.690)	0.0690	8260B		1	03/27/20 13:27	D0C0501	DC02725
Xylenes (Total)	26.5 (0.690)		8260B		1	03/27/20 13:27		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>108 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74
Initial Volume: 20.9
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	3590 (96.5)		8100M		2	03/24/20 4:31	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		138 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
1,2,4-Trichlorobenzene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
1,2-Dichlorobenzene	2.02 (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
1,3-Dichlorobenzene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
1,4-Dichlorobenzene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,3,4,6-Tetrachlorophenol	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,4,5-Trichlorophenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,4,6-Trichlorophenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,4-Dichlorophenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,4-Dimethylphenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,4-Dinitrophenol	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,4-Dinitrotoluene	ND (0.569)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2,6-Dinitrotoluene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2-Chloronaphthalene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2-Chlorophenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2-Methylnaphthalene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2-Methylphenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2-Nitroaniline	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
2-Nitrophenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
3,3'-Dichlorobenzidine	ND (0.863)		8270D		2	03/26/20 1:30	D0C0458	DC02446
3+4-Methylphenol	ND (3.45)		8270D		2	03/26/20 1:30	D0C0458	DC02446
3-Nitroaniline	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4,6-Dinitro-2-Methylphenol	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4-Bromophenyl-phenylether	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4-Chloro-3-Methylphenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4-Chloroaniline	ND (3.45)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4-Chloro-phenyl-phenyl ether	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4-Nitroaniline	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
4-Nitrophenol	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Acenaphthene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Acenaphthylene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Acetophenone	ND (3.45)		8270D		2	03/26/20 1:30	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (3.45)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Anthracene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Azobenzene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzo(a)anthracene	ND (0.569)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzo(a)pyrene	ND (0.517)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzo(b)fluoranthene	ND (0.517)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzo(g,h,i)perylene	ND (0.517)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzo(k)fluoranthene	ND (0.517)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzoic Acid	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Benzyl Alcohol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
bis(2-Chloroethoxy)methane	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
bis(2-Chloroethyl)ether	ND (0.517)		8270D		2	03/26/20 1:30	D0C0458	DC02446
bis(2-chloroisopropyl)Ether	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
bis(2-Ethylhexyl)phthalate	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Butylbenzylphthalate	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Carbazole	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Chrysene	EL ND (0.431)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Dibenzo(a,h)Anthracene	EL ND (0.431)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Dibenzofuran	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Diethylphthalate	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Dimethylphthalate	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Di-n-butylphthalate	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Di-n-octylphthalate	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Fluoranthene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Fluorene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Hexachlorobenzene	EL ND (0.431)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Hexachlorobutadiene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Hexachlorocyclopentadiene	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Hexachloroethane	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Indeno(1,2,3-cd)Pyrene	ND (0.569)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Isophorone	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Naphthalene	ND (0.431)		8270D		2	03/26/20 1:30	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-0-2.5
Date Sampled: 03/20/20 09:25
Percent Solids: 74
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
N-Nitrosodimethylamine	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
N-Nitroso-Di-n-Propylamine	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
N-nitrosodiphenylamine	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Pentachlorophenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Phenanthrene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Phenol	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Pyrene	ND (1.72)		8270D		2	03/26/20 1:30	D0C0458	DC02446
Pyridine	ND (8.63)		8270D		2	03/26/20 1:30	D0C0458	DC02446

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	66 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	89 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	72 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	69 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	70 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	68 %		30-130
<i>Surrogate: Phenol-d6</i>	75 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	82 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (8.42)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Arsenic	ND (4.21)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Beryllium	0.26 (0.19)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Cadmium	ND (0.84)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Chromium	7.16 (1.68)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Copper	ND (4.21)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Lead	ND (8.42)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Mercury	ND (0.060)		7471B		1	MKS	03/24/20 9:05	0.65	40	DC02344
Nickel	4.64 (4.21)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Selenium	ND (8.42)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Silver	ND (0.84)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343
Thallium	ND (0.84)		6020A		1	KJK	03/25/20 14:57	2.33	100	DC02343
Zinc	61.3 (4.21)		6010C		1	BJV	03/23/20 23:32	2.33	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 14.3
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,1,1-Trichloroethane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,1,2,2-Tetrachloroethane	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,1,2-Trichloroethane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,1-Dichloroethane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,1-Dichloroethene	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,1-Dichloropropene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2,3-Trichlorobenzene	4.11 (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2,3-Trichloropropane	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2,4-Trichlorobenzene	44.2 (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2,4-Trimethylbenzene	86.3 (30.2)	3.02	8260B		50	03/30/20 12:42	D0C0501	DC02725
1,2-Dibromo-3-Chloropropane	ND (3.02)	0.604	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2-Dibromoethane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2-Dichlorobenzene	89.9 (30.2)	3.02	8260B		50	03/30/20 12:42	D0C0501	DC02725
1,2-Dichloroethane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,2-Dichloropropane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,3,5-Trimethylbenzene	36.4 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,3-Dichlorobenzene	J 0.537 (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,3-Dichloropropane	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,4-Dichlorobenzene	6.46 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
1,4-Dioxane - Screen	ND (121)	115	8260B		1	03/27/20 14:20	D0C0501	DC02725
1-Chlorohexane	ND (0.604)	0.241	8260B		1	03/27/20 14:20	D0C0501	DC02725
2,2-Dichloropropane	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
2-Butanone	ND (3.02)	2.05	8260B		1	03/27/20 14:20	D0C0501	DC02725
2-Chlorotoluene	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
2-Hexanone	ND (3.02)	0.905	8260B		1	03/27/20 14:20	D0C0501	DC02725
4-Chlorotoluene	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
4-Isopropyltoluene	13.8 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
4-Methyl-2-Pentanone	ND (3.02)	0.966	8260B		1	03/27/20 14:20	D0C0501	DC02725
Acetone	ND (3.02)	1.63	8260B		1	03/27/20 14:20	D0C0501	DC02725
Benzene	J 0.598 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Bromobenzene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 14.3
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
Bromodichloromethane	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Bromoform	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Bromomethane	ND (0.604)	0.241	8260B		1	03/27/20 14:20	D0C0501	DC02725
Carbon Disulfide	1.63 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Carbon Tetrachloride	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Chlorobenzene	84.5 (30.2)	3.02	8260B		50	03/30/20 12:42	D0C0501	DC02725
Chloroethane	ND (0.604)	0.241	8260B		1	03/27/20 14:20	D0C0501	DC02725
Chloroform	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Chloromethane	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
cis-1,2-Dichloroethene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
cis-1,3-Dichloropropene	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
Dibromochloromethane	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Dibromomethane	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
Dichlorodifluoromethane	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
Diethyl Ether	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
Di-isopropyl ether	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Ethyl tertiary-butyl ether	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Ethylbenzene	359 (30.2)	3.02	8260B		50	03/30/20 12:42	D0C0501	DC02725
Hexachlorobutadiene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Isopropylbenzene	15.2 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Methyl tert-Butyl Ether	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
Methylene Chloride	J 0.205 (1.21)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Naphthalene	18.9 (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
n-Butylbenzene	13.7 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
n-Propylbenzene	14.1 (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
sec-Butylbenzene	5.46 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Styrene	ND (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
tert-Butylbenzene	6.32 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
Tertiary-amyl methyl ether	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Tetrachloroethene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Tetrahydrofuran	ND (3.02)	0.966	8260B		1	03/27/20 14:20	D0C0501	DC02725



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 14.3
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	10.6 (0.604)	0.0604	8260B		1	03/27/20 14:20	D0C0501	DC02725
trans-1,2-Dichloroethene	ND (0.604)	0.181	8260B		1	03/27/20 14:20	D0C0501	DC02725
trans-1,3-Dichloropropene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Trichloroethene	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Trichlorofluoromethane	ND (0.604)	0.241	8260B		1	03/27/20 14:20	D0C0501	DC02725
Vinyl Acetate	ND (0.604)	0.302	8260B		1	03/27/20 14:20	D0C0501	DC02725
Vinyl Chloride	ND (0.604)	0.121	8260B		1	03/27/20 14:20	D0C0501	DC02725
Xylene O	366 (30.2)	3.02	8260B		50	03/30/20 12:42	D0C0501	DC02725
Xylene P,M	1040 (60.4)	6.04	8260B		50	03/30/20 12:42	D0C0501	DC02725
Xylenes (Total)	1400 (60.4)		8260B		50	03/30/20 12:42		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>113 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>116 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 19
Final Volume: 3
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	31800 (2320)		8100M		10	03/24/20 5:36	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>%</i>	<i>SD</i>	<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 14.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/25/20 22:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	8.55 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
1,2,4-Trichlorobenzene	16.3 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
1,2-Dichlorobenzene	33.2 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
1,3-Dichlorobenzene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
1,4-Dichlorobenzene	2.74 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,3,4,6-Tetrachlorophenol	ND (13.5)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,4,5-Trichlorophenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,4,6-Trichlorophenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,4-Dichlorophenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,4-Dimethylphenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,4-Dinitrophenol	ND (13.5)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,4-Dinitrotoluene	ND (0.887)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2,6-Dinitrotoluene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2-Chloronaphthalene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2-Chlorophenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2-Methylnaphthalene	2.97 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2-Methylphenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2-Nitroaniline	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
2-Nitrophenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
3,3'-Dichlorobenzidine	ND (1.35)		8270D		2	03/26/20 1:57	D0C0458	DC02446
3+4-Methylphenol	ND (5.38)		8270D		2	03/26/20 1:57	D0C0458	DC02446
3-Nitroaniline	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4,6-Dinitro-2-Methylphenol	ND (13.5)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4-Bromophenyl-phenylether	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4-Chloro-3-Methylphenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4-Chloroaniline	ND (5.38)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4-Chloro-phenyl-phenyl ether	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4-Nitroaniline	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
4-Nitrophenol	ND (13.5)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Acenaphthene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Acenaphthylene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Acetophenone	ND (5.38)		8270D		2	03/26/20 1:57	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 14.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/25/20 22:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (5.38)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Anthracene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Azobenzene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Benzo(a)anthracene	1.40 (0.887)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Benzo(a)pyrene	ND (0.806)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Benzo(b)fluoranthene	1.45 (0.806)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Benzo(g,h,i)perylene	ND (0.806)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Benzo(k)fluoranthene	1.07 (0.806)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Benzoic Acid	40.0 (26.9)		8270D		4	03/26/20 21:16	D0C0458	DC02446
Benzyl Alcohol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
bis(2-Chloroethoxy)methane	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
bis(2-Chloroethyl)ether	ND (0.806)		8270D		2	03/26/20 1:57	D0C0458	DC02446
bis(2-chloroisopropyl)Ether	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
bis(2-Ethylhexyl)phthalate	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Butylbenzylphthalate	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Carbazole	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Chrysene	1.74 (0.671)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Dibenzo(a,h)Anthracene	EL ND (0.671)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Dibenzofuran	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Diethylphthalate	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Dimethylphthalate	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Di-n-butylphthalate	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Di-n-octylphthalate	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Fluoranthene	4.01 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Fluorene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Hexachlorobenzene	EL ND (0.671)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Hexachlorobutadiene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Hexachlorocyclopentadiene	ND (13.5)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Hexachloroethane	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Indeno(1,2,3-cd)Pyrene	ND (0.887)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Isophorone	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Naphthalene	9.67 (0.671)		8270D		2	03/26/20 1:57	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-18-7.5-10
Date Sampled: 03/20/20 09:45
Percent Solids: 51
Initial Volume: 14.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/25/20 22:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
N-Nitrosodimethylamine	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
N-Nitroso-Di-n-Propylamine	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
N-nitrosodiphenylamine	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Pentachlorophenol	2.70 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Phenanthrene	4.60 (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Phenol	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Pyrene	ND (2.68)		8270D		2	03/26/20 1:57	D0C0458	DC02446
Pyridine	ND (13.5)		8270D		2	03/26/20 1:57	D0C0458	DC02446

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	38 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	62 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	45 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	85 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	41 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	45 %		30-130
<i>Surrogate: Phenol-d6</i>	51 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	52 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	3.60 (0.45)		6020A		1	KJK	03/24/20 13:23	2.74	100	DC02343
Arsenic	ND (2.24)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Beryllium	0.16 (0.10)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Cadmium	ND (0.45)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Chromium	28.7 (0.90)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Copper	21.4 (2.24)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Lead	145 (4.48)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Mercury	0.114 (0.035)		7471B		1	MKS	03/24/20 9:07	0.7	40	DC02344
Nickel	4.35 (2.24)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Selenium	ND (4.48)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Silver	ND (0.45)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Thallium	ND (4.48)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343
Zinc	43.8 (2.24)		6010C		1	BJV	03/23/20 23:36	2.74	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,1,1-Trichloroethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,1,2,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,1,2-Trichloroethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,1-Dichloroethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,1-Dichloroethene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,1-Dichloropropene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2,3-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2,3-Trichloropropane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2,4-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2,4-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2-Dibromoethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2-Dichlorobenzene	0.0070 (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2-Dichloroethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,3,5-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,3-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,3-Dichloropropane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,4-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1,4-Dioxane	ND (0.101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
1-Chlorohexane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
2,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
2-Butanone	ND (0.0503)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
2-Chlorotoluene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
2-Hexanone	ND (0.0503)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
4-Chlorotoluene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
4-Isopropyltoluene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
4-Methyl-2-Pentanone	ND (0.0503)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Acetone	ND (0.0503)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Benzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Bromobenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Bromodichloromethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Bromoform	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Bromomethane	ND (0.0101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Carbon Disulfide	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Carbon Tetrachloride	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Chlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Chloroethane	ND (0.0101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Chloroform	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Chloromethane	ND (0.0101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
cis-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
cis-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Dibromochloromethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Dibromomethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Dichlorodifluoromethane	ND (0.0101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Diethyl Ether	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Di-isopropyl ether	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Ethyl tertiary-butyl ether	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Ethylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Hexachlorobutadiene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Isopropylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Methyl tert-Butyl Ether	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Methylene Chloride	ND (0.0252)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Naphthalene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
n-Butylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
n-Propylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
sec-Butylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Styrene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
tert-Butylbenzene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Tertiary-amyl methyl ether	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Tetrachloroethene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Tetrahydrofuran	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-19-0-2.5
 Date Sampled: 03/20/20 10:20
 Percent Solids: 81
 Initial Volume: 6.1
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
trans-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
trans-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Trichloroethene	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Trichlorofluoromethane	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Vinyl Acetate	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Vinyl Chloride	ND (0.0101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Xylene O	ND (0.0050)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Xylene P,M	ND (0.0101)		8260B Low		1	03/26/20 19:42	D0C0483	DC02645
Xylenes (Total)	ND (0.0101)		8260B Low		1	03/26/20 19:42		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>81 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>109 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81
Initial Volume: 20.1
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	3540 (458)		8100M		10	03/24/20 6:09	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		302 %	SM	40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81
Initial Volume: 15.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
1,2,4-Trichlorobenzene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
1,2-Dichlorobenzene	3.12 (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
1,3-Dichlorobenzene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
1,4-Dichlorobenzene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,3,4,6-Tetrachlorophenol	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,4,5-Trichlorophenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,4,6-Trichlorophenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,4-Dichlorophenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,4-Dimethylphenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,4-Dinitrophenol	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,4-Dinitrotoluene	ND (0.530)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2,6-Dinitrotoluene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2-Chloronaphthalene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2-Chlorophenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2-Methylnaphthalene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2-Methylphenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2-Nitroaniline	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
2-Nitrophenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
3,3'-Dichlorobenzidine	ND (0.804)		8270D		2	03/26/20 2:24	D0C0458	DC02446
3+4-Methylphenol	ND (3.21)		8270D		2	03/26/20 2:24	D0C0458	DC02446
3-Nitroaniline	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4,6-Dinitro-2-Methylphenol	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4-Bromophenyl-phenylether	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4-Chloro-3-Methylphenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4-Chloroaniline	ND (3.21)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4-Chloro-phenyl-phenyl ether	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4-Nitroaniline	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
4-Nitrophenol	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Acenaphthene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Acenaphthylene	23.9 (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Acetophenone	ND (3.21)		8270D		2	03/26/20 2:24	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81
Initial Volume: 15.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (3.21)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Anthracene	12.7 (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Azobenzene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Benzo(a)anthracene	32.8 (0.530)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Benzo(a)pyrene	44.2 (4.81)		8270D		20	03/26/20 21:43	D0C0458	DC02446
Benzo(b)fluoranthene	36.8 (4.81)		8270D		20	03/26/20 21:43	D0C0458	DC02446
Benzo(g,h,i)perylene	35.4 (0.481)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Benzo(k)fluoranthene	31.5 (4.81)		8270D		20	03/26/20 21:43	D0C0458	DC02446
Benzoic Acid	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Benzyl Alcohol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
bis(2-Chloroethoxy)methane	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
bis(2-Chloroethyl)ether	ND (0.481)		8270D		2	03/26/20 2:24	D0C0458	DC02446
bis(2-chloroisopropyl)Ether	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
bis(2-Ethylhexyl)phthalate	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Butylbenzylphthalate	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Carbazole	9.40 (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Chrysene	31.0 (0.401)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Dibenzo(a,h)Anthracene	11.6 (0.401)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Dibenzofuran	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Diethylphthalate	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Dimethylphthalate	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Di-n-butylphthalate	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Di-n-octylphthalate	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Fluoranthene	53.9 (16.0)		8270D		20	03/26/20 21:43	D0C0458	DC02446
Fluorene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Hexachlorobenzene	EL ND (0.401)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Hexachlorobutadiene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Hexachlorocyclopentadiene	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Hexachloroethane	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Indeno(1,2,3-cd)Pyrene	31.4 (0.530)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Isophorone	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Naphthalene	5.34 (0.401)		8270D		2	03/26/20 2:24	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81
Initial Volume: 15.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
N-Nitrosodimethylamine	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
N-Nitroso-Di-n-Propylamine	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
N-nitrosodiphenylamine	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Pentachlorophenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Phenanthrene	16.3 (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Phenol	ND (1.60)		8270D		2	03/26/20 2:24	D0C0458	DC02446
Pyrene	59.9 (16.0)		8270D		20	03/26/20 21:43	D0C0458	DC02446
Pyridine	ND (8.04)		8270D		2	03/26/20 2:24	D0C0458	DC02446

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	81 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	101 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	85 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	84 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	84 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	86 %		30-130
<i>Surrogate: Phenol-d6</i>	87 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	94 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-0-2.5
Date Sampled: 03/20/20 10:20
Percent Solids: 81

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-07
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	3.47 (N/A)		9045		1	CCP	03/20/20 21:36	S.U.	DC02031
Corrosivity (pH) Sample Temp	Soil pH measured in water at 21.9 °C.								
Eh (ORP)	WL 418 (N/A)		2580		1	CCP	03/23/20 21:38	mv	DC02033
Hexavalent Chromium	ND (0.7)		7196A		1	CCP	03/23/20 10:00	mg/kg dry	DC02328



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.27)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Arsenic	ND (2.14)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Beryllium	0.11 (0.09)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Cadmium	ND (0.43)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Chromium	9.48 (0.85)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Copper	12.9 (2.14)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Lead	150 (4.27)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Mercury	0.123 (0.036)		7471B		1	MKS	03/24/20 9:09	0.62	40	DC02344
Nickel	3.47 (2.14)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Selenium	ND (4.27)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Silver	ND (0.43)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Thallium	ND (4.27)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343
Zinc	22.3 (2.14)		6010C		1	BJV	03/23/20 23:52	2.66	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88
Initial Volume: 14.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,1,1-Trichloroethane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,1,2,2-Tetrachloroethane	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,1,2-Trichloroethane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,1-Dichloroethane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,1-Dichloroethene	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,1-Dichloropropene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2,3-Trichlorobenzene	0.446 (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2,3-Trichloropropane	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2,4-Trichlorobenzene	4.89 (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2,4-Trimethylbenzene	25.4 (2.61)	0.261	8260B		10	03/30/20 12:15	D0C0501	DC02725
1,2-Dibromo-3-Chloropropane	ND (1.30)	0.261	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2-Dibromoethane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2-Dichlorobenzene	27.5 (2.61)	0.261	8260B		10	03/30/20 12:15	D0C0501	DC02725
1,2-Dichloroethane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,2-Dichloropropane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,3,5-Trimethylbenzene	14.4 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,3-Dichlorobenzene	J 0.185 (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,3-Dichloropropane	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,4-Dichlorobenzene	2.67 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
1,4-Dioxane - Screen	ND (52.2)	49.6	8260B		1	03/27/20 13:54	D0C0501	DC02725
1-Chlorohexane	ND (0.261)	0.104	8260B		1	03/27/20 13:54	D0C0501	DC02725
2,2-Dichloropropane	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
2-Butanone	ND (1.30)	0.887	8260B		1	03/27/20 13:54	D0C0501	DC02725
2-Chlorotoluene	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
2-Hexanone	ND (1.30)	0.391	8260B		1	03/27/20 13:54	D0C0501	DC02725
4-Chlorotoluene	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
4-Isopropyltoluene	7.86 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
4-Methyl-2-Pentanone	ND (1.30)	0.417	8260B		1	03/27/20 13:54	D0C0501	DC02725
Acetone	J 1.22 (1.30)	0.704	8260B		1	03/27/20 13:54	D0C0501	DC02725
Benzene	J 0.0600 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Bromobenzene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88
Initial Volume: 14.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
Bromodichloromethane	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Bromoform	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Bromomethane	ND (0.261)	0.104	8260B		1	03/27/20 13:54	D0C0501	DC02725
Carbon Disulfide	6.73 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Carbon Tetrachloride	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Chlorobenzene	1.78 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Chloroethane	ND (0.261)	0.104	8260B		1	03/27/20 13:54	D0C0501	DC02725
Chloroform	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Chloromethane	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
cis-1,2-Dichloroethene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
cis-1,3-Dichloropropene	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
Dibromochloromethane	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Dibromomethane	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
Dichlorodifluoromethane	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
Diethyl Ether	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
Di-isopropyl ether	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Ethyl tertiary-butyl ether	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Ethylbenzene	25.2 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Hexachlorobutadiene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Isopropylbenzene	2.38 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Methyl tert-Butyl Ether	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
Methylene Chloride	J 0.0600 (0.522)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Naphthalene	6.72 (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
n-Butylbenzene	5.11 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
n-Propylbenzene	2.43 (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
sec-Butylbenzene	3.89 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Styrene	ND (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
tert-Butylbenzene	0.686 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
Tertiary-amyl methyl ether	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Tetrachloroethene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Tetrahydrofuran	ND (1.30)	0.417	8260B		1	03/27/20 13:54	D0C0501	DC02725



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-19-2.5-5.0
 Date Sampled: 03/20/20 10:25
 Percent Solids: 88
 Initial Volume: 14.6
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	0.842 (0.261)	0.0261	8260B		1	03/27/20 13:54	D0C0501	DC02725
trans-1,2-Dichloroethene	ND (0.261)	0.0782	8260B		1	03/27/20 13:54	D0C0501	DC02725
trans-1,3-Dichloropropene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Trichloroethene	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Trichlorofluoromethane	ND (0.261)	0.104	8260B		1	03/27/20 13:54	D0C0501	DC02725
Vinyl Acetate	ND (0.261)	0.130	8260B		1	03/27/20 13:54	D0C0501	DC02725
Vinyl Chloride	ND (0.261)	0.0522	8260B		1	03/27/20 13:54	D0C0501	DC02725
Xylene O	28.1 (2.61)	0.261	8260B		10	03/30/20 12:15	D0C0501	DC02725
Xylene P,M	81.2 (5.22)	0.522	8260B		10	03/30/20 12:15	D0C0501	DC02725
Xylenes (Total)	109 (5.22)		8260B		10	03/30/20 12:15		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	7200 (435)		8100M		10	03/24/20 6:42	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>376 %</i>	<i>SM</i>	<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
1,2,4-Trichlorobenzene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
1,2-Dichlorobenzene	7.59 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
1,3-Dichlorobenzene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
1,4-Dichlorobenzene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,3,4,6-Tetrachlorophenol	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,4,5-Trichlorophenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,4,6-Trichlorophenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,4-Dichlorophenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,4-Dimethylphenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,4-Dinitrophenol	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,4-Dinitrotoluene	ND (0.481)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2,6-Dinitrotoluene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2-Chloronaphthalene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2-Chlorophenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2-Methylnaphthalene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2-Methylphenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2-Nitroaniline	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
2-Nitrophenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
3,3'-Dichlorobenzidine	ND (0.730)		8270D		2	03/26/20 2:51	D0C0458	DC02446
3+4-Methylphenol	ND (2.92)		8270D		2	03/26/20 2:51	D0C0458	DC02446
3-Nitroaniline	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4,6-Dinitro-2-Methylphenol	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4-Bromophenyl-phenylether	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4-Chloro-3-Methylphenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4-Chloroaniline	ND (2.92)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4-Chloro-phenyl-phenyl ether	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4-Nitroaniline	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
4-Nitrophenol	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Acenaphthene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Acenaphthylene	6.42 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Acetophenone	ND (2.92)		8270D		2	03/26/20 2:51	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (2.92)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Anthracene	5.04 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Azobenzene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzo(a)anthracene	8.61 (0.481)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzo(a)pyrene	10.2 (0.437)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzo(b)fluoranthene	9.61 (0.437)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzo(g,h,i)perylene	6.87 (0.437)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzo(k)fluoranthene	6.57 (0.437)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzoic Acid	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Benzyl Alcohol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
bis(2-Chloroethoxy)methane	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
bis(2-Chloroethyl)ether	ND (0.437)		8270D		2	03/26/20 2:51	D0C0458	DC02446
bis(2-chloroisopropyl)Ether	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
bis(2-Ethylhexyl)phthalate	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Butylbenzylphthalate	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Carbazole	2.45 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Chrysene	8.40 (0.364)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Dibenzo(a,h)Anthracene	2.07 (0.364)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Dibenzofuran	1.81 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Diethylphthalate	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Dimethylphthalate	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Di-n-butylphthalate	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Di-n-octylphthalate	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Fluoranthene	22.4 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Fluorene	1.96 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Hexachlorobenzene	ND (0.364)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Hexachlorobutadiene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Hexachlorocyclopentadiene	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Hexachloroethane	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Indeno(1,2,3-cd)Pyrene	6.96 (0.481)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Isophorone	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Naphthalene	2.46 (0.364)		8270D		2	03/26/20 2:51	D0C0458	DC02446



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88
Initial Volume: 15.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/24/20 20:10

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
N-Nitrosodimethylamine	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
N-Nitroso-Di-n-Propylamine	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
N-nitrosodiphenylamine	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Pentachlorophenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Phenanthrene	17.7 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Phenol	ND (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Pyrene	20.5 (1.46)		8270D		2	03/26/20 2:51	D0C0458	DC02446
Pyridine	ND (7.30)		8270D		2	03/26/20 2:51	D0C0458	DC02446

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	48 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	69 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	50 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	56 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	48 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	50 %		30-130
<i>Surrogate: Phenol-d6</i>	53 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	60 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-19-2.5-5.0
Date Sampled: 03/20/20 10:25
Percent Solids: 88

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-08
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	6.30 (N/A)		9045		1	CCP	03/20/20 21:36	S.U.	DC02031
Corrosivity (pH) Sample Temp	Soil pH measured in water at 21.9 °C.								
Eh (ORP)	WL 431 (N/A)		2580		1	CCP	03/23/20 21:38	mv	DC02033
Hexavalent Chromium	ND (0.7)		7196A		1	CCP	03/23/20 10:00	mg/kg dry	DC02328



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-0-2.5
Date Sampled: 03/20/20 11:20
Percent Solids: 85

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-09
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	129 (5.12)		6010C		1	BJV	03/23/20 23:56	2.3	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-0-2.5
Date Sampled: 03/20/20 11:20
Percent Solids: 85
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.0059)		8260B Low		1	03/26/20 20:07	D0C0483	DC02645
Ethylbenzene	ND (0.0059)		8260B Low		1	03/26/20 20:07	D0C0483	DC02645
Toluene	ND (0.0059)		8260B Low		1	03/26/20 20:07	D0C0483	DC02645
Xylene O	ND (0.0059)		8260B Low		1	03/26/20 20:07	D0C0483	DC02645
Xylene P,M	ND (0.0118)		8260B Low		1	03/26/20 20:07	D0C0483	DC02645
Xylenes (Total)	ND (0.0118)		8260B Low		1	03/26/20 20:07		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-0-2.5
Date Sampled: 03/20/20 11:20
Percent Solids: 85
Initial Volume: 20.9
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 10:14

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	815 (169)		8015C		10	03/24/20 7:15	D0C0392	DC02310
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		84 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-0-2.5
Date Sampled: 03/20/20 11:20
Percent Solids: 85
Initial Volume: 14.8
Final Volume: 15
Extraction Method: 5030B

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK
Prepared: 3/25/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	ND (6.84)		8015C		1	03/25/20 17:02	D0C0460	DC02536
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		<i>97 %</i>		<i>70-130</i>				
<i>Surrogate: Trifluorotoluene - FID</i>		<i>118 %</i>		<i>70-130</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-10-15
Date Sampled: 03/20/20 12:30
Percent Solids: 91

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-10
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	9.38 (4.59)		6010C		1	BJV	03/24/20 0:00	2.39	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-7-10-15
 Date Sampled: 03/20/20 12:30
 Percent Solids: 91
 Initial Volume: 7.1
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	0.0856 (0.0039)		8260B Low		1	03/27/20 22:23	D0C0508	DC02742
Ethylbenzene	E 0.907 (0.0039)		8260B Low		1	03/27/20 22:23	D0C0508	DC02742
Toluene	E 1.25 (0.0039)		8260B Low		1	03/27/20 22:23	D0C0508	DC02742
Xylene O	E 1.91 (0.0039)		8260B Low		1	03/27/20 22:23	D0C0508	DC02742
Xylene P,M	E 2.77 (0.0077)		8260B Low		1	03/27/20 22:23	D0C0508	DC02742
Xylenes (Total)	4.68 (0.00773)		8260B Low		1	03/27/20 22:23		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	124 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	97 %		70-130
<i>Surrogate: Toluene-d8</i>	111 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-7-10-15
 Date Sampled: 03/20/20 12:30
 Percent Solids: 91
 Initial Volume: 15.4
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	0.711 (0.233)		8260B		1	03/30/20 13:08	D0C0533	DC03027
Ethylbenzene	40.5 (2.33)		8260B		10	03/30/20 15:22	D0C0533	DC03027
Methyl tert-Butyl Ether	ND (0.233)		8260B		1	03/30/20 13:08	D0C0533	DC03027
Toluene	31.5 (2.33)		8260B		10	03/30/20 15:22	D0C0533	DC03027
Xylene O	57.1 (2.33)		8260B		10	03/30/20 15:22	D0C0533	DC03027
Xylene P,M	147 (4.66)		8260B		10	03/30/20 15:22	D0C0533	DC03027
Xylenes (Total)	204 (4.66)		[CALC]		10	03/30/20 15:22		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	103 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	104 %		70-130
<i>Surrogate: Toluene-d8</i>	93 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-10-15
Date Sampled: 03/20/20 12:30
Percent Solids: 91
Initial Volume: 19.8
Final Volume: 4
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	35400 (665)		8015C		10	03/25/20 20:25	D0C0445	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>%</i>	<i>SD</i>	<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-7-10-15
Date Sampled: 03/20/20 12:30
Percent Solids: 91
Initial Volume: 15.1
Final Volume: 15
Extraction Method: 5030B

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK
Prepared: 3/25/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	871 (5.94)		8015C		1	03/25/20 18:44	D0C0460	DC02536
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		96 %		70-130				
<i>Surrogate: Trifluorotoluene - FID</i>		110 %		70-130				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-8-0-2.5
Date Sampled: 03/20/20 13:15
Percent Solids: 89

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-11
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	46.6 (4.52)		6010C		1	BJV	03/24/20 0:21	2.5	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-8-0-2.5
 Date Sampled: 03/20/20 13:15
 Percent Solids: 89
 Initial Volume: 4.3
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.0066)		8260B Low		1	03/26/20 20:33	D0C0483	DC02645
Ethylbenzene	ND (0.0066)		8260B Low		1	03/26/20 20:33	D0C0483	DC02645
Toluene	ND (0.0066)		8260B Low		1	03/26/20 20:33	D0C0483	DC02645
Xylene O	ND (0.0066)		8260B Low		1	03/26/20 20:33	D0C0483	DC02645
Xylene P,M	ND (0.0131)		8260B Low		1	03/26/20 20:33	D0C0483	DC02645
Xylenes (Total)	ND (0.0131)		8260B Low		1	03/26/20 20:33		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>81 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>114 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-8-0-2.5
Date Sampled: 03/20/20 13:15
Percent Solids: 89
Initial Volume: 20
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	199 (84.7)		8015C		5	03/25/20 19:19	D0C0445	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		93 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-8-0-2.5
Date Sampled: 03/20/20 13:15
Percent Solids: 89
Initial Volume: 15.2
Final Volume: 15
Extraction Method: 5030B

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK
Prepared: 3/25/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	6.55 (6.21)		8015C		1	03/25/20 17:36	D0C0460	DC02536
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		98 %		70-130				
<i>Surrogate: Trifluorotoluene - FID</i>		123 %		70-130				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-8-15-20
Date Sampled: 03/20/20 13:30
Percent Solids: 82

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-12
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	ND (4.25)		6010C		1	BJV	03/24/20 0:25	2.87	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-8-15-20
 Date Sampled: 03/20/20 13:30
 Percent Solids: 82
 Initial Volume: 14.3
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.300)		8260B		1	03/27/20 16:34	D0C0501	DC02725
Ethylbenzene	2.45 (0.300)		8260B		1	03/27/20 16:34	D0C0501	DC02725
Methyl tert-Butyl Ether	ND (0.300)		8260B		1	03/27/20 16:34	D0C0501	DC02725
Toluene	ND (0.300)		8260B		1	03/27/20 16:34	D0C0501	DC02725
Xylene O	0.519 (0.300)		8260B		1	03/27/20 16:34	D0C0501	DC02725
Xylene P,M	4.68 (0.600)		8260B		1	03/27/20 16:34	D0C0501	DC02725
Xylenes (Total)	5.19 (0.600)		[CALC]		1	03/27/20 16:34		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	101 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-8-15-20
Date Sampled: 03/20/20 13:30
Percent Solids: 82
Initial Volume: 19.5
Final Volume: 2
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	18500 (375)		8015C		10	03/25/20 22:04	D0C0445	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>%</i>	<i>SD</i>	<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-8-15-20
 Date Sampled: 03/20/20 13:30
 Percent Solids: 82
 Initial Volume: 14.7
 Final Volume: 15
 Extraction Method: 5030B

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK
 Prepared: 3/25/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	242 (7.32)		8015C		1	03/25/20 18:10	D0C0460	DC02536
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		108 %		70-130				
<i>Surrogate: Trifluorotoluene - FID</i>		109 %		70-130				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	9.38 (0.57)		6020A		1	KJK	03/24/20 13:29	2.4	100	DC02343
Arsenic	ND (2.85)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Beryllium	ND (0.13)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Cadmium	ND (0.57)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Chromium	41.2 (1.14)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Copper	8.69 (2.85)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Lead	208 (5.70)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Mercury	0.436 (0.034)		7471B		1	MKS	03/24/20 9:11	0.8	40	DC02344
Nickel	4.45 (2.85)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Selenium	ND (5.70)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Silver	ND (0.57)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343
Thallium	ND (0.57)		6020A		1	KJK	03/24/20 13:29	2.4	100	DC02343
Zinc	30.7 (2.85)		6010C		1	BJV	03/24/20 0:29	2.4	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,1,1-Trichloroethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,1,2,2-Tetrachloroethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,1,2-Trichloroethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,1-Dichloroethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,1-Dichloroethene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,1-Dichloropropene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2,3-Trichlorobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2,3-Trichloropropane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2,4-Trichlorobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2,4-Trimethylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2-Dibromo-3-Chloropropane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2-Dibromoethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2-Dichlorobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2-Dichloroethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,2-Dichloropropane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,3,5-Trimethylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,3-Dichlorobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,3-Dichloropropane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,4-Dichlorobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1,4-Dioxane	ND (0.146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
1-Chlorohexane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
2,2-Dichloropropane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
2-Butanone	ND (0.0728)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
2-Chlorotoluene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
2-Hexanone	ND (0.0728)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
4-Chlorotoluene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
4-Isopropyltoluene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
4-Methyl-2-Pentanone	ND (0.0728)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Acetone	0.0732 (0.0728)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Benzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Bromobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Bromodichloromethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Bromoform	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Bromomethane	ND (0.0146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Carbon Disulfide	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Carbon Tetrachloride	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Chlorobenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Chloroethane	ND (0.0146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Chloroform	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Chloromethane	ND (0.0146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
cis-1,2-Dichloroethene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
cis-1,3-Dichloropropene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Dibromochloromethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Dibromomethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Dichlorodifluoromethane	ND (0.0146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Diethyl Ether	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Di-isopropyl ether	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Ethyl tertiary-butyl ether	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Ethylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Hexachlorobutadiene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Isopropylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Methyl tert-Butyl Ether	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Methylene Chloride	ND (0.0364)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Naphthalene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
n-Butylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
n-Propylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
sec-Butylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Styrene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
tert-Butylbenzene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Tertiary-amyl methyl ether	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Tetrachloroethene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Tetrahydrofuran	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
trans-1,2-Dichloroethene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
trans-1,3-Dichloropropene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Trichloroethene	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Trichlorofluoromethane	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Vinyl Acetate	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Vinyl Chloride	ND (0.0146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Xylene O	ND (0.0073)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Xylene P,M	ND (0.0146)		8260B Low		1	03/27/20 14:43	D0C0508	DC02742
Xylenes (Total)	ND (0.0146)		8260B Low		1	03/27/20 14:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>72 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>120 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 20.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	2130 (254)		8100M		5	03/25/20 19:52	D0C0445	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		92 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
1,2,4-Trichlorobenzene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
1,2-Dichlorobenzene	1.99 (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
1,3-Dichlorobenzene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
1,4-Dichlorobenzene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,3,4,6-Tetrachlorophenol	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,4,5-Trichlorophenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,4,6-Trichlorophenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,4-Dichlorophenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,4-Dimethylphenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,4-Dinitrophenol	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,4-Dinitrotoluene	ND (0.312)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2,6-Dinitrotoluene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2-Chloronaphthalene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2-Chlorophenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2-Methylnaphthalene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2-Methylphenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2-Nitroaniline	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
2-Nitrophenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
3,3'-Dichlorobenzidine	ND (0.473)		8270D		2	03/25/20 4:18	D0C0428	DC02309
3+4-Methylphenol	ND (1.89)		8270D		2	03/25/20 4:18	D0C0428	DC02309
3-Nitroaniline	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4,6-Dinitro-2-Methylphenol	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4-Bromophenyl-phenylether	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4-Chloro-3-Methylphenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4-Chloroaniline	ND (1.89)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4-Chloro-phenyl-phenyl ether	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4-Nitroaniline	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
4-Nitrophenol	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Acenaphthene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Acenaphthylene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Acetophenone	ND (1.89)		8270D		2	03/25/20 4:18	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (1.89)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Anthracene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Azobenzene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzo(a)anthracene	ND (0.312)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzo(a)pyrene	ND (0.283)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzo(b)fluoranthene	1.04 (0.283)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzo(g,h,i)perylene	0.638 (0.283)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzo(k)fluoranthene	0.447 (0.283)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzoic Acid	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Benzyl Alcohol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
bis(2-Chloroethoxy)methane	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
bis(2-Chloroethyl)ether	ND (0.283)		8270D		2	03/25/20 4:18	D0C0428	DC02309
bis(2-chloroisopropyl)Ether	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
bis(2-Ethylhexyl)phthalate	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Butylbenzylphthalate	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Carbazole	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Chrysene	0.406 (0.236)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Dibenzo(a,h)Anthracene	ND (0.236)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Dibenzofuran	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Diethylphthalate	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Dimethylphthalate	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Di-n-butylphthalate	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Di-n-octylphthalate	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Fluoranthene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Fluorene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Hexachlorobenzene	ND (0.236)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Hexachlorobutadiene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Hexachlorocyclopentadiene	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Hexachloroethane	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Indeno(1,2,3-cd)Pyrene	0.605 (0.312)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Isophorone	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Naphthalene	ND (0.236)		8270D		2	03/25/20 4:18	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-0-2.5
Date Sampled: 03/20/20 14:30
Percent Solids: 73
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
N-Nitrosodimethylamine	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
N-Nitroso-Di-n-Propylamine	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
N-nitrosodiphenylamine	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Pentachlorophenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Phenanthrene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Phenol	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Pyrene	ND (0.943)		8270D		2	03/25/20 4:18	D0C0428	DC02309
Pyridine	ND (4.73)		8270D		2	03/25/20 4:18	D0C0428	DC02309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	37 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	75 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	41 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	54 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	36 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	37 %		30-130
<i>Surrogate: Phenol-d6</i>	42 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	84 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.47)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Arsenic	ND (2.23)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Beryllium	0.14 (0.10)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Cadmium	ND (0.45)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Chromium	3.47 (0.89)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Copper	6.84 (2.23)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Lead	ND (4.47)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Mercury	ND (0.036)		7471B		1	MKS	03/24/20 9:14	0.7	40	DC02344
Nickel	ND (2.23)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Selenium	ND (4.47)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Silver	ND (0.45)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Thallium	ND (4.47)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343
Zinc	22.2 (2.23)		6010C		1	BJV	03/24/20 0:46	2.84	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,1,1-Trichloroethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,1,2,2-Tetrachloroethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,1,2-Trichloroethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,1-Dichloroethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,1-Dichloroethene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,1-Dichloropropene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2,3-Trichlorobenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2,3-Trichloropropane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2,4-Trichlorobenzene	0.0366 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2,4-Trimethylbenzene	0.0228 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2-Dibromo-3-Chloropropane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2-Dibromoethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2-Dichlorobenzene	0.162 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2-Dichloroethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,2-Dichloropropane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,3,5-Trimethylbenzene	0.0086 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,3-Dichlorobenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,3-Dichloropropane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,4-Dichlorobenzene	0.0162 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1,4-Dioxane	ND (0.129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
1-Chlorohexane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
2,2-Dichloropropane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
2-Butanone	ND (0.0647)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
2-Chlorotoluene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
2-Hexanone	ND (0.0647)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
4-Chlorotoluene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
4-Isopropyltoluene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
4-Methyl-2-Pentanone	ND (0.0647)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Acetone	0.0845 (0.0647)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Benzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Bromobenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Bromodichloromethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Bromoform	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Bromomethane	ND (0.0129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Carbon Disulfide	0.0112 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Carbon Tetrachloride	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Chlorobenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Chloroethane	ND (0.0129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Chloroform	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Chloromethane	ND (0.0129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
cis-1,2-Dichloroethene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
cis-1,3-Dichloropropene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Dibromochloromethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Dibromomethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Dichlorodifluoromethane	ND (0.0129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Diethyl Ether	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Di-isopropyl ether	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Ethyl tertiary-butyl ether	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Ethylbenzene	0.0210 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Hexachlorobutadiene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Isopropylbenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Methyl tert-Butyl Ether	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Methylene Chloride	ND (0.0324)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Naphthalene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
n-Butylbenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
n-Propylbenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
sec-Butylbenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Styrene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
tert-Butylbenzene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Tertiary-amyl methyl ether	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Tetrachloroethene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Tetrahydrofuran	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79
Initial Volume: 4.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	0.0137 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
trans-1,2-Dichloroethene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
trans-1,3-Dichloropropene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Trichloroethene	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Trichlorofluoromethane	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Vinyl Acetate	ND (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Vinyl Chloride	ND (0.0129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Xylene O	0.0406 (0.0065)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Xylene P,M	0.0429 (0.0129)		8260B Low		1	03/27/20 15:09	D0C0508	DC02742
Xylenes (Total)	0.0836 (0.0129)		8260B Low		1	03/27/20 15:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	98 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	97 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79
Initial Volume: 20.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (47.1)		8100M		1	03/24/20 18:45	D0C0392	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		94 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
1,2,4-Trichlorobenzene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
1,2-Dichlorobenzene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
1,3-Dichlorobenzene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
1,4-Dichlorobenzene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,3,4,6-Tetrachlorophenol	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,4,5-Trichlorophenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,4,6-Trichlorophenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,4-Dichlorophenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,4-Dimethylphenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,4-Dinitrophenol	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,4-Dinitrotoluene	ND (0.135)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2,6-Dinitrotoluene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2-Chloronaphthalene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2-Chlorophenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2-Methylnaphthalene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2-Methylphenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2-Nitroaniline	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
2-Nitrophenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
3,3'-Dichlorobenzidine	ND (0.205)		8270D		1	03/25/20 4:47	D0C0428	DC02309
3+4-Methylphenol	ND (0.819)		8270D		1	03/25/20 4:47	D0C0428	DC02309
3-Nitroaniline	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4,6-Dinitro-2-Methylphenol	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4-Bromophenyl-phenylether	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4-Chloro-3-Methylphenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4-Chloroaniline	ND (0.819)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4-Chloro-phenyl-phenyl ether	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4-Nitroaniline	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
4-Nitrophenol	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Acenaphthene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Acenaphthylene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Acetophenone	ND (0.819)		8270D		1	03/25/20 4:47	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-20-15-17.5
Date Sampled: 03/20/20 14:45
Percent Solids: 79
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.819)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Anthracene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Azobenzene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzo(a)anthracene	ND (0.135)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzo(a)pyrene	ND (0.123)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzo(b)fluoranthene	ND (0.123)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzo(g,h,i)perylene	ND (0.123)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzo(k)fluoranthene	ND (0.123)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzoic Acid	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Benzyl Alcohol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
bis(2-Chloroethoxy)methane	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
bis(2-Chloroethyl)ether	ND (0.123)		8270D		1	03/25/20 4:47	D0C0428	DC02309
bis(2-chloroisopropyl)Ether	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
bis(2-Ethylhexyl)phthalate	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Butylbenzylphthalate	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Carbazole	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Chrysene	ND (0.102)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Dibenzo(a,h)Anthracene	ND (0.102)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Dibenzofuran	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Diethylphthalate	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Dimethylphthalate	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Di-n-butylphthalate	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Di-n-octylphthalate	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Fluoranthene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Fluorene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Hexachlorobenzene	ND (0.102)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Hexachlorobutadiene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Hexachlorocyclopentadiene	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Hexachloroethane	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Indeno(1,2,3-cd)Pyrene	ND (0.135)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Isophorone	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Naphthalene	ND (0.102)		8270D		1	03/25/20 4:47	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-20-15-17.5
 Date Sampled: 03/20/20 14:45
 Percent Solids: 79
 Initial Volume: 15.5
 Final Volume: 0.5
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-14
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: TJ
 Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
N-Nitrosodimethylamine	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
N-Nitroso-Di-n-Propylamine	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
N-nitrosodiphenylamine	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Pentachlorophenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Phenanthrene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Phenol	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Pyrene	ND (0.409)		8270D		1	03/25/20 4:47	D0C0428	DC02309
Pyridine	ND (2.05)		8270D		1	03/25/20 4:47	D0C0428	DC02309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	80 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	97 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	82 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	86 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	79 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	75 %		30-130
<i>Surrogate: Phenol-d6</i>	79 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	115 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-PT
Date Sampled: 03/20/20 00:00
Percent Solids: 82

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-15
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	ND (4.74)		6010C		1	BJV	03/24/20 0:49	2.56	100	DC02343



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-PT
Date Sampled: 03/20/20 00:00
Percent Solids: 82
Initial Volume: 6.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	0.0786 (0.0045)		8260B Low		1	03/27/20 21:58	D0C0508	DC02742
Ethylbenzene	E 0.789 (0.0045)		8260B Low		1	03/27/20 21:58	D0C0508	DC02742
Toluene	0.0170 (0.0045)		8260B Low		1	03/27/20 21:58	D0C0508	DC02742
Xylene O	E 0.188 (0.0045)		8260B Low		1	03/27/20 21:58	D0C0508	DC02742
Xylene P,M	E 1.64 (0.0089)		8260B Low		1	03/27/20 21:58	D0C0508	DC02742
Xylenes (Total)	1.83 (0.00892)		8260B Low		1	03/27/20 21:58		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	103 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	81 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	101 %		70-130
<i>Surrogate: Toluene-d8</i>	140 %	SC	70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-PT
 Date Sampled: 03/20/20 00:00
 Percent Solids: 82
 Initial Volume: 15.6
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-15
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.198)		8260B		1	03/30/20 14:55	D0C0533	DC03027
Ethylbenzene	1.37 (0.198)		8260B		1	03/30/20 14:55	D0C0533	DC03027
Methyl tert-Butyl Ether	ND (0.198)		8260B		1	03/30/20 14:55	D0C0533	DC03027
Toluene	ND (0.198)		8260B		1	03/30/20 14:55	D0C0533	DC03027
Xylene O	0.254 (0.198)		8260B		1	03/30/20 14:55	D0C0533	DC03027
Xylene P,M	2.69 (0.396)		8260B		1	03/30/20 14:55	D0C0533	DC03027
Xylenes (Total)	2.94 (0.396)		[CALC]		1	03/30/20 14:55		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	67 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	42 %	SC	70-130
<i>Surrogate: Dibromofluoromethane</i>	64 %		70-130
<i>Surrogate: Toluene-d8</i>	46 %	SC	70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-PT
Date Sampled: 03/20/20 00:00
Percent Solids: 82
Initial Volume: 19.5
Final Volume: 2
Extraction Method: 3546

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	11200 (373)		8015C		10	03/25/20 22:36	D0C0445	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>%</i>	<i>SD</i>	<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-PT
Date Sampled: 03/20/20 00:00
Percent Solids: 82
Initial Volume: 15.3
Final Volume: 15
Extraction Method: 5030B

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK
Prepared: 3/25/20 8:00

8015C Gasoline Range Organics / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	272 (7.01)		8015C		1	03/25/20 19:18	D0C0460	DC02536
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		85 %		70-130				
<i>Surrogate: Trifluorotoluene - FID</i>		105 %		70-130				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-TRIP BLANK-031920
Date Sampled: 03/19/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-16
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,1,1-Trichloroethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,1,2,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,1,2-Trichloroethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,1-Dichloroethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,1-Dichloroethene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,1-Dichloropropene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2,3-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2,3-Trichloropropane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2,4-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2,4-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2-Dibromoethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2-Dichloroethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,3,5-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,3-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,3-Dichloropropane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,4-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1,4-Dioxane	ND (0.100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
1-Chlorohexane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
2,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
2-Butanone	ND (0.0500)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
2-Chlorotoluene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
2-Hexanone	ND (0.0500)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
4-Chlorotoluene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
4-Isopropyltoluene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
4-Methyl-2-Pentanone	ND (0.0500)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Acetone	ND (0.0500)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Benzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Bromobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-TRIP BLANK-031920
 Date Sampled: 03/19/20 00:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
 ESS Laboratory Sample ID: 20C0705-16
 Sample Matrix: Soil
 Units: mg/kg wet
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Bromodichloromethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Bromoform	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Bromomethane	ND (0.0100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Carbon Disulfide	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Carbon Tetrachloride	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Chlorobenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Chloroethane	ND (0.0100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Chloroform	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Chloromethane	ND (0.0100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
cis-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
cis-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Dibromochloromethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Dibromomethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Dichlorodifluoromethane	ND (0.0100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Diethyl Ether	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Di-isopropyl ether	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Ethyl tertiary-butyl ether	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Ethylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Hexachlorobutadiene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Isopropylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Methyl tert-Butyl Ether	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Methylene Chloride	ND (0.0250)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Naphthalene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
n-Butylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
n-Propylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
sec-Butylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Styrene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
tert-Butylbenzene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Tertiary-amyl methyl ether	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Tetrachloroethene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Tetrahydrofuran	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-TRIP BLANK-031920
Date Sampled: 03/19/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0705
ESS Laboratory Sample ID: 20C0705-16
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
trans-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
trans-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Trichloroethene	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Trichlorofluoromethane	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Vinyl Acetate	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Vinyl Chloride	ND (0.0100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Xylene O	ND (0.0050)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Xylene P,M	ND (0.0100)		8260B Low		1	03/26/20 14:09	D0C0483	DC02645
Xylenes (Total)	ND (0.0100)		8260B Low		1	03/26/20 14:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>115 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (3.56)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Arsenic	ND (1.78)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Beryllium	ND (0.08)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Cadmium	ND (0.36)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Chromium	1.61 (0.71)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Copper	1.97 (1.78)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Lead	ND (3.56)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Mercury	ND (0.025)		7471B		1	MKS	03/25/20 7:26	0.81	40	DC02431
Nickel	ND (1.78)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Selenium	ND (3.56)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Silver	ND (0.36)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Thallium	ND (3.56)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430
Zinc	5.66 (1.78)		6010C		1	KJK	03/24/20 19:49	2.87	100	DC02430



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,1,1-Trichloroethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,1,2,2-Tetrachloroethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,1,2-Trichloroethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,1-Dichloroethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,1-Dichloroethene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,1-Dichloropropene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2,3-Trichlorobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2,3-Trichloropropane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2,4-Trichlorobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2,4-Trimethylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2-Dibromo-3-Chloropropane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2-Dibromoethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2-Dichlorobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2-Dichloroethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,2-Dichloropropane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,3,5-Trimethylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,3-Dichlorobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,3-Dichloropropane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,4-Dichlorobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1,4-Dioxane	ND (0.109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
1-Chlorohexane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
2,2-Dichloropropane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
2-Butanone	ND (0.0543)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
2-Chlorotoluene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
2-Hexanone	ND (0.0543)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
4-Chlorotoluene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
4-Isopropyltoluene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
4-Methyl-2-Pentanone	ND (0.0543)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Acetone	ND (0.0543)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Benzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Bromobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Bromodichloromethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Bromoform	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Bromomethane	ND (0.0109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Carbon Disulfide	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Carbon Tetrachloride	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Chlorobenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Chloroethane	ND (0.0109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Chloroform	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Chloromethane	ND (0.0109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
cis-1,2-Dichloroethene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
cis-1,3-Dichloropropene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Dibromochloromethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Dibromomethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Dichlorodifluoromethane	ND (0.0109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Diethyl Ether	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Di-isopropyl ether	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Ethyl tertiary-butyl ether	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Ethylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Hexachlorobutadiene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Isopropylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Methyl tert-Butyl Ether	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Methylene Chloride	ND (0.0272)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Naphthalene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
n-Butylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
n-Propylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
sec-Butylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Styrene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
tert-Butylbenzene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Tertiary-amyl methyl ether	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Tetrachloroethene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Tetrahydrofuran	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 4.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
trans-1,2-Dichloroethene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
trans-1,3-Dichloropropene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Trichloroethene	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Trichlorofluoromethane	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Vinyl Acetate	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Vinyl Chloride	ND (0.0109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Xylene O	ND (0.0054)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Xylene P,M	ND (0.0109)		8260B Low		1	03/25/20 18:06	D0C0456	DC02531
Xylenes (Total)	ND (0.0109)		8260B Low		1	03/25/20 18:06		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>87 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 19.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (39.9)		8100M		1	03/24/20 19:18	D0C0392	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		95 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
1,2,4-Trichlorobenzene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
1,2-Dichlorobenzene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
1,3-Dichlorobenzene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
1,4-Dichlorobenzene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,3,4,6-Tetrachlorophenol	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,4,5-Trichlorophenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,4,6-Trichlorophenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,4-Dichlorophenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,4-Dimethylphenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,4-Dinitrophenol	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,4-Dinitrotoluene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2,6-Dinitrotoluene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2-Chloronaphthalene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2-Chlorophenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2-Methylnaphthalene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2-Methylphenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2-Nitroaniline	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
2-Nitrophenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
3,3'-Dichlorobenzidine	ND (0.691)		8270D		1	03/25/20 6:14	D0C0428	DC02309
3+4-Methylphenol	ND (0.691)		8270D		1	03/25/20 6:14	D0C0428	DC02309
3-Nitroaniline	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4,6-Dinitro-2-Methylphenol	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4-Bromophenyl-phenylether	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4-Chloro-3-Methylphenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4-Chloroaniline	ND (0.691)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4-Chloro-phenyl-phenyl ether	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4-Nitroaniline	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
4-Nitrophenol	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Acenaphthene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Acenaphthylene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Acetophenone	ND (0.691)		8270D		1	03/25/20 6:14	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.691)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Anthracene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Azobenzene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzo(a)anthracene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzo(a)pyrene	ND (0.173)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzo(b)fluoranthene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzo(g,h,i)perylene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzo(k)fluoranthene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzoic Acid	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Benzyl Alcohol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
bis(2-Chloroethoxy)methane	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
bis(2-Chloroethyl)ether	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
bis(2-chloroisopropyl)Ether	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
bis(2-Ethylhexyl)phthalate	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Butylbenzylphthalate	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Carbazole	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Chrysene	ND (0.173)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Dibenzo(a,h)Anthracene	ND (0.173)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Dibenzofuran	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Diethylphthalate	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Dimethylphthalate	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Di-n-butylphthalate	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Di-n-octylphthalate	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Fluoranthene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Fluorene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Hexachlorobenzene	ND (0.173)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Hexachlorobutadiene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Hexachlorocyclopentadiene	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Hexachloroethane	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Indeno(1,2,3-cd)Pyrene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Isophorone	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Naphthalene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-0-2.5
Date Sampled: 03/20/20 16:30
Percent Solids: 98
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
N-Nitrosodimethylamine	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
N-Nitroso-Di-n-Propylamine	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
N-nitrosodiphenylamine	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Pentachlorophenol	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Phenanthrene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Phenol	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Pyrene	ND (0.345)		8270D		1	03/25/20 6:14	D0C0428	DC02309
Pyridine	ND (1.73)		8270D		1	03/25/20 6:14	D0C0428	DC02309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	74 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	89 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	76 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	81 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	74 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	68 %		30-130
<i>Surrogate: Phenol-d6</i>	73 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	97 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (3.78)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Arsenic	ND (1.89)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Beryllium	ND (0.08)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Cadmium	ND (0.38)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Chromium	6.40 (0.76)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Copper	1.93 (1.89)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Lead	ND (3.78)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Mercury	ND (0.028)		7471B		1	MKS	03/25/20 7:36	0.82	40	DC02431
Nickel	ND (1.89)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Selenium	ND (3.78)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Silver	ND (0.38)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Thallium	ND (3.78)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430
Zinc	11.9 (1.89)		6010C		1	KJK	03/24/20 20:24	3.06	100	DC02430



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,1,1-Trichloroethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,1,2,2-Tetrachloroethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,1,2-Trichloroethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,1-Dichloroethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,1-Dichloroethene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,1-Dichloropropene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2,3-Trichlorobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2,3-Trichloropropane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2,4-Trichlorobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2,4-Trimethylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2-Dibromo-3-Chloropropane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2-Dibromoethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2-Dichlorobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2-Dichloroethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,2-Dichloropropane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,3,5-Trimethylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,3-Dichlorobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,3-Dichloropropane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,4-Dichlorobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1,4-Dioxane	ND (0.116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
1-Chlorohexane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
2,2-Dichloropropane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
2-Butanone	ND (0.0578)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
2-Chlorotoluene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
2-Hexanone	ND (0.0578)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
4-Chlorotoluene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
4-Isopropyltoluene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
4-Methyl-2-Pentanone	ND (0.0578)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Acetone	ND (0.0578)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Benzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Bromobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Bromodichloromethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Bromoform	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Bromomethane	ND (0.0116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Carbon Disulfide	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Carbon Tetrachloride	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Chlorobenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Chloroethane	ND (0.0116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Chloroform	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Chloromethane	ND (0.0116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
cis-1,2-Dichloroethene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
cis-1,3-Dichloropropene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Dibromochloromethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Dibromomethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Dichlorodifluoromethane	ND (0.0116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Diethyl Ether	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Di-isopropyl ether	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Ethyl tertiary-butyl ether	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Ethylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Hexachlorobutadiene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Isopropylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Methyl tert-Butyl Ether	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Methylene Chloride	ND (0.0289)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Naphthalene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
n-Butylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
n-Propylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
sec-Butylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Styrene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
tert-Butylbenzene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Tertiary-amyl methyl ether	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Tetrachloroethene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Tetrahydrofuran	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
trans-1,2-Dichloroethene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
trans-1,3-Dichloropropene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Trichloroethene	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Trichlorofluoromethane	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Vinyl Acetate	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Vinyl Chloride	ND (0.0116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Xylene O	ND (0.0058)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Xylene P,M	ND (0.0116)		8260B Low		1	03/25/20 18:32	D0C0456	DC02531
Xylenes (Total)	ND (0.0116)		8260B Low		1	03/25/20 18:32		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>84 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 3/23/20 20:15

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (45.0)		8100M		1	03/24/20 19:51	D0C0392	DC02311
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		103 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
1,2,4-Trichlorobenzene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
1,2-Dichlorobenzene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
1,3-Dichlorobenzene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
1,4-Dichlorobenzene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,3,4,6-Tetrachlorophenol	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,4,5-Trichlorophenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,4,6-Trichlorophenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,4-Dichlorophenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,4-Dimethylphenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,4-Dinitrophenol	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,4-Dinitrotoluene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2,6-Dinitrotoluene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2-Chloronaphthalene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2-Chlorophenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2-Methylnaphthalene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2-Methylphenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2-Nitroaniline	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
2-Nitrophenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
3,3'-Dichlorobenzidine	ND (0.815)		8270D		1	03/25/20 6:43	D0C0428	DC02309
3+4-Methylphenol	ND (0.815)		8270D		1	03/25/20 6:43	D0C0428	DC02309
3-Nitroaniline	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4,6-Dinitro-2-Methylphenol	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4-Bromophenyl-phenylether	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4-Chloro-3-Methylphenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4-Chloroaniline	ND (0.815)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4-Chloro-phenyl-phenyl ether	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4-Nitroaniline	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
4-Nitrophenol	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Acenaphthene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Acenaphthylene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Acetophenone	ND (0.815)		8270D		1	03/25/20 6:43	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-21-32.5-35
Date Sampled: 03/20/20 17:05
Percent Solids: 86
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.815)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Anthracene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Azobenzene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzo(a)anthracene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzo(a)pyrene	ND (0.204)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzo(b)fluoranthene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzo(g,h,i)perylene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzo(k)fluoranthene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzoic Acid	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Benzyl Alcohol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
bis(2-Chloroethoxy)methane	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
bis(2-Chloroethyl)ether	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
bis(2-chloroisopropyl)Ether	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
bis(2-Ethylhexyl)phthalate	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Butylbenzylphthalate	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Carbazole	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Chrysene	ND (0.204)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Dibenzo(a,h)Anthracene	ND (0.204)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Dibenzofuran	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Diethylphthalate	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Dimethylphthalate	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Di-n-butylphthalate	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Di-n-octylphthalate	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Fluoranthene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Fluorene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Hexachlorobenzene	ND (0.204)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Hexachlorobutadiene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Hexachlorocyclopentadiene	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Hexachloroethane	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Indeno(1,2,3-cd)Pyrene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Isophorone	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Naphthalene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-21-32.5-35
 Date Sampled: 03/20/20 17:05
 Percent Solids: 86
 Initial Volume: 14.2
 Final Volume: 0.5
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0708
 ESS Laboratory Sample ID: 20C0708-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: TJ
 Prepared: 3/23/20 20:30

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
N-Nitrosodimethylamine	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
N-Nitroso-Di-n-Propylamine	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
N-nitrosodiphenylamine	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Pentachlorophenol	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Phenanthrene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Phenol	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Pyrene	ND (0.407)		8270D		1	03/25/20 6:43	D0C0428	DC02309
Pyridine	ND (2.04)		8270D		1	03/25/20 6:43	D0C0428	DC02309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	77 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	82 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	78 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	80 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	74 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	71 %		30-130
<i>Surrogate: Phenol-d6</i>	76 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	104 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank-032020
Date Sampled: 03/20/20 16:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-03
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,1,1-Trichloroethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,1,2,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,1,2-Trichloroethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,1-Dichloroethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,1-Dichloroethene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,1-Dichloropropene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2,3-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2,3-Trichloropropane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2,4-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2,4-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2-Dibromoethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2-Dichloroethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,3,5-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,3-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,3-Dichloropropane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,4-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1,4-Dioxane	ND (0.100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
1-Chlorohexane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
2,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
2-Butanone	ND (0.0500)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
2-Chlorotoluene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
2-Hexanone	ND (0.0500)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
4-Chlorotoluene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
4-Isopropyltoluene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
4-Methyl-2-Pentanone	ND (0.0500)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Acetone	ND (0.0500)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Benzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Bromobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank-032020
Date Sampled: 03/20/20 16:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
ESS Laboratory Sample ID: 20C0708-03
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Bromodichloromethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Bromoform	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Bromomethane	ND (0.0100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Carbon Disulfide	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Carbon Tetrachloride	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Chlorobenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Chloroethane	ND (0.0100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Chloroform	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Chloromethane	ND (0.0100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
cis-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
cis-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Dibromochloromethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Dibromomethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Dichlorodifluoromethane	ND (0.0100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Diethyl Ether	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Di-isopropyl ether	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Ethyl tertiary-butyl ether	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Ethylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Hexachlorobutadiene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Isopropylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Methyl tert-Butyl Ether	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Methylene Chloride	ND (0.0250)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Naphthalene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
n-Butylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
n-Propylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
sec-Butylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Styrene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
tert-Butylbenzene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Tertiary-amyl methyl ether	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Tetrachloroethene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Tetrahydrofuran	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: Trip Blank-032020
 Date Sampled: 03/20/20 16:30
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0708
 ESS Laboratory Sample ID: 20C0708-03
 Sample Matrix: Soil
 Units: mg/kg wet
 Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
trans-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
trans-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Trichloroethene	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Trichlorofluoromethane	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Vinyl Acetate	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Vinyl Chloride	ND (0.0100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Xylene O	ND (0.0050)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Xylene P,M	ND (0.0100)		8260B Low		1	03/25/20 17:40	D0C0456	DC02531
Xylenes (Total)	ND (0.0100)		8260B Low		1	03/25/20 17:40		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02341 - 3050B

Blank

Antimony	ND	5.00	mg/kg wet
Arsenic	ND	2.50	mg/kg wet
Beryllium	ND	0.11	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Copper	ND	2.50	mg/kg wet
Lead	ND	5.00	mg/kg wet
Nickel	ND	2.50	mg/kg wet
Selenium	ND	5.00	mg/kg wet
Silver	ND	0.50	mg/kg wet
Thallium	ND	5.00	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Antimony	43.4	14.7	mg/kg wet	51.30	85	40-160
Arsenic	181	7.35	mg/kg wet	202.0	89	80-120
Beryllium	45.7	0.32	mg/kg wet	52.10	88	80-120
Cadmium	123	1.47	mg/kg wet	149.0	83	80-120
Chromium	164	2.94	mg/kg wet	182.0	90	80-120
Copper	206	7.35	mg/kg wet	225.0	91	80-120
Lead	307	14.7	mg/kg wet	333.0	92	80-120
Nickel	153	7.35	mg/kg wet	167.0	92	80-120
Selenium	151	14.7	mg/kg wet	169.0	89	80-120
Silver	42.2	1.47	mg/kg wet	48.90	86	80-120
Thallium	64.0	14.7	mg/kg wet	82.30	78	62-139
Zinc	392	7.35	mg/kg wet	459.0	85	80-120

LCS Dup

Antimony	35.6	12.0	mg/kg wet	51.30	69	40-160	20	20
Arsenic	181	6.02	mg/kg wet	202.0	90	80-120	0.2	20
Beryllium	45.9	0.27	mg/kg wet	52.10	88	80-120	0.6	20
Cadmium	124	1.20	mg/kg wet	149.0	83	80-120	0.9	20
Chromium	163	2.41	mg/kg wet	182.0	90	80-120	0.5	20
Copper	208	6.02	mg/kg wet	225.0	92	80-120	1	20
Lead	306	12.0	mg/kg wet	333.0	92	80-120	0.3	20
Nickel	153	6.02	mg/kg wet	167.0	92	80-120	0.09	20
Selenium	150	12.0	mg/kg wet	169.0	89	80-120	0.2	20
Silver	42.8	1.20	mg/kg wet	48.90	88	80-120	2	20
Thallium	64.2	12.0	mg/kg wet	82.30	78	62-139	0.4	20
Zinc	393	6.02	mg/kg wet	459.0	86	80-120	0.2	20

Batch DC02342 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02342 - 7471B

Mercury	8.51	0.542	mg/kg wet	7.760		110	80-120			
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LCS Dup

Mercury	8.19	0.582	mg/kg wet	7.760		106	80-120	4	20	
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0526		mg/kg wet	0.05000		105	70-130			
Surrogate: 4-Bromofluorobenzene	0.0497		mg/kg wet	0.05000		99	70-130			
Surrogate: Dibromofluoromethane	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: Toluene-d8	0.0467		mg/kg wet	0.05000		93	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
1,1,1-Trichloroethane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

1,1,2,2-Tetrachloroethane	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
1,1,2-Trichloroethane	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
1,1-Dichloroethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
1,1-Dichloroethene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
1,1-Dichloropropene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
1,2,3-Trichlorobenzene	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
1,2,3-Trichloropropane	0.0417	0.0050	mg/kg wet	0.05000		83	70-130			
1,2,4-Trichlorobenzene	0.0407	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trimethylbenzene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
1,2-Dibromo-3-Chloropropane	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
1,2-Dibromoethane	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
1,2-Dichlorobenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
1,2-Dichloroethane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloropropane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
1,3,5-Trimethylbenzene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
1,3-Dichlorobenzene	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
1,3-Dichloropropane	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
1,4-Dichlorobenzene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
1,4-Dioxane	0.978	0.100	mg/kg wet	1.000		98	70-130			
1-Chlorohexane	0.0428	0.0050	mg/kg wet	0.05000		86	70-130			
2,2-Dichloropropane	0.0450	0.0050	mg/kg wet	0.05000		90	70-130			
2-Butanone	0.254	0.0500	mg/kg wet	0.2500		102	70-130			
2-Chlorotoluene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
2-Hexanone	0.231	0.0500	mg/kg wet	0.2500		92	70-130			
4-Chlorotoluene	0.0436	0.0050	mg/kg wet	0.05000		87	70-130			
4-Isopropyltoluene	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
4-Methyl-2-Pentanone	0.258	0.0500	mg/kg wet	0.2500		103	70-130			
Acetone	0.254	0.0500	mg/kg wet	0.2500		102	70-130			
Benzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Bromobenzene	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
Bromochloromethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Bromodichloromethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Bromoform	0.0398	0.0050	mg/kg wet	0.05000		80	70-130			
Bromomethane	0.0570	0.0100	mg/kg wet	0.05000		114	70-130			
Carbon Disulfide	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Carbon Tetrachloride	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Chlorobenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Chloroethane	0.0475	0.0100	mg/kg wet	0.05000		95	70-130			
Chloroform	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
Chloromethane	0.0475	0.0100	mg/kg wet	0.05000		95	70-130			
cis-1,2-Dichloroethene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Dibromochloromethane	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
Dibromomethane	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Dichlorodifluoromethane	0.0480	0.0100	mg/kg wet	0.05000		96	70-130			
Diethyl Ether	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Di-isopropyl ether	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Ethyl tertiary-butyl ether	0.0455	0.0050	mg/kg wet	0.05000		91	70-130			
Ethylbenzene	0.0443	0.0050	mg/kg wet	0.05000		89	70-130			
Hexachlorobutadiene	0.0431	0.0050	mg/kg wet	0.05000		86	70-130			
Isopropylbenzene	0.0439	0.0050	mg/kg wet	0.05000		88	70-130			
Methyl tert-Butyl Ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Methylene Chloride	0.0455	0.0250	mg/kg wet	0.05000		91	70-130			
Naphthalene	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
n-Butylbenzene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
n-Propylbenzene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
sec-Butylbenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Styrene	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
tert-Butylbenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Tertiary-amyl methyl ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Tetrachloroethene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
Tetrahydrofuran	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Toluene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
trans-1,2-Dichloroethene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
trans-1,3-Dichloropropene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Trichloroethene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
Trichlorofluoromethane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Vinyl Acetate	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
Vinyl Chloride	0.0522	0.0100	mg/kg wet	0.05000		104	70-130			
Xylene O	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Xylene P,M	0.0897	0.0100	mg/kg wet	0.1000		90	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0508		mg/kg wet	0.05000		102	70-130			
Surrogate: Dibromofluoromethane	0.0513		mg/kg wet	0.05000		103	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	7	25	
1,1,1-Trichloroethane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
1,1,2,2-Tetrachloroethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
1,1,2-Trichloroethane	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	10	25	
1,1-Dichloroethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
1,1-Dichloroethene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
1,1-Dichloropropene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
1,2,3-Trichlorobenzene	0.0451	0.0050	mg/kg wet	0.05000		90	70-130	7	25	
1,2,3-Trichloropropane	0.0443	0.0050	mg/kg wet	0.05000		89	70-130	6	25	
1,2,4-Trichlorobenzene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	7	25	
1,2,4-Trimethylbenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	9	25	
1,2-Dibromo-3-Chloropropane	0.0401	0.0050	mg/kg wet	0.05000		80	70-130	2	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

1,2-Dibromoethane	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	7	25	
1,2-Dichlorobenzene	0.0468	0.0050	mg/kg wet	0.05000		94	70-130	8	25	
1,2-Dichloroethane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
1,2-Dichloropropane	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	9	25	
1,3,5-Trimethylbenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,3-Dichlorobenzene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,3-Dichloropropane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130	7	25	
1,4-Dichlorobenzene	0.0469	0.0050	mg/kg wet	0.05000		94	70-130	6	25	
1,4-Dioxane	1.01	0.100	mg/kg wet	1.000		101	70-130	3	20	
1-Chlorohexane	0.0397	0.0050	mg/kg wet	0.05000		79	70-130	7	25	
2,2-Dichloropropane	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	8	25	
2-Butanone	0.274	0.0500	mg/kg wet	0.2500		110	70-130	8	25	
2-Chlorotoluene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	7	25	
2-Hexanone	0.207	0.0500	mg/kg wet	0.2500		83	70-130	11	25	
4-Chlorotoluene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	9	25	
4-Isopropyltoluene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	8	25	
4-Methyl-2-Pentanone	0.272	0.0500	mg/kg wet	0.2500		109	70-130	5	25	
Acetone	0.274	0.0500	mg/kg wet	0.2500		110	70-130	7	25	
Benzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Bromobenzene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	8	25	
Bromochloromethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Bromodichloromethane	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	8	25	
Bromoform	0.0369	0.0050	mg/kg wet	0.05000		74	70-130	8	25	
Bromomethane	0.0596	0.0100	mg/kg wet	0.05000		119	70-130	4	25	
Carbon Disulfide	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	8	25	
Carbon Tetrachloride	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Chlorobenzene	0.0405	0.0050	mg/kg wet	0.05000		81	70-130	7	25	
Chloroethane	0.0509	0.0100	mg/kg wet	0.05000		102	70-130	7	25	
Chloroform	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
Chloromethane	0.0517	0.0100	mg/kg wet	0.05000		103	70-130	9	25	
cis-1,2-Dichloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
cis-1,3-Dichloropropene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	10	25	
Dibromochloromethane	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	6	25	
Dibromomethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	9	25	
Dichlorodifluoromethane	0.0513	0.0100	mg/kg wet	0.05000		103	70-130	7	25	
Diethyl Ether	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
Di-isopropyl ether	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
Ethyl tertiary-butyl ether	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	9	25	
Ethylbenzene	0.0413	0.0050	mg/kg wet	0.05000		83	70-130	7	25	
Hexachlorobutadiene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130	7	25	
Isopropylbenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
Methyl tert-Butyl Ether	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Methylene Chloride	0.0492	0.0250	mg/kg wet	0.05000		98	70-130	8	25	
Naphthalene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130	6	25	



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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

n-Butylbenzene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	7	25	
n-Propylbenzene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	8	25	
sec-Butylbenzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130	8	25	
Styrene	0.0409	0.0050	mg/kg wet	0.05000		82	70-130	6	25	
tert-Butylbenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	9	25	
Tertiary-amyl methyl ether	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Tetrachloroethene	0.0422	0.0050	mg/kg wet	0.05000		84	70-130	9	25	
Tetrahydrofuran	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
Toluene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
trans-1,2-Dichloroethene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
trans-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	9	25	
Trichloroethene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
Trichlorofluoromethane	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
Vinyl Acetate	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	8	25	
Vinyl Chloride	0.0562	0.0100	mg/kg wet	0.05000		112	70-130	7	25	
Xylene O	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	8	25	
Xylene P,M	0.0838	0.0100	mg/kg wet	0.1000		84	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	0.0503		mg/kg wet	0.05000		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0432		mg/kg wet	0.05000		86	70-130			
Surrogate: Dibromofluoromethane	0.0506		mg/kg wet	0.05000		101	70-130			
Surrogate: Toluene-d8	0.0409		mg/kg wet	0.05000		82	70-130			

8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacotane (C30)	ND	0.2	mg/kg wet							

Surrogate: O-Terphenyl	4.78		mg/kg wet	5.000		96	40-140			
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LCS										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		91	40-140			



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8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		71	30-140			
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Total Petroleum Hydrocarbons	30.5	37.5	mg/kg wet	35.00		87	40-140			
Triacotane (C30)	2.3	0.2	mg/kg wet	2.500		91	40-140			

Surrogate: O-Terphenyl

4.65 mg/kg wet 5.000 93 40-140

LCS Dup

Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140	0.2	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.5	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		92	40-140	3	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		70	30-140	0.9	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140	2	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140	1	25	
Total Petroleum Hydrocarbons	31.1	37.5	mg/kg wet	35.00		89	40-140	2	25	
Triacotane (C30)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	

Surrogate: O-Terphenyl

4.64 mg/kg wet 5.000 93 40-140

8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Blank

1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							



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Quality Control Data

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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	0.184	0.110	mg/kg wet							
Benzo(a)pyrene	0.130	0.100	mg/kg wet							
Benzo(b)fluoranthene	0.138	0.100	mg/kg wet							
Benzo(g,h,i)perylene	0.229	0.100	mg/kg wet							
Benzo(k)fluoranthene	0.128	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	0.252	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	0.128	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							



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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.083	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	0.144	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: 2,4,6-Tribromophenol	4.27		mg/kg wet	5.000		85	30-130			
Surrogate: 2-Chlorophenol-d4	3.84		mg/kg wet	5.000		77	30-130			
Surrogate: 2-Fluorobiphenyl	2.45		mg/kg wet	3.333		73	30-130			
Surrogate: 2-Fluorophenol	3.80		mg/kg wet	5.000		76	30-130			
Surrogate: Nitrobenzene-d5	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: Phenol-d6	3.78		mg/kg wet	5.000		76	30-130			
Surrogate: p-Terphenyl-d14	2.52		mg/kg wet	3.333		76	30-130			

LCS

1,1-Biphenyl	2.36	0.167	mg/kg wet	3.333		71	40-140			
1,2,4-Trichlorobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.85	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130			
2,4,6-Trichlorophenol	2.66	0.333	mg/kg wet	3.333		80	30-130			
2,4-Dichlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dimethylphenol	2.57	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dinitrophenol	2.52	1.67	mg/kg wet	3.333		76	30-130			
2,4-Dinitrotoluene	3.42	0.167	mg/kg wet	3.333		103	40-140			
2,6-Dinitrotoluene	2.95	0.333	mg/kg wet	3.333		89	40-140			
2-Chloronaphthalene	2.32	0.333	mg/kg wet	3.333		70	40-140			
2-Chlorophenol	2.32	0.333	mg/kg wet	3.333		70	30-130			



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Quality Control Data

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8270D Semi-Volatile Organic Compounds										
Batch DC02308 - 3546										
2-Methylnaphthalene	2.37	0.333	mg/kg wet	3.333		71	40-140			
2-Methylphenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2-Nitroaniline	2.73	0.333	mg/kg wet	3.333		82	40-140			
2-Nitrophenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
3,3'-Dichlorobenzidine	2.89	0.333	mg/kg wet	3.333		87	40-140			
3+4-Methylphenol	4.96	0.667	mg/kg wet	6.667		74	30-130			
3-Nitroaniline	2.92	0.333	mg/kg wet	3.333		88	40-140			
4,6-Dinitro-2-Methylphenol	2.76	1.67	mg/kg wet	3.333		83	30-130			
4-Bromophenyl-phenylether	2.81	0.333	mg/kg wet	3.333		84	40-140			
4-Chloro-3-Methylphenol	2.91	0.333	mg/kg wet	3.333		87	30-130			
4-Chloroaniline	1.70	0.667	mg/kg wet	3.333		51	40-140			
4-Chloro-phenyl-phenyl ether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Nitroaniline	3.08	0.333	mg/kg wet	3.333		92	40-140			
4-Nitrophenol	3.00	1.67	mg/kg wet	3.333		90	30-130			
Acenaphthene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Acenaphthylene	2.33	0.333	mg/kg wet	3.333		70	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.65	0.667	mg/kg wet	3.333		49	40-140			
Anthracene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Azobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Benzo(a)anthracene	3.28	0.110	mg/kg wet	3.333		98	40-140			
Benzo(a)pyrene	3.41	0.100	mg/kg wet	3.333		102	40-140			
Benzo(b)fluoranthene	3.32	0.100	mg/kg wet	3.333		100	40-140			
Benzo(g,h,i)perylene	3.48	0.100	mg/kg wet	3.333		104	40-140			
Benzo(k)fluoranthene	3.26	0.100	mg/kg wet	3.333		98	40-140			
Benzoic Acid	2.12	1.67	mg/kg wet	3.333		64	40-140			
Benzyl Alcohol	2.03	0.333	mg/kg wet	3.333		61	40-140			
bis(2-Chloroethoxy)methane	2.35	0.333	mg/kg wet	3.333		70	40-140			
bis(2-Chloroethyl)ether	2.19	0.100	mg/kg wet	3.333		66	40-140			
bis(2-chloroisopropyl)Ether	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Butylbenzylphthalate	3.34	0.333	mg/kg wet	3.333		100	40-140			
Carbazole	3.29	0.333	mg/kg wet	3.333		99	40-140			
Chrysene	3.25	0.083	mg/kg wet	3.333		98	40-140			
Dibenzo(a,h)Anthracene	3.56	0.083	mg/kg wet	3.333		107	40-140			
Dibenzofuran	2.64	0.333	mg/kg wet	3.333		79	40-140			
Diethylphthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Dimethylphthalate	2.92	0.333	mg/kg wet	3.333		87	40-140			
Di-n-butylphthalate	3.40	0.333	mg/kg wet	3.333		102	40-140			
Di-n-octylphthalate	3.07	0.333	mg/kg wet	3.333		92	40-140			
Fluoranthene	3.40	0.333	mg/kg wet	3.333		102	40-140			
Fluorene	2.92	0.333	mg/kg wet	3.333		88	40-140			
Hexachlorobenzene	2.87	0.083	mg/kg wet	3.333		86	40-140			
Hexachlorobutadiene	2.16	0.333	mg/kg wet	3.333		65	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DC02308 - 3546										
Hexachlorocyclopentadiene	1.26	1.67	mg/kg wet	3.333		38	40-140			B-
Hexachloroethane	2.01	0.333	mg/kg wet	3.333		60	40-140			
Indeno(1,2,3-cd)Pyrene	3.52	0.110	mg/kg wet	3.333		106	40-140			
Isophorone	2.02	0.333	mg/kg wet	3.333		61	40-140			
Naphthalene	2.23	0.083	mg/kg wet	3.333		67	40-140			
Nitrobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140			
N-Nitrosodimethylamine	1.74	0.333	mg/kg wet	3.333		52	40-140			
N-Nitroso-Di-n-Propylamine	2.37	0.333	mg/kg wet	3.333		71	40-140			
N-nitrosodiphenylamine	2.76	0.333	mg/kg wet	3.333		83	40-140			
Pentachlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
Phenanthrene	2.95	0.333	mg/kg wet	3.333		88	40-140			
Phenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
Pyrene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Pyridine	1.84	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.27		mg/kg wet	3.333		68	30-130			
Surrogate: 2,4,6-Tribromophenol	4.79		mg/kg wet	5.000		96	30-130			
Surrogate: 2-Chlorophenol-d4	3.79		mg/kg wet	5.000		76	30-130			
Surrogate: 2-Fluorobiphenyl	2.58		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	3.65		mg/kg wet	5.000		73	30-130			
Surrogate: Nitrobenzene-d5	2.38		mg/kg wet	3.333		71	30-130			
Surrogate: Phenol-d6	3.92		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.38		mg/kg wet	3.333		101	30-130			
LCS Dup										
1,1-Biphenyl	2.03	0.167	mg/kg wet	3.333		61	40-140	15	30	
1,2,4-Trichlorobenzene	1.84	0.333	mg/kg wet	3.333		55	40-140	17	30	
1,2-Dichlorobenzene	1.82	0.333	mg/kg wet	3.333		55	40-140	15	30	
1,3-Dichlorobenzene	1.73	0.333	mg/kg wet	3.333		52	40-140	15	30	
1,4-Dichlorobenzene	1.78	0.333	mg/kg wet	3.333		53	40-140	15	30	
2,3,4,6-Tetrachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130	0.4	30	
2,4,5-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	6	30	
2,4,6-Trichlorophenol	2.39	0.333	mg/kg wet	3.333		72	30-130	11	30	
2,4-Dichlorophenol	2.24	0.333	mg/kg wet	3.333		67	30-130	15	30	
2,4-Dimethylphenol	2.21	0.333	mg/kg wet	3.333		66	30-130	15	30	
2,4-Dinitrophenol	2.13	1.67	mg/kg wet	3.333		64	30-130	17	30	
2,4-Dinitrotoluene	3.41	0.167	mg/kg wet	3.333		102	40-140	0.4	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	3	30	
2-Chloronaphthalene	1.98	0.333	mg/kg wet	3.333		59	40-140	16	30	
2-Chlorophenol	2.00	0.333	mg/kg wet	3.333		60	30-130	15	30	
2-Methylnaphthalene	2.02	0.333	mg/kg wet	3.333		60	40-140	16	30	
2-Methylphenol	2.10	0.333	mg/kg wet	3.333		63	30-130	14	30	
2-Nitroaniline	2.63	0.333	mg/kg wet	3.333		79	40-140	3	30	
2-Nitrophenol	1.84	0.333	mg/kg wet	3.333		55	30-130	15	30	
3,3'-Dichlorobenzidine	3.06	0.333	mg/kg wet	3.333		92	40-140	6	30	
3+4-Methylphenol	4.39	0.667	mg/kg wet	6.667		66	30-130	12	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DC02308 - 3546										
3-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140	4	30	
4,6-Dinitro-2-Methylphenol	2.68	1.67	mg/kg wet	3.333		80	30-130	3	30	
4-Bromophenyl-phenylether	2.70	0.333	mg/kg wet	3.333		81	40-140	4	30	
4-Chloro-3-Methylphenol	2.77	0.333	mg/kg wet	3.333		83	30-130	5	30	
4-Chloroaniline	1.58	0.667	mg/kg wet	3.333		48	40-140	7	30	
4-Chloro-phenyl-phenyl ether	2.66	0.333	mg/kg wet	3.333		80	40-140	5	30	
4-Nitroaniline	3.21	0.333	mg/kg wet	3.333		96	40-140	4	30	
4-Nitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	1	30	
Acenaphthene	2.23	0.333	mg/kg wet	3.333		67	40-140	10	30	
Acenaphthylene	2.10	0.333	mg/kg wet	3.333		63	40-140	11	30	
Acetophenone	1.98	0.667	mg/kg wet	3.333		59	40-140	14	30	
Aniline	1.41	0.667	mg/kg wet	3.333		42	40-140	15	30	
Anthracene	3.02	0.333	mg/kg wet	3.333		91	40-140	1	30	
Azobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	4	30	
Benzo(a)anthracene	3.26	0.110	mg/kg wet	3.333		98	40-140	0.4	30	
Benzo(a)pyrene	3.48	0.100	mg/kg wet	3.333		104	40-140	2	30	
Benzo(b)fluoranthene	3.40	0.100	mg/kg wet	3.333		102	40-140	2	30	
Benzo(g,h,i)perylene	3.63	0.100	mg/kg wet	3.333		109	40-140	4	30	
Benzo(k)fluoranthene	3.26	0.100	mg/kg wet	3.333		98	40-140	0.2	30	
Benzoic Acid	2.10	1.67	mg/kg wet	3.333		63	40-140	1	30	
Benzyl Alcohol	1.73	0.333	mg/kg wet	3.333		52	40-140	16	30	
bis(2-Chloroethoxy)methane	1.95	0.333	mg/kg wet	3.333		59	40-140	18	30	
bis(2-Chloroethyl)ether	1.92	0.100	mg/kg wet	3.333		57	40-140	13	30	
bis(2-chloroisopropyl)Ether	1.86	0.333	mg/kg wet	3.333		56	40-140	15	30	
bis(2-Ethylhexyl)phthalate	3.03	0.333	mg/kg wet	3.333		91	40-140	5	30	
Butylbenzylphthalate	3.19	0.333	mg/kg wet	3.333		96	40-140	5	30	
Carbazole	3.38	0.333	mg/kg wet	3.333		101	40-140	3	30	
Chrysene	3.31	0.083	mg/kg wet	3.333		99	40-140	2	30	
Dibenzo(a,h)Anthracene	3.70	0.083	mg/kg wet	3.333		111	40-140	4	30	
Dibenzofuran	2.43	0.333	mg/kg wet	3.333		73	40-140	8	30	
Diethylphthalate	3.17	0.333	mg/kg wet	3.333		95	40-140	0.2	30	
Dimethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140	3	30	
Di-n-butylphthalate	3.43	0.333	mg/kg wet	3.333		103	40-140	0.8	30	
Di-n-octylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	6	30	
Fluoranthene	3.58	0.333	mg/kg wet	3.333		107	40-140	5	30	
Fluorene	2.82	0.333	mg/kg wet	3.333		85	40-140	3	30	
Hexachlorobenzene	2.84	0.083	mg/kg wet	3.333		85	40-140	1	30	
Hexachlorobutadiene	1.82	0.333	mg/kg wet	3.333		54	40-140	17	30	
Hexachlorocyclopentadiene	0.983	1.67	mg/kg wet	3.333		29	40-140	24	30	B-
Hexachloroethane	1.70	0.333	mg/kg wet	3.333		51	40-140	17	30	
Indeno(1,2,3-cd)Pyrene	3.66	0.110	mg/kg wet	3.333		110	40-140	4	30	
Isophorone	1.72	0.333	mg/kg wet	3.333		52	40-140	16	30	
Naphthalene	1.88	0.083	mg/kg wet	3.333		56	40-140	17	30	
Nitrobenzene	1.80	0.333	mg/kg wet	3.333		54	40-140	16	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

N-Nitrosodimethylamine	1.58	0.333	mg/kg wet	3.333		47	40-140	10	30	
N-Nitroso-Di-n-Propylamine	2.09	0.333	mg/kg wet	3.333		63	40-140	13	30	
N-nitrosodiphenylamine	2.77	0.333	mg/kg wet	3.333		83	40-140	0.2	30	
Pentachlorophenol	2.89	0.333	mg/kg wet	3.333		87	30-130	2	30	
Phenanthrene	3.00	0.333	mg/kg wet	3.333		90	40-140	2	30	
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130	13	30	
Pyrene	2.84	0.333	mg/kg wet	3.333		85	40-140	5	30	
Pyridine	1.57	1.67	mg/kg wet	3.333		47	40-140	16	30	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>1.94</i>		mg/kg wet	<i>3.333</i>		<i>58</i>	<i>30-130</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>4.56</i>		mg/kg wet	<i>5.000</i>		<i>91</i>	<i>30-130</i>			
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>3.20</i>		mg/kg wet	<i>5.000</i>		<i>64</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>2.15</i>		mg/kg wet	<i>3.333</i>		<i>65</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>3.10</i>		mg/kg wet	<i>5.000</i>		<i>62</i>	<i>30-130</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>1.96</i>		mg/kg wet	<i>3.333</i>		<i>59</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d6</i>	<i>3.37</i>		mg/kg wet	<i>5.000</i>		<i>67</i>	<i>30-130</i>			
<i>Surrogate: p-Terphenyl-d14</i>	<i>3.08</i>		mg/kg wet	<i>3.333</i>		<i>92</i>	<i>30-130</i>			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02341 - 3050B

Blank

Antimony	ND	5.00	mg/kg wet
Arsenic	ND	2.50	mg/kg wet
Beryllium	ND	0.11	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Copper	ND	2.50	mg/kg wet
Lead	ND	5.00	mg/kg wet
Nickel	ND	2.50	mg/kg wet
Selenium	ND	5.00	mg/kg wet
Silver	ND	0.50	mg/kg wet
Thallium	ND	5.00	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Antimony	43.4	14.7	mg/kg wet	51.30	85	40-160
Arsenic	181	7.35	mg/kg wet	202.0	89	80-120
Beryllium	45.7	0.32	mg/kg wet	52.10	88	80-120
Cadmium	123	1.47	mg/kg wet	149.0	83	80-120
Chromium	164	2.94	mg/kg wet	182.0	90	80-120
Copper	206	7.35	mg/kg wet	225.0	91	80-120
Lead	307	14.7	mg/kg wet	333.0	92	80-120
Nickel	153	7.35	mg/kg wet	167.0	92	80-120
Selenium	151	14.7	mg/kg wet	169.0	89	80-120
Silver	42.2	1.47	mg/kg wet	48.90	86	80-120
Thallium	64.0	14.7	mg/kg wet	82.30	78	62-139
Zinc	392	7.35	mg/kg wet	459.0	85	80-120

LCS Dup

Antimony	35.6	12.0	mg/kg wet	51.30	69	40-160	20	20
Arsenic	181	6.02	mg/kg wet	202.0	90	80-120	0.2	20
Beryllium	45.9	0.27	mg/kg wet	52.10	88	80-120	0.6	20
Cadmium	124	1.20	mg/kg wet	149.0	83	80-120	0.9	20
Chromium	163	2.41	mg/kg wet	182.0	90	80-120	0.5	20
Copper	208	6.02	mg/kg wet	225.0	92	80-120	1	20
Lead	306	12.0	mg/kg wet	333.0	92	80-120	0.3	20
Nickel	153	6.02	mg/kg wet	167.0	92	80-120	0.09	20
Selenium	150	12.0	mg/kg wet	169.0	89	80-120	0.2	20
Silver	42.8	1.20	mg/kg wet	48.90	88	80-120	2	20
Thallium	64.2	12.0	mg/kg wet	82.30	78	62-139	0.4	20
Zinc	393	6.02	mg/kg wet	459.0	86	80-120	0.2	20

Batch DC02342 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	8.51	0.542	mg/kg wet	7.760	110	80-120
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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02342 - 7471B

LCS Dup

Mercury	8.19	0.582	mg/kg wet	7.760		106	80-120	4	20	
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethene	ND	0.0050	mg/kg wet
1,1-Dichloropropene	ND	0.0050	mg/kg wet
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet
1,2-Dibromoethane	ND	0.0050	mg/kg wet
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet
1,2-Dichloroethane	ND	0.0050	mg/kg wet
1,2-Dichloropropane	ND	0.0050	mg/kg wet
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet
1,3-Dichloropropane	ND	0.0050	mg/kg wet
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet
1,4-Dioxane	ND	0.100	mg/kg wet
1-Chlorohexane	ND	0.0050	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0500	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0500	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet
Acetone	ND	0.0500	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet
Bromodichloromethane	ND	0.0050	mg/kg wet
Bromoform	ND	0.0050	mg/kg wet
Bromomethane	ND	0.0100	mg/kg wet
Carbon Disulfide	ND	0.0050	mg/kg wet
Carbon Tetrachloride	ND	0.0050	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0526		mg/kg wet	0.05000		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0526		mg/kg wet	0.05000		105	70-130			
Surrogate: 4-Bromofluorobenzene	0.0497		mg/kg wet	0.05000		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0497		mg/kg wet	0.05000		99	70-130			
Surrogate: Dibromofluoromethane	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: Dibromofluoromethane	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: Toluene-d8	0.0467		mg/kg wet	0.05000		93	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

<i>Surrogate: Toluene-d8</i>	0.0467		mg/kg wet	0.05000		93	70-130			
LCS										
1,1,1,2-Tetrachloroethane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
1,1,1-Trichloroethane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
1,1,2,2-Tetrachloroethane	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
1,1,2-Trichloroethane	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
1,1-Dichloroethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
1,1-Dichloroethene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
1,1-Dichloropropene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
1,2,3-Trichlorobenzene	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
1,2,3-Trichloropropane	0.0417	0.0050	mg/kg wet	0.05000		83	70-130			
1,2,4-Trichlorobenzene	0.0407	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trimethylbenzene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
1,2-Dibromo-3-Chloropropane	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
1,2-Dibromoethane	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
1,2-Dichlorobenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
1,2-Dichloroethane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloropropane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
1,3,5-Trimethylbenzene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
1,3-Dichlorobenzene	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
1,3-Dichloropropane	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
1,4-Dichlorobenzene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
1,4-Dioxane	0.978	0.100	mg/kg wet	1.000		98	70-130			
1-Chlorohexane	0.0428	0.0050	mg/kg wet	0.05000		86	70-130			
2,2-Dichloropropane	0.0450	0.0050	mg/kg wet	0.05000		90	70-130			
2-Butanone	0.254	0.0500	mg/kg wet	0.2500		102	70-130			
2-Chlorotoluene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
2-Hexanone	0.231	0.0500	mg/kg wet	0.2500		92	70-130			
4-Chlorotoluene	0.0436	0.0050	mg/kg wet	0.05000		87	70-130			
4-Isopropyltoluene	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
4-Methyl-2-Pentanone	0.258	0.0500	mg/kg wet	0.2500		103	70-130			
Acetone	0.254	0.0500	mg/kg wet	0.2500		102	70-130			
Benzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Benzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Bromobenzene	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
Bromochloromethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Bromodichloromethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Bromoform	0.0398	0.0050	mg/kg wet	0.05000		80	70-130			
Bromomethane	0.0570	0.0100	mg/kg wet	0.05000		114	70-130			
Carbon Disulfide	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Carbon Tetrachloride	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Chlorobenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Chloroethane	0.0475	0.0100	mg/kg wet	0.05000		95	70-130			
Chloroform	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Chloromethane	0.0475	0.0100	mg/kg wet	0.05000		95	70-130			
cis-1,2-Dichloroethene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Dibromochloromethane	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
Dibromomethane	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Dichlorodifluoromethane	0.0480	0.0100	mg/kg wet	0.05000		96	70-130			
Diethyl Ether	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Di-isopropyl ether	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Ethyl tertiary-butyl ether	0.0455	0.0050	mg/kg wet	0.05000		91	70-130			
Ethylbenzene	0.0443	0.0050	mg/kg wet	0.05000		89	70-130			
Ethylbenzene	0.0443	0.0050	mg/kg wet	0.05000		89	70-130			
Hexachlorobutadiene	0.0431	0.0050	mg/kg wet	0.05000		86	70-130			
Isopropylbenzene	0.0439	0.0050	mg/kg wet	0.05000		88	70-130			
Methyl tert-Butyl Ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Methylene Chloride	0.0455	0.0250	mg/kg wet	0.05000		91	70-130			
Naphthalene	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
n-Butylbenzene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
n-Propylbenzene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
sec-Butylbenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Styrene	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
tert-Butylbenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Tertiary-amyl methyl ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Tetrachloroethene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
Tetrahydrofuran	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Toluene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Toluene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
trans-1,2-Dichloroethene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
trans-1,3-Dichloropropene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Trichloroethene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
Trichlorofluoromethane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Vinyl Acetate	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
Vinyl Chloride	0.0522	0.0100	mg/kg wet	0.05000		104	70-130			
Xylene O	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Xylene O	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Xylene P,M	0.0897	0.0100	mg/kg wet	0.1000		90	70-130			
Xylene P,M	0.0897	0.0100	mg/kg wet	0.1000		90	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0508		mg/kg wet	0.05000		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.0508		mg/kg wet	0.05000		102	70-130			
Surrogate: Dibromofluoromethane	0.0513		mg/kg wet	0.05000		103	70-130			
Surrogate: Dibromofluoromethane	0.0513		mg/kg wet	0.05000		103	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

LCS Dup



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

1,1,1,2-Tetrachloroethane	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	7	25	
1,1,1-Trichloroethane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
1,1,2,2-Tetrachloroethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
1,1,2-Trichloroethane	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	10	25	
1,1-Dichloroethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
1,1-Dichloroethene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
1,1-Dichloropropene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
1,2,3-Trichlorobenzene	0.0451	0.0050	mg/kg wet	0.05000		90	70-130	7	25	
1,2,3-Trichloropropane	0.0443	0.0050	mg/kg wet	0.05000		89	70-130	6	25	
1,2,4-Trichlorobenzene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	7	25	
1,2,4-Trimethylbenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	9	25	
1,2-Dibromo-3-Chloropropane	0.0401	0.0050	mg/kg wet	0.05000		80	70-130	2	25	
1,2-Dibromoethane	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	7	25	
1,2-Dichlorobenzene	0.0468	0.0050	mg/kg wet	0.05000		94	70-130	8	25	
1,2-Dichloroethane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
1,2-Dichloropropane	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	9	25	
1,3,5-Trimethylbenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,3-Dichlorobenzene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,3-Dichloropropane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130	7	25	
1,4-Dichlorobenzene	0.0469	0.0050	mg/kg wet	0.05000		94	70-130	6	25	
1,4-Dioxane	1.01	0.100	mg/kg wet	1.000		101	70-130	3	20	
1-Chlorohexane	0.0397	0.0050	mg/kg wet	0.05000		79	70-130	7	25	
2,2-Dichloropropane	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	8	25	
2-Butanone	0.274	0.0500	mg/kg wet	0.2500		110	70-130	8	25	
2-Chlorotoluene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	7	25	
2-Hexanone	0.207	0.0500	mg/kg wet	0.2500		83	70-130	11	25	
4-Chlorotoluene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	9	25	
4-Isopropyltoluene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	8	25	
4-Methyl-2-Pentanone	0.272	0.0500	mg/kg wet	0.2500		109	70-130	5	25	
Acetone	0.274	0.0500	mg/kg wet	0.2500		110	70-130	7	25	
Benzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Benzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Bromobenzene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	8	25	
Bromochloromethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Bromodichloromethane	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	8	25	
Bromoform	0.0369	0.0050	mg/kg wet	0.05000		74	70-130	8	25	
Bromomethane	0.0596	0.0100	mg/kg wet	0.05000		119	70-130	4	25	
Carbon Disulfide	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	8	25	
Carbon Tetrachloride	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Chlorobenzene	0.0405	0.0050	mg/kg wet	0.05000		81	70-130	7	25	
Chloroethane	0.0509	0.0100	mg/kg wet	0.05000		102	70-130	7	25	
Chloroform	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
Chloromethane	0.0517	0.0100	mg/kg wet	0.05000		103	70-130	9	25	
cis-1,2-Dichloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
cis-1,3-Dichloropropene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	10	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology

Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02338 - 5035

Dibromochloromethane	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	6	25	
Dibromomethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	9	25	
Dichlorodifluoromethane	0.0513	0.0100	mg/kg wet	0.05000		103	70-130	7	25	
Diethyl Ether	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
Di-isopropyl ether	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
Ethyl tertiary-butyl ether	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	9	25	
Ethylbenzene	0.0413	0.0050	mg/kg wet	0.05000		83	70-130	7	25	
Ethylbenzene	0.0413	0.0050	mg/kg wet	0.05000		83	70-130	7	25	
Hexachlorobutadiene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130	7	25	
Isopropylbenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
Methyl tert-Butyl Ether	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Methylene Chloride	0.0492	0.0250	mg/kg wet	0.05000		98	70-130	8	25	
Naphthalene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130	6	25	
n-Butylbenzene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	7	25	
n-Propylbenzene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	8	25	
sec-Butylbenzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130	8	25	
Styrene	0.0409	0.0050	mg/kg wet	0.05000		82	70-130	6	25	
tert-Butylbenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	9	25	
Tertiary-amyl methyl ether	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Tetrachloroethene	0.0422	0.0050	mg/kg wet	0.05000		84	70-130	9	25	
Tetrahydrofuran	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
Toluene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Toluene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
trans-1,2-Dichloroethene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
trans-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	9	25	
Trichloroethene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
Trichlorofluoromethane	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
Vinyl Acetate	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	8	25	
Vinyl Chloride	0.0562	0.0100	mg/kg wet	0.05000		112	70-130	7	25	
Xylene O	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	8	25	
Xylene O	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	8	25	
Xylene P,M	0.0838	0.0100	mg/kg wet	0.1000		84	70-130	7	25	
Xylene P,M	0.0838	0.0100	mg/kg wet	0.1000		84	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	0.0503		mg/kg wet	0.05000		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0503		mg/kg wet	0.05000		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0432		mg/kg wet	0.05000		86	70-130			
Surrogate: 4-Bromofluorobenzene	0.0432		mg/kg wet	0.05000		86	70-130			
Surrogate: Dibromofluoromethane	0.0506		mg/kg wet	0.05000		101	70-130			
Surrogate: Dibromofluoromethane	0.0506		mg/kg wet	0.05000		101	70-130			
Surrogate: Toluene-d8	0.0409		mg/kg wet	0.05000		82	70-130			
Surrogate: Toluene-d8	0.0409		mg/kg wet	0.05000		82	70-130			

5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

Blank



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
1-Chlorohexane	ND	0.200	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Acetate	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.02		mg/kg wet	5.000		100	70-130			
Surrogate: 4-Bromofluorobenzene	4.77		mg/kg wet	5.000		95	70-130			
Surrogate: Dibromofluoromethane	4.62		mg/kg wet	5.000		92	70-130			
Surrogate: Toluene-d8	4.66		mg/kg wet	5.000		93	70-130			

LCS

1,1,1,2-Tetrachloroethane	1.86	0.200	mg/kg wet	2.000		93	70-130			
1,1,1-Trichloroethane	1.64	0.200	mg/kg wet	2.000		82	70-130			
1,1,2,2-Tetrachloroethane	1.73	0.200	mg/kg wet	2.000		87	70-130			
1,1,2-Trichloroethane	1.66	0.200	mg/kg wet	2.000		83	70-130			
1,1-Dichloroethane	1.68	0.200	mg/kg wet	2.000		84	70-130			
1,1-Dichloroethene	1.56	0.200	mg/kg wet	2.000		78	70-130			
1,1-Dichloropropene	1.63	0.200	mg/kg wet	2.000		82	70-130			
1,2,3-Trichlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130			
1,2,3-Trichloropropane	1.75	0.200	mg/kg wet	2.000		87	70-130			
1,2,4-Trichlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130			
1,2,4-Trimethylbenzene	1.86	0.200	mg/kg wet	2.000		93	70-130			
1,2-Dibromo-3-Chloropropane	1.60	1.00	mg/kg wet	2.000		80	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

1,2-Dibromoethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,2-Dichlorobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130			
1,2-Dichloroethane	1.72	0.200	mg/kg wet	2.000		86	70-130			
1,2-Dichloropropane	1.65	0.200	mg/kg wet	2.000		83	70-130			
1,3,5-Trimethylbenzene	1.86	0.200	mg/kg wet	2.000		93	70-130			
1,3-Dichlorobenzene	1.93	0.200	mg/kg wet	2.000		97	70-130			
1,3-Dichloropropane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,4-Dichlorobenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,4-Dioxane - Screen	55.8	40.0	mg/kg wet	40.00		140	44-241			
1-Chlorohexane	1.72	0.200	mg/kg wet	2.000		86	70-130			
2,2-Dichloropropane	1.68	0.200	mg/kg wet	2.000		84	70-130			
2-Butanone	8.67	1.00	mg/kg wet	10.00		87	70-130			
2-Chlorotoluene	1.85	0.200	mg/kg wet	2.000		92	70-130			
2-Hexanone	8.23	1.00	mg/kg wet	10.00		82	70-130			
4-Chlorotoluene	1.94	0.200	mg/kg wet	2.000		97	70-130			
4-Isopropyltoluene	1.82	0.200	mg/kg wet	2.000		91	70-130			
4-Methyl-2-Pentanone	7.81	1.00	mg/kg wet	10.00		78	70-130			
Acetone	7.26	1.00	mg/kg wet	10.00		73	70-130			
Benzene	1.70	0.200	mg/kg wet	2.000		85	70-130			
Bromobenzene	1.85	0.200	mg/kg wet	2.000		93	70-130			
Bromochloromethane	1.74	0.200	mg/kg wet	2.000		87	70-130			
Bromodichloromethane	1.66	0.200	mg/kg wet	2.000		83	70-130			
Bromoform	1.46	0.200	mg/kg wet	2.000		73	70-130			
Bromomethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
Carbon Disulfide	1.64	0.200	mg/kg wet	2.000		82	70-130			
Carbon Tetrachloride	1.65	0.200	mg/kg wet	2.000		82	70-130			
Chlorobenzene	1.85	0.200	mg/kg wet	2.000		92	70-130			
Chloroethane	1.65	0.200	mg/kg wet	2.000		83	70-130			
Chloroform	1.80	0.200	mg/kg wet	2.000		90	70-130			
Chloromethane	1.72	0.200	mg/kg wet	2.000		86	70-130			
cis-1,2-Dichloroethene	1.59	0.200	mg/kg wet	2.000		79	70-130			
cis-1,3-Dichloropropene	1.74	0.200	mg/kg wet	2.000		87	70-130			
Dibromochloromethane	1.61	0.200	mg/kg wet	2.000		81	70-130			
Dibromomethane	1.74	0.200	mg/kg wet	2.000		87	70-130			
Dichlorodifluoromethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
Diethyl Ether	1.66	0.200	mg/kg wet	2.000		83	70-130			
Di-isopropyl ether	1.63	0.200	mg/kg wet	2.000		81	70-130			
Ethyl tertiary-butyl ether	1.62	0.200	mg/kg wet	2.000		81	70-130			
Ethylbenzene	1.91	0.200	mg/kg wet	2.000		95	70-130			
Hexachlorobutadiene	2.56	0.200	mg/kg wet	2.000		128	70-130			
Isopropylbenzene	1.87	0.200	mg/kg wet	2.000		94	70-130			
Methyl tert-Butyl Ether	1.69	0.200	mg/kg wet	2.000		85	70-130			
Methylene Chloride	1.66	0.400	mg/kg wet	2.000		83	70-130			
Naphthalene	2.10	0.200	mg/kg wet	2.000		105	70-130			
n-Butylbenzene	1.90	0.200	mg/kg wet	2.000		95	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

n-Propylbenzene	1.85	0.200	mg/kg wet	2.000		93	70-130			
sec-Butylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130			
Styrene	1.79	0.200	mg/kg wet	2.000		89	70-130			
tert-Butylbenzene	1.97	0.200	mg/kg wet	2.000		98	70-130			
Tertiary-amyl methyl ether	1.68	0.200	mg/kg wet	2.000		84	70-130			
Tetrachloroethene	1.82	0.200	mg/kg wet	2.000		91	70-130			
Tetrahydrofuran	1.44	1.00	mg/kg wet	2.000		72	70-130			
Toluene	1.60	0.200	mg/kg wet	2.000		80	70-130			
trans-1,2-Dichloroethene	1.63	0.200	mg/kg wet	2.000		82	70-130			
trans-1,3-Dichloropropene	1.48	0.200	mg/kg wet	2.000		74	70-130			
Trichloroethene	1.62	0.200	mg/kg wet	2.000		81	70-130			
Trichlorofluoromethane	1.91	0.200	mg/kg wet	2.000		96	70-130			
Vinyl Acetate	1.59	0.200	mg/kg wet	2.000		80	70-130			
Vinyl Chloride	1.54	0.200	mg/kg wet	2.000		77	70-130			
Xylene O	1.83	0.200	mg/kg wet	2.000		92	70-130			
Xylene P,M	3.59	0.400	mg/kg wet	4.000		90	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.73		mg/kg wet	5.000		95	70-130			
Surrogate: 4-Bromofluorobenzene	4.98		mg/kg wet	5.000		100	70-130			
Surrogate: Dibromofluoromethane	4.69		mg/kg wet	5.000		94	70-130			
Surrogate: Toluene-d8	5.03		mg/kg wet	5.000		101	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	1.82	0.200	mg/kg wet	2.000		91	70-130	2	25	
1,1,1-Trichloroethane	1.73	0.200	mg/kg wet	2.000		86	70-130	5	25	
1,1,2,2-Tetrachloroethane	1.98	0.200	mg/kg wet	2.000		99	70-130	13	25	
1,1,2-Trichloroethane	1.74	0.200	mg/kg wet	2.000		87	70-130	5	25	
1,1-Dichloroethane	1.71	0.200	mg/kg wet	2.000		86	70-130	2	25	
1,1-Dichloroethene	1.67	0.200	mg/kg wet	2.000		83	70-130	6	25	
1,1-Dichloropropene	1.77	0.200	mg/kg wet	2.000		89	70-130	8	25	
1,2,3-Trichlorobenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	5	25	
1,2,3-Trichloropropane	1.86	0.200	mg/kg wet	2.000		93	70-130	7	25	
1,2,4-Trichlorobenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	4	25	
1,2,4-Trimethylbenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	5	25	
1,2-Dibromo-3-Chloropropane	1.91	1.00	mg/kg wet	2.000		96	70-130	18	25	
1,2-Dibromoethane	1.91	0.200	mg/kg wet	2.000		95	70-130	6	25	
1,2-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	4	25	
1,2-Dichloroethane	1.82	0.200	mg/kg wet	2.000		91	70-130	6	25	
1,2-Dichloropropane	1.77	0.200	mg/kg wet	2.000		88	70-130	7	25	
1,3,5-Trimethylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	6	25	
1,3-Dichlorobenzene	1.99	0.200	mg/kg wet	2.000		99	70-130	3	25	
1,3-Dichloropropane	1.98	0.200	mg/kg wet	2.000		99	70-130	3	25	
1,4-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	7	25	
1,4-Dioxane - Screen	44.3	40.0	mg/kg wet	40.00		111	44-241	23	200	
1-Chlorohexane	1.87	0.200	mg/kg wet	2.000		93	70-130	8	25	
2,2-Dichloropropane	1.78	0.200	mg/kg wet	2.000		89	70-130	6	25	
2-Butanone	8.49	1.00	mg/kg wet	10.00		85	70-130	2	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

2-Chlorotoluene	2.03	0.200	mg/kg wet	2.000		102	70-130	9	25	
2-Hexanone	8.42	1.00	mg/kg wet	10.00		84	70-130	2	25	
4-Chlorotoluene	2.00	0.200	mg/kg wet	2.000		100	70-130	3	25	
4-Isopropyltoluene	2.00	0.200	mg/kg wet	2.000		100	70-130	9	25	
4-Methyl-2-Pentanone	9.47	1.00	mg/kg wet	10.00		95	70-130	19	25	
Acetone	8.15	1.00	mg/kg wet	10.00		82	70-130	11	25	
Benzene	1.78	0.200	mg/kg wet	2.000		89	70-130	4	25	
Bromobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	8	25	
Bromochloromethane	1.83	0.200	mg/kg wet	2.000		91	70-130	5	25	
Bromodichloromethane	1.73	0.200	mg/kg wet	2.000		87	70-130	4	25	
Bromoform	1.53	0.200	mg/kg wet	2.000		77	70-130	5	25	
Bromomethane	1.93	0.200	mg/kg wet	2.000		96	70-130	8	25	
Carbon Disulfide	1.76	0.200	mg/kg wet	2.000		88	70-130	7	25	
Carbon Tetrachloride	1.80	0.200	mg/kg wet	2.000		90	70-130	9	25	
Chlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	7	25	
Chloroethane	1.75	0.200	mg/kg wet	2.000		87	70-130	6	25	
Chloroform	1.84	0.200	mg/kg wet	2.000		92	70-130	2	25	
Chloromethane	1.74	0.200	mg/kg wet	2.000		87	70-130	2	25	
cis-1,2-Dichloroethene	1.75	0.200	mg/kg wet	2.000		88	70-130	10	25	
cis-1,3-Dichloropropene	1.84	0.200	mg/kg wet	2.000		92	70-130	6	25	
Dibromochloromethane	1.68	0.200	mg/kg wet	2.000		84	70-130	4	25	
Dibromomethane	1.66	0.200	mg/kg wet	2.000		83	70-130	4	25	
Dichlorodifluoromethane	1.95	0.200	mg/kg wet	2.000		98	70-130	8	25	
Diethyl Ether	1.64	0.200	mg/kg wet	2.000		82	70-130	1	25	
Di-isopropyl ether	1.71	0.200	mg/kg wet	2.000		86	70-130	5	25	
Ethyl tertiary-butyl ether	1.65	0.200	mg/kg wet	2.000		82	70-130	2	25	
Ethylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	4	25	
Hexachlorobutadiene	2.23	0.200	mg/kg wet	2.000		112	70-130	14	25	
Isopropylbenzene	1.91	0.200	mg/kg wet	2.000		95	70-130	2	25	
Methyl tert-Butyl Ether	1.75	0.200	mg/kg wet	2.000		88	70-130	3	25	
Methylene Chloride	1.82	0.400	mg/kg wet	2.000		91	70-130	9	25	
Naphthalene	2.10	0.200	mg/kg wet	2.000		105	70-130	0.2	25	
n-Butylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	5	25	
n-Propylbenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	5	25	
sec-Butylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	5	25	
Styrene	1.90	0.200	mg/kg wet	2.000		95	70-130	6	25	
tert-Butylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130	6	25	
Tertiary-amyl methyl ether	1.76	0.200	mg/kg wet	2.000		88	70-130	5	25	
Tetrachloroethene	1.91	0.200	mg/kg wet	2.000		96	70-130	5	25	
Tetrahydrofuran	1.81	1.00	mg/kg wet	2.000		90	70-130	22	25	
Toluene	1.83	0.200	mg/kg wet	2.000		91	70-130	13	25	
trans-1,2-Dichloroethene	1.72	0.200	mg/kg wet	2.000		86	70-130	6	25	
trans-1,3-Dichloropropene	1.49	0.200	mg/kg wet	2.000		75	70-130	0.7	25	
Trichloroethene	1.78	0.200	mg/kg wet	2.000		89	70-130	9	25	
Trichlorofluoromethane	2.07	0.200	mg/kg wet	2.000		103	70-130	8	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02424 - 5035

Vinyl Acetate	1.58	0.200	mg/kg wet	2.000		79	70-130	0.5	25	
Vinyl Chloride	1.64	0.200	mg/kg wet	2.000		82	70-130	6	25	
Xylene O	1.89	0.200	mg/kg wet	2.000		94	70-130	3	25	
Xylene P,M	3.71	0.400	mg/kg wet	4.000		93	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	4.95		mg/kg wet	5.000		99	70-130			
Surrogate: 4-Bromofluorobenzene	4.76		mg/kg wet	5.000		95	70-130			
Surrogate: Dibromofluoromethane	4.84		mg/kg wet	5.000		97	70-130			
Surrogate: Toluene-d8	4.82		mg/kg wet	5.000		96	70-130			

8015C Diesel Range Organics

Batch DC02310 - 3546

Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Diesel Range Organics (C10-C28)	ND	15.0	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							

Surrogate: O-Terphenyl	4.78		mg/kg wet	5.000		96	40-140			
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LCS										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Diesel Range Organics (C10-C28)	24.0	15.0	mg/kg wet	27.50		87	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		84	40-140			

Surrogate: O-Terphenyl	4.65		mg/kg wet	5.000		93	40-140			
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LCS Dup										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140	0.2	25	
Diesel Range Organics (C10-C28)	24.5	15.0	mg/kg wet	27.50		89	40-140	2	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8015C Diesel Range Organics										
Batch DC02310 - 3546										
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.5	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		92	40-140	3	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140	2	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140	1	25	
<i>Surrogate: O-Terphenyl</i>	4.64		mg/kg wet	5.000		93	40-140			
8015C Gasoline Range Organics / Methanol										
Batch DC02536 - 5030B										
Blank										
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg wet							
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	5.05		mg/kg wet	5.000		101	70-130			
<i>Surrogate: Trifluorotoluene - FID</i>	4.77		mg/kg wet	5.333		89	70-130			
LCS										
Gasoline Range Organics (C6-C10)	94.8	5.00	mg/kg wet	105.0		90	60-140			
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	5.35		mg/kg wet	5.000		107	70-130			
<i>Surrogate: Trifluorotoluene - FID</i>	4.96		mg/kg wet	5.333		93	70-130			
LCS Dup										
Gasoline Range Organics (C6-C10)	97.1	5.00	mg/kg wet	105.0		93	60-140	2	20	
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	5.30		mg/kg wet	5.000		106	70-130			
<i>Surrogate: Trifluorotoluene - FID</i>	5.19		mg/kg wet	5.333		97	70-130			
Batch DC02647 - 5030B										
Blank										
Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg wet							
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	4.89		mg/kg wet	5.000		98	70-130			
<i>Surrogate: Trifluorotoluene - FID</i>	4.66		mg/kg wet	5.333		87	70-130			
LCS										
Gasoline Range Organics (C6-C10)	94.0	5.00	mg/kg wet	105.0		89	60-140			
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	5.19		mg/kg wet	5.000		104	70-130			
<i>Surrogate: Trifluorotoluene - FID</i>	5.27		mg/kg wet	5.333		99	70-130			
LCS Dup										
Gasoline Range Organics (C6-C10)	92.0	5.00	mg/kg wet	105.0		88	60-140	2	20	
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	4.49		mg/kg wet	5.000		90	70-130			
<i>Surrogate: Trifluorotoluene - FID</i>	5.15		mg/kg wet	5.333		96	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

Blank

Decane (C10)	ND	0.2	mg/kg wet
Docosane (C22)	ND	0.2	mg/kg wet
Dodecane (C12)	ND	0.2	mg/kg wet
Eicosane (C20)	ND	0.2	mg/kg wet
Hexacosane (C26)	ND	0.2	mg/kg wet
Hexadecane (C16)	ND	0.2	mg/kg wet
Nonadecane (C19)	ND	0.2	mg/kg wet
Nonane (C9)	ND	0.2	mg/kg wet
Octacosane (C28)	ND	0.2	mg/kg wet
Octadecane (C18)	ND	0.2	mg/kg wet
Tetracosane (C24)	ND	0.2	mg/kg wet
Tetradecane (C14)	ND	0.2	mg/kg wet
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet
Triacotane (C30)	ND	0.2	mg/kg wet

Surrogate: O-Terphenyl 4.78 mg/kg wet 5.000 96 40-140

LCS

Decane (C10)	2.0	0.2	mg/kg wet	2.500	79	40-140
Docosane (C22)	2.3	0.2	mg/kg wet	2.500	91	40-140
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500	83	40-140
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500	89	40-140
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500	91	40-140
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500	85	40-140
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500	88	40-140
Nonane (C9)	1.8	0.2	mg/kg wet	2.500	71	30-140
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500	93	40-140
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500	86	40-140
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500	91	40-140
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500	84	40-140
Total Petroleum Hydrocarbons	30.5	37.5	mg/kg wet	35.00	87	40-140
Triacotane (C30)	2.3	0.2	mg/kg wet	2.500	91	40-140

Surrogate: O-Terphenyl 4.65 mg/kg wet 5.000 93 40-140

LCS Dup

Decane (C10)	2.0	0.2	mg/kg wet	2.500	79	40-140	0.2	25
Docosane (C22)	2.3	0.2	mg/kg wet	2.500	93	40-140	3	25
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500	84	40-140	0.5	25
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500	92	40-140	3	25
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500	93	40-140	2	25
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500	87	40-140	2	25
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500	91	40-140	3	25
Nonane (C9)	1.8	0.2	mg/kg wet	2.500	70	30-140	0.9	25
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500	95	40-140	2	25
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500	88	40-140	2	25



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140	1	25	
Total Petroleum Hydrocarbons	31.1	37.5	mg/kg wet	35.00		89	40-140	2	25	
Triacotane (C30)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	

Surrogate: O-Terphenyl 4.64 mg/kg wet 5.000 93 40-140

8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Blank

1,1-Biphenyl	ND	0.167	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet
1,2-Dichlorobenzene	ND	0.333	mg/kg wet
1,3-Dichlorobenzene	ND	0.333	mg/kg wet
1,4-Dichlorobenzene	ND	0.333	mg/kg wet
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet
2,4-Dichlorophenol	ND	0.333	mg/kg wet
2,4-Dimethylphenol	ND	0.333	mg/kg wet
2,4-Dinitrophenol	ND	1.67	mg/kg wet
2,4-Dinitrotoluene	ND	0.167	mg/kg wet
2,6-Dinitrotoluene	ND	0.333	mg/kg wet
2-Chloronaphthalene	ND	0.333	mg/kg wet
2-Chlorophenol	ND	0.333	mg/kg wet
2-Methylnaphthalene	ND	0.333	mg/kg wet
2-Methylphenol	ND	0.333	mg/kg wet
2-Nitroaniline	ND	0.333	mg/kg wet
2-Nitrophenol	ND	0.333	mg/kg wet
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet
3+4-Methylphenol	ND	0.667	mg/kg wet
3-Nitroaniline	ND	0.333	mg/kg wet
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet
4-Chloroaniline	ND	0.667	mg/kg wet
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet
4-Nitroaniline	ND	0.333	mg/kg wet
4-Nitrophenol	ND	1.67	mg/kg wet
Acenaphthene	ND	0.333	mg/kg wet
Acenaphthylene	ND	0.333	mg/kg wet
Acetophenone	ND	0.667	mg/kg wet
Aniline	ND	0.667	mg/kg wet
Anthracene	ND	0.333	mg/kg wet
Azobenzene	ND	0.333	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Benzo(a)anthracene	0.184	0.110	mg/kg wet							
Benzo(a)pyrene	0.130	0.100	mg/kg wet							
Benzo(b)fluoranthene	0.138	0.100	mg/kg wet							
Benzo(g,h,i)perylene	0.229	0.100	mg/kg wet							
Benzo(k)fluoranthene	0.128	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	0.252	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	0.128	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.083	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	0.144	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: 2,4,6-Tribromophenol	4.27		mg/kg wet	5.000		85	30-130			
Surrogate: 2-Chlorophenol-d4	3.84		mg/kg wet	5.000		77	30-130			
Surrogate: 2-Fluorobiphenyl	2.45		mg/kg wet	3.333		73	30-130			
Surrogate: 2-Fluorophenol	3.80		mg/kg wet	5.000		76	30-130			
Surrogate: Nitrobenzene-d5	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: Phenol-d6	3.78		mg/kg wet	5.000		76	30-130			
Surrogate: p-Terphenyl-d14	2.52		mg/kg wet	3.333		76	30-130			



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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

LCS

1,1-Biphenyl	2.36	0.167	mg/kg wet	3.333		71	40-140			
1,2,4-Trichlorobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.85	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130			
2,4,6-Trichlorophenol	2.66	0.333	mg/kg wet	3.333		80	30-130			
2,4-Dichlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dimethylphenol	2.57	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dinitrophenol	2.52	1.67	mg/kg wet	3.333		76	30-130			
2,4-Dinitrotoluene	3.42	0.167	mg/kg wet	3.333		103	40-140			
2,6-Dinitrotoluene	2.95	0.333	mg/kg wet	3.333		89	40-140			
2-Chloronaphthalene	2.32	0.333	mg/kg wet	3.333		70	40-140			
2-Chlorophenol	2.32	0.333	mg/kg wet	3.333		70	30-130			
2-Methylnaphthalene	2.37	0.333	mg/kg wet	3.333		71	40-140			
2-Methylphenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2-Nitroaniline	2.73	0.333	mg/kg wet	3.333		82	40-140			
2-Nitrophenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
3,3'-Dichlorobenzidine	2.89	0.333	mg/kg wet	3.333		87	40-140			
3+4-Methylphenol	4.96	0.667	mg/kg wet	6.667		74	30-130			
3-Nitroaniline	2.92	0.333	mg/kg wet	3.333		88	40-140			
4,6-Dinitro-2-Methylphenol	2.76	1.67	mg/kg wet	3.333		83	30-130			
4-Bromophenyl-phenylether	2.81	0.333	mg/kg wet	3.333		84	40-140			
4-Chloro-3-Methylphenol	2.91	0.333	mg/kg wet	3.333		87	30-130			
4-Chloroaniline	1.70	0.667	mg/kg wet	3.333		51	40-140			
4-Chloro-phenyl-phenyl ether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Nitroaniline	3.08	0.333	mg/kg wet	3.333		92	40-140			
4-Nitrophenol	3.00	1.67	mg/kg wet	3.333		90	30-130			
Acenaphthene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Acenaphthylene	2.33	0.333	mg/kg wet	3.333		70	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.65	0.667	mg/kg wet	3.333		49	40-140			
Anthracene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Azobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Benzo(a)anthracene	3.28	0.110	mg/kg wet	3.333		98	40-140			
Benzo(a)pyrene	3.41	0.100	mg/kg wet	3.333		102	40-140			
Benzo(b)fluoranthene	3.32	0.100	mg/kg wet	3.333		100	40-140			
Benzo(g,h,i)perylene	3.48	0.100	mg/kg wet	3.333		104	40-140			
Benzo(k)fluoranthene	3.26	0.100	mg/kg wet	3.333		98	40-140			
Benzoic Acid	2.12	1.67	mg/kg wet	3.333		64	40-140			
Benzyl Alcohol	2.03	0.333	mg/kg wet	3.333		61	40-140			
bis(2-Chloroethoxy)methane	2.35	0.333	mg/kg wet	3.333		70	40-140			
bis(2-Chloroethyl)ether	2.19	0.100	mg/kg wet	3.333		66	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

bis(2-chloroisopropyl)Ether	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Butylbenzylphthalate	3.34	0.333	mg/kg wet	3.333		100	40-140			
Carbazole	3.29	0.333	mg/kg wet	3.333		99	40-140			
Chrysene	3.25	0.083	mg/kg wet	3.333		98	40-140			
Dibenzo(a,h)Anthracene	3.56	0.083	mg/kg wet	3.333		107	40-140			
Dibenzofuran	2.64	0.333	mg/kg wet	3.333		79	40-140			
Diethylphthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Dimethylphthalate	2.92	0.333	mg/kg wet	3.333		87	40-140			
Di-n-butylphthalate	3.40	0.333	mg/kg wet	3.333		102	40-140			
Di-n-octylphthalate	3.07	0.333	mg/kg wet	3.333		92	40-140			
Fluoranthene	3.40	0.333	mg/kg wet	3.333		102	40-140			
Fluorene	2.92	0.333	mg/kg wet	3.333		88	40-140			
Hexachlorobenzene	2.87	0.083	mg/kg wet	3.333		86	40-140			
Hexachlorobutadiene	2.16	0.333	mg/kg wet	3.333		65	40-140			
Hexachlorocyclopentadiene	1.26	1.67	mg/kg wet	3.333		38	40-140			B-
Hexachloroethane	2.01	0.333	mg/kg wet	3.333		60	40-140			
Indeno(1,2,3-cd)Pyrene	3.52	0.110	mg/kg wet	3.333		106	40-140			
Isophorone	2.02	0.333	mg/kg wet	3.333		61	40-140			
Naphthalene	2.23	0.083	mg/kg wet	3.333		67	40-140			
Nitrobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140			
N-Nitrosodimethylamine	1.74	0.333	mg/kg wet	3.333		52	40-140			
N-Nitroso-Di-n-Propylamine	2.37	0.333	mg/kg wet	3.333		71	40-140			
N-nitrosodiphenylamine	2.76	0.333	mg/kg wet	3.333		83	40-140			
Pentachlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
Phenanthrene	2.95	0.333	mg/kg wet	3.333		88	40-140			
Phenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
Pyrene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Pyridine	1.84	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.27		mg/kg wet	3.333		68	30-130			
Surrogate: 2,4,6-Tribromophenol	4.79		mg/kg wet	5.000		96	30-130			
Surrogate: 2-Chlorophenol-d4	3.79		mg/kg wet	5.000		76	30-130			
Surrogate: 2-Fluorobiphenyl	2.58		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	3.65		mg/kg wet	5.000		73	30-130			
Surrogate: Nitrobenzene-d5	2.38		mg/kg wet	3.333		71	30-130			
Surrogate: Phenol-d6	3.92		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.38		mg/kg wet	3.333		101	30-130			

LCS Dup

1,1-Biphenyl	2.03	0.167	mg/kg wet	3.333		61	40-140	15	30	
1,2,4-Trichlorobenzene	1.84	0.333	mg/kg wet	3.333		55	40-140	17	30	
1,2-Dichlorobenzene	1.82	0.333	mg/kg wet	3.333		55	40-140	15	30	
1,3-Dichlorobenzene	1.73	0.333	mg/kg wet	3.333		52	40-140	15	30	
1,4-Dichlorobenzene	1.78	0.333	mg/kg wet	3.333		53	40-140	15	30	
2,3,4,6-Tetrachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130	0.4	30	
2,4,5-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	6	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

2,4,6-Trichlorophenol	2.39	0.333	mg/kg wet	3.333		72	30-130	11	30	
2,4-Dichlorophenol	2.24	0.333	mg/kg wet	3.333		67	30-130	15	30	
2,4-Dimethylphenol	2.21	0.333	mg/kg wet	3.333		66	30-130	15	30	
2,4-Dinitrophenol	2.13	1.67	mg/kg wet	3.333		64	30-130	17	30	
2,4-Dinitrotoluene	3.41	0.167	mg/kg wet	3.333		102	40-140	0.4	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	3	30	
2-Chloronaphthalene	1.98	0.333	mg/kg wet	3.333		59	40-140	16	30	
2-Chlorophenol	2.00	0.333	mg/kg wet	3.333		60	30-130	15	30	
2-Methylnaphthalene	2.02	0.333	mg/kg wet	3.333		60	40-140	16	30	
2-Methylphenol	2.10	0.333	mg/kg wet	3.333		63	30-130	14	30	
2-Nitroaniline	2.63	0.333	mg/kg wet	3.333		79	40-140	3	30	
2-Nitrophenol	1.84	0.333	mg/kg wet	3.333		55	30-130	15	30	
3,3'-Dichlorobenzidine	3.06	0.333	mg/kg wet	3.333		92	40-140	6	30	
3+4-Methylphenol	4.39	0.667	mg/kg wet	6.667		66	30-130	12	30	
3-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140	4	30	
4,6-Dinitro-2-Methylphenol	2.68	1.67	mg/kg wet	3.333		80	30-130	3	30	
4-Bromophenyl-phenylether	2.70	0.333	mg/kg wet	3.333		81	40-140	4	30	
4-Chloro-3-Methylphenol	2.77	0.333	mg/kg wet	3.333		83	30-130	5	30	
4-Chloroaniline	1.58	0.667	mg/kg wet	3.333		48	40-140	7	30	
4-Chloro-phenyl-phenyl ether	2.66	0.333	mg/kg wet	3.333		80	40-140	5	30	
4-Nitroaniline	3.21	0.333	mg/kg wet	3.333		96	40-140	4	30	
4-Nitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	1	30	
Acenaphthene	2.23	0.333	mg/kg wet	3.333		67	40-140	10	30	
Acenaphthylene	2.10	0.333	mg/kg wet	3.333		63	40-140	11	30	
Acetophenone	1.98	0.667	mg/kg wet	3.333		59	40-140	14	30	
Aniline	1.41	0.667	mg/kg wet	3.333		42	40-140	15	30	
Anthracene	3.02	0.333	mg/kg wet	3.333		91	40-140	1	30	
Azobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	4	30	
Benzo(a)anthracene	3.26	0.110	mg/kg wet	3.333		98	40-140	0.4	30	
Benzo(a)pyrene	3.48	0.100	mg/kg wet	3.333		104	40-140	2	30	
Benzo(b)fluoranthene	3.40	0.100	mg/kg wet	3.333		102	40-140	2	30	
Benzo(g,h,i)perylene	3.63	0.100	mg/kg wet	3.333		109	40-140	4	30	
Benzo(k)fluoranthene	3.26	0.100	mg/kg wet	3.333		98	40-140	0.2	30	
Benzoic Acid	2.10	1.67	mg/kg wet	3.333		63	40-140	1	30	
Benzyl Alcohol	1.73	0.333	mg/kg wet	3.333		52	40-140	16	30	
bis(2-Chloroethoxy)methane	1.95	0.333	mg/kg wet	3.333		59	40-140	18	30	
bis(2-Chloroethyl)ether	1.92	0.100	mg/kg wet	3.333		57	40-140	13	30	
bis(2-chloroisopropyl)Ether	1.86	0.333	mg/kg wet	3.333		56	40-140	15	30	
bis(2-Ethylhexyl)phthalate	3.03	0.333	mg/kg wet	3.333		91	40-140	5	30	
Butylbenzylphthalate	3.19	0.333	mg/kg wet	3.333		96	40-140	5	30	
Carbazole	3.38	0.333	mg/kg wet	3.333		101	40-140	3	30	
Chrysene	3.31	0.083	mg/kg wet	3.333		99	40-140	2	30	
Dibenzo(a,h)Anthracene	3.70	0.083	mg/kg wet	3.333		111	40-140	4	30	
Dibenzofuran	2.43	0.333	mg/kg wet	3.333		73	40-140	8	30	
Diethylphthalate	3.17	0.333	mg/kg wet	3.333		95	40-140	0.2	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Dimethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140	3	30	
Di-n-butylphthalate	3.43	0.333	mg/kg wet	3.333		103	40-140	0.8	30	
Di-n-octylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	6	30	
Fluoranthene	3.58	0.333	mg/kg wet	3.333		107	40-140	5	30	
Fluorene	2.82	0.333	mg/kg wet	3.333		85	40-140	3	30	
Hexachlorobenzene	2.84	0.083	mg/kg wet	3.333		85	40-140	1	30	
Hexachlorobutadiene	1.82	0.333	mg/kg wet	3.333		54	40-140	17	30	
Hexachlorocyclopentadiene	0.983	1.67	mg/kg wet	3.333		29	40-140	24	30	B-
Hexachloroethane	1.70	0.333	mg/kg wet	3.333		51	40-140	17	30	
Indeno(1,2,3-cd)Pyrene	3.66	0.110	mg/kg wet	3.333		110	40-140	4	30	
Isophorone	1.72	0.333	mg/kg wet	3.333		52	40-140	16	30	
Naphthalene	1.88	0.083	mg/kg wet	3.333		56	40-140	17	30	
Nitrobenzene	1.80	0.333	mg/kg wet	3.333		54	40-140	16	30	
N-Nitrosodimethylamine	1.58	0.333	mg/kg wet	3.333		47	40-140	10	30	
N-Nitroso-Di-n-Propylamine	2.09	0.333	mg/kg wet	3.333		63	40-140	13	30	
N-nitrosodiphenylamine	2.77	0.333	mg/kg wet	3.333		83	40-140	0.2	30	
Pentachlorophenol	2.89	0.333	mg/kg wet	3.333		87	30-130	2	30	
Phenanthrene	3.00	0.333	mg/kg wet	3.333		90	40-140	2	30	
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130	13	30	
Pyrene	2.84	0.333	mg/kg wet	3.333		85	40-140	5	30	
Pyridine	1.57	1.67	mg/kg wet	3.333		47	40-140	16	30	
Surrogate: 1,2-Dichlorobenzene-d4	1.94		mg/kg wet	3.333		58	30-130			
Surrogate: 2,4,6-Tribromophenol	4.56		mg/kg wet	5.000		91	30-130			
Surrogate: 2-Chlorophenol-d4	3.20		mg/kg wet	5.000		64	30-130			
Surrogate: 2-Fluorobiphenyl	2.15		mg/kg wet	3.333		65	30-130			
Surrogate: 2-Fluorophenol	3.10		mg/kg wet	5.000		62	30-130			
Surrogate: Nitrobenzene-d5	1.96		mg/kg wet	3.333		59	30-130			
Surrogate: Phenol-d6	3.37		mg/kg wet	5.000		67	30-130			
Surrogate: p-Terphenyl-d14	3.08		mg/kg wet	3.333		92	30-130			

Batch DC02309 - 3546

Blank

1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.110	mg/kg wet							
Benzo(a)pyrene	ND	0.100	mg/kg wet							
Benzo(b)fluoranthene	ND	0.100	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.100	mg/kg wet							
Benzo(k)fluoranthene	ND	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.083	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.68		mg/kg wet	3.333		80	30-130			
Surrogate: 2,4,6-Tribromophenol	3.16		mg/kg wet	5.000		63	30-130			
Surrogate: 2-Chlorophenol-d4	4.10		mg/kg wet	5.000		82	30-130			
Surrogate: 2-Fluorobiphenyl	2.71		mg/kg wet	3.333		81	30-130			
Surrogate: 2-Fluorophenol	3.93		mg/kg wet	5.000		79	30-130			
Surrogate: Nitrobenzene-d5	2.55		mg/kg wet	3.333		77	30-130			
Surrogate: Phenol-d6	3.90		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.56		mg/kg wet	3.333		107	30-130			

LCS

1,1-Biphenyl	2.27	0.167	mg/kg wet	3.333		68	40-140			
1,2,4-Trichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,2-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.47	1.67	mg/kg wet	3.333		74	30-130			
2,4,5-Trichlorophenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2,4,6-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dimethylphenol	2.34	0.333	mg/kg wet	3.333		70	30-130			
2,4-Dinitrophenol	2.47	1.67	mg/kg wet	3.333		74	30-130			
2,4-Dinitrotoluene	3.08	0.167	mg/kg wet	3.333		93	40-140			
2,6-Dinitrotoluene	2.66	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.23	0.333	mg/kg wet	3.333		67	40-140			
2-Chlorophenol	2.16	0.333	mg/kg wet	3.333		65	30-130			
2-Methylnaphthalene	2.20	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.13	0.333	mg/kg wet	3.333		64	30-130			
2-Nitroaniline	2.31	0.333	mg/kg wet	3.333		69	40-140			
2-Nitrophenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
3,3'-Dichlorobenzidine	2.21	0.333	mg/kg wet	3.333		66	40-140			
3+4-Methylphenol	4.29	0.667	mg/kg wet	6.667		64	30-130			
3-Nitroaniline	2.20	0.333	mg/kg wet	3.333		66	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

4,6-Dinitro-2-Methylphenol	2.60	1.67	mg/kg wet	3.333		78	30-130			
4-Bromophenyl-phenylether	2.74	0.333	mg/kg wet	3.333		82	40-140			
4-Chloro-3-Methylphenol	2.48	0.333	mg/kg wet	3.333		74	30-130			
4-Chloroaniline	1.05	0.667	mg/kg wet	3.333		31	40-140			B-
4-Chloro-phenyl-phenyl ether	2.65	0.333	mg/kg wet	3.333		79	40-140			
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140			
4-Nitrophenol	2.48	1.67	mg/kg wet	3.333		74	30-130			
Acenaphthene	2.27	0.333	mg/kg wet	3.333		68	40-140			
Acenaphthylene	2.14	0.333	mg/kg wet	3.333		64	40-140			
Acetophenone	2.05	0.667	mg/kg wet	3.333		61	40-140			
Aniline	1.33	0.667	mg/kg wet	3.333		40	40-140			
Anthracene	2.68	0.333	mg/kg wet	3.333		80	40-140			
Azobenzene	2.28	0.333	mg/kg wet	3.333		68	40-140			
Benzo(a)anthracene	2.98	0.110	mg/kg wet	3.333		89	40-140			
Benzo(a)pyrene	3.16	0.100	mg/kg wet	3.333		95	40-140			
Benzo(b)fluoranthene	3.32	0.100	mg/kg wet	3.333		100	40-140			
Benzo(g,h,i)perylene	3.00	0.100	mg/kg wet	3.333		90	40-140			
Benzo(k)fluoranthene	2.95	0.100	mg/kg wet	3.333		88	40-140			
Benzoic Acid	1.77	1.67	mg/kg wet	3.333		53	40-140			
Benzyl Alcohol	1.73	0.333	mg/kg wet	3.333		52	40-140			
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethyl)ether	2.09	0.100	mg/kg wet	3.333		63	40-140			
bis(2-chloroisopropyl)Ether	2.10	0.333	mg/kg wet	3.333		63	40-140			
bis(2-Ethylhexyl)phthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Butylbenzylphthalate	3.09	0.333	mg/kg wet	3.333		93	40-140			
Carbazole	2.88	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.98	0.083	mg/kg wet	3.333		89	40-140			
Dibenzo(a,h)Anthracene	3.09	0.083	mg/kg wet	3.333		93	40-140			
Dibenzofuran	2.42	0.333	mg/kg wet	3.333		73	40-140			
Diethylphthalate	2.78	0.333	mg/kg wet	3.333		83	40-140			
Dimethylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	3.03	0.333	mg/kg wet	3.333		91	40-140			
Di-n-octylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Fluorene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.79	0.083	mg/kg wet	3.333		84	40-140			
Hexachlorobutadiene	2.40	0.333	mg/kg wet	3.333		72	40-140			
Hexachlorocyclopentadiene	1.55	1.67	mg/kg wet	3.333		47	40-140			
Hexachloroethane	2.02	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	3.05	0.110	mg/kg wet	3.333		92	40-140			
Isophorone	1.83	0.333	mg/kg wet	3.333		55	40-140			
Naphthalene	2.15	0.083	mg/kg wet	3.333		65	40-140			
Nitrobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
N-Nitrosodimethylamine	1.68	0.333	mg/kg wet	3.333		50	40-140			
N-Nitroso-Di-n-Propylamine	2.08	0.333	mg/kg wet	3.333		63	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DC02309 - 3546										
N-nitrosodiphenylamine	2.58	0.333	mg/kg wet	3.333		78	40-140			
Pentachlorophenol	2.51	0.333	mg/kg wet	3.333		75	30-130			
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130			
Pyrene	2.93	0.333	mg/kg wet	3.333		88	40-140			
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.29		mg/kg wet	3.333		69	30-130			
Surrogate: 2,4,6-Tribromophenol	4.65		mg/kg wet	5.000		93	30-130			
Surrogate: 2-Chlorophenol-d4	3.66		mg/kg wet	5.000		73	30-130			
Surrogate: 2-Fluorobiphenyl	2.59		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	3.47		mg/kg wet	5.000		69	30-130			
Surrogate: Nitrobenzene-d5	2.30		mg/kg wet	3.333		69	30-130			
Surrogate: Phenol-d6	3.51		mg/kg wet	5.000		70	30-130			
Surrogate: p-Terphenyl-d14	3.50		mg/kg wet	3.333		105	30-130			
LCS Dup										
1,1-Biphenyl	2.15	0.167	mg/kg wet	3.333		64	40-140	6	30	
1,2,4-Trichlorobenzene	2.15	0.333	mg/kg wet	3.333		65	40-140	4	30	
1,2-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		60	40-140	3	30	
1,3-Dichlorobenzene	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
1,4-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140	3	30	
2,3,4,6-Tetrachlorophenol	2.35	1.67	mg/kg wet	3.333		71	30-130	5	30	
2,4,5-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130	6	30	
2,4,6-Trichlorophenol	2.28	0.333	mg/kg wet	3.333		68	30-130	7	30	
2,4-Dichlorophenol	2.33	0.333	mg/kg wet	3.333		70	30-130	5	30	
2,4-Dimethylphenol	2.25	0.333	mg/kg wet	3.333		67	30-130	4	30	
2,4-Dinitrophenol	2.63	1.67	mg/kg wet	3.333		79	30-130	6	30	
2,4-Dinitrotoluene	2.95	0.167	mg/kg wet	3.333		89	40-140	4	30	
2,6-Dinitrotoluene	2.46	0.333	mg/kg wet	3.333		74	40-140	8	30	
2-Chloronaphthalene	2.13	0.333	mg/kg wet	3.333		64	40-140	5	30	
2-Chlorophenol	2.10	0.333	mg/kg wet	3.333		63	30-130	3	30	
2-Methylnaphthalene	2.11	0.333	mg/kg wet	3.333		63	40-140	4	30	
2-Methylphenol	2.05	0.333	mg/kg wet	3.333		62	30-130	4	30	
2-Nitroaniline	2.18	0.333	mg/kg wet	3.333		65	40-140	6	30	
2-Nitrophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	3	30	
3,3'-Dichlorobenzidine	1.98	0.333	mg/kg wet	3.333		60	40-140	11	30	
3+4-Methylphenol	4.41	0.667	mg/kg wet	6.667		66	30-130	3	30	
3-Nitroaniline	1.96	0.333	mg/kg wet	3.333		59	40-140	11	30	
4,6-Dinitro-2-Methylphenol	2.83	1.67	mg/kg wet	3.333		85	30-130	9	30	
4-Bromophenyl-phenylether	2.58	0.333	mg/kg wet	3.333		77	40-140	6	30	
4-Chloro-3-Methylphenol	2.30	0.333	mg/kg wet	3.333		69	30-130	7	30	
4-Chloroaniline	0.891	0.667	mg/kg wet	3.333		27	40-140	16	30	B-
4-Chloro-phenyl-phenyl ether	2.47	0.333	mg/kg wet	3.333		74	40-140	7	30	
4-Nitroaniline	2.65	0.333	mg/kg wet	3.333		79	40-140	2	30	
4-Nitrophenol	2.46	1.67	mg/kg wet	3.333		74	30-130	0.9	30	
Acenaphthene	2.13	0.333	mg/kg wet	3.333		64	40-140	6	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Acenaphthylene	2.03	0.333	mg/kg wet	3.333		61	40-140	5	30	
Acetophenone	2.01	0.667	mg/kg wet	3.333		60	40-140	2	30	
Aniline	1.18	0.667	mg/kg wet	3.333		35	40-140	12	30	B-
Anthracene	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	
Azobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140	6	30	
Benzo(a)anthracene	2.89	0.110	mg/kg wet	3.333		87	40-140	3	30	
Benzo(a)pyrene	3.08	0.100	mg/kg wet	3.333		92	40-140	2	30	
Benzo(b)fluoranthene	3.05	0.100	mg/kg wet	3.333		91	40-140	9	30	
Benzo(g,h,i)perylene	2.92	0.100	mg/kg wet	3.333		87	40-140	3	30	
Benzo(k)fluoranthene	3.04	0.100	mg/kg wet	3.333		91	40-140	3	30	
Benzoic Acid	1.96	1.67	mg/kg wet	3.333		59	40-140	10	30	
Benzyl Alcohol	1.64	0.333	mg/kg wet	3.333		49	40-140	5	30	
bis(2-Chloroethoxy)methane	2.07	0.333	mg/kg wet	3.333		62	40-140	5	30	
bis(2-Chloroethyl)ether	1.99	0.100	mg/kg wet	3.333		60	40-140	5	30	
bis(2-chloroisopropyl)Ether	2.02	0.333	mg/kg wet	3.333		61	40-140	4	30	
bis(2-Ethylhexyl)phthalate	2.87	0.333	mg/kg wet	3.333		86	40-140	3	30	
Butylbenzylphthalate	3.02	0.333	mg/kg wet	3.333		91	40-140	2	30	
Carbazole	2.81	0.333	mg/kg wet	3.333		84	40-140	2	30	
Chrysene	2.88	0.083	mg/kg wet	3.333		86	40-140	4	30	
Dibenzo(a,h)Anthracene	3.01	0.083	mg/kg wet	3.333		90	40-140	3	30	
Dibenzofuran	2.27	0.333	mg/kg wet	3.333		68	40-140	6	30	
Diethylphthalate	2.63	0.333	mg/kg wet	3.333		79	40-140	6	30	
Dimethylphthalate	2.39	0.333	mg/kg wet	3.333		72	40-140	9	30	
Di-n-butylphthalate	2.92	0.333	mg/kg wet	3.333		87	40-140	4	30	
Di-n-octylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	2	30	
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140	3	30	
Fluorene	2.40	0.333	mg/kg wet	3.333		72	40-140	8	30	
Hexachlorobenzene	2.69	0.083	mg/kg wet	3.333		81	40-140	4	30	
Hexachlorobutadiene	2.34	0.333	mg/kg wet	3.333		70	40-140	3	30	
Hexachlorocyclopentadiene	1.51	1.67	mg/kg wet	3.333		45	40-140	3	30	
Hexachloroethane	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
Indeno(1,2,3-cd)Pyrene	2.97	0.110	mg/kg wet	3.333		89	40-140	3	30	
Isophorone	1.76	0.333	mg/kg wet	3.333		53	40-140	4	30	
Naphthalene	2.09	0.083	mg/kg wet	3.333		63	40-140	3	30	
Nitrobenzene	1.94	0.333	mg/kg wet	3.333		58	40-140	4	30	
N-Nitrosodimethylamine	1.64	0.333	mg/kg wet	3.333		49	40-140	2	30	
N-Nitroso-Di-n-Propylamine	2.02	0.333	mg/kg wet	3.333		61	40-140	3	30	
N-nitrosodiphenylamine	2.44	0.333	mg/kg wet	3.333		73	40-140	6	30	
Pentachlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	5	30	
Phenanthrene	2.58	0.333	mg/kg wet	3.333		77	40-140	3	30	
Phenol	2.15	0.333	mg/kg wet	3.333		65	30-130	4	30	
Pyrene	2.88	0.333	mg/kg wet	3.333		87	40-140	1	30	
Pyridine	1.80	1.67	mg/kg wet	3.333		54	40-140	1	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.19		mg/kg wet	3.333		66	30-130			
Surrogate: 2,4,6-Tribromophenol	4.36		mg/kg wet	5.000		87	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Surrogate: 2-Chlorophenol-d4	3.44		mg/kg wet	5.000		69	30-130			
Surrogate: 2-Fluorobiphenyl	2.41		mg/kg wet	3.333		72	30-130			
Surrogate: 2-Fluorophenol	3.30		mg/kg wet	5.000		66	30-130			
Surrogate: Nitrobenzene-d5	2.18		mg/kg wet	3.333		65	30-130			
Surrogate: Phenol-d6	3.33		mg/kg wet	5.000		67	30-130			
Surrogate: p-Terphenyl-d14	3.34		mg/kg wet	3.333		100	30-130			

Batch DC02446 - 3546

Blank

1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.110	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

Benzo(a)pyrene	ND	0.100	mg/kg wet							
Benzo(b)fluoranthene	ND	0.100	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.100	mg/kg wet							
Benzo(k)fluoranthene	ND	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.100	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.39		mg/kg wet	3.333		72	30-130			
Surrogate: 2,4,6-Tribromophenol	4.05		mg/kg wet	5.000		81	30-130			
Surrogate: 2-Chlorophenol-d4	3.80		mg/kg wet	5.000		76	30-130			
Surrogate: 2-Fluorobiphenyl	2.42		mg/kg wet	3.333		73	30-130			
Surrogate: 2-Fluorophenol	4.02		mg/kg wet	5.000		80	30-130			
Surrogate: Nitrobenzene-d5	2.57		mg/kg wet	3.333		77	30-130			
Surrogate: Phenol-d6	3.92		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.29		mg/kg wet	3.333		99	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

LCS

1,1-Biphenyl	2.46	0.167	mg/kg wet	3.333		74	40-140			
1,2,4-Trichlorobenzene	2.26	0.333	mg/kg wet	3.333		68	40-140			
1,2-Dichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,4-Dichlorobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140			
2,3,4,6-Tetrachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	3.03	0.333	mg/kg wet	3.333		91	30-130			
2,4,6-Trichlorophenol	2.89	0.333	mg/kg wet	3.333		87	30-130			
2,4-Dichlorophenol	2.59	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dimethylphenol	2.60	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dinitrophenol	2.98	1.67	mg/kg wet	3.333		89	30-130			
2,4-Dinitrotoluene	3.04	0.167	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	3.03	0.333	mg/kg wet	3.333		91	40-140			
2-Chloronaphthalene	2.42	0.333	mg/kg wet	3.333		73	40-140			
2-Chlorophenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2-Methylnaphthalene	2.34	0.333	mg/kg wet	3.333		70	40-140			
2-Methylphenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
2-Nitroaniline	2.85	0.333	mg/kg wet	3.333		86	40-140			
2-Nitrophenol	2.24	0.333	mg/kg wet	3.333		67	30-130			
3,3'-Dichlorobenzidine	2.62	0.333	mg/kg wet	3.333		78	40-140			
3+4-Methylphenol	5.32	0.667	mg/kg wet	6.667		80	30-130			
3-Nitroaniline	2.86	0.333	mg/kg wet	3.333		86	40-140			
4,6-Dinitro-2-Methylphenol	3.18	1.67	mg/kg wet	3.333		95	30-130			
4-Bromophenyl-phenylether	3.02	0.333	mg/kg wet	3.333		90	40-140			
4-Chloro-3-Methylphenol	2.95	0.333	mg/kg wet	3.333		88	30-130			
4-Chloroaniline	1.74	0.667	mg/kg wet	3.333		52	40-140			
4-Chloro-phenyl-phenyl ether	2.82	0.333	mg/kg wet	3.333		85	40-140			
4-Nitroaniline	2.93	0.333	mg/kg wet	3.333		88	40-140			
4-Nitrophenol	2.86	1.67	mg/kg wet	3.333		86	30-130			
Acenaphthene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Acenaphthylene	2.42	0.333	mg/kg wet	3.333		73	40-140			
Acetophenone	2.41	0.667	mg/kg wet	3.333		72	40-140			
Aniline	1.75	0.667	mg/kg wet	3.333		53	40-140			
Anthracene	3.01	0.333	mg/kg wet	3.333		90	40-140			
Azobenzene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Benzo(a)anthracene	3.03	0.110	mg/kg wet	3.333		91	40-140			
Benzo(a)pyrene	3.16	0.100	mg/kg wet	3.333		95	40-140			
Benzo(b)fluoranthene	2.98	0.100	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	3.10	0.100	mg/kg wet	3.333		93	40-140			
Benzo(k)fluoranthene	3.13	0.100	mg/kg wet	3.333		94	40-140			
Benzoic Acid	2.91	1.67	mg/kg wet	3.333		87	40-140			
Benzyl Alcohol	2.04	0.333	mg/kg wet	3.333		61	40-140			
bis(2-Chloroethoxy)methane	2.42	0.333	mg/kg wet	3.333		73	40-140			
bis(2-Chloroethyl)ether	2.35	0.100	mg/kg wet	3.333		70	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

bis(2-chloroisopropyl)Ether	2.30	0.333	mg/kg wet	3.333		69	40-140			
bis(2-Ethylhexyl)phthalate	2.85	0.333	mg/kg wet	3.333		86	40-140			
Butylbenzylphthalate	2.98	0.333	mg/kg wet	3.333		89	40-140			
Carbazole	3.14	0.333	mg/kg wet	3.333		94	40-140			
Chrysene	3.10	0.083	mg/kg wet	3.333		93	40-140			
Dibenzo(a,h)Anthracene	3.09	0.083	mg/kg wet	3.333		93	40-140			
Dibenzofuran	2.68	0.333	mg/kg wet	3.333		80	40-140			
Diethylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140			
Dimethylphthalate	2.89	0.333	mg/kg wet	3.333		87	40-140			
Di-n-butylphthalate	3.25	0.333	mg/kg wet	3.333		97	40-140			
Di-n-octylphthalate	2.71	0.333	mg/kg wet	3.333		81	40-140			
Fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140			
Fluorene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Hexachlorobenzene	2.96	0.100	mg/kg wet	3.333		89	40-140			
Hexachlorobutadiene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Hexachlorocyclopentadiene	1.56	1.67	mg/kg wet	3.333		47	40-140			
Hexachloroethane	2.24	0.333	mg/kg wet	3.333		67	40-140			
Indeno(1,2,3-cd)Pyrene	3.10	0.110	mg/kg wet	3.333		93	40-140			
Isophorone	2.11	0.333	mg/kg wet	3.333		63	40-140			
Naphthalene	2.31	0.083	mg/kg wet	3.333		69	40-140			
Nitrobenzene	2.36	0.333	mg/kg wet	3.333		71	40-140			
N-Nitrosodimethylamine	2.48	0.333	mg/kg wet	3.333		74	40-140			
N-Nitroso-Di-n-Propylamine	2.59	0.333	mg/kg wet	3.333		78	40-140			
N-nitrosodiphenylamine	2.96	0.333	mg/kg wet	3.333		89	40-140			
Pentachlorophenol	3.26	0.333	mg/kg wet	3.333		98	30-130			
Phenanthrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Phenol	2.55	0.333	mg/kg wet	3.333		77	30-130			
Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Pyridine	2.19	1.67	mg/kg wet	3.333		66	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.26		mg/kg wet	3.333		68	30-130			
Surrogate: 2,4,6-Tribromophenol	4.97		mg/kg wet	5.000		99	30-130			
Surrogate: 2-Chlorophenol-d4	3.74		mg/kg wet	5.000		75	30-130			
Surrogate: 2-Fluorobiphenyl	2.51		mg/kg wet	3.333		75	30-130			
Surrogate: 2-Fluorophenol	3.86		mg/kg wet	5.000		77	30-130			
Surrogate: Nitrobenzene-d5	2.46		mg/kg wet	3.333		74	30-130			
Surrogate: Phenol-d6	3.91		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.12		mg/kg wet	3.333		94	30-130			

LCS Dup

1,1-Biphenyl	2.33	0.167	mg/kg wet	3.333		70	40-140	6	30	
1,2,4-Trichlorobenzene	2.29	0.333	mg/kg wet	3.333		69	40-140	1	30	
1,2-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140	1	30	
1,3-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140	1	30	
1,4-Dichlorobenzene	2.17	0.333	mg/kg wet	3.333		65	40-140	2	30	
2,3,4,6-Tetrachlorophenol	2.91	1.67	mg/kg wet	3.333		87	30-130	2	30	
2,4,5-Trichlorophenol	2.88	0.333	mg/kg wet	3.333		86	30-130	5	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

2,4,6-Trichlorophenol	2.76	0.333	mg/kg wet	3.333		83	30-130	4	30	
2,4-Dichlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130	0.4	30	
2,4-Dimethylphenol	2.78	0.333	mg/kg wet	3.333		83	30-130	7	30	
2,4-Dinitrophenol	3.22	1.67	mg/kg wet	3.333		97	30-130	8	30	
2,4-Dinitrotoluene	3.03	0.167	mg/kg wet	3.333		91	40-140	0.3	30	
2,6-Dinitrotoluene	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
2-Chloronaphthalene	2.30	0.333	mg/kg wet	3.333		69	40-140	5	30	
2-Chlorophenol	2.36	0.333	mg/kg wet	3.333		71	30-130	2	30	
2-Methylnaphthalene	2.31	0.333	mg/kg wet	3.333		69	40-140	1	30	
2-Methylphenol	2.38	0.333	mg/kg wet	3.333		71	30-130	6	30	
2-Nitroaniline	2.30	0.333	mg/kg wet	3.333		69	40-140	21	30	
2-Nitrophenol	2.52	0.333	mg/kg wet	3.333		76	30-130	12	30	
3,3'-Dichlorobenzidine	2.54	0.333	mg/kg wet	3.333		76	40-140	3	30	
3+4-Methylphenol	5.15	0.667	mg/kg wet	6.667		77	30-130	3	30	
3-Nitroaniline	2.64	0.333	mg/kg wet	3.333		79	40-140	8	30	
4,6-Dinitro-2-Methylphenol	3.28	1.67	mg/kg wet	3.333		98	30-130	3	30	
4-Bromophenyl-phenylether	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
4-Chloro-3-Methylphenol	2.65	0.333	mg/kg wet	3.333		80	30-130	11	30	
4-Chloroaniline	1.60	0.667	mg/kg wet	3.333		48	40-140	9	30	
4-Chloro-phenyl-phenyl ether	2.67	0.333	mg/kg wet	3.333		80	40-140	6	30	
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140	8	30	
4-Nitrophenol	2.51	1.67	mg/kg wet	3.333		75	30-130	13	30	
Acenaphthene	2.44	0.333	mg/kg wet	3.333		73	40-140	6	30	
Acenaphthylene	2.26	0.333	mg/kg wet	3.333		68	40-140	7	30	
Acetophenone	2.37	0.667	mg/kg wet	3.333		71	40-140	2	30	
Aniline	1.64	0.667	mg/kg wet	3.333		49	40-140	6	30	
Anthracene	2.84	0.333	mg/kg wet	3.333		85	40-140	6	30	
Azobenzene	2.37	0.333	mg/kg wet	3.333		71	40-140	21	30	
Benzo(a)anthracene	3.02	0.110	mg/kg wet	3.333		91	40-140	0.5	30	
Benzo(a)pyrene	3.20	0.100	mg/kg wet	3.333		96	40-140	1	30	
Benzo(b)fluoranthene	3.03	0.100	mg/kg wet	3.333		91	40-140	2	30	
Benzo(g,h,i)perylene	3.10	0.100	mg/kg wet	3.333		93	40-140	0.06	30	
Benzo(k)fluoranthene	3.12	0.100	mg/kg wet	3.333		94	40-140	0.1	30	
Benzoic Acid	2.81	1.67	mg/kg wet	3.333		84	40-140	3	30	
Benzyl Alcohol	1.96	0.333	mg/kg wet	3.333		59	40-140	4	30	
bis(2-Chloroethoxy)methane	2.22	0.333	mg/kg wet	3.333		67	40-140	9	30	
bis(2-Chloroethyl)ether	2.29	0.100	mg/kg wet	3.333		69	40-140	3	30	
bis(2-chloroisopropyl)Ether	2.17	0.333	mg/kg wet	3.333		65	40-140	6	30	
bis(2-Ethylhexyl)phthalate	2.89	0.333	mg/kg wet	3.333		87	40-140	1	30	
Butylbenzylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140	0.2	30	
Carbazole	3.04	0.333	mg/kg wet	3.333		91	40-140	3	30	
Chrysene	3.06	0.083	mg/kg wet	3.333		92	40-140	1	30	
Dibenzo(a,h)Anthracene	3.10	0.083	mg/kg wet	3.333		93	40-140	0.3	30	
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140	7	30	
Diethylphthalate	2.92	0.333	mg/kg wet	3.333		88	40-140	4	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

Dimethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140	7	30	
Di-n-butylphthalate	3.10	0.333	mg/kg wet	3.333		93	40-140	5	30	
Di-n-octylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	3	30	
Fluoranthene	3.14	0.333	mg/kg wet	3.333		94	40-140	0.9	30	
Fluorene	2.68	0.333	mg/kg wet	3.333		80	40-140	8	30	
Hexachlorobenzene	2.84	0.100	mg/kg wet	3.333		85	40-140	4	30	
Hexachlorobutadiene	2.31	0.333	mg/kg wet	3.333		69	40-140	3	30	
Hexachlorocyclopentadiene	1.59	1.67	mg/kg wet	3.333		48	40-140	2	30	
Hexachloroethane	2.24	0.333	mg/kg wet	3.333		67	40-140	0.3	30	
Indeno(1,2,3-cd)Pyrene	3.09	0.110	mg/kg wet	3.333		93	40-140	0.04	30	
Isophorone	2.32	0.333	mg/kg wet	3.333		70	40-140	10	30	
Naphthalene	2.26	0.083	mg/kg wet	3.333		68	40-140	2	30	
Nitrobenzene	2.73	0.333	mg/kg wet	3.333		82	40-140	15	30	
N-Nitrosodimethylamine	2.34	0.333	mg/kg wet	3.333		70	40-140	6	30	
N-Nitroso-Di-n-Propylamine	2.51	0.333	mg/kg wet	3.333		75	40-140	3	30	
N-nitrosodiphenylamine	2.73	0.333	mg/kg wet	3.333		82	40-140	8	30	
Pentachlorophenol	3.41	0.333	mg/kg wet	3.333		102	30-130	5	30	
Phenanthrene	2.86	0.333	mg/kg wet	3.333		86	40-140	6	30	
Phenol	2.38	0.333	mg/kg wet	3.333		71	30-130	7	30	
Pyrene	3.00	0.333	mg/kg wet	3.333		90	40-140	0.7	30	
Pyridine	2.07	1.67	mg/kg wet	3.333		62	40-140	6	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.16		mg/kg wet	3.333		65	30-130			
Surrogate: 2,4,6-Tribromophenol	4.98		mg/kg wet	5.000		100	30-130			
Surrogate: 2-Chlorophenol-d4	3.58		mg/kg wet	5.000		72	30-130			
Surrogate: 2-Fluorobiphenyl	2.37		mg/kg wet	3.333		71	30-130			
Surrogate: 2-Fluorophenol	3.54		mg/kg wet	5.000		71	30-130			
Surrogate: Nitrobenzene-d5	2.77		mg/kg wet	3.333		83	30-130			
Surrogate: Phenol-d6	3.55		mg/kg wet	5.000		71	30-130			
Surrogate: p-Terphenyl-d14	3.04		mg/kg wet	3.333		91	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02343 - 3050B

Blank

Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							

Blank

Antimony	ND	0.50	mg/kg wet							
Thallium	ND	0.50	mg/kg wet							

LCS

Antimony	45.9	15.4	mg/kg wet	51.30		89	80-120			
Arsenic	190	7.69	mg/kg wet	202.0		94	80-120			
Beryllium	46.9	0.34	mg/kg wet	52.10		90	80-120			
Cadmium	128	1.54	mg/kg wet	149.0		86	80-120			
Chromium	173	3.08	mg/kg wet	182.0		95	80-120			
Copper	213	7.69	mg/kg wet	225.0		95	80-120			
Lead	318	15.4	mg/kg wet	333.0		96	80-120			
Nickel	161	7.69	mg/kg wet	167.0		97	80-120			
Selenium	154	15.4	mg/kg wet	169.0		91	80-120			
Silver	43.4	1.54	mg/kg wet	48.90		89	80-120			
Thallium	65.6	15.4	mg/kg wet	82.30		80	62-139			
Zinc	408	7.69	mg/kg wet	459.0		89	80-120			

LCS

Antimony	46.7	7.69	mg/kg wet	51.30		91	80-120			
Thallium	81.1	7.69	mg/kg wet	82.30		99	80-120			

LCS Dup

Antimony	43.8	14.1	mg/kg wet	51.30		85	80-120	5	20	
Arsenic	181	7.04	mg/kg wet	202.0		89	80-120	5	20	
Beryllium	45.8	0.31	mg/kg wet	52.10		88	80-120	2	20	
Cadmium	125	1.41	mg/kg wet	149.0		84	80-120	2	20	
Chromium	167	2.82	mg/kg wet	182.0		92	80-120	3	20	
Copper	207	7.04	mg/kg wet	225.0		92	80-120	3	20	
Lead	310	14.1	mg/kg wet	333.0		93	80-120	3	20	
Nickel	157	7.04	mg/kg wet	167.0		94	80-120	3	20	
Selenium	148	14.1	mg/kg wet	169.0		88	80-120	4	20	
Silver	42.4	1.41	mg/kg wet	48.90		87	80-120	2	20	
Thallium	64.7	14.1	mg/kg wet	82.30		79	62-139	1	20	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DC02343 - 3050B										
Zinc	396	7.04	mg/kg wet	459.0		86	80-120	3	20	
LCS Dup										
Antimony	44.7	7.04	mg/kg wet	51.30		87	80-120	4	30	
Thallium	80.2	7.04	mg/kg wet	82.30		97	80-120	1	30	
Duplicate Source: 20C0705-04										
Antimony	ND	3.98	mg/kg dry		ND				35	
Arsenic	4.44	1.99	mg/kg dry		1.84			83	35	
Beryllium	0.100	0.09	mg/kg dry		0.129			25	35	
Cadmium	ND	0.40	mg/kg dry		ND				35	
Chromium	2.35	0.80	mg/kg dry		2.43			3	35	
Copper	3.00	1.99	mg/kg dry		2.52			17	35	
Lead	5.94	3.98	mg/kg dry		7.23			20	35	
Nickel	1.60	1.99	mg/kg dry		1.71			7	35	
Selenium	0.548	3.98	mg/kg dry		ND			200	35	
Silver	ND	0.40	mg/kg dry		ND				35	
Thallium	ND	3.98	mg/kg dry		ND				35	
Zinc	9.27	1.99	mg/kg dry		9.86			6	35	
Duplicate Source: 20C0705-10										
Lead	10.8	4.81	mg/kg dry		9.38			14	35	
Matrix Spike Source: 20C0705-04										
Antimony	17.3	4.39	mg/kg dry	21.94	ND	79	75-125			
Arsenic	20.8	2.19	mg/kg dry	21.94	1.84	86	75-125			
Beryllium	2.13	0.10	mg/kg dry	2.194	0.129	91	75-125			
Cadmium	9.78	0.44	mg/kg dry	10.97	ND	89	75-125			
Chromium	23.4	0.88	mg/kg dry	21.94	2.43	96	75-125			
Copper	22.8	2.19	mg/kg dry	21.94	2.52	92	75-125			
Lead	33.5	4.39	mg/kg dry	21.94	7.23	120	75-125			
Nickel	22.2	2.19	mg/kg dry	21.94	1.71	93	75-125			
Selenium	39.7	4.39	mg/kg dry	43.88	ND	91	75-125			
Silver	10.2	0.44	mg/kg dry	10.97	ND	93	75-125			
Thallium	19.4	4.39	mg/kg dry	21.94	ND	88	75-125			
Zinc	31.7	2.19	mg/kg dry	21.94	9.86	100	75-125			
Matrix Spike Source: 20C0705-10										
Lead	32.0	4.48	mg/kg dry	22.39	9.38	101	75-125			
Batch DC02344 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.86	0.629	mg/kg wet	7.760		114	80-120			
LCS Dup										
Mercury	8.36	0.619	mg/kg wet	7.760		108	80-120	6	20	
Duplicate Source: 20C0705-01										
Mercury	0.0486	0.031	mg/kg dry	0.0510				5	35	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02344 - 7471B

Duplicate	Source: 20C0705-04									
Mercury	ND	0.028	mg/kg dry		ND				35	

Matrix Spike	Source: 20C0705-01									
Mercury	0.256	0.032	mg/kg dry	0.1932	0.0510	106	75-125			

Matrix Spike	Source: 20C0705-04									
Mercury	0.201	0.032	mg/kg dry	0.1964	ND	102	75-125			

5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Blank	Result	MRL	Units
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethene	ND	0.0050	mg/kg wet
1,1-Dichloropropene	ND	0.0050	mg/kg wet
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet
1,2-Dibromoethane	ND	0.0050	mg/kg wet
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet
1,2-Dichloroethane	ND	0.0050	mg/kg wet
1,2-Dichloropropane	ND	0.0050	mg/kg wet
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet
1,3-Dichloropropane	ND	0.0050	mg/kg wet
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet
1,4-Dioxane	ND	0.100	mg/kg wet
1-Chlorohexane	ND	0.0050	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0500	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0500	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet
Acetone	ND	0.0500	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0548		mg/kg wet	0.05000		110	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Surrogate: 1,2-Dichloroethane-d4	0.0548		mg/kg wet	0.05000		110	70-130			
Surrogate: 4-Bromofluorobenzene	0.0484		mg/kg wet	0.05000		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0484		mg/kg wet	0.05000		97	70-130			
Surrogate: Dibromofluoromethane	0.0525		mg/kg wet	0.05000		105	70-130			
Surrogate: Dibromofluoromethane	0.0525		mg/kg wet	0.05000		105	70-130			
Surrogate: Toluene-d8	0.0491		mg/kg wet	0.05000		98	70-130			
Surrogate: Toluene-d8	0.0491		mg/kg wet	0.05000		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
1,1,1-Trichloroethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,1,2,2-Tetrachloroethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
1,1,2-Trichloroethane	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
1,1-Dichloroethane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
1,1-Dichloroethene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,1-Dichloropropene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
1,2,3-Trichlorobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,2,3-Trichloropropane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
1,2,4-Trichlorobenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,2,4-Trimethylbenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
1,2-Dibromo-3-Chloropropane	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
1,2-Dibromoethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichlorobenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloroethane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
1,2-Dichloropropane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
1,3,5-Trimethylbenzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
1,3-Dichlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
1,3-Dichloropropane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			
1,4-Dichlorobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dioxane	0.897	0.100	mg/kg wet	1.000		90	70-130			
1-Chlorohexane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
2,2-Dichloropropane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
2-Butanone	0.261	0.0500	mg/kg wet	0.2500		104	70-130			
2-Chlorotoluene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.240	0.0500	mg/kg wet	0.2500		96	70-130			
4-Chlorotoluene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
4-Isopropyltoluene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
4-Methyl-2-Pentanone	0.251	0.0500	mg/kg wet	0.2500		100	70-130			
Acetone	0.253	0.0500	mg/kg wet	0.2500		101	70-130			
Benzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Benzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Bromobenzene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
Bromochloromethane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Bromodichloromethane	0.0577	0.0050	mg/kg wet	0.05000		115	70-130			
Bromoform	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
Bromomethane	0.0520	0.0100	mg/kg wet	0.05000		104	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Carbon Disulfide	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
Carbon Tetrachloride	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Chlorobenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Chloroethane	0.0481	0.0100	mg/kg wet	0.05000		96	70-130			
Chloroform	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Chloromethane	0.0483	0.0100	mg/kg wet	0.05000		97	70-130			
cis-1,2-Dichloroethene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
cis-1,3-Dichloropropene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130			
Dibromochloromethane	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Dibromomethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Dichlorodifluoromethane	0.0508	0.0100	mg/kg wet	0.05000		102	70-130			
Diethyl Ether	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
Di-isopropyl ether	0.0548	0.0050	mg/kg wet	0.05000		110	70-130			
Ethyl tertiary-butyl ether	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Ethylbenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Ethylbenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Hexachlorobutadiene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Isopropylbenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
Methyl tert-Butyl Ether	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
Methylene Chloride	0.0514	0.0250	mg/kg wet	0.05000		103	70-130			
Naphthalene	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
n-Butylbenzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
n-Propylbenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
sec-Butylbenzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Styrene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Tertiary-amyl methyl ether	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
Tetrachloroethene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
Tetrahydrofuran	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
Toluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
Toluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
trans-1,2-Dichloroethene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
trans-1,3-Dichloropropene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Trichloroethene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Trichlorofluoromethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Vinyl Acetate	0.0485	0.0050	mg/kg wet	0.05000		97	70-130			
Vinyl Chloride	0.0500	0.0100	mg/kg wet	0.05000		100	70-130			
Xylene O	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
Xylene O	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
Xylene P,M	0.105	0.0100	mg/kg wet	0.1000		105	70-130			
Xylene P,M	0.105	0.0100	mg/kg wet	0.1000		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0538		mg/kg wet	0.05000		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0538		mg/kg wet	0.05000		108	70-130			
Surrogate: 4-Bromofluorobenzene	0.0515		mg/kg wet	0.05000		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0515		mg/kg wet	0.05000		103	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Surrogate: Dibromofluoromethane	0.0533		mg/kg wet	0.05000		107	70-130			
Surrogate: Dibromofluoromethane	0.0533		mg/kg wet	0.05000		107	70-130			
Surrogate: Toluene-d8	0.0509		mg/kg wet	0.05000		102	70-130			
Surrogate: Toluene-d8	0.0509		mg/kg wet	0.05000		102	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	4	25	
1,1,1-Trichloroethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	5	25	
1,1,2,2-Tetrachloroethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	8	25	
1,1,2-Trichloroethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	5	25	
1,1-Dichloroethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	5	25	
1,1-Dichloroethene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
1,1-Dichloropropene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	6	25	
1,2,3-Trichlorobenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	9	25	
1,2,3-Trichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	10	25	
1,2,4-Trichlorobenzene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	8	25	
1,2,4-Trimethylbenzene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	6	25	
1,2-Dibromo-3-Chloropropane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130	9	25	
1,2-Dibromoethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	7	25	
1,2-Dichlorobenzene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
1,2-Dichloroethane	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	6	25	
1,2-Dichloropropane	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	6	25	
1,3,5-Trimethylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
1,3-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	6	25	
1,3-Dichloropropane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	5	25	
1,4-Dichlorobenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	6	25	
1,4-Dioxane	0.993	0.100	mg/kg wet	1.000		99	70-130	10	20	
1-Chlorohexane	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
2,2-Dichloropropane	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	6	25	
2-Butanone	0.285	0.0500	mg/kg wet	0.2500		114	70-130	9	25	
2-Chlorotoluene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
2-Hexanone	0.262	0.0500	mg/kg wet	0.2500		105	70-130	9	25	
4-Chlorotoluene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
4-Isopropyltoluene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	6	25	
4-Methyl-2-Pentanone	0.276	0.0500	mg/kg wet	0.2500		110	70-130	9	25	
Acetone	0.295	0.0500	mg/kg wet	0.2500		118	70-130	15	25	
Benzene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	5	25	
Benzene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	5	25	
Bromobenzene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	7	25	
Bromochloromethane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	8	25	
Bromodichloromethane	0.0607	0.0050	mg/kg wet	0.05000		121	70-130	5	25	
Bromoform	0.0482	0.0050	mg/kg wet	0.05000		96	70-130	5	25	
Bromomethane	0.0540	0.0100	mg/kg wet	0.05000		108	70-130	4	25	
Carbon Disulfide	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
Carbon Tetrachloride	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	5	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Chlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	5	25	
Chloroethane	0.0510	0.0100	mg/kg wet	0.05000		102	70-130	6	25	
Chloroform	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	5	25	
Chloromethane	0.0513	0.0100	mg/kg wet	0.05000		103	70-130	6	25	
cis-1,2-Dichloroethene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	6	25	
cis-1,3-Dichloropropene	0.0622	0.0050	mg/kg wet	0.05000		124	70-130	6	25	
Dibromochloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	5	25	
Dibromomethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	7	25	
Dichlorodifluoromethane	0.0529	0.0100	mg/kg wet	0.05000		106	70-130	4	25	
Diethyl Ether	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	8	25	
Di-isopropyl ether	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	6	25	
Ethyl tertiary-butyl ether	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	5	25	
Ethylbenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	
Ethylbenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	
Hexachlorobutadiene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
Isopropylbenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
Methyl tert-Butyl Ether	0.0587	0.0050	mg/kg wet	0.05000		117	70-130	7	25	
Methylene Chloride	0.0539	0.0250	mg/kg wet	0.05000		108	70-130	5	25	
Naphthalene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	13	25	
n-Butylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
n-Propylbenzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
sec-Butylbenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	6	25	
Styrene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	5	25	
tert-Butylbenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
Tertiary-amyl methyl ether	0.0592	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
Tetrachloroethene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Tetrahydrofuran	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	16	25	
Toluene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	5	25	
Toluene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	5	25	
trans-1,2-Dichloroethene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	6	25	
trans-1,3-Dichloropropene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
Trichloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
Trichlorofluoromethane	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	6	25	
Vinyl Acetate	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	8	25	
Vinyl Chloride	0.0534	0.0100	mg/kg wet	0.05000		107	70-130	7	25	
Xylene O	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	3	25	
Xylene O	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	3	25	
Xylene P,M	0.109	0.0100	mg/kg wet	0.1000		109	70-130	5	25	
Xylene P,M	0.109	0.0100	mg/kg wet	0.1000		109	70-130	5	25	
Surrogate: 1,2-Dichloroethane-d4	0.0533		mg/kg wet	0.05000		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0533		mg/kg wet	0.05000		107	70-130			
Surrogate: 4-Bromofluorobenzene	0.0502		mg/kg wet	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0502		mg/kg wet	0.05000		100	70-130			
Surrogate: Dibromofluoromethane	0.0527		mg/kg wet	0.05000		105	70-130			
Surrogate: Dibromofluoromethane	0.0527		mg/kg wet	0.05000		105	70-130			
Surrogate: Toluene-d8	0.0496		mg/kg wet	0.05000		99	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Surrogate: Toluene-d8	0.0496		mg/kg wet	0.05000		99	70-130			
Matrix Spike	Source: 20C0705-04									
1,1,1,2-Tetrachloroethane	0.0476	0.0057	mg/kg dry	0.05658	ND	84	70-130			MC-
1,1,1-Trichloroethane	0.0405	0.0057	mg/kg dry	0.05658	ND	72	70-130			
1,1,2,2-Tetrachloroethane	0.0428	0.0057	mg/kg dry	0.05658	ND	76	70-130			
1,1,2-Trichloroethane	0.0426	0.0057	mg/kg dry	0.05658	ND	75	70-130			
1,1-Dichloroethane	0.0403	0.0057	mg/kg dry	0.05658	ND	71	70-130			
1,1-Dichloroethene	0.0422	0.0057	mg/kg dry	0.05658	ND	75	70-130			
1,1-Dichloropropene	0.0410	0.0057	mg/kg dry	0.05658	ND	72	70-130			
1,2,3-Trichlorobenzene	0.0360	0.0057	mg/kg dry	0.05658	ND	64	70-130			
1,2,3-Trichloropropane	0.0413	0.0057	mg/kg dry	0.05658	ND	73	70-130			
1,2,4-Trichlorobenzene	0.0369	0.0057	mg/kg dry	0.05658	ND	65	70-130			
1,2,4-Trimethylbenzene	0.0491	0.0057	mg/kg dry	0.05658	ND	87	70-130			
1,2-Dibromo-3-Chloropropane	0.0348	0.0057	mg/kg dry	0.05658	ND	61	70-130			
1,2-Dibromoethane	0.0467	0.0057	mg/kg dry	0.05658	ND	82	70-130			
1,2-Dichlorobenzene	0.0437	0.0057	mg/kg dry	0.05658	ND	77	70-130			
1,2-Dichloroethane	0.0412	0.0057	mg/kg dry	0.05658	ND	73	70-130			
1,2-Dichloropropane	0.0427	0.0057	mg/kg dry	0.05658	ND	76	70-130			
1,3,5-Trimethylbenzene	0.0439	0.0057	mg/kg dry	0.05658	ND	78	70-130			
1,3-Dichlorobenzene	0.0378	0.0057	mg/kg dry	0.05658	ND	67	70-130			
1,3-Dichloropropane	0.0465	0.0057	mg/kg dry	0.05658	ND	82	70-130			
1,4-Dichlorobenzene	0.0367	0.0057	mg/kg dry	0.05658	ND	65	70-130			
1,4-Dioxane	0.886	0.113	mg/kg dry	1.132	ND	78	70-130			
1-Chlorohexane	0.0429	0.0057	mg/kg dry	0.05658	ND	76	70-130			
2,2-Dichloropropane	0.0386	0.0057	mg/kg dry	0.05658	ND	68	70-130			
2-Butanone	0.235	0.0566	mg/kg dry	0.2829	ND	83	70-130			
2-Chlorotoluene	0.0390	0.0057	mg/kg dry	0.05658	ND	69	70-130			
2-Hexanone	0.232	0.0566	mg/kg dry	0.2829	ND	82	70-130			
4-Chlorotoluene	0.0383	0.0057	mg/kg dry	0.05658	ND	68	70-130			
4-Isopropyltoluene	0.0507	0.0057	mg/kg dry	0.05658	ND	90	70-130			
4-Methyl-2-Pentanone	0.230	0.0566	mg/kg dry	0.2829	ND	81	70-130			
Acetone	0.265	0.0566	mg/kg dry	0.2829	ND	94	70-130			
Benzene	0.0421	0.0057	mg/kg dry	0.05658	ND	74	70-130			
Bromobenzene	0.0772	0.0057	mg/kg dry	0.05658	ND	136	70-130			
Bromochloromethane	0.0445	0.0057	mg/kg dry	0.05658	ND	79	70-130			
Bromodichloromethane	0.0432	0.0057	mg/kg dry	0.05658	ND	76	70-130			
Bromoform	0.0393	0.0057	mg/kg dry	0.05658	ND	70	70-130			
Bromomethane	0.0393	0.0113	mg/kg dry	0.05658	ND	69	70-130			
Carbon Disulfide	0.0404	0.0057	mg/kg dry	0.05658	ND	71	70-130			
Carbon Tetrachloride	0.0411	0.0057	mg/kg dry	0.05658	ND	73	70-130			
Chlorobenzene	0.0437	0.0057	mg/kg dry	0.05658	ND	77	70-130			
Chloroethane	0.0379	0.0113	mg/kg dry	0.05658	ND	67	70-130			
Chloroform	0.0420	0.0057	mg/kg dry	0.05658	ND	74	70-130			
Chloromethane	0.0441	0.0113	mg/kg dry	0.05658	ND	78	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

cis-1,2-Dichloroethene	0.0439	0.0057	mg/kg dry	0.05658	ND	78	70-130			
cis-1,3-Dichloropropene	0.0455	0.0057	mg/kg dry	0.05658	ND	80	70-130			
Dibromochloromethane	0.0429	0.0057	mg/kg dry	0.05658	ND	76	70-130			
Dibromomethane	0.0432	0.0057	mg/kg dry	0.05658	ND	76	70-130			
Dichlorodifluoromethane	0.0371	0.0113	mg/kg dry	0.05658	ND	66	70-130			
Diethyl Ether	0.0449	0.0057	mg/kg dry	0.05658	ND	79	70-130			
Di-isopropyl ether	0.0456	0.0057	mg/kg dry	0.05658	ND	81	70-130			
Ethyl tertiary-butyl ether	0.0453	0.0057	mg/kg dry	0.05658	ND	80	70-130			
Ethylbenzene	0.0499	0.0057	mg/kg dry	0.05658	ND	88	70-130			
Hexachlorobutadiene	0.0327	0.0057	mg/kg dry	0.05658	ND	58	70-130			
Isopropylbenzene	0.0420	0.0057	mg/kg dry	0.05658	ND	74	70-130			
Methyl tert-Butyl Ether	0.0489	0.0057	mg/kg dry	0.05658	ND	86	70-130			
Methylene Chloride	0.0410	0.0283	mg/kg dry	0.05658	ND	72	70-130			
Naphthalene	0.0540	0.0057	mg/kg dry	0.05658	ND	95	70-130			
n-Butylbenzene	0.0547	0.0057	mg/kg dry	0.05658	ND	97	70-130			
n-Propylbenzene	0.0403	0.0057	mg/kg dry	0.05658	ND	71	70-130			
sec-Butylbenzene	0.0391	0.0057	mg/kg dry	0.05658	ND	69	70-130			
Styrene	0.0426	0.0057	mg/kg dry	0.05658	ND	75	70-130			
tert-Butylbenzene	0.0401	0.0057	mg/kg dry	0.05658	ND	71	70-130			
Tertiary-amyl methyl ether	0.0501	0.0057	mg/kg dry	0.05658	ND	89	70-130			
Tetrachloroethene	0.0509	0.0057	mg/kg dry	0.05658	ND	90	70-130			
Tetrahydrofuran	0.0473	0.0057	mg/kg dry	0.05658	ND	84	70-130			
Toluene	0.0413	0.0057	mg/kg dry	0.05658	ND	73	70-130			
trans-1,2-Dichloroethene	0.0423	0.0057	mg/kg dry	0.05658	ND	75	70-130			
trans-1,3-Dichloropropene	0.0380	0.0057	mg/kg dry	0.05658	ND	67	70-130			
Trichloroethene	0.0416	0.0057	mg/kg dry	0.05658	ND	74	70-130			
Trichlorofluoromethane	0.0395	0.0057	mg/kg dry	0.05658	ND	70	70-130			
Vinyl Acetate	ND	0.0057	mg/kg dry	0.05658	ND	0	70-130			
Vinyl Chloride	0.0465	0.0113	mg/kg dry	0.05658	ND	82	70-130			
Xylene O	0.0480	0.0057	mg/kg dry	0.05658	ND	85	70-130			
Xylene P,M	0.100	0.0113	mg/kg dry	0.1132	ND	89	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0508		mg/kg dry	0.05658		90	70-130			
Surrogate: 4-Bromofluorobenzene	0.0526		mg/kg dry	0.05658		93	70-130			
Surrogate: Dibromofluoromethane	0.0503		mg/kg dry	0.05658		89	70-130			
Surrogate: Toluene-d8	0.0558		mg/kg dry	0.05658		99	70-130			

Matrix Spike Dup Source: 20C0705-04 MC-

1,1,1,2-Tetrachloroethane	0.0461	0.0054	mg/kg dry	0.05444	ND	85	70-130	3	30	
1,1,1-Trichloroethane	0.0387	0.0054	mg/kg dry	0.05444	ND	71	70-130	4	30	
1,1,2,2-Tetrachloroethane	0.0474	0.0054	mg/kg dry	0.05444	ND	87	70-130	10	30	
1,1,2-Trichloroethane	0.0459	0.0054	mg/kg dry	0.05444	ND	84	70-130	8	30	
1,1-Dichloroethane	0.0399	0.0054	mg/kg dry	0.05444	ND	73	70-130	1	30	
1,1-Dichloroethene	0.0402	0.0054	mg/kg dry	0.05444	ND	74	70-130	5	30	
1,1-Dichloropropene	0.0392	0.0054	mg/kg dry	0.05444	ND	72	70-130	4	30	
1,2,3-Trichlorobenzene	0.0421	0.0054	mg/kg dry	0.05444	ND	77	70-130	16	30	
1,2,3-Trichloropropane	0.0460	0.0054	mg/kg dry	0.05444	ND	85	70-130	11	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

1,2,4-Trichlorobenzene	0.0393	0.0054	mg/kg dry	0.05444	ND	72	70-130	6	30	
1,2,4-Trimethylbenzene	0.0447	0.0054	mg/kg dry	0.05444	ND	82	70-130	9	30	
1,2-Dibromo-3-Chloropropane	0.0390	0.0054	mg/kg dry	0.05444	ND	72	70-130	11	30	
1,2-Dibromoethane	0.0499	0.0054	mg/kg dry	0.05444	ND	92	70-130	7	30	
1,2-Dichlorobenzene	0.0452	0.0054	mg/kg dry	0.05444	ND	83	70-130	3	30	
1,2-Dichloroethane	0.0427	0.0054	mg/kg dry	0.05444	ND	78	70-130	4	30	
1,2-Dichloropropane	0.0437	0.0054	mg/kg dry	0.05444	ND	80	70-130	2	30	
1,3,5-Trimethylbenzene	0.0431	0.0054	mg/kg dry	0.05444	ND	79	70-130	2	30	
1,3-Dichlorobenzene	0.0409	0.0054	mg/kg dry	0.05444	ND	75	70-130	8	30	
1,3-Dichloropropane	0.0485	0.0054	mg/kg dry	0.05444	ND	89	70-130	4	30	
1,4-Dichlorobenzene	0.0395	0.0054	mg/kg dry	0.05444	ND	72	70-130	7	30	
1,4-Dioxane	1.05	0.109	mg/kg dry	1.089	ND	96	70-130	16	20	
1-Chlorohexane	0.0403	0.0054	mg/kg dry	0.05444	ND	74	70-130	6	30	
2,2-Dichloropropane	0.0366	0.0054	mg/kg dry	0.05444	ND	67	70-130	5	30	
2-Butanone	0.248	0.0544	mg/kg dry	0.2722	ND	91	70-130	5	30	
2-Chlorotoluene	0.0401	0.0054	mg/kg dry	0.05444	ND	74	70-130	3	30	
2-Hexanone	0.257	0.0544	mg/kg dry	0.2722	ND	95	70-130	10	30	
4-Chlorotoluene	0.0397	0.0054	mg/kg dry	0.05444	ND	73	70-130	4	30	
4-Isopropyltoluene	0.0509	0.0054	mg/kg dry	0.05444	ND	94	70-130	0.4	30	
4-Methyl-2-Pentanone	0.248	0.0544	mg/kg dry	0.2722	ND	91	70-130	7	30	
Acetone	0.279	0.0544	mg/kg dry	0.2722	ND	102	70-130	5	30	
Benzene	0.0412	0.0054	mg/kg dry	0.05444	ND	76	70-130	2	30	
Bromobenzene	0.0522	0.0054	mg/kg dry	0.05444	ND	96	70-130	39	30	
Bromochloromethane	0.0444	0.0054	mg/kg dry	0.05444	ND	82	70-130	0.2	30	
Bromodichloromethane	0.0453	0.0054	mg/kg dry	0.05444	ND	83	70-130	5	30	
Bromoform	0.0431	0.0054	mg/kg dry	0.05444	ND	79	70-130	9	30	
Bromomethane	0.0390	0.0109	mg/kg dry	0.05444	ND	72	70-130	0.7	30	
Carbon Disulfide	0.0390	0.0054	mg/kg dry	0.05444	ND	72	70-130	4	30	
Carbon Tetrachloride	0.0384	0.0054	mg/kg dry	0.05444	ND	71	70-130	7	30	
Chlorobenzene	0.0439	0.0054	mg/kg dry	0.05444	ND	81	70-130	0.4	30	
Chloroethane	0.0377	0.0109	mg/kg dry	0.05444	ND	69	70-130	0.5	30	
Chloroform	0.0412	0.0054	mg/kg dry	0.05444	ND	76	70-130	2	30	
Chloromethane	0.0430	0.0109	mg/kg dry	0.05444	ND	79	70-130	2	30	
cis-1,2-Dichloroethene	0.0434	0.0054	mg/kg dry	0.05444	ND	80	70-130	1	30	
cis-1,3-Dichloropropene	0.0477	0.0054	mg/kg dry	0.05444	ND	88	70-130	5	30	
Dibromochloromethane	0.0444	0.0054	mg/kg dry	0.05444	ND	82	70-130	3	30	
Dibromomethane	0.0441	0.0054	mg/kg dry	0.05444	ND	81	70-130	2	30	
Dichlorodifluoromethane	0.0349	0.0109	mg/kg dry	0.05444	ND	64	70-130	6	30	
Diethyl Ether	0.0475	0.0054	mg/kg dry	0.05444	ND	87	70-130	6	30	
Di-isopropyl ether	0.0468	0.0054	mg/kg dry	0.05444	ND	86	70-130	3	30	
Ethyl tertiary-butyl ether	0.0476	0.0054	mg/kg dry	0.05444	ND	88	70-130	5	30	
Ethylbenzene	0.0451	0.0054	mg/kg dry	0.05444	ND	83	70-130	10	30	
Hexachlorobutadiene	0.0366	0.0054	mg/kg dry	0.05444	ND	67	70-130	11	30	
Isopropylbenzene	0.0417	0.0054	mg/kg dry	0.05444	ND	77	70-130	0.9	30	
Methyl tert-Butyl Ether	0.0515	0.0054	mg/kg dry	0.05444	ND	95	70-130	5	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02645 - 5035

Methylene Chloride	0.0421	0.0272	mg/kg dry	0.05444	ND	77	70-130	3	30	
Naphthalene	0.0533	0.0054	mg/kg dry	0.05444	ND	98	70-130	1	30	
n-Butylbenzene	0.0486	0.0054	mg/kg dry	0.05444	ND	89	70-130	12	30	
n-Propylbenzene	0.0396	0.0054	mg/kg dry	0.05444	ND	73	70-130	2	30	
sec-Butylbenzene	0.0398	0.0054	mg/kg dry	0.05444	ND	73	70-130	2	30	
Styrene	0.0451	0.0054	mg/kg dry	0.05444	ND	83	70-130	6	30	
tert-Butylbenzene	0.0424	0.0054	mg/kg dry	0.05444	ND	78	70-130	6	30	
Tertiary-amyl methyl ether	0.0525	0.0054	mg/kg dry	0.05444	ND	96	70-130	5	30	
Tetrachloroethene	0.0503	0.0054	mg/kg dry	0.05444	ND	92	70-130	1	30	
Tetrahydrofuran	0.0467	0.0054	mg/kg dry	0.05444	ND	86	70-130	1	30	
Toluene	0.0411	0.0054	mg/kg dry	0.05444	ND	75	70-130	0.5	30	
trans-1,2-Dichloroethene	0.0403	0.0054	mg/kg dry	0.05444	ND	74	70-130	5	30	
trans-1,3-Dichloropropene	0.0403	0.0054	mg/kg dry	0.05444	ND	74	70-130	6	30	
Trichloroethene	0.0420	0.0054	mg/kg dry	0.05444	ND	77	70-130	0.9	30	
Trichlorofluoromethane	0.0377	0.0054	mg/kg dry	0.05444	ND	69	70-130	5	30	
Vinyl Acetate	0.0090	0.0054	mg/kg dry	0.05444	ND	17	70-130	200	30	
Vinyl Chloride	0.0438	0.0109	mg/kg dry	0.05444	ND	80	70-130	6	30	
Xylene O	0.0459	0.0054	mg/kg dry	0.05444	ND	84	70-130	4	30	
Xylene P,M	0.0926	0.0109	mg/kg dry	0.1089	ND	85	70-130	8	30	
Surrogate: 1,2-Dichloroethane-d4	0.0482		mg/kg dry	0.05444		88	70-130			
Surrogate: 4-Bromofluorobenzene	0.0523		mg/kg dry	0.05444		96	70-130			
Surrogate: Dibromofluoromethane	0.0477		mg/kg dry	0.05444		88	70-130			
Surrogate: Toluene-d8	0.0542		mg/kg dry	0.05444		100	70-130			

Batch DC02742 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02742 - 5035

1,4-Dioxane	ND	0.100	mg/kg wet
1-Chlorohexane	ND	0.0050	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0500	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0500	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet
Acetone	ND	0.0500	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet
Bromodichloromethane	ND	0.0050	mg/kg wet
Bromoform	ND	0.0050	mg/kg wet
Bromomethane	ND	0.0100	mg/kg wet
Carbon Disulfide	ND	0.0050	mg/kg wet
Carbon Tetrachloride	ND	0.0050	mg/kg wet
Chlorobenzene	ND	0.0050	mg/kg wet
Chloroethane	ND	0.0100	mg/kg wet
Chloroform	ND	0.0050	mg/kg wet
Chloromethane	ND	0.0100	mg/kg wet
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet
Dibromochloromethane	ND	0.0050	mg/kg wet
Dibromomethane	ND	0.0050	mg/kg wet
Dichlorodifluoromethane	ND	0.0100	mg/kg wet
Diethyl Ether	ND	0.0050	mg/kg wet
Di-isopropyl ether	ND	0.0050	mg/kg wet
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet
Ethylbenzene	ND	0.0050	mg/kg wet
Ethylbenzene	ND	0.0050	mg/kg wet
Hexachlorobutadiene	ND	0.0050	mg/kg wet
Isopropylbenzene	ND	0.0050	mg/kg wet
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet
Methylene Chloride	ND	0.0250	mg/kg wet
Naphthalene	ND	0.0050	mg/kg wet
n-Butylbenzene	ND	0.0050	mg/kg wet
n-Propylbenzene	ND	0.0050	mg/kg wet
sec-Butylbenzene	ND	0.0050	mg/kg wet
Styrene	ND	0.0050	mg/kg wet
tert-Butylbenzene	ND	0.0050	mg/kg wet
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet
Tetrachloroethene	ND	0.0050	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02742 - 5035

Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0486		mg/kg wet	0.05000		97	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0486		mg/kg wet	0.05000		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0482		mg/kg wet	0.05000		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0482		mg/kg wet	0.05000		96	70-130			
Surrogate: Dibromofluoromethane	0.0459		mg/kg wet	0.05000		92	70-130			
Surrogate: Dibromofluoromethane	0.0459		mg/kg wet	0.05000		92	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0448	0.0050	mg/kg wet	0.05000		90	70-130			
1,1,1-Trichloroethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
1,1,2,2-Tetrachloroethane	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
1,1,2-Trichloroethane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
1,1-Dichloroethane	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
1,1-Dichloroethene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,1-Dichloropropene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
1,2,3-Trichlorobenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130			
1,2,3-Trichloropropane	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
1,2,4-Trichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,2,4-Trimethylbenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
1,2-Dibromo-3-Chloropropane	0.0413	0.0050	mg/kg wet	0.05000		83	70-130			
1,2-Dibromoethane	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dichlorobenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichloroethane	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
1,2-Dichloropropane	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
1,3,5-Trimethylbenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
1,3-Dichlorobenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,3-Dichloropropane	0.0419	0.0050	mg/kg wet	0.05000		84	70-130			
1,4-Dichlorobenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dioxane	0.814	0.100	mg/kg wet	1.000		81	70-130			
1-Chlorohexane	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
2,2-Dichloropropane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02742 - 5035

2-Butanone	0.242	0.0500	mg/kg wet	0.2500		97	70-130			
2-Chlorotoluene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.190	0.0500	mg/kg wet	0.2500		76	70-130			
4-Chlorotoluene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
4-Isopropyltoluene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
4-Methyl-2-Pentanone	0.225	0.0500	mg/kg wet	0.2500		90	70-130			
Acetone	0.266	0.0500	mg/kg wet	0.2500		106	70-130			
Benzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
Benzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
Bromobenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Bromochloromethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
Bromodichloromethane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
Bromoform	0.0376	0.0050	mg/kg wet	0.05000		75	70-130			
Bromomethane	0.0415	0.0100	mg/kg wet	0.05000		83	70-130			
Carbon Disulfide	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
Carbon Tetrachloride	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
Chlorobenzene	0.0421	0.0050	mg/kg wet	0.05000		84	70-130			
Chloroethane	0.0450	0.0100	mg/kg wet	0.05000		90	70-130			
Chloroform	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
Chloromethane	0.0473	0.0100	mg/kg wet	0.05000		95	70-130			
cis-1,2-Dichloroethene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
cis-1,3-Dichloropropene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
Dibromochloromethane	0.0407	0.0050	mg/kg wet	0.05000		81	70-130			
Dibromomethane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Dichlorodifluoromethane	0.0433	0.0100	mg/kg wet	0.05000		87	70-130			
Diethyl Ether	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
Di-isopropyl ether	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Ethyl tertiary-butyl ether	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Ethylbenzene	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
Ethylbenzene	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
Hexachlorobutadiene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Isopropylbenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Methyl tert-Butyl Ether	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
Methylene Chloride	0.0472	0.0250	mg/kg wet	0.05000		94	70-130			
Naphthalene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
n-Butylbenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
n-Propylbenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
sec-Butylbenzene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Styrene	0.0430	0.0050	mg/kg wet	0.05000		86	70-130			
tert-Butylbenzene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Tertiary-amyl methyl ether	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Tetrachloroethene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Tetrahydrofuran	0.0424	0.0050	mg/kg wet	0.05000		85	70-130			
Toluene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Toluene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02742 - 5035

trans-1,2-Dichloroethane	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
trans-1,3-Dichloropropene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Trichloroethene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Trichlorofluoromethane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Vinyl Acetate	0.0448	0.0050	mg/kg wet	0.05000		90	70-130			
Vinyl Chloride	0.0492	0.0100	mg/kg wet	0.05000		98	70-130			
Xylene O	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Xylene O	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Xylene P,M	0.0876	0.0100	mg/kg wet	0.1000		88	70-130			
Xylene P,M	0.0876	0.0100	mg/kg wet	0.1000		88	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0455		mg/kg wet	0.05000		91	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0455		mg/kg wet	0.05000		91	70-130			
Surrogate: 4-Bromofluorobenzene	0.0405		mg/kg wet	0.05000		81	70-130			
Surrogate: 4-Bromofluorobenzene	0.0405		mg/kg wet	0.05000		81	70-130			
Surrogate: Dibromofluoromethane	0.0456		mg/kg wet	0.05000		91	70-130			
Surrogate: Dibromofluoromethane	0.0456		mg/kg wet	0.05000		91	70-130			
Surrogate: Toluene-d8	0.0416		mg/kg wet	0.05000		83	70-130			
Surrogate: Toluene-d8	0.0416		mg/kg wet	0.05000		83	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	6	25	
1,1,1-Trichloroethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	9	25	
1,1,2,2-Tetrachloroethane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	15	25	
1,1,2-Trichloroethane	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	11	25	
1,1-Dichloroethane	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	8	25	
1,1-Dichloroethene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	10	25	
1,1-Dichloropropene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	10	25	
1,2,3-Trichlorobenzene	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	10	25	
1,2,3-Trichloropropane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	16	25	
1,2,4-Trichlorobenzene	0.0585	0.0050	mg/kg wet	0.05000		117	70-130	10	25	
1,2,4-Trimethylbenzene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
1,2-Dibromo-3-Chloropropane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	15	25	
1,2-Dibromoethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	10	25	
1,2-Dichlorobenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
1,2-Dichloroethane	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	10	25	
1,2-Dichloropropane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	7	25	
1,3,5-Trimethylbenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
1,3-Dichlorobenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
1,3-Dichloropropane	0.0459	0.0050	mg/kg wet	0.05000		92	70-130	9	25	
1,4-Dichlorobenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
1,4-Dioxane	1.07	0.100	mg/kg wet	1.000		107	70-130	27	20	D+
1-Chlorohexane	0.0471	0.0050	mg/kg wet	0.05000		94	70-130	9	25	
2,2-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
2-Butanone	0.273	0.0500	mg/kg wet	0.2500		109	70-130	12	25	
2-Chlorotoluene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
2-Hexanone	0.228	0.0500	mg/kg wet	0.2500		91	70-130	18	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02742 - 5035

4-Chlorotoluene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
4-Isopropyltoluene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
4-Methyl-2-Pentanone	0.277	0.0500	mg/kg wet	0.2500		111	70-130	21	25	
Acetone	0.267	0.0500	mg/kg wet	0.2500		107	70-130	0.4	25	
Benzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	9	25	
Benzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	9	25	
Bromobenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
Bromochloromethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Bromodichloromethane	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	9	25	
Bromoform	0.0422	0.0050	mg/kg wet	0.05000		84	70-130	11	25	
Bromomethane	0.0499	0.0100	mg/kg wet	0.05000		100	70-130	18	25	
Carbon Disulfide	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
Carbon Tetrachloride	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	10	25	
Chlorobenzene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130	5	25	
Chloroethane	0.0487	0.0100	mg/kg wet	0.05000		97	70-130	8	25	
Chloroform	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Chloromethane	0.0518	0.0100	mg/kg wet	0.05000		104	70-130	9	25	
cis-1,2-Dichloroethene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
cis-1,3-Dichloropropene	0.0590	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
Dibromochloromethane	0.0445	0.0050	mg/kg wet	0.05000		89	70-130	9	25	
Dibromomethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Dichlorodifluoromethane	0.0479	0.0100	mg/kg wet	0.05000		96	70-130	10	25	
Diethyl Ether	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
Di-isopropyl ether	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
Ethyl tertiary-butyl ether	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
Ethylbenzene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130	6	25	
Ethylbenzene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130	6	25	
Hexachlorobutadiene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	8	25	
Isopropylbenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
Methyl tert-Butyl Ether	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	11	25	
Methylene Chloride	0.0512	0.0250	mg/kg wet	0.05000		102	70-130	8	25	
Naphthalene	0.0592	0.0050	mg/kg wet	0.05000		118	70-130	15	25	
n-Butylbenzene	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	10	25	
n-Propylbenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
sec-Butylbenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Styrene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	6	25	
tert-Butylbenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
Tertiary-amyl methyl ether	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	11	25	
Tetrachloroethene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
Tetrahydrofuran	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	23	25	
Toluene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Toluene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
trans-1,2-Dichloroethene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
trans-1,3-Dichloropropene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	10	25	
Trichloroethene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	9	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02742 - 5035

Trichlorofluoromethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	10	25	
Vinyl Acetate	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	14	25	
Vinyl Chloride	0.0543	0.0100	mg/kg wet	0.05000		109	70-130	10	25	
Xylene O	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	4	25	
Xylene O	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	4	25	
Xylene P,M	0.0927	0.0100	mg/kg wet	0.1000		93	70-130	6	25	
Xylene P,M	0.0927	0.0100	mg/kg wet	0.1000		93	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0466		mg/kg wet	0.05000		93	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0466		mg/kg wet	0.05000		93	70-130			
Surrogate: 4-Bromofluorobenzene	0.0400		mg/kg wet	0.05000		80	70-130			
Surrogate: 4-Bromofluorobenzene	0.0400		mg/kg wet	0.05000		80	70-130			
Surrogate: Dibromofluoromethane	0.0453		mg/kg wet	0.05000		91	70-130			
Surrogate: Dibromofluoromethane	0.0453		mg/kg wet	0.05000		91	70-130			
Surrogate: Toluene-d8	0.0409		mg/kg wet	0.05000		82	70-130			
Surrogate: Toluene-d8	0.0409		mg/kg wet	0.05000		82	70-130			

Matrix Spike Source: 20C0705-10 MM

Benzene	0.112	0.0062	mg/kg dry	0.06235	0.0856	42	70-130			
Ethylbenzene	1.89	0.0062	mg/kg dry	0.06235	0.907	NR	70-130			
Toluene	2.60	0.0062	mg/kg dry	0.06235	1.25	NR	70-130			
Xylene O	4.21	0.0062	mg/kg dry	0.06235	1.91	NR	70-130			
Xylene P,M	6.06	0.0125	mg/kg dry	0.1247	2.77	NR	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0618		mg/kg dry	0.06235		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0542		mg/kg dry	0.06235		87	70-130			
Surrogate: Dibromofluoromethane	0.0629		mg/kg dry	0.06235		101	70-130			
Surrogate: Toluene-d8	0.0745		mg/kg dry	0.06235		119	70-130			

Matrix Spike Dup Source: 20C0705-10 MM

Benzene	0.121	0.0056	mg/kg dry	0.05599	0.0856	63	70-130	8	30	
Ethylbenzene	1.58	0.0056	mg/kg dry	0.05599	0.907	NR	70-130	18	30	
Toluene	2.19	0.0056	mg/kg dry	0.05599	1.25	NR	70-130	17	30	
Xylene O	3.62	0.0056	mg/kg dry	0.05599	1.91	NR	70-130	15	30	
Xylene P,M	5.11	0.0112	mg/kg dry	0.1120	2.77	NR	70-130	17	30	
Surrogate: 1,2-Dichloroethane-d4	0.0535		mg/kg dry	0.05599		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0551		mg/kg dry	0.05599		98	70-130			
Surrogate: Dibromofluoromethane	0.0551		mg/kg dry	0.05599		98	70-130			
Surrogate: Toluene-d8	0.0674		mg/kg dry	0.05599		120	70-130			

5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
1-Chlorohexane	ND	0.200	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

Ethylbenzene	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Acetate	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	4.87		mg/kg wet	5.000		97	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.87		mg/kg wet	5.000		97	70-130			
Surrogate: 4-Bromofluorobenzene	4.57		mg/kg wet	5.000		91	70-130			
Surrogate: 4-Bromofluorobenzene	4.57		mg/kg wet	5.000		91	70-130			
Surrogate: Dibromofluoromethane	4.73		mg/kg wet	5.000		95	70-130			
Surrogate: Dibromofluoromethane	4.73		mg/kg wet	5.000		95	70-130			
Surrogate: Toluene-d8	4.59		mg/kg wet	5.000		92	70-130			
Surrogate: Toluene-d8	4.59		mg/kg wet	5.000		92	70-130			

LCS

1,1,1,2-Tetrachloroethane	1.82	0.200	mg/kg wet	2.000		91	70-130			
1,1,1-Trichloroethane	1.72	0.200	mg/kg wet	2.000		86	70-130			
1,1,2,2-Tetrachloroethane	1.80	0.200	mg/kg wet	2.000		90	70-130			
1,1,2-Trichloroethane	1.69	0.200	mg/kg wet	2.000		85	70-130			
1,1-Dichloroethane	1.76	0.200	mg/kg wet	2.000		88	70-130			
1,1-Dichloroethane	1.62	0.200	mg/kg wet	2.000		81	70-130			
1,1-Dichloropropene	1.81	0.200	mg/kg wet	2.000		91	70-130			
1,2,3-Trichlorobenzene	2.13	0.200	mg/kg wet	2.000		107	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

1,2,3-Trichloropropane	1.78	0.200	mg/kg wet	2.000		89	70-130			
1,2,4-Trichlorobenzene	1.95	0.200	mg/kg wet	2.000		97	70-130			
1,2,4-Trimethylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2-Dibromo-3-Chloropropane	1.89	1.00	mg/kg wet	2.000		94	70-130			
1,2-Dibromoethane	1.90	0.200	mg/kg wet	2.000		95	70-130			
1,2-Dichlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,2-Dichloroethane	1.87	0.200	mg/kg wet	2.000		93	70-130			
1,2-Dichloropropane	1.71	0.200	mg/kg wet	2.000		85	70-130			
1,3,5-Trimethylbenzene	1.89	0.200	mg/kg wet	2.000		95	70-130			
1,3-Dichlorobenzene	1.90	0.200	mg/kg wet	2.000		95	70-130			
1,3-Dichloropropane	1.87	0.200	mg/kg wet	2.000		94	70-130			
1,4-Dichlorobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130			
1,4-Dioxane - Screen	62.9	40.0	mg/kg wet	40.00		157	44-241			
1-Chlorohexane	1.87	0.200	mg/kg wet	2.000		94	70-130			
2,2-Dichloropropane	1.73	0.200	mg/kg wet	2.000		87	70-130			
2-Butanone	8.73	1.00	mg/kg wet	10.00		87	70-130			
2-Chlorotoluene	1.88	0.200	mg/kg wet	2.000		94	70-130			
2-Hexanone	8.18	1.00	mg/kg wet	10.00		82	70-130			
4-Chlorotoluene	1.98	0.200	mg/kg wet	2.000		99	70-130			
4-Isopropyltoluene	1.90	0.200	mg/kg wet	2.000		95	70-130			
4-Methyl-2-Pentanone	8.89	1.00	mg/kg wet	10.00		89	70-130			
Acetone	8.07	1.00	mg/kg wet	10.00		81	70-130			
Benzene	1.82	0.200	mg/kg wet	2.000		91	70-130			
Benzene	1.82	0.200	mg/kg wet	2.000		91	70-130			
Bromobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130			
Bromochloromethane	1.85	0.200	mg/kg wet	2.000		93	70-130			
Bromodichloromethane	1.73	0.200	mg/kg wet	2.000		86	70-130			
Bromoform	1.57	0.200	mg/kg wet	2.000		78	70-130			
Bromomethane	1.98	0.200	mg/kg wet	2.000		99	70-130			
Carbon Disulfide	1.78	0.200	mg/kg wet	2.000		89	70-130			
Carbon Tetrachloride	1.85	0.200	mg/kg wet	2.000		92	70-130			
Chlorobenzene	1.89	0.200	mg/kg wet	2.000		94	70-130			
Chloroethane	1.90	0.200	mg/kg wet	2.000		95	70-130			
Chloroform	1.75	0.200	mg/kg wet	2.000		87	70-130			
Chloromethane	1.65	0.200	mg/kg wet	2.000		83	70-130			
cis-1,2-Dichloroethene	1.75	0.200	mg/kg wet	2.000		88	70-130			
cis-1,3-Dichloropropene	1.92	0.200	mg/kg wet	2.000		96	70-130			
Dibromochloromethane	1.64	0.200	mg/kg wet	2.000		82	70-130			
Dibromomethane	1.67	0.200	mg/kg wet	2.000		83	70-130			
Dichlorodifluoromethane	1.90	0.200	mg/kg wet	2.000		95	70-130			
Diethyl Ether	1.73	0.200	mg/kg wet	2.000		86	70-130			
Di-isopropyl ether	1.74	0.200	mg/kg wet	2.000		87	70-130			
Ethyl tertiary-butyl ether	1.69	0.200	mg/kg wet	2.000		85	70-130			
Ethylbenzene	1.86	0.200	mg/kg wet	2.000		93	70-130			
Ethylbenzene	1.86	0.200	mg/kg wet	2.000		93	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

Hexachlorobutadiene	2.46	0.200	mg/kg wet	2.000		123	70-130			
Isopropylbenzene	1.87	0.200	mg/kg wet	2.000		93	70-130			
Methyl tert-Butyl Ether	1.83	0.200	mg/kg wet	2.000		91	70-130			
Methyl tert-Butyl Ether	1.83	0.200	mg/kg wet	2.000		91	70-130			
Methylene Chloride	1.77	0.400	mg/kg wet	2.000		88	70-130			
Naphthalene	2.09	0.200	mg/kg wet	2.000		105	70-130			
n-Butylbenzene	1.95	0.200	mg/kg wet	2.000		97	70-130			
n-Propylbenzene	1.90	0.200	mg/kg wet	2.000		95	70-130			
sec-Butylbenzene	1.86	0.200	mg/kg wet	2.000		93	70-130			
Styrene	1.83	0.200	mg/kg wet	2.000		91	70-130			
tert-Butylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130			
Tertiary-amyl methyl ether	1.79	0.200	mg/kg wet	2.000		89	70-130			
Tetrachloroethene	1.82	0.200	mg/kg wet	2.000		91	70-130			
Tetrahydrofuran	1.58	1.00	mg/kg wet	2.000		79	70-130			
Toluene	1.75	0.200	mg/kg wet	2.000		88	70-130			
Toluene	1.75	0.200	mg/kg wet	2.000		88	70-130			
trans-1,2-Dichloroethene	1.66	0.200	mg/kg wet	2.000		83	70-130			
trans-1,3-Dichloropropene	1.54	0.200	mg/kg wet	2.000		77	70-130			
Trichloroethene	1.81	0.200	mg/kg wet	2.000		90	70-130			
Trichlorofluoromethane	2.05	0.200	mg/kg wet	2.000		102	70-130			
Vinyl Acetate	1.66	0.200	mg/kg wet	2.000		83	70-130			
Vinyl Chloride	1.58	0.200	mg/kg wet	2.000		79	70-130			
Xylene O	1.94	0.200	mg/kg wet	2.000		97	70-130			
Xylene O	1.94	0.200	mg/kg wet	2.000		97	70-130			
Xylene P,M	3.65	0.400	mg/kg wet	4.000		91	70-130			
Xylene P,M	3.65	0.400	mg/kg wet	4.000		91	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.83		mg/kg wet	5.000		97	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.83		mg/kg wet	5.000		97	70-130			
Surrogate: 4-Bromofluorobenzene	4.61		mg/kg wet	5.000		92	70-130			
Surrogate: 4-Bromofluorobenzene	4.61		mg/kg wet	5.000		92	70-130			
Surrogate: Dibromofluoromethane	4.89		mg/kg wet	5.000		98	70-130			
Surrogate: Dibromofluoromethane	4.89		mg/kg wet	5.000		98	70-130			
Surrogate: Toluene-d8	4.83		mg/kg wet	5.000		97	70-130			
Surrogate: Toluene-d8	4.83		mg/kg wet	5.000		97	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	1.81	0.200	mg/kg wet	2.000		90	70-130	0.4	25	
1,1,1-Trichloroethane	1.75	0.200	mg/kg wet	2.000		87	70-130	1	25	
1,1,2,2-Tetrachloroethane	1.83	0.200	mg/kg wet	2.000		92	70-130	2	25	
1,1,2-Trichloroethane	1.63	0.200	mg/kg wet	2.000		81	70-130	4	25	
1,1-Dichloroethane	1.74	0.200	mg/kg wet	2.000		87	70-130	0.9	25	
1,1-Dichloroethene	1.68	0.200	mg/kg wet	2.000		84	70-130	4	25	
1,1-Dichloropropene	1.83	0.200	mg/kg wet	2.000		92	70-130	0.9	25	
1,2,3-Trichlorobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	8	25	
1,2,3-Trichloropropane	1.75	0.200	mg/kg wet	2.000		88	70-130	2	25	
1,2,4-Trichlorobenzene	1.89	0.200	mg/kg wet	2.000		94	70-130	3	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

1,2,4-Trimethylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130	5	25	
1,2-Dibromo-3-Chloropropane	1.60	1.00	mg/kg wet	2.000		80	70-130	17	25	
1,2-Dibromoethane	1.74	0.200	mg/kg wet	2.000		87	70-130	9	25	
1,2-Dichlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
1,2-Dichloroethane	1.77	0.200	mg/kg wet	2.000		88	70-130	5	25	
1,2-Dichloropropane	1.63	0.200	mg/kg wet	2.000		82	70-130	4	25	
1,3,5-Trimethylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130	0.8	25	
1,3-Dichlorobenzene	1.89	0.200	mg/kg wet	2.000		95	70-130	0.5	25	
1,3-Dichloropropane	1.82	0.200	mg/kg wet	2.000		91	70-130	3	25	
1,4-Dichlorobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	0.3	25	
1,4-Dioxane - Screen	41.9	40.0	mg/kg wet	40.00		105	44-241	40	200	
1-Chlorohexane	1.71	0.200	mg/kg wet	2.000		85	70-130	9	25	
2,2-Dichloropropane	1.74	0.200	mg/kg wet	2.000		87	70-130	0.3	25	
2-Butanone	8.51	1.00	mg/kg wet	10.00		85	70-130	3	25	
2-Chlorotoluene	1.82	0.200	mg/kg wet	2.000		91	70-130	3	25	
2-Hexanone	7.38	1.00	mg/kg wet	10.00		74	70-130	10	25	
4-Chlorotoluene	1.89	0.200	mg/kg wet	2.000		95	70-130	4	25	
4-Isopropyltoluene	1.87	0.200	mg/kg wet	2.000		94	70-130	1	25	
4-Methyl-2-Pentanone	8.30	1.00	mg/kg wet	10.00		83	70-130	7	25	
Acetone	7.65	1.00	mg/kg wet	10.00		76	70-130	5	25	
Benzene	1.76	0.200	mg/kg wet	2.000		88	70-130	3	25	
Benzene	1.76	0.200	mg/kg wet	2.000		88	70-130	3	25	
Bromobenzene	1.89	0.200	mg/kg wet	2.000		94	70-130	4	25	
Bromochloromethane	1.76	0.200	mg/kg wet	2.000		88	70-130	5	25	
Bromodichloromethane	1.72	0.200	mg/kg wet	2.000		86	70-130	0.6	25	
Bromoform	1.46	0.200	mg/kg wet	2.000		73	70-130	7	25	
Bromomethane	1.82	0.200	mg/kg wet	2.000		91	70-130	9	25	
Carbon Disulfide	1.76	0.200	mg/kg wet	2.000		88	70-130	0.9	25	
Carbon Tetrachloride	1.83	0.200	mg/kg wet	2.000		92	70-130	0.9	25	
Chlorobenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	2	25	
Chloroethane	1.80	0.200	mg/kg wet	2.000		90	70-130	5	25	
Chloroform	1.81	0.200	mg/kg wet	2.000		90	70-130	3	25	
Chloromethane	1.74	0.200	mg/kg wet	2.000		87	70-130	5	25	
cis-1,2-Dichloroethene	1.64	0.200	mg/kg wet	2.000		82	70-130	6	25	
cis-1,3-Dichloropropene	1.84	0.200	mg/kg wet	2.000		92	70-130	4	25	
Dibromochloromethane	1.64	0.200	mg/kg wet	2.000		82	70-130	0.1	25	
Dibromomethane	1.65	0.200	mg/kg wet	2.000		82	70-130	1	25	
Dichlorodifluoromethane	1.96	0.200	mg/kg wet	2.000		98	70-130	3	25	
Diethyl Ether	1.73	0.200	mg/kg wet	2.000		86	70-130	0.1	25	
Di-isopropyl ether	1.73	0.200	mg/kg wet	2.000		87	70-130	0.3	25	
Ethyl tertiary-butyl ether	1.66	0.200	mg/kg wet	2.000		83	70-130	2	25	
Ethylbenzene	1.81	0.200	mg/kg wet	2.000		90	70-130	3	25	
Ethylbenzene	1.81	0.200	mg/kg wet	2.000		90	70-130	3	25	
Hexachlorobutadiene	2.30	0.200	mg/kg wet	2.000		115	70-130	7	25	
Isopropylbenzene	1.80	0.200	mg/kg wet	2.000		90	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC02725 - 5035

Methyl tert-Butyl Ether	1.69	0.200	mg/kg wet	2.000		85	70-130	8	25	
Methyl tert-Butyl Ether	1.69	0.200	mg/kg wet	2.000		85	70-130	8	25	
Methylene Chloride	1.79	0.400	mg/kg wet	2.000		89	70-130	1	25	
Naphthalene	1.99	0.200	mg/kg wet	2.000		99	70-130	5	25	
n-Butylbenzene	1.90	0.200	mg/kg wet	2.000		95	70-130	3	25	
n-Propylbenzene	1.82	0.200	mg/kg wet	2.000		91	70-130	4	25	
sec-Butylbenzene	1.82	0.200	mg/kg wet	2.000		91	70-130	2	25	
Styrene	1.84	0.200	mg/kg wet	2.000		92	70-130	0.5	25	
tert-Butylbenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	2	25	
Tertiary-amyl methyl ether	1.66	0.200	mg/kg wet	2.000		83	70-130	8	25	
Tetrachloroethene	1.90	0.200	mg/kg wet	2.000		95	70-130	5	25	
Tetrahydrofuran	1.62	1.00	mg/kg wet	2.000		81	70-130	2	25	
Toluene	1.73	0.200	mg/kg wet	2.000		86	70-130	1	25	
Toluene	1.73	0.200	mg/kg wet	2.000		86	70-130	1	25	
trans-1,2-Dichloroethene	1.79	0.200	mg/kg wet	2.000		90	70-130	8	25	
trans-1,3-Dichloropropene	1.55	0.200	mg/kg wet	2.000		77	70-130	0.5	25	
Trichloroethene	1.80	0.200	mg/kg wet	2.000		90	70-130	0.6	25	
Trichlorofluoromethane	2.07	0.200	mg/kg wet	2.000		104	70-130	1	25	
Vinyl Acetate	1.52	0.200	mg/kg wet	2.000		76	70-130	8	25	
Vinyl Chloride	1.59	0.200	mg/kg wet	2.000		80	70-130	0.6	25	
Xylene O	1.88	0.200	mg/kg wet	2.000		94	70-130	3	25	
Xylene O	1.88	0.200	mg/kg wet	2.000		94	70-130	3	25	
Xylene P,M	3.57	0.400	mg/kg wet	4.000		89	70-130	2	25	
Xylene P,M	3.57	0.400	mg/kg wet	4.000		89	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	4.78		mg/kg wet	5.000		96	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.78		mg/kg wet	5.000		96	70-130			
Surrogate: 4-Bromofluorobenzene	4.66		mg/kg wet	5.000		93	70-130			
Surrogate: 4-Bromofluorobenzene	4.66		mg/kg wet	5.000		93	70-130			
Surrogate: Dibromofluoromethane	4.89		mg/kg wet	5.000		98	70-130			
Surrogate: Dibromofluoromethane	4.89		mg/kg wet	5.000		98	70-130			
Surrogate: Toluene-d8	4.76		mg/kg wet	5.000		95	70-130			
Surrogate: Toluene-d8	4.76		mg/kg wet	5.000		95	70-130			

Batch DC03027 - 5035

Blank

Benzene	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.16		mg/kg wet	5.000		103	70-130			
Surrogate: 4-Bromofluorobenzene	4.67		mg/kg wet	5.000		93	70-130			
Surrogate: Dibromofluoromethane	4.62		mg/kg wet	5.000		92	70-130			
Surrogate: Toluene-d8	4.76		mg/kg wet	5.000		95	70-130			

LCS



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC03027 - 5035

Benzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Ethylbenzene	1.93	0.200	mg/kg wet	2.000		97	70-130			
Methyl tert-Butyl Ether	1.97	0.200	mg/kg wet	2.000		98	70-130			
Toluene	1.75	0.200	mg/kg wet	2.000		88	70-130			
Xylene O	1.99	0.200	mg/kg wet	2.000		100	70-130			
Xylene P,M	3.81	0.400	mg/kg wet	4.000		95	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.95		mg/kg wet	5.000		99	70-130			
Surrogate: 4-Bromofluorobenzene	4.87		mg/kg wet	5.000		97	70-130			
Surrogate: Dibromofluoromethane	4.92		mg/kg wet	5.000		98	70-130			
Surrogate: Toluene-d8	4.96		mg/kg wet	5.000		99	70-130			

LCS Dup

Benzene	1.82	0.200	mg/kg wet	2.000		91	70-130	0.9	25	
Ethylbenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	5	25	
Methyl tert-Butyl Ether	1.95	0.200	mg/kg wet	2.000		98	70-130	0.9	25	
Toluene	1.82	0.200	mg/kg wet	2.000		91	70-130	4	25	
Xylene O	1.97	0.200	mg/kg wet	2.000		98	70-130	1	25	
Xylene P,M	3.73	0.400	mg/kg wet	4.000		93	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	4.91		mg/kg wet	5.000		98	70-130			
Surrogate: 4-Bromofluorobenzene	4.91		mg/kg wet	5.000		98	70-130			
Surrogate: Dibromofluoromethane	4.85		mg/kg wet	5.000		97	70-130			
Surrogate: Toluene-d8	4.94		mg/kg wet	5.000		99	70-130			

8015C Diesel Range Organics

Batch DC02310 - 3546

Blank

Decane (C10)	ND	0.2	mg/kg wet							
Diesel Range Organics (C10-C28)	ND	15.0	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							

Surrogate: O-Terphenyl	4.78		mg/kg wet	5.000		96	40-140			
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LCS

Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Diesel Range Organics (C10-C28)	24.0	15.0	mg/kg wet	27.50		87	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8015C Diesel Range Organics										
Batch DC02310 - 3546										
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		84	40-140			
<i>Surrogate: O-Terphenyl</i>	<i>4.65</i>		mg/kg wet	<i>5.000</i>		<i>93</i>	<i>40-140</i>			
LCS Dup										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140	0.2	25	
Diesel Range Organics (C10-C28)	24.5	15.0	mg/kg wet	27.50		89	40-140	2	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.5	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		92	40-140	3	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140	2	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140	1	25	
<i>Surrogate: O-Terphenyl</i>	<i>4.64</i>		mg/kg wet	<i>5.000</i>		<i>93</i>	<i>40-140</i>			
Batch DC02311 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Diesel Range Organics (C10-C28)	ND	15.0	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
<i>Surrogate: O-Terphenyl</i>	<i>5.11</i>		mg/kg wet	<i>5.000</i>		<i>102</i>	<i>40-140</i>			
LCS										
Decane (C10)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Diesel Range Organics (C10-C28)	25.4	15.0	mg/kg wet	27.50		92	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8015C Diesel Range Organics										
Batch DC02311 - 3546										
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140			
<i>Surrogate: O-Terphenyl</i>	<i>5.00</i>		mg/kg wet	<i>5.000</i>		<i>100</i>	<i>40-140</i>			
LCS Dup										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		82	40-140	6	25	
Diesel Range Organics (C10-C28)	26.4	15.0	mg/kg wet	27.50		96	40-140	4	25	
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140	5	25	
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		100	40-140	3	25	
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		94	40-140	3	25	
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140	4	25	
Octacosane (C28)	2.6	0.2	mg/kg wet	2.500		103	40-140	4	25	
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		96	40-140	3	25	
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	4	25	
<i>Surrogate: O-Terphenyl</i>	<i>5.07</i>		mg/kg wet	<i>5.000</i>		<i>101</i>	<i>40-140</i>			
Matrix Spike Source: 20C0705-10 MT										
Decane (C10)	77.5	7.5	mg/kg dry	2.757	ND	NR	40-140			
Diesel Range Organics (C10-C28)	34600	662	mg/kg dry	30.33	35400	NR	40-140			
Docosane (C22)	55.8	7.5	mg/kg dry	2.757	ND	NR	40-140			
Dodecane (C12)	135	7.5	mg/kg dry	2.757	ND	NR	40-140			
Eicosane (C20)	74.1	7.5	mg/kg dry	2.757	ND	NR	40-140			
Hexacosane (C26)	64.8	7.5	mg/kg dry	2.757	ND	NR	40-140			
Hexadecane (C16)	159	7.5	mg/kg dry	2.757	ND	NR	40-140			
Nonadecane (C19)	81.6	7.5	mg/kg dry	2.757	ND	NR	40-140			
Octacosane (C28)	41.6	7.5	mg/kg dry	2.757	ND	NR	40-140			
Octadecane (C18)	76.7	7.5	mg/kg dry	2.757	ND	NR	40-140			
Tetracosane (C24)	57.6	7.5	mg/kg dry	2.757	ND	NR	40-140			
Tetradecane (C14)	154	7.5	mg/kg dry	2.757	ND	NR	40-140			
<i>Surrogate: O-Terphenyl</i>	<i>ND</i>		mg/kg dry	<i>5.514</i>		<i>0</i>	<i>40-140</i>			
Matrix Spike Dup Source: 20C0705-10 MT										
Decane (C10)	74.3	7.3	mg/kg dry	2.676	ND	NR	40-140	4	50	
Diesel Range Organics (C10-C28)	35900	642	mg/kg dry	29.44	35400	NR	40-140	4	50	
Docosane (C22)	61.2	7.3	mg/kg dry	2.676	ND	NR	40-140	9	50	
Dodecane (C12)	139	7.3	mg/kg dry	2.676	ND	NR	40-140	3	50	
Eicosane (C20)	82.8	7.3	mg/kg dry	2.676	ND	NR	40-140	11	50	



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8015C Diesel Range Organics

Batch DC02311 - 3546

Hexacosane (C26)	67.8	7.3	mg/kg dry	2.676	ND	NR	40-140	5	50	
Hexadecane (C16)	172	7.3	mg/kg dry	2.676	ND	NR	40-140	7	50	
Nonadecane (C19)	86.1	7.3	mg/kg dry	2.676	ND	NR	40-140	5	50	
Octacosane (C28)	40.2	7.3	mg/kg dry	2.676	ND	NR	40-140	3	50	
Octadecane (C18)	80.2	7.3	mg/kg dry	2.676	ND	NR	40-140	4	50	
Tetracosane (C24)	70.5	7.3	mg/kg dry	2.676	ND	NR	40-140	20	50	
Tetradecane (C14)	163	7.3	mg/kg dry	2.676	ND	NR	40-140	6	50	

Surrogate: O-Terphenyl

ND mg/kg dry 5.353 0 40-140

8015C Gasoline Range Organics / Methanol

Batch DC02536 - 5030B

Blank

Gasoline Range Organics (C6-C10)	ND	5.00	mg/kg wet							
Surrogate: 2,5-Dibromotoluene - FID	5.05		mg/kg wet	5.000		101	70-130			
Surrogate: Trifluorotoluene - FID	4.77		mg/kg wet	5.333		89	70-130			

LCS

Gasoline Range Organics (C6-C10)	94.8	5.00	mg/kg wet	105.0		90	60-140			
Surrogate: 2,5-Dibromotoluene - FID	5.35		mg/kg wet	5.000		107	70-130			
Surrogate: Trifluorotoluene - FID	4.96		mg/kg wet	5.333		93	70-130			

LCS Dup

Gasoline Range Organics (C6-C10)	97.1	5.00	mg/kg wet	105.0		93	60-140	2	20	
Surrogate: 2,5-Dibromotoluene - FID	5.30		mg/kg wet	5.000		106	70-130			
Surrogate: Trifluorotoluene - FID	5.19		mg/kg wet	5.333		97	70-130			

8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

Blank

Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacotane (C30)	ND	0.2	mg/kg wet							



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

<i>Surrogate: O-Terphenyl</i>	4.78		mg/kg wet	5.000		96	40-140			
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LCS

Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		71	30-140			
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Total Petroleum Hydrocarbons	30.5	37.5	mg/kg wet	35.00		87	40-140			
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		91	40-140			

<i>Surrogate: O-Terphenyl</i>	4.65		mg/kg wet	5.000		93	40-140			
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LCS Dup

Decane (C10)	2.0	0.2	mg/kg wet	2.500		79	40-140	0.2	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.5	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		92	40-140	3	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		70	30-140	0.9	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140	2	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140	1	25	
Total Petroleum Hydrocarbons	31.1	37.5	mg/kg wet	35.00		89	40-140	2	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	

<i>Surrogate: O-Terphenyl</i>	4.64		mg/kg wet	5.000		93	40-140			
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Matrix Spike Source: 20C0705-04

Decane (C10)	2.2	0.2	mg/kg dry	2.843	ND	79	40-140			
Docosane (C22)	2.5	0.2	mg/kg dry	2.843	ND	87	40-140			
Dodecane (C12)	2.4	0.2	mg/kg dry	2.843	ND	84	40-140			
Eicosane (C20)	2.5	0.2	mg/kg dry	2.843	ND	86	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg dry	2.843	ND	87	40-140			
Hexadecane (C16)	2.4	0.2	mg/kg dry	2.843	ND	86	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg dry	2.843	ND	87	40-140			
Nonane (C9)	2.0	0.2	mg/kg dry	2.843	ND	70	30-140			
Octacosane (C28)	2.5	0.2	mg/kg dry	2.843	ND	88	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC02310 - 3546

Octadecane (C18)	2.4	0.2	mg/kg dry	2.843	ND	85	40-140			
Tetracosane (C24)	2.5	0.2	mg/kg dry	2.843	ND	87	40-140			
Tetradecane (C14)	2.4	0.2	mg/kg dry	2.843	ND	85	40-140			
Total Petroleum Hydrocarbons	38.8	42.6	mg/kg dry	39.80	ND	98	40-140			
Triacontane (C30)	2.5	0.2	mg/kg dry	2.843	ND	87	40-140			

<i>Surrogate: O-Terphenyl</i>	5.25		mg/kg dry	5.686		92	40-140			
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Matrix Spike Dup Source: 20C0705-04

Decane (C10)	2.1	0.2	mg/kg dry	3.021	ND	70	40-140	5	50	
Docosane (C22)	2.4	0.2	mg/kg dry	3.021	ND	78	40-140	5	50	
Dodecane (C12)	2.3	0.2	mg/kg dry	3.021	ND	75	40-140	5	50	
Eicosane (C20)	2.3	0.2	mg/kg dry	3.021	ND	78	40-140	4	50	
Hexacosane (C26)	2.3	0.2	mg/kg dry	3.021	ND	78	40-140	5	50	
Hexadecane (C16)	2.3	0.2	mg/kg dry	3.021	ND	77	40-140	4	50	
Nonadecane (C19)	2.4	0.2	mg/kg dry	3.021	ND	78	40-140	5	50	
Nonane (C9)	1.9	0.2	mg/kg dry	3.021	ND	63	30-140	4	50	
Octacosane (C28)	2.4	0.2	mg/kg dry	3.021	ND	79	40-140	5	50	
Octadecane (C18)	2.3	0.2	mg/kg dry	3.021	ND	77	40-140	4	50	
Tetracosane (C24)	2.4	0.2	mg/kg dry	3.021	ND	78	40-140	5	50	
Tetradecane (C14)	2.3	0.2	mg/kg dry	3.021	ND	77	40-140	3	50	
Total Petroleum Hydrocarbons	36.5	45.3	mg/kg dry	42.30	ND	86	40-140	6	50	
Triacontane (C30)	2.3	0.2	mg/kg dry	3.021	ND	78	40-140	6	50	

<i>Surrogate: O-Terphenyl</i>	4.91		mg/kg dry	6.043		81	40-140			
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Batch DC02311 - 3546

Blank

Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							

<i>Surrogate: O-Terphenyl</i>	5.11		mg/kg wet	5.000		102	40-140			
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LCS

Decane (C10)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		97	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC02311 - 3546

Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		69	30-140			
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Total Petroleum Hydrocarbons	32.0	37.5	mg/kg wet	35.00		91	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140			

Surrogate: O-Terphenyl	5.00		mg/kg wet	5.000		100	40-140			
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LCS Dup

Decane (C10)	2.0	0.2	mg/kg wet	2.500		82	40-140	6	25	
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140	5	25	
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		100	40-140	3	25	
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		94	40-140	3	25	
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140	4	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		74	30-140	6	25	
Octacosane (C28)	2.6	0.2	mg/kg wet	2.500		103	40-140	4	25	
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		96	40-140	3	25	
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	4	25	
Total Petroleum Hydrocarbons	33.2	37.5	mg/kg wet	35.00		95	40-140	4	25	
Triacontane (C30)	2.5	0.2	mg/kg wet	2.500		100	40-140	3	25	

Surrogate: O-Terphenyl	5.07		mg/kg wet	5.000		101	40-140			
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Blank

1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	0.184	0.110	mg/kg wet							
Benzo(a)pyrene	0.130	0.100	mg/kg wet							
Benzo(b)fluoranthene	0.138	0.100	mg/kg wet							
Benzo(g,h,i)perylene	0.229	0.100	mg/kg wet							
Benzo(k)fluoranthene	0.128	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	0.252	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	0.128	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.083	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	0.144	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: 2,4,6-Tribromophenol	4.27		mg/kg wet	5.000		85	30-130			
Surrogate: 2-Chlorophenol-d4	3.84		mg/kg wet	5.000		77	30-130			
Surrogate: 2-Fluorobiphenyl	2.45		mg/kg wet	3.333		73	30-130			
Surrogate: 2-Fluorophenol	3.80		mg/kg wet	5.000		76	30-130			
Surrogate: Nitrobenzene-d5	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: Phenol-d6	3.78		mg/kg wet	5.000		76	30-130			
Surrogate: p-Terphenyl-d14	2.52		mg/kg wet	3.333		76	30-130			

LCS

1,1-Biphenyl	2.36	0.167	mg/kg wet	3.333		71	40-140			
1,2,4-Trichlorobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.85	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130			
2,4,6-Trichlorophenol	2.66	0.333	mg/kg wet	3.333		80	30-130			
2,4-Dichlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dimethylphenol	2.57	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dinitrophenol	2.52	1.67	mg/kg wet	3.333		76	30-130			
2,4-Dinitrotoluene	3.42	0.167	mg/kg wet	3.333		103	40-140			
2,6-Dinitrotoluene	2.95	0.333	mg/kg wet	3.333		89	40-140			
2-Chloronaphthalene	2.32	0.333	mg/kg wet	3.333		70	40-140			
2-Chlorophenol	2.32	0.333	mg/kg wet	3.333		70	30-130			
2-Methylnaphthalene	2.37	0.333	mg/kg wet	3.333		71	40-140			
2-Methylphenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2-Nitroaniline	2.73	0.333	mg/kg wet	3.333		82	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

2-Nitrophenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
3,3'-Dichlorobenzidine	2.89	0.333	mg/kg wet	3.333		87	40-140			
3+4-Methylphenol	4.96	0.667	mg/kg wet	6.667		74	30-130			
3-Nitroaniline	2.92	0.333	mg/kg wet	3.333		88	40-140			
4,6-Dinitro-2-Methylphenol	2.76	1.67	mg/kg wet	3.333		83	30-130			
4-Bromophenyl-phenylether	2.81	0.333	mg/kg wet	3.333		84	40-140			
4-Chloro-3-Methylphenol	2.91	0.333	mg/kg wet	3.333		87	30-130			
4-Chloroaniline	1.70	0.667	mg/kg wet	3.333		51	40-140			
4-Chloro-phenyl-phenyl ether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Nitroaniline	3.08	0.333	mg/kg wet	3.333		92	40-140			
4-Nitrophenol	3.00	1.67	mg/kg wet	3.333		90	30-130			
Acenaphthene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Acenaphthylene	2.33	0.333	mg/kg wet	3.333		70	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.65	0.667	mg/kg wet	3.333		49	40-140			
Anthracene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Azobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Benzo(a)anthracene	3.28	0.110	mg/kg wet	3.333		98	40-140			
Benzo(a)pyrene	3.41	0.100	mg/kg wet	3.333		102	40-140			
Benzo(b)fluoranthene	3.32	0.100	mg/kg wet	3.333		100	40-140			
Benzo(g,h,i)perylene	3.48	0.100	mg/kg wet	3.333		104	40-140			
Benzo(k)fluoranthene	3.26	0.100	mg/kg wet	3.333		98	40-140			
Benzoic Acid	2.12	1.67	mg/kg wet	3.333		64	40-140			
Benzyl Alcohol	2.03	0.333	mg/kg wet	3.333		61	40-140			
bis(2-Chloroethoxy)methane	2.35	0.333	mg/kg wet	3.333		70	40-140			
bis(2-Chloroethyl)ether	2.19	0.100	mg/kg wet	3.333		66	40-140			
bis(2-chloroisopropyl)Ether	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Butylbenzylphthalate	3.34	0.333	mg/kg wet	3.333		100	40-140			
Carbazole	3.29	0.333	mg/kg wet	3.333		99	40-140			
Chrysene	3.25	0.083	mg/kg wet	3.333		98	40-140			
Dibenzo(a,h)Anthracene	3.56	0.083	mg/kg wet	3.333		107	40-140			
Dibenzofuran	2.64	0.333	mg/kg wet	3.333		79	40-140			
Diethylphthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Dimethylphthalate	2.92	0.333	mg/kg wet	3.333		87	40-140			
Di-n-butylphthalate	3.40	0.333	mg/kg wet	3.333		102	40-140			
Di-n-octylphthalate	3.07	0.333	mg/kg wet	3.333		92	40-140			
Fluoranthene	3.40	0.333	mg/kg wet	3.333		102	40-140			
Fluorene	2.92	0.333	mg/kg wet	3.333		88	40-140			
Hexachlorobenzene	2.87	0.083	mg/kg wet	3.333		86	40-140			
Hexachlorobutadiene	2.16	0.333	mg/kg wet	3.333		65	40-140			
Hexachlorocyclopentadiene	1.26	1.67	mg/kg wet	3.333		38	40-140			B-
Hexachloroethane	2.01	0.333	mg/kg wet	3.333		60	40-140			
Indeno(1,2,3-cd)Pyrene	3.52	0.110	mg/kg wet	3.333		106	40-140			
Isophorone	2.02	0.333	mg/kg wet	3.333		61	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Naphthalene	2.23	0.083	mg/kg wet	3.333		67	40-140			
Nitrobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140			
N-Nitrosodimethylamine	1.74	0.333	mg/kg wet	3.333		52	40-140			
N-Nitroso-Di-n-Propylamine	2.37	0.333	mg/kg wet	3.333		71	40-140			
N-nitrosodiphenylamine	2.76	0.333	mg/kg wet	3.333		83	40-140			
Pentachlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
Phenanthrene	2.95	0.333	mg/kg wet	3.333		88	40-140			
Phenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
Pyrene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Pyridine	1.84	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.27		mg/kg wet	3.333		68	30-130			
Surrogate: 2,4,6-Tribromophenol	4.79		mg/kg wet	5.000		96	30-130			
Surrogate: 2-Chlorophenol-d4	3.79		mg/kg wet	5.000		76	30-130			
Surrogate: 2-Fluorobiphenyl	2.58		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	3.65		mg/kg wet	5.000		73	30-130			
Surrogate: Nitrobenzene-d5	2.38		mg/kg wet	3.333		71	30-130			
Surrogate: Phenol-d6	3.92		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.38		mg/kg wet	3.333		101	30-130			

LCS Dup

1,1-Biphenyl	2.03	0.167	mg/kg wet	3.333		61	40-140	15	30	
1,2,4-Trichlorobenzene	1.84	0.333	mg/kg wet	3.333		55	40-140	17	30	
1,2-Dichlorobenzene	1.82	0.333	mg/kg wet	3.333		55	40-140	15	30	
1,3-Dichlorobenzene	1.73	0.333	mg/kg wet	3.333		52	40-140	15	30	
1,4-Dichlorobenzene	1.78	0.333	mg/kg wet	3.333		53	40-140	15	30	
2,3,4,6-Tetrachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130	0.4	30	
2,4,5-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	6	30	
2,4,6-Trichlorophenol	2.39	0.333	mg/kg wet	3.333		72	30-130	11	30	
2,4-Dichlorophenol	2.24	0.333	mg/kg wet	3.333		67	30-130	15	30	
2,4-Dimethylphenol	2.21	0.333	mg/kg wet	3.333		66	30-130	15	30	
2,4-Dinitrophenol	2.13	1.67	mg/kg wet	3.333		64	30-130	17	30	
2,4-Dinitrotoluene	3.41	0.167	mg/kg wet	3.333		102	40-140	0.4	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	3	30	
2-Chloronaphthalene	1.98	0.333	mg/kg wet	3.333		59	40-140	16	30	
2-Chlorophenol	2.00	0.333	mg/kg wet	3.333		60	30-130	15	30	
2-Methylnaphthalene	2.02	0.333	mg/kg wet	3.333		60	40-140	16	30	
2-Methylphenol	2.10	0.333	mg/kg wet	3.333		63	30-130	14	30	
2-Nitroaniline	2.63	0.333	mg/kg wet	3.333		79	40-140	3	30	
2-Nitrophenol	1.84	0.333	mg/kg wet	3.333		55	30-130	15	30	
3,3'-Dichlorobenzidine	3.06	0.333	mg/kg wet	3.333		92	40-140	6	30	
3+4-Methylphenol	4.39	0.667	mg/kg wet	6.667		66	30-130	12	30	
3-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140	4	30	
4,6-Dinitro-2-Methylphenol	2.68	1.67	mg/kg wet	3.333		80	30-130	3	30	
4-Bromophenyl-phenylether	2.70	0.333	mg/kg wet	3.333		81	40-140	4	30	
4-Chloro-3-Methylphenol	2.77	0.333	mg/kg wet	3.333		83	30-130	5	30	
4-Chloroaniline	1.58	0.667	mg/kg wet	3.333		48	40-140	7	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DC02308 - 3546										
4-Chloro-phenyl-phenyl ether	2.66	0.333	mg/kg wet	3.333		80	40-140	5	30	
4-Nitroaniline	3.21	0.333	mg/kg wet	3.333		96	40-140	4	30	
4-Nitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	1	30	
Acenaphthene	2.23	0.333	mg/kg wet	3.333		67	40-140	10	30	
Acenaphthylene	2.10	0.333	mg/kg wet	3.333		63	40-140	11	30	
Acetophenone	1.98	0.667	mg/kg wet	3.333		59	40-140	14	30	
Aniline	1.41	0.667	mg/kg wet	3.333		42	40-140	15	30	
Anthracene	3.02	0.333	mg/kg wet	3.333		91	40-140	1	30	
Azobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	4	30	
Benzo(a)anthracene	3.26	0.110	mg/kg wet	3.333		98	40-140	0.4	30	
Benzo(a)pyrene	3.48	0.100	mg/kg wet	3.333		104	40-140	2	30	
Benzo(b)fluoranthene	3.40	0.100	mg/kg wet	3.333		102	40-140	2	30	
Benzo(g,h,i)perylene	3.63	0.100	mg/kg wet	3.333		109	40-140	4	30	
Benzo(k)fluoranthene	3.26	0.100	mg/kg wet	3.333		98	40-140	0.2	30	
Benzoic Acid	2.10	1.67	mg/kg wet	3.333		63	40-140	1	30	
Benzyl Alcohol	1.73	0.333	mg/kg wet	3.333		52	40-140	16	30	
bis(2-Chloroethoxy)methane	1.95	0.333	mg/kg wet	3.333		59	40-140	18	30	
bis(2-Chloroethyl)ether	1.92	0.100	mg/kg wet	3.333		57	40-140	13	30	
bis(2-chloroisopropyl)Ether	1.86	0.333	mg/kg wet	3.333		56	40-140	15	30	
bis(2-Ethylhexyl)phthalate	3.03	0.333	mg/kg wet	3.333		91	40-140	5	30	
Butylbenzylphthalate	3.19	0.333	mg/kg wet	3.333		96	40-140	5	30	
Carbazole	3.38	0.333	mg/kg wet	3.333		101	40-140	3	30	
Chrysene	3.31	0.083	mg/kg wet	3.333		99	40-140	2	30	
Dibenzo(a,h)Anthracene	3.70	0.083	mg/kg wet	3.333		111	40-140	4	30	
Dibenzofuran	2.43	0.333	mg/kg wet	3.333		73	40-140	8	30	
Diethylphthalate	3.17	0.333	mg/kg wet	3.333		95	40-140	0.2	30	
Dimethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140	3	30	
Di-n-butylphthalate	3.43	0.333	mg/kg wet	3.333		103	40-140	0.8	30	
Di-n-octylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	6	30	
Fluoranthene	3.58	0.333	mg/kg wet	3.333		107	40-140	5	30	
Fluorene	2.82	0.333	mg/kg wet	3.333		85	40-140	3	30	
Hexachlorobenzene	2.84	0.083	mg/kg wet	3.333		85	40-140	1	30	
Hexachlorobutadiene	1.82	0.333	mg/kg wet	3.333		54	40-140	17	30	
Hexachlorocyclopentadiene	0.983	1.67	mg/kg wet	3.333		29	40-140	24	30	B-
Hexachloroethane	1.70	0.333	mg/kg wet	3.333		51	40-140	17	30	
Indeno(1,2,3-cd)Pyrene	3.66	0.110	mg/kg wet	3.333		110	40-140	4	30	
Isophorone	1.72	0.333	mg/kg wet	3.333		52	40-140	16	30	
Naphthalene	1.88	0.083	mg/kg wet	3.333		56	40-140	17	30	
Nitrobenzene	1.80	0.333	mg/kg wet	3.333		54	40-140	16	30	
N-Nitrosodimethylamine	1.58	0.333	mg/kg wet	3.333		47	40-140	10	30	
N-Nitroso-Di-n-Propylamine	2.09	0.333	mg/kg wet	3.333		63	40-140	13	30	
N-nitrosodiphenylamine	2.77	0.333	mg/kg wet	3.333		83	40-140	0.2	30	
Pentachlorophenol	2.89	0.333	mg/kg wet	3.333		87	30-130	2	30	
Phenanthrene	3.00	0.333	mg/kg wet	3.333		90	40-140	2	30	
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130	13	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology

Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Pyrene	2.84	0.333	mg/kg wet	3.333		85	40-140	5	30	
Pyridine	1.57	1.67	mg/kg wet	3.333		47	40-140	16	30	
Surrogate: 1,2-Dichlorobenzene-d4	1.94		mg/kg wet	3.333		58	30-130			
Surrogate: 2,4,6-Tribromophenol	4.56		mg/kg wet	5.000		91	30-130			
Surrogate: 2-Chlorophenol-d4	3.20		mg/kg wet	5.000		64	30-130			
Surrogate: 2-Fluorobiphenyl	2.15		mg/kg wet	3.333		65	30-130			
Surrogate: 2-Fluorophenol	3.10		mg/kg wet	5.000		62	30-130			
Surrogate: Nitrobenzene-d5	1.96		mg/kg wet	3.333		59	30-130			
Surrogate: Phenol-d6	3.37		mg/kg wet	5.000		67	30-130			
Surrogate: p-Terphenyl-d14	3.08		mg/kg wet	3.333		92	30-130			

Matrix Spike Source: 20C0705-04

1,1-Biphenyl	2.91	0.202	mg/kg dry	4.036	ND	72	40-140			
1,2,4-Trichlorobenzene	2.97	0.403	mg/kg dry	4.036	ND	74	40-140			
1,2-Dichlorobenzene	3.01	0.403	mg/kg dry	4.036	ND	75	40-140			
1,3-Dichlorobenzene	2.84	0.403	mg/kg dry	4.036	ND	70	40-140			
1,4-Dichlorobenzene	2.97	0.403	mg/kg dry	4.036	ND	74	40-140			
2,3,4,6-Tetrachlorophenol	3.08	2.02	mg/kg dry	4.036	ND	76	30-130			
2,4,5-Trichlorophenol	3.48	0.403	mg/kg dry	4.036	ND	86	30-130			
2,4,6-Trichlorophenol	3.39	0.403	mg/kg dry	4.036	ND	84	30-130			
2,4-Dichlorophenol	3.50	0.403	mg/kg dry	4.036	ND	87	30-130			
2,4-Dimethylphenol	3.24	0.403	mg/kg dry	4.036	ND	80	30-130			
2,4-Dinitrophenol	ND	2.02	mg/kg dry	4.036	ND	0	30-130			M-
2,4-Dinitrotoluene	3.46	0.202	mg/kg dry	4.036	ND	86	40-140			
2,6-Dinitrotoluene	3.15	0.403	mg/kg dry	4.036	ND	78	40-140			
2-Chloronaphthalene	2.95	0.403	mg/kg dry	4.036	ND	73	40-140			
2-Chlorophenol	3.21	0.403	mg/kg dry	4.036	ND	80	30-130			
2-Methylnaphthalene	3.13	0.403	mg/kg dry	4.036	ND	77	40-140			
2-Methylphenol	3.23	0.403	mg/kg dry	4.036	ND	80	30-130			
2-Nitroaniline	3.09	0.403	mg/kg dry	4.036	ND	77	40-140			
2-Nitrophenol	2.14	0.403	mg/kg dry	4.036	ND	53	30-130			
3,3'-Dichlorobenzidine	3.41	0.403	mg/kg dry	4.036	ND	84	40-140			
3+4-Methylphenol	6.64	0.808	mg/kg dry	8.071	ND	82	30-130			
3-Nitroaniline	3.68	0.403	mg/kg dry	4.036	ND	91	40-140			
4,6-Dinitro-2-Methylphenol	0.616	2.02	mg/kg dry	4.036	ND	15	30-130			M-
4-Bromophenyl-phenylether	3.18	0.403	mg/kg dry	4.036	ND	79	40-140			
4-Chloro-3-Methylphenol	3.81	0.403	mg/kg dry	4.036	ND	94	30-130			
4-Chloroaniline	2.55	0.808	mg/kg dry	4.036	ND	63	40-140			
4-Chloro-phenyl-phenyl ether	3.46	0.403	mg/kg dry	4.036	ND	86	40-140			
4-Nitroaniline	3.13	0.403	mg/kg dry	4.036	ND	78	40-140			
4-Nitrophenol	2.42	2.02	mg/kg dry	4.036	ND	60	30-130			
Acenaphthene	3.08	0.403	mg/kg dry	4.036	ND	76	40-140			
Acenaphthylene	2.91	0.403	mg/kg dry	4.036	ND	72	40-140			
Acetophenone	3.03	0.808	mg/kg dry	4.036	ND	75	40-140			
Aniline	2.10	0.808	mg/kg dry	4.036	ND	52	40-140			
Anthracene	3.33	0.403	mg/kg dry	4.036	ND	82	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Azobenzene	2.86	0.403	mg/kg dry	4.036	ND	71	40-140			
Benzo(a)anthracene	3.48	0.133	mg/kg dry	4.036	ND	86	40-140			
Benzo(a)pyrene	3.65	0.121	mg/kg dry	4.036	ND	90	40-140			
Benzo(b)fluoranthene	3.75	0.121	mg/kg dry	4.036	ND	93	40-140			
Benzo(g,h,i)perylene	3.06	0.121	mg/kg dry	4.036	ND	76	40-140			
Benzo(k)fluoranthene	3.70	0.121	mg/kg dry	4.036	ND	92	40-140			
Benzoic Acid	ND	2.02	mg/kg dry	4.036	ND	0	40-140			M-
Benzyl Alcohol	3.01	0.403	mg/kg dry	4.036	ND	75	40-140			
bis(2-Chloroethoxy)methane	2.87	0.403	mg/kg dry	4.036	ND	71	40-140			
bis(2-Chloroethyl)ether	2.95	0.121	mg/kg dry	4.036	ND	73	40-140			
bis(2-chloroisopropyl)Ether	2.90	0.403	mg/kg dry	4.036	ND	72	40-140			
bis(2-Ethylhexyl)phthalate	3.77	0.403	mg/kg dry	4.036	ND	93	40-140			
Butylbenzylphthalate	4.04	0.403	mg/kg dry	4.036	ND	100	40-140			
Carbazole	3.55	0.403	mg/kg dry	4.036	ND	88	40-140			
Chrysene	3.44	0.101	mg/kg dry	4.036	ND	85	40-140			
Dibenzo(a,h)Anthracene	3.27	0.101	mg/kg dry	4.036	ND	81	40-140			
Dibenzofuran	3.28	0.403	mg/kg dry	4.036	ND	81	40-140			
Diethylphthalate	3.36	0.403	mg/kg dry	4.036	ND	83	40-140			
Dimethylphthalate	3.18	0.403	mg/kg dry	4.036	ND	79	40-140			
Di-n-butylphthalate	3.48	0.403	mg/kg dry	4.036	ND	86	40-140			
Di-n-octylphthalate	4.35	0.403	mg/kg dry	4.036	ND	108	40-140			
Fluoranthene	3.64	0.403	mg/kg dry	4.036	ND	90	40-140			
Fluorene	3.60	0.403	mg/kg dry	4.036	ND	89	40-140			
Hexachlorobenzene	3.22	0.101	mg/kg dry	4.036	ND	80	40-140			
Hexachlorobutadiene	2.98	0.403	mg/kg dry	4.036	ND	74	40-140			
Hexachlorocyclopentadiene	0.735	2.02	mg/kg dry	4.036	ND	18	40-140			
Hexachloroethane	2.62	0.403	mg/kg dry	4.036	ND	65	40-140			
Indeno(1,2,3-cd)Pyrene	3.21	0.133	mg/kg dry	4.036	ND	79	40-140			
Isophorone	2.44	0.403	mg/kg dry	4.036	ND	60	40-140			
Naphthalene	2.99	0.101	mg/kg dry	4.036	ND	74	40-140			
Nitrobenzene	2.71	0.403	mg/kg dry	4.036	ND	67	40-140			
N-Nitrosodimethylamine	2.33	0.403	mg/kg dry	4.036	ND	58	40-140			
N-Nitroso-Di-n-Propylamine	3.01	0.403	mg/kg dry	4.036	ND	74	40-140			
N-nitrosodiphenylamine	3.03	0.403	mg/kg dry	4.036	ND	75	40-140			
Pentachlorophenol	2.35	0.403	mg/kg dry	4.036	ND	58	30-130			
Phenanthrene	3.28	0.403	mg/kg dry	4.036	ND	81	40-140			
Phenol	3.46	0.403	mg/kg dry	4.036	ND	86	30-130			
Pyrene	3.74	0.403	mg/kg dry	4.036	ND	93	40-140			
Pyridine	2.67	2.02	mg/kg dry	4.036	ND	66	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	3.19		mg/kg dry	4.036		79	30-130			
Surrogate: 2,4,6-Tribromophenol	4.78		mg/kg dry	6.053		79	30-130			
Surrogate: 2-Chlorophenol-d4	5.20		mg/kg dry	6.053		86	30-130			
Surrogate: 2-Fluorobiphenyl	3.16		mg/kg dry	4.036		78	30-130			
Surrogate: 2-Fluorophenol	4.93		mg/kg dry	6.053		81	30-130			
Surrogate: Nitrobenzene-d5	3.01		mg/kg dry	4.036		75	30-130			
Surrogate: Phenol-d6	5.25		mg/kg dry	6.053		87	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

Surrogate: *p*-Terphenyl-d14 4.19 mg/kg dry 4.036 104 30-130

Matrix Spike Dup Source: 20C0705-04

1,1-Biphenyl	2.32	0.197	mg/kg dry	3.926	ND	59	40-140	22	30	
1,2,4-Trichlorobenzene	2.25	0.392	mg/kg dry	3.926	ND	57	40-140	27	30	
1,2-Dichlorobenzene	2.19	0.392	mg/kg dry	3.926	ND	56	40-140	32	30	D+
1,3-Dichlorobenzene	2.09	0.392	mg/kg dry	3.926	ND	53	40-140	30	30	
1,4-Dichlorobenzene	2.16	0.392	mg/kg dry	3.926	ND	55	40-140	32	30	D+
2,3,4,6-Tetrachlorophenol	2.34	1.97	mg/kg dry	3.926	ND	60	30-130	27	30	
2,4,5-Trichlorophenol	2.70	0.392	mg/kg dry	3.926	ND	69	30-130	25	30	
2,4,6-Trichlorophenol	2.59	0.392	mg/kg dry	3.926	ND	66	30-130	27	30	
2,4-Dichlorophenol	2.67	0.392	mg/kg dry	3.926	ND	68	30-130	27	30	
2,4-Dimethylphenol	2.48	0.392	mg/kg dry	3.926	ND	63	30-130	27	30	
2,4-Dinitrophenol	ND	1.97	mg/kg dry	3.926	ND	0	30-130		30	M-
2,4-Dinitrotoluene	2.86	0.196	mg/kg dry	3.926	ND	73	40-140	19	30	
2,6-Dinitrotoluene	2.57	0.392	mg/kg dry	3.926	ND	65	40-140	20	30	
2-Chloronaphthalene	2.31	0.392	mg/kg dry	3.926	ND	59	40-140	24	30	
2-Chlorophenol	2.32	0.392	mg/kg dry	3.926	ND	59	30-130	32	30	D+
2-Methylnaphthalene	2.41	0.392	mg/kg dry	3.926	ND	61	40-140	26	30	
2-Methylphenol	2.43	0.392	mg/kg dry	3.926	ND	62	30-130	28	30	
2-Nitroaniline	2.47	0.392	mg/kg dry	3.926	ND	63	40-140	22	30	
2-Nitrophenol	1.65	0.392	mg/kg dry	3.926	ND	42	30-130	26	30	
3,3'-Dichlorobenzidine	2.89	0.392	mg/kg dry	3.926	ND	74	40-140	16	30	
3+4-Methylphenol	5.01	0.786	mg/kg dry	7.851	ND	64	30-130	28	30	
3-Nitroaniline	2.93	0.392	mg/kg dry	3.926	ND	75	40-140	23	30	
4,6-Dinitro-2-Methylphenol	0.462	1.97	mg/kg dry	3.926	ND	12	30-130	29	30	M-
4-Bromophenyl-phenylether	2.62	0.392	mg/kg dry	3.926	ND	67	40-140	19	30	
4-Chloro-3-Methylphenol	2.85	0.392	mg/kg dry	3.926	ND	73	30-130	29	30	
4-Chloroaniline	1.98	0.786	mg/kg dry	3.926	ND	50	40-140	25	30	
4-Chloro-phenyl-phenyl ether	2.73	0.392	mg/kg dry	3.926	ND	69	40-140	24	30	
4-Nitroaniline	2.65	0.392	mg/kg dry	3.926	ND	67	40-140	17	30	
4-Nitrophenol	1.89	1.97	mg/kg dry	3.926	ND	48	30-130	25	30	
Acenaphthene	2.43	0.392	mg/kg dry	3.926	ND	62	40-140	24	30	
Acenaphthylene	2.28	0.392	mg/kg dry	3.926	ND	58	40-140	24	30	
Acetophenone	2.26	0.786	mg/kg dry	3.926	ND	57	40-140	29	30	
Aniline	1.64	0.786	mg/kg dry	3.926	ND	42	40-140	25	30	
Anthracene	2.74	0.392	mg/kg dry	3.926	ND	70	40-140	19	30	
Azobenzene	2.38	0.392	mg/kg dry	3.926	ND	61	40-140	18	30	
Benzo(a)anthracene	2.96	0.130	mg/kg dry	3.926	ND	75	40-140	16	30	
Benzo(a)pyrene	3.16	0.118	mg/kg dry	3.926	ND	80	40-140	15	30	
Benzo(b)fluoranthene	3.29	0.118	mg/kg dry	3.926	ND	84	40-140	13	30	
Benzo(g,h,i)perylene	2.63	0.118	mg/kg dry	3.926	ND	67	40-140	15	30	
Benzo(k)fluoranthene	3.15	0.118	mg/kg dry	3.926	ND	80	40-140	16	30	
Benzoic Acid	0.993	1.97	mg/kg dry	3.926	ND	25	40-140	200	30	M-, D+
Benzyl Alcohol	2.26	0.392	mg/kg dry	3.926	ND	58	40-140	29	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02308 - 3546

bis(2-Chloroethoxy)methane	2.22	0.392	mg/kg dry	3.926	ND	57	40-140	26	30	
bis(2-Chloroethyl)ether	2.21	0.118	mg/kg dry	3.926	ND	56	40-140	29	30	
bis(2-chloroisopropyl)Ether	2.15	0.392	mg/kg dry	3.926	ND	55	40-140	30	30	
bis(2-Ethylhexyl)phthalate	3.37	0.392	mg/kg dry	3.926	ND	86	40-140	11	30	
Butylbenzylphthalate	3.62	0.392	mg/kg dry	3.926	ND	92	40-140	11	30	
Carbazole	2.90	0.392	mg/kg dry	3.926	ND	74	40-140	20	30	
Chrysene	2.94	0.098	mg/kg dry	3.926	ND	75	40-140	16	30	
Dibenzo(a,h)Anthracene	2.78	0.098	mg/kg dry	3.926	ND	71	40-140	16	30	
Dibenzofuran	2.60	0.392	mg/kg dry	3.926	ND	66	40-140	23	30	
Diethylphthalate	2.82	0.392	mg/kg dry	3.926	ND	72	40-140	18	30	
Dimethylphthalate	2.59	0.392	mg/kg dry	3.926	ND	66	40-140	21	30	
Di-n-butylphthalate	2.98	0.392	mg/kg dry	3.926	ND	76	40-140	15	30	
Di-n-octylphthalate	3.85	0.392	mg/kg dry	3.926	ND	98	40-140	12	30	
Fluoranthene	2.99	0.392	mg/kg dry	3.926	ND	76	40-140	20	30	
Fluorene	2.83	0.392	mg/kg dry	3.926	ND	72	40-140	24	30	
Hexachlorobenzene	2.68	0.098	mg/kg dry	3.926	ND	68	40-140	18	30	
Hexachlorobutadiene	2.22	0.392	mg/kg dry	3.926	ND	57	40-140	29	30	
Hexachlorocyclopentadiene	0.507	1.97	mg/kg dry	3.926	ND	13	40-140	37	30	M-, D+
Hexachloroethane	1.92	0.392	mg/kg dry	3.926	ND	49	40-140	31	30	D+
Indeno(1,2,3-cd)Pyrene	2.75	0.130	mg/kg dry	3.926	ND	70	40-140	15	30	
Isophorone	1.91	0.392	mg/kg dry	3.926	ND	49	40-140	25	30	
Naphthalene	2.26	0.098	mg/kg dry	3.926	ND	58	40-140	28	30	
Nitrobenzene	2.06	0.392	mg/kg dry	3.926	ND	52	40-140	28	30	
N-Nitrosodimethylamine	1.72	0.392	mg/kg dry	3.926	ND	44	40-140	30	30	
N-Nitroso-Di-n-Propylamine	2.27	0.392	mg/kg dry	3.926	ND	58	40-140	28	30	
N-nitrosodiphenylamine	2.56	0.392	mg/kg dry	3.926	ND	65	40-140	17	30	
Pentachlorophenol	1.90	0.392	mg/kg dry	3.926	ND	48	30-130	21	30	
Phenanthrene	2.74	0.392	mg/kg dry	3.926	ND	70	40-140	18	30	
Phenol	2.56	0.392	mg/kg dry	3.926	ND	65	30-130	30	30	
Pyrene	3.35	0.392	mg/kg dry	3.926	ND	85	40-140	11	30	
Pyridine	2.00	1.97	mg/kg dry	3.926	ND	51	40-140	29	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.36		mg/kg dry	3.926		60	30-130			
Surrogate: 2,4,6-Tribromophenol	3.86		mg/kg dry	5.889		66	30-130			
Surrogate: 2-Chlorophenol-d4	3.76		mg/kg dry	5.889		64	30-130			
Surrogate: 2-Fluorobiphenyl	2.49		mg/kg dry	3.926		63	30-130			
Surrogate: 2-Fluorophenol	3.57		mg/kg dry	5.889		61	30-130			
Surrogate: Nitrobenzene-d5	2.26		mg/kg dry	3.926		57	30-130			
Surrogate: Phenol-d6	3.89		mg/kg dry	5.889		66	30-130			
Surrogate: p-Terphenyl-d14	3.77		mg/kg dry	3.926		96	30-130			

Batch DC02309 - 3546

Blank										
1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

1,4-Dichlorobenzene	ND	0.333	mg/kg wet
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet
2,4-Dichlorophenol	ND	0.333	mg/kg wet
2,4-Dimethylphenol	ND	0.333	mg/kg wet
2,4-Dinitrophenol	ND	1.67	mg/kg wet
2,4-Dinitrotoluene	ND	0.167	mg/kg wet
2,6-Dinitrotoluene	ND	0.333	mg/kg wet
2-Chloronaphthalene	ND	0.333	mg/kg wet
2-Chlorophenol	ND	0.333	mg/kg wet
2-Methylnaphthalene	ND	0.333	mg/kg wet
2-Methylphenol	ND	0.333	mg/kg wet
2-Nitroaniline	ND	0.333	mg/kg wet
2-Nitrophenol	ND	0.333	mg/kg wet
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet
3+4-Methylphenol	ND	0.667	mg/kg wet
3-Nitroaniline	ND	0.333	mg/kg wet
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet
4-Chloroaniline	ND	0.667	mg/kg wet
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet
4-Nitroaniline	ND	0.333	mg/kg wet
4-Nitrophenol	ND	1.67	mg/kg wet
Acenaphthene	ND	0.333	mg/kg wet
Acenaphthylene	ND	0.333	mg/kg wet
Acetophenone	ND	0.667	mg/kg wet
Aniline	ND	0.667	mg/kg wet
Anthracene	ND	0.333	mg/kg wet
Azobenzene	ND	0.333	mg/kg wet
Benzo(a)anthracene	ND	0.110	mg/kg wet
Benzo(a)pyrene	ND	0.100	mg/kg wet
Benzo(b)fluoranthene	ND	0.100	mg/kg wet
Benzo(g,h,i)perylene	ND	0.100	mg/kg wet
Benzo(k)fluoranthene	ND	0.100	mg/kg wet
Benzoic Acid	ND	1.67	mg/kg wet
Benzyl Alcohol	ND	0.333	mg/kg wet
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet
Butylbenzylphthalate	ND	0.333	mg/kg wet
Carbazole	ND	0.333	mg/kg wet
Chrysene	ND	0.083	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Dibenzo(a,h)Anthracene	ND	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.083	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.68		mg/kg wet	3.333		80	30-130			
Surrogate: 2,4,6-Tribromophenol	3.16		mg/kg wet	5.000		63	30-130			
Surrogate: 2-Chlorophenol-d4	4.10		mg/kg wet	5.000		82	30-130			
Surrogate: 2-Fluorobiphenyl	2.71		mg/kg wet	3.333		81	30-130			
Surrogate: 2-Fluorophenol	3.93		mg/kg wet	5.000		79	30-130			
Surrogate: Nitrobenzene-d5	2.55		mg/kg wet	3.333		77	30-130			
Surrogate: Phenol-d6	3.90		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.56		mg/kg wet	3.333		107	30-130			

LCS

1,1-Biphenyl	2.27	0.167	mg/kg wet	3.333		68	40-140			
1,2,4-Trichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,2-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.47	1.67	mg/kg wet	3.333		74	30-130			
2,4,5-Trichlorophenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2,4,6-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dimethylphenol	2.34	0.333	mg/kg wet	3.333		70	30-130			
2,4-Dinitrophenol	2.47	1.67	mg/kg wet	3.333		74	30-130			
2,4-Dinitrotoluene	3.08	0.167	mg/kg wet	3.333		93	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

2,6-Dinitrotoluene	2.66	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.23	0.333	mg/kg wet	3.333		67	40-140			
2-Chlorophenol	2.16	0.333	mg/kg wet	3.333		65	30-130			
2-Methylnaphthalene	2.20	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.13	0.333	mg/kg wet	3.333		64	30-130			
2-Nitroaniline	2.31	0.333	mg/kg wet	3.333		69	40-140			
2-Nitrophenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
3,3'-Dichlorobenzidine	2.21	0.333	mg/kg wet	3.333		66	40-140			
3+4-Methylphenol	4.29	0.667	mg/kg wet	6.667		64	30-130			
3-Nitroaniline	2.20	0.333	mg/kg wet	3.333		66	40-140			
4,6-Dinitro-2-Methylphenol	2.60	1.67	mg/kg wet	3.333		78	30-130			
4-Bromophenyl-phenylether	2.74	0.333	mg/kg wet	3.333		82	40-140			
4-Chloro-3-Methylphenol	2.48	0.333	mg/kg wet	3.333		74	30-130			
4-Chloroaniline	1.05	0.667	mg/kg wet	3.333		31	40-140			B-
4-Chloro-phenyl-phenyl ether	2.65	0.333	mg/kg wet	3.333		79	40-140			
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140			
4-Nitrophenol	2.48	1.67	mg/kg wet	3.333		74	30-130			
Acenaphthene	2.27	0.333	mg/kg wet	3.333		68	40-140			
Acenaphthylene	2.14	0.333	mg/kg wet	3.333		64	40-140			
Acetophenone	2.05	0.667	mg/kg wet	3.333		61	40-140			
Aniline	1.33	0.667	mg/kg wet	3.333		40	40-140			
Anthracene	2.68	0.333	mg/kg wet	3.333		80	40-140			
Azobenzene	2.28	0.333	mg/kg wet	3.333		68	40-140			
Benzo(a)anthracene	2.98	0.110	mg/kg wet	3.333		89	40-140			
Benzo(a)pyrene	3.16	0.100	mg/kg wet	3.333		95	40-140			
Benzo(b)fluoranthene	3.32	0.100	mg/kg wet	3.333		100	40-140			
Benzo(g,h,i)perylene	3.00	0.100	mg/kg wet	3.333		90	40-140			
Benzo(k)fluoranthene	2.95	0.100	mg/kg wet	3.333		88	40-140			
Benzoic Acid	1.77	1.67	mg/kg wet	3.333		53	40-140			
Benzyl Alcohol	1.73	0.333	mg/kg wet	3.333		52	40-140			
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethyl)ether	2.09	0.100	mg/kg wet	3.333		63	40-140			
bis(2-chloroisopropyl)Ether	2.10	0.333	mg/kg wet	3.333		63	40-140			
bis(2-Ethylhexyl)phthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Butylbenzylphthalate	3.09	0.333	mg/kg wet	3.333		93	40-140			
Carbazole	2.88	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.98	0.083	mg/kg wet	3.333		89	40-140			
Dibenzo(a,h)Anthracene	3.09	0.083	mg/kg wet	3.333		93	40-140			
Dibenzofuran	2.42	0.333	mg/kg wet	3.333		73	40-140			
Diethylphthalate	2.78	0.333	mg/kg wet	3.333		83	40-140			
Dimethylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	3.03	0.333	mg/kg wet	3.333		91	40-140			
Di-n-octylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Fluorene	2.60	0.333	mg/kg wet	3.333		78	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Hexachlorobenzene	2.79	0.083	mg/kg wet	3.333		84	40-140			
Hexachlorobutadiene	2.40	0.333	mg/kg wet	3.333		72	40-140			
Hexachlorocyclopentadiene	1.55	1.67	mg/kg wet	3.333		47	40-140			
Hexachloroethane	2.02	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	3.05	0.110	mg/kg wet	3.333		92	40-140			
Isophorone	1.83	0.333	mg/kg wet	3.333		55	40-140			
Naphthalene	2.15	0.083	mg/kg wet	3.333		65	40-140			
Nitrobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
N-Nitrosodimethylamine	1.68	0.333	mg/kg wet	3.333		50	40-140			
N-Nitroso-Di-n-Propylamine	2.08	0.333	mg/kg wet	3.333		63	40-140			
N-nitrosodiphenylamine	2.58	0.333	mg/kg wet	3.333		78	40-140			
Pentachlorophenol	2.51	0.333	mg/kg wet	3.333		75	30-130			
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130			
Pyrene	2.93	0.333	mg/kg wet	3.333		88	40-140			
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.29		mg/kg wet	3.333		69	30-130			
Surrogate: 2,4,6-Tribromophenol	4.65		mg/kg wet	5.000		93	30-130			
Surrogate: 2-Chlorophenol-d4	3.66		mg/kg wet	5.000		73	30-130			
Surrogate: 2-Fluorobiphenyl	2.59		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	3.47		mg/kg wet	5.000		69	30-130			
Surrogate: Nitrobenzene-d5	2.30		mg/kg wet	3.333		69	30-130			
Surrogate: Phenol-d6	3.51		mg/kg wet	5.000		70	30-130			
Surrogate: p-Terphenyl-d14	3.50		mg/kg wet	3.333		105	30-130			

LCS Dup

1,1-Biphenyl	2.15	0.167	mg/kg wet	3.333		64	40-140	6	30	
1,2,4-Trichlorobenzene	2.15	0.333	mg/kg wet	3.333		65	40-140	4	30	
1,2-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		60	40-140	3	30	
1,3-Dichlorobenzene	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
1,4-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140	3	30	
2,3,4,6-Tetrachlorophenol	2.35	1.67	mg/kg wet	3.333		71	30-130	5	30	
2,4,5-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130	6	30	
2,4,6-Trichlorophenol	2.28	0.333	mg/kg wet	3.333		68	30-130	7	30	
2,4-Dichlorophenol	2.33	0.333	mg/kg wet	3.333		70	30-130	5	30	
2,4-Dimethylphenol	2.25	0.333	mg/kg wet	3.333		67	30-130	4	30	
2,4-Dinitrophenol	2.63	1.67	mg/kg wet	3.333		79	30-130	6	30	
2,4-Dinitrotoluene	2.95	0.167	mg/kg wet	3.333		89	40-140	4	30	
2,6-Dinitrotoluene	2.46	0.333	mg/kg wet	3.333		74	40-140	8	30	
2-Chloronaphthalene	2.13	0.333	mg/kg wet	3.333		64	40-140	5	30	
2-Chlorophenol	2.10	0.333	mg/kg wet	3.333		63	30-130	3	30	
2-Methylnaphthalene	2.11	0.333	mg/kg wet	3.333		63	40-140	4	30	
2-Methylphenol	2.05	0.333	mg/kg wet	3.333		62	30-130	4	30	
2-Nitroaniline	2.18	0.333	mg/kg wet	3.333		65	40-140	6	30	
2-Nitrophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	3	30	
3,3'-Dichlorobenzidine	1.98	0.333	mg/kg wet	3.333		60	40-140	11	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

3+4-Methylphenol	4.41	0.667	mg/kg wet	6.667		66	30-130	3	30	
3-Nitroaniline	1.96	0.333	mg/kg wet	3.333		59	40-140	11	30	
4,6-Dinitro-2-Methylphenol	2.83	1.67	mg/kg wet	3.333		85	30-130	9	30	
4-Bromophenyl-phenylether	2.58	0.333	mg/kg wet	3.333		77	40-140	6	30	
4-Chloro-3-Methylphenol	2.30	0.333	mg/kg wet	3.333		69	30-130	7	30	
4-Chloroaniline	0.891	0.667	mg/kg wet	3.333		27	40-140	16	30	B-
4-Chloro-phenyl-phenyl ether	2.47	0.333	mg/kg wet	3.333		74	40-140	7	30	
4-Nitroaniline	2.65	0.333	mg/kg wet	3.333		79	40-140	2	30	
4-Nitrophenol	2.46	1.67	mg/kg wet	3.333		74	30-130	0.9	30	
Acenaphthene	2.13	0.333	mg/kg wet	3.333		64	40-140	6	30	
Acenaphthylene	2.03	0.333	mg/kg wet	3.333		61	40-140	5	30	
Acetophenone	2.01	0.667	mg/kg wet	3.333		60	40-140	2	30	
Aniline	1.18	0.667	mg/kg wet	3.333		35	40-140	12	30	B-
Anthracene	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	
Azobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140	6	30	
Benzo(a)anthracene	2.89	0.110	mg/kg wet	3.333		87	40-140	3	30	
Benzo(a)pyrene	3.08	0.100	mg/kg wet	3.333		92	40-140	2	30	
Benzo(b)fluoranthene	3.05	0.100	mg/kg wet	3.333		91	40-140	9	30	
Benzo(g,h,i)perylene	2.92	0.100	mg/kg wet	3.333		87	40-140	3	30	
Benzo(k)fluoranthene	3.04	0.100	mg/kg wet	3.333		91	40-140	3	30	
Benzoic Acid	1.96	1.67	mg/kg wet	3.333		59	40-140	10	30	
Benzyl Alcohol	1.64	0.333	mg/kg wet	3.333		49	40-140	5	30	
bis(2-Chloroethoxy)methane	2.07	0.333	mg/kg wet	3.333		62	40-140	5	30	
bis(2-Chloroethyl)ether	1.99	0.100	mg/kg wet	3.333		60	40-140	5	30	
bis(2-chloroisopropyl)Ether	2.02	0.333	mg/kg wet	3.333		61	40-140	4	30	
bis(2-Ethylhexyl)phthalate	2.87	0.333	mg/kg wet	3.333		86	40-140	3	30	
Butylbenzylphthalate	3.02	0.333	mg/kg wet	3.333		91	40-140	2	30	
Carbazole	2.81	0.333	mg/kg wet	3.333		84	40-140	2	30	
Chrysene	2.88	0.083	mg/kg wet	3.333		86	40-140	4	30	
Dibenzo(a,h)Anthracene	3.01	0.083	mg/kg wet	3.333		90	40-140	3	30	
Dibenzofuran	2.27	0.333	mg/kg wet	3.333		68	40-140	6	30	
Diethylphthalate	2.63	0.333	mg/kg wet	3.333		79	40-140	6	30	
Dimethylphthalate	2.39	0.333	mg/kg wet	3.333		72	40-140	9	30	
Di-n-butylphthalate	2.92	0.333	mg/kg wet	3.333		87	40-140	4	30	
Di-n-octylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	2	30	
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140	3	30	
Fluorene	2.40	0.333	mg/kg wet	3.333		72	40-140	8	30	
Hexachlorobenzene	2.69	0.083	mg/kg wet	3.333		81	40-140	4	30	
Hexachlorobutadiene	2.34	0.333	mg/kg wet	3.333		70	40-140	3	30	
Hexachlorocyclopentadiene	1.51	1.67	mg/kg wet	3.333		45	40-140	3	30	
Hexachloroethane	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
Indeno(1,2,3-cd)Pyrene	2.97	0.110	mg/kg wet	3.333		89	40-140	3	30	
Isophorone	1.76	0.333	mg/kg wet	3.333		53	40-140	4	30	
Naphthalene	2.09	0.083	mg/kg wet	3.333		63	40-140	3	30	
Nitrobenzene	1.94	0.333	mg/kg wet	3.333		58	40-140	4	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

N-Nitrosodimethylamine	1.64	0.333	mg/kg wet	3.333		49	40-140	2	30	
N-Nitroso-Di-n-Propylamine	2.02	0.333	mg/kg wet	3.333		61	40-140	3	30	
N-nitrosodiphenylamine	2.44	0.333	mg/kg wet	3.333		73	40-140	6	30	
Pentachlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	5	30	
Phenanthrene	2.58	0.333	mg/kg wet	3.333		77	40-140	3	30	
Phenol	2.15	0.333	mg/kg wet	3.333		65	30-130	4	30	
Pyrene	2.88	0.333	mg/kg wet	3.333		87	40-140	1	30	
Pyridine	1.80	1.67	mg/kg wet	3.333		54	40-140	1	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.19		mg/kg wet	3.333		66	30-130			
Surrogate: 2,4,6-Tribromophenol	4.36		mg/kg wet	5.000		87	30-130			
Surrogate: 2-Chlorophenol-d4	3.44		mg/kg wet	5.000		69	30-130			
Surrogate: 2-Fluorobiphenyl	2.41		mg/kg wet	3.333		72	30-130			
Surrogate: 2-Fluorophenol	3.30		mg/kg wet	5.000		66	30-130			
Surrogate: Nitrobenzene-d5	2.18		mg/kg wet	3.333		65	30-130			
Surrogate: Phenol-d6	3.33		mg/kg wet	5.000		67	30-130			
Surrogate: p-Terphenyl-d14	3.34		mg/kg wet	3.333		100	30-130			

Matrix Spike Source: 20C0705-14

1,1-Biphenyl	2.94	0.208	mg/kg dry	4.145	ND	71	40-140			
1,2,4-Trichlorobenzene	3.11	0.414	mg/kg dry	4.145	ND	75	40-140			
1,2-Dichlorobenzene	3.04	0.414	mg/kg dry	4.145	0.229	68	40-140			
1,3-Dichlorobenzene	2.81	0.414	mg/kg dry	4.145	ND	68	40-140			
1,4-Dichlorobenzene	2.85	0.414	mg/kg dry	4.145	ND	69	40-140			
2,3,4,6-Tetrachlorophenol	3.53	2.08	mg/kg dry	4.145	ND	85	30-130			
2,4,5-Trichlorophenol	3.50	0.414	mg/kg dry	4.145	ND	84	30-130			
2,4,6-Trichlorophenol	3.29	0.414	mg/kg dry	4.145	ND	79	30-130			
2,4-Dichlorophenol	3.34	0.414	mg/kg dry	4.145	ND	81	30-130			
2,4-Dimethylphenol	3.05	0.414	mg/kg dry	4.145	ND	73	30-130			
2,4-Dinitrophenol	3.66	2.08	mg/kg dry	4.145	ND	88	30-130			
2,4-Dinitrotoluene	3.92	0.207	mg/kg dry	4.145	ND	94	40-140			
2,6-Dinitrotoluene	3.42	0.414	mg/kg dry	4.145	ND	82	40-140			
2-Chloronaphthalene	2.93	0.414	mg/kg dry	4.145	ND	71	40-140			
2-Chlorophenol	2.96	0.414	mg/kg dry	4.145	ND	71	30-130			
2-Methylnaphthalene	2.99	0.414	mg/kg dry	4.145	ND	72	40-140			
2-Methylphenol	2.92	0.414	mg/kg dry	4.145	ND	70	30-130			
2-Nitroaniline	2.94	0.414	mg/kg dry	4.145	ND	71	40-140			
2-Nitrophenol	2.89	0.414	mg/kg dry	4.145	ND	70	30-130			
3,3'-Dichlorobenzidine	3.53	0.414	mg/kg dry	4.145	ND	85	40-140			
3+4-Methylphenol	5.93	0.829	mg/kg dry	8.290	ND	72	30-130			
3-Nitroaniline	3.38	0.414	mg/kg dry	4.145	ND	81	40-140			
4,6-Dinitro-2-Methylphenol	3.76	2.08	mg/kg dry	4.145	ND	91	30-130			
4-Bromophenyl-phenylether	3.59	0.414	mg/kg dry	4.145	ND	87	40-140			
4-Chloro-3-Methylphenol	3.38	0.414	mg/kg dry	4.145	ND	82	30-130			
4-Chloroaniline	2.31	0.829	mg/kg dry	4.145	ND	56	40-140			
4-Chloro-phenyl-phenyl ether	3.49	0.414	mg/kg dry	4.145	ND	84	40-140			
4-Nitroaniline	3.51	0.414	mg/kg dry	4.145	ND	85	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

4-Nitrophenol	3.01	2.08	mg/kg dry	4.145	ND	73	30-130			
Acenaphthene	3.01	0.414	mg/kg dry	4.145	ND	73	40-140			
Acenaphthylene	2.83	0.414	mg/kg dry	4.145	ND	68	40-140			
Acetophenone	2.77	0.829	mg/kg dry	4.145	ND	67	40-140			
Aniline	1.99	0.829	mg/kg dry	4.145	ND	48	40-140			
Anthracene	3.39	0.414	mg/kg dry	4.145	ND	82	40-140			
Azobenzene	2.88	0.414	mg/kg dry	4.145	ND	70	40-140			
Benzo(a)anthracene	3.62	0.137	mg/kg dry	4.145	ND	87	40-140			
Benzo(a)pyrene	3.84	0.124	mg/kg dry	4.145	ND	93	40-140			
Benzo(b)fluoranthene	3.80	0.124	mg/kg dry	4.145	ND	92	40-140			
Benzo(g,h,i)perylene	3.55	0.124	mg/kg dry	4.145	ND	86	40-140			
Benzo(k)fluoranthene	3.86	0.124	mg/kg dry	4.145	ND	93	40-140			
Benzoic Acid	3.77	2.08	mg/kg dry	4.145	ND	91	40-140			
Benzyl Alcohol	2.76	0.414	mg/kg dry	4.145	ND	67	40-140			
bis(2-Chloroethoxy)methane	2.82	0.414	mg/kg dry	4.145	ND	68	40-140			
bis(2-Chloroethyl)ether	2.86	0.124	mg/kg dry	4.145	ND	69	40-140			
bis(2-chloroisopropyl)Ether	2.83	0.414	mg/kg dry	4.145	ND	68	40-140			
bis(2-Ethylhexyl)phthalate	3.86	0.414	mg/kg dry	4.145	ND	93	40-140			
Butylbenzylphthalate	4.13	0.414	mg/kg dry	4.145	ND	100	40-140			
Carbazole	3.46	0.414	mg/kg dry	4.145	ND	83	40-140			
Chrysene	3.61	0.104	mg/kg dry	4.145	ND	87	40-140			
Dibenzo(a,h)Anthracene	3.72	0.104	mg/kg dry	4.145	ND	90	40-140			
Dibenzofuran	3.24	0.414	mg/kg dry	4.145	ND	78	40-140			
Diethylphthalate	3.50	0.414	mg/kg dry	4.145	ND	84	40-140			
Dimethylphthalate	3.30	0.414	mg/kg dry	4.145	ND	80	40-140			
Di-n-butylphthalate	3.59	0.414	mg/kg dry	4.145	ND	87	40-140			
Di-n-octylphthalate	4.15	0.414	mg/kg dry	4.145	ND	100	40-140			
Fluoranthene	3.46	0.414	mg/kg dry	4.145	ND	83	40-140			
Fluorene	3.48	0.414	mg/kg dry	4.145	ND	84	40-140			
Hexachlorobenzene	3.58	0.104	mg/kg dry	4.145	ND	86	40-140			
Hexachlorobutadiene	3.13	0.414	mg/kg dry	4.145	ND	76	40-140			
Hexachlorocyclopentadiene	1.19	2.08	mg/kg dry	4.145	ND	29	40-140			M-
Hexachloroethane	2.65	0.414	mg/kg dry	4.145	ND	64	40-140			
Indeno(1,2,3-cd)Pyrene	3.65	0.137	mg/kg dry	4.145	ND	88	40-140			
Isophorone	2.32	0.414	mg/kg dry	4.145	ND	56	40-140			
Naphthalene	2.91	0.104	mg/kg dry	4.145	ND	70	40-140			
Nitrobenzene	2.59	0.414	mg/kg dry	4.145	ND	62	40-140			
N-Nitrosodimethylamine	1.99	0.414	mg/kg dry	4.145	ND	48	40-140			
N-Nitroso-Di-n-Propylamine	2.70	0.414	mg/kg dry	4.145	ND	65	40-140			
N-nitrosodiphenylamine	3.31	0.414	mg/kg dry	4.145	ND	80	40-140			
Pentachlorophenol	4.01	0.414	mg/kg dry	4.145	ND	97	30-130			
Phenanthrene	3.33	0.414	mg/kg dry	4.145	ND	80	40-140			
Phenol	3.08	0.414	mg/kg dry	4.145	ND	74	30-130			
Pyrene	3.98	0.414	mg/kg dry	4.145	ND	96	40-140			
Pyridine	2.28	2.08	mg/kg dry	4.145	ND	55	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Surrogate: 1,2-Dichlorobenzene-d4	3.10		mg/kg dry	4.145		75	30-130			
Surrogate: 2,4,6-Tribromophenol	5.94		mg/kg dry	6.217		96	30-130			
Surrogate: 2-Chlorophenol-d4	4.80		mg/kg dry	6.217		77	30-130			
Surrogate: 2-Fluorobiphenyl	3.24		mg/kg dry	4.145		78	30-130			
Surrogate: 2-Fluorophenol	4.63		mg/kg dry	6.217		75	30-130			
Surrogate: Nitrobenzene-d5	2.91		mg/kg dry	4.145		70	30-130			
Surrogate: Phenol-d6	4.68		mg/kg dry	6.217		75	30-130			
Surrogate: p-Terphenyl-d14	4.61		mg/kg dry	4.145		111	30-130			

Matrix Spike Dup Source: 20C0705-14

1,1-Biphenyl	2.68	0.202	mg/kg dry	4.039	ND	66	40-140	10	30	
1,2,4-Trichlorobenzene	2.63	0.404	mg/kg dry	4.039	ND	65	40-140	17	30	
1,2-Dichlorobenzene	2.49	0.404	mg/kg dry	4.039	0.229	56	40-140	20	30	
1,3-Dichlorobenzene	2.27	0.404	mg/kg dry	4.039	ND	56	40-140	21	30	
1,4-Dichlorobenzene	2.35	0.404	mg/kg dry	4.039	ND	58	40-140	19	30	
2,3,4,6-Tetrachlorophenol	3.27	2.02	mg/kg dry	4.039	ND	81	30-130	8	30	
2,4,5-Trichlorophenol	3.19	0.404	mg/kg dry	4.039	ND	79	30-130	9	30	
2,4,6-Trichlorophenol	2.98	0.404	mg/kg dry	4.039	ND	74	30-130	10	30	
2,4-Dichlorophenol	2.93	0.404	mg/kg dry	4.039	ND	72	30-130	13	30	
2,4-Dimethylphenol	2.70	0.404	mg/kg dry	4.039	ND	67	30-130	12	30	
2,4-Dinitrophenol	3.35	2.02	mg/kg dry	4.039	ND	83	30-130	9	30	
2,4-Dinitrotoluene	3.66	0.202	mg/kg dry	4.039	ND	91	40-140	7	30	
2,6-Dinitrotoluene	3.14	0.404	mg/kg dry	4.039	ND	78	40-140	8	30	
2-Chloronaphthalene	2.66	0.404	mg/kg dry	4.039	ND	66	40-140	10	30	
2-Chlorophenol	2.44	0.404	mg/kg dry	4.039	ND	60	30-130	19	30	
2-Methylnaphthalene	2.66	0.404	mg/kg dry	4.039	ND	66	40-140	12	30	
2-Methylphenol	2.46	0.404	mg/kg dry	4.039	ND	61	30-130	17	30	
2-Nitroaniline	2.68	0.404	mg/kg dry	4.039	ND	66	40-140	9	30	
2-Nitrophenol	2.52	0.404	mg/kg dry	4.039	ND	62	30-130	14	30	
3,3'-Dichlorobenzidine	3.55	0.404	mg/kg dry	4.039	ND	88	40-140	0.6	30	
3+4-Methylphenol	5.01	0.808	mg/kg dry	8.079	ND	62	30-130	17	30	
3-Nitroaniline	3.24	0.404	mg/kg dry	4.039	ND	80	40-140	4	30	
4,6-Dinitro-2-Methylphenol	3.52	2.02	mg/kg dry	4.039	ND	87	30-130	6	30	
4-Bromophenyl-phenylether	3.31	0.404	mg/kg dry	4.039	ND	82	40-140	8	30	
4-Chloro-3-Methylphenol	3.04	0.404	mg/kg dry	4.039	ND	75	30-130	11	30	
4-Chloroaniline	2.19	0.808	mg/kg dry	4.039	ND	54	40-140	5	30	
4-Chloro-phenyl-phenyl ether	3.14	0.404	mg/kg dry	4.039	ND	78	40-140	10	30	
4-Nitroaniline	3.42	0.404	mg/kg dry	4.039	ND	85	40-140	3	30	
4-Nitrophenol	2.85	2.02	mg/kg dry	4.039	ND	71	30-130	6	30	
Acenaphthene	2.75	0.404	mg/kg dry	4.039	ND	68	40-140	9	30	
Acenaphthylene	2.60	0.404	mg/kg dry	4.039	ND	64	40-140	8	30	
Acetophenone	2.33	0.808	mg/kg dry	4.039	ND	58	40-140	17	30	
Aniline	1.72	0.808	mg/kg dry	4.039	ND	42	40-140	15	30	
Anthracene	3.22	0.404	mg/kg dry	4.039	ND	80	40-140	5	30	
Azobenzene	2.63	0.404	mg/kg dry	4.039	ND	65	40-140	9	30	
Benzo(a)anthracene	3.50	0.133	mg/kg dry	4.039	ND	87	40-140	3	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Benzo(a)pyrene	3.77	0.121	mg/kg dry	4.039	ND	93	40-140	2	30	
Benzo(b)fluoranthene	3.77	0.121	mg/kg dry	4.039	ND	93	40-140	0.7	30	
Benzo(g,h,i)perylene	3.50	0.121	mg/kg dry	4.039	ND	87	40-140	1	30	
Benzo(k)fluoranthene	3.81	0.121	mg/kg dry	4.039	ND	94	40-140	1	30	
Benzoic Acid	3.08	2.02	mg/kg dry	4.039	ND	76	40-140	20	30	
Benzyl Alcohol	2.34	0.404	mg/kg dry	4.039	ND	58	40-140	17	30	
bis(2-Chloroethoxy)methane	2.48	0.404	mg/kg dry	4.039	ND	61	40-140	13	30	
bis(2-Chloroethyl)ether	2.34	0.121	mg/kg dry	4.039	ND	58	40-140	20	30	
bis(2-chloroisopropyl)Ether	2.31	0.404	mg/kg dry	4.039	ND	57	40-140	20	30	
bis(2-Ethylhexyl)phthalate	3.76	0.404	mg/kg dry	4.039	ND	93	40-140	3	30	
Butylbenzylphthalate	4.01	0.404	mg/kg dry	4.039	ND	99	40-140	3	30	
Carbazole	3.36	0.404	mg/kg dry	4.039	ND	83	40-140	3	30	
Chrysene	3.52	0.101	mg/kg dry	4.039	ND	87	40-140	3	30	
Dibenzo(a,h)Anthracene	3.66	0.101	mg/kg dry	4.039	ND	91	40-140	2	30	
Dibenzofuran	2.92	0.404	mg/kg dry	4.039	ND	72	40-140	10	30	
Diethylphthalate	3.18	0.404	mg/kg dry	4.039	ND	79	40-140	10	30	
Dimethylphthalate	2.99	0.404	mg/kg dry	4.039	ND	74	40-140	10	30	
Di-n-butylphthalate	3.37	0.404	mg/kg dry	4.039	ND	83	40-140	6	30	
Di-n-octylphthalate	3.96	0.404	mg/kg dry	4.039	ND	98	40-140	5	30	
Fluoranthene	3.17	0.404	mg/kg dry	4.039	ND	78	40-140	9	30	
Fluorene	3.15	0.404	mg/kg dry	4.039	ND	78	40-140	10	30	
Hexachlorobenzene	3.35	0.101	mg/kg dry	4.039	ND	83	40-140	7	30	
Hexachlorobutadiene	2.69	0.404	mg/kg dry	4.039	ND	67	40-140	15	30	
Hexachlorocyclopentadiene	1.06	2.02	mg/kg dry	4.039	ND	26	40-140	12	30	M-
Hexachloroethane	2.14	0.404	mg/kg dry	4.039	ND	53	40-140	21	30	
Indeno(1,2,3-cd)Pyrene	3.59	0.133	mg/kg dry	4.039	ND	89	40-140	2	30	
Isophorone	2.06	0.404	mg/kg dry	4.039	ND	51	40-140	12	30	
Naphthalene	2.50	0.101	mg/kg dry	4.039	ND	62	40-140	15	30	
Nitrobenzene	2.20	0.404	mg/kg dry	4.039	ND	55	40-140	16	30	
N-Nitrosodimethylamine	1.56	0.404	mg/kg dry	4.039	ND	39	40-140	24	30	M-
N-Nitroso-Di-n-Propylamine	2.31	0.404	mg/kg dry	4.039	ND	57	40-140	16	30	
N-nitrosodiphenylamine	3.06	0.404	mg/kg dry	4.039	ND	76	40-140	8	30	
Pentachlorophenol	3.88	0.404	mg/kg dry	4.039	ND	96	30-130	3	30	
Phenanthrene	3.15	0.404	mg/kg dry	4.039	ND	78	40-140	5	30	
Phenol	2.59	0.404	mg/kg dry	4.039	ND	64	30-130	17	30	
Pyrene	3.80	0.404	mg/kg dry	4.039	ND	94	40-140	4	30	
Pyridine	1.67	2.02	mg/kg dry	4.039	ND	41	40-140	31	30	D+
Surrogate: 1,2-Dichlorobenzene-d4	2.44		mg/kg dry	4.039		60	30-130			
Surrogate: 2,4,6-Tribromophenol	5.49		mg/kg dry	6.059		91	30-130			
Surrogate: 2-Chlorophenol-d4	3.91		mg/kg dry	6.059		65	30-130			
Surrogate: 2-Fluorobiphenyl	2.86		mg/kg dry	4.039		71	30-130			
Surrogate: 2-Fluorophenol	3.69		mg/kg dry	6.059		61	30-130			
Surrogate: Nitrobenzene-d5	2.44		mg/kg dry	4.039		60	30-130			
Surrogate: Phenol-d6	3.85		mg/kg dry	6.059		63	30-130			
Surrogate: p-Terphenyl-d14	4.36		mg/kg dry	4.039		108	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

Blank

1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.110	mg/kg wet							
Benzo(a)pyrene	ND	0.100	mg/kg wet							
Benzo(b)fluoranthene	ND	0.100	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.100	mg/kg wet							
Benzo(k)fluoranthene	ND	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.100	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.39		mg/kg wet	3.333		72	30-130			
Surrogate: 2,4,6-Tribromophenol	4.05		mg/kg wet	5.000		81	30-130			
Surrogate: 2-Chlorophenol-d4	3.80		mg/kg wet	5.000		76	30-130			
Surrogate: 2-Fluorobiphenyl	2.42		mg/kg wet	3.333		73	30-130			
Surrogate: 2-Fluorophenol	4.02		mg/kg wet	5.000		80	30-130			
Surrogate: Nitrobenzene-d5	2.57		mg/kg wet	3.333		77	30-130			
Surrogate: Phenol-d6	3.92		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.29		mg/kg wet	3.333		99	30-130			

LCS

1,1-Biphenyl	2.46	0.167	mg/kg wet	3.333		74	40-140			
1,2,4-Trichlorobenzene	2.26	0.333	mg/kg wet	3.333		68	40-140			
1,2-Dichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,4-Dichlorobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140			
2,3,4,6-Tetrachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	3.03	0.333	mg/kg wet	3.333		91	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology

Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

2,4,6-Trichlorophenol	2.89	0.333	mg/kg wet	3.333		87	30-130			
2,4-Dichlorophenol	2.59	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dimethylphenol	2.60	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dinitrophenol	2.98	1.67	mg/kg wet	3.333		89	30-130			
2,4-Dinitrotoluene	3.04	0.167	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	3.03	0.333	mg/kg wet	3.333		91	40-140			
2-Chloronaphthalene	2.42	0.333	mg/kg wet	3.333		73	40-140			
2-Chlorophenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2-Methylnaphthalene	2.34	0.333	mg/kg wet	3.333		70	40-140			
2-Methylphenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
2-Nitroaniline	2.85	0.333	mg/kg wet	3.333		86	40-140			
2-Nitrophenol	2.24	0.333	mg/kg wet	3.333		67	30-130			
3,3'-Dichlorobenzidine	2.62	0.333	mg/kg wet	3.333		78	40-140			
3+4-Methylphenol	5.32	0.667	mg/kg wet	6.667		80	30-130			
3-Nitroaniline	2.86	0.333	mg/kg wet	3.333		86	40-140			
4,6-Dinitro-2-Methylphenol	3.18	1.67	mg/kg wet	3.333		95	30-130			
4-Bromophenyl-phenylether	3.02	0.333	mg/kg wet	3.333		90	40-140			
4-Chloro-3-Methylphenol	2.95	0.333	mg/kg wet	3.333		88	30-130			
4-Chloroaniline	1.74	0.667	mg/kg wet	3.333		52	40-140			
4-Chloro-phenyl-phenyl ether	2.82	0.333	mg/kg wet	3.333		85	40-140			
4-Nitroaniline	2.93	0.333	mg/kg wet	3.333		88	40-140			
4-Nitrophenol	2.86	1.67	mg/kg wet	3.333		86	30-130			
Acenaphthene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Acenaphthylene	2.42	0.333	mg/kg wet	3.333		73	40-140			
Acetophenone	2.41	0.667	mg/kg wet	3.333		72	40-140			
Aniline	1.75	0.667	mg/kg wet	3.333		53	40-140			
Anthracene	3.01	0.333	mg/kg wet	3.333		90	40-140			
Azobenzene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Benzo(a)anthracene	3.03	0.110	mg/kg wet	3.333		91	40-140			
Benzo(a)pyrene	3.16	0.100	mg/kg wet	3.333		95	40-140			
Benzo(b)fluoranthene	2.98	0.100	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	3.10	0.100	mg/kg wet	3.333		93	40-140			
Benzo(k)fluoranthene	3.13	0.100	mg/kg wet	3.333		94	40-140			
Benzoic Acid	2.91	1.67	mg/kg wet	3.333		87	40-140			
Benzyl Alcohol	2.04	0.333	mg/kg wet	3.333		61	40-140			
bis(2-Chloroethoxy)methane	2.42	0.333	mg/kg wet	3.333		73	40-140			
bis(2-Chloroethyl)ether	2.35	0.100	mg/kg wet	3.333		70	40-140			
bis(2-chloroisopropyl)Ether	2.30	0.333	mg/kg wet	3.333		69	40-140			
bis(2-Ethylhexyl)phthalate	2.85	0.333	mg/kg wet	3.333		86	40-140			
Butylbenzylphthalate	2.98	0.333	mg/kg wet	3.333		89	40-140			
Carbazole	3.14	0.333	mg/kg wet	3.333		94	40-140			
Chrysene	3.10	0.083	mg/kg wet	3.333		93	40-140			
Dibenzo(a,h)Anthracene	3.09	0.083	mg/kg wet	3.333		93	40-140			
Dibenzofuran	2.68	0.333	mg/kg wet	3.333		80	40-140			
Diethylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

Dimethylphthalate	2.89	0.333	mg/kg wet	3.333		87	40-140			
Di-n-butylphthalate	3.25	0.333	mg/kg wet	3.333		97	40-140			
Di-n-octylphthalate	2.71	0.333	mg/kg wet	3.333		81	40-140			
Fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140			
Fluorene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Hexachlorobenzene	2.96	0.100	mg/kg wet	3.333		89	40-140			
Hexachlorobutadiene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Hexachlorocyclopentadiene	1.56	1.67	mg/kg wet	3.333		47	40-140			
Hexachloroethane	2.24	0.333	mg/kg wet	3.333		67	40-140			
Indeno(1,2,3-cd)Pyrene	3.10	0.110	mg/kg wet	3.333		93	40-140			
Isophorone	2.11	0.333	mg/kg wet	3.333		63	40-140			
Naphthalene	2.31	0.083	mg/kg wet	3.333		69	40-140			
Nitrobenzene	2.36	0.333	mg/kg wet	3.333		71	40-140			
N-Nitrosodimethylamine	2.48	0.333	mg/kg wet	3.333		74	40-140			
N-Nitroso-Di-n-Propylamine	2.59	0.333	mg/kg wet	3.333		78	40-140			
N-nitrosodiphenylamine	2.96	0.333	mg/kg wet	3.333		89	40-140			
Pentachlorophenol	3.26	0.333	mg/kg wet	3.333		98	30-130			
Phenanthrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Phenol	2.55	0.333	mg/kg wet	3.333		77	30-130			
Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Pyridine	2.19	1.67	mg/kg wet	3.333		66	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.26		mg/kg wet	3.333		68	30-130			
Surrogate: 2,4,6-Tribromophenol	4.97		mg/kg wet	5.000		99	30-130			
Surrogate: 2-Chlorophenol-d4	3.74		mg/kg wet	5.000		75	30-130			
Surrogate: 2-Fluorobiphenyl	2.51		mg/kg wet	3.333		75	30-130			
Surrogate: 2-Fluorophenol	3.86		mg/kg wet	5.000		77	30-130			
Surrogate: Nitrobenzene-d5	2.46		mg/kg wet	3.333		74	30-130			
Surrogate: Phenol-d6	3.91		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.12		mg/kg wet	3.333		94	30-130			

LCS Dup

1,1-Biphenyl	2.33	0.167	mg/kg wet	3.333		70	40-140	6	30	
1,2,4-Trichlorobenzene	2.29	0.333	mg/kg wet	3.333		69	40-140	1	30	
1,2-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140	1	30	
1,3-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140	1	30	
1,4-Dichlorobenzene	2.17	0.333	mg/kg wet	3.333		65	40-140	2	30	
2,3,4,6-Tetrachlorophenol	2.91	1.67	mg/kg wet	3.333		87	30-130	2	30	
2,4,5-Trichlorophenol	2.88	0.333	mg/kg wet	3.333		86	30-130	5	30	
2,4,6-Trichlorophenol	2.76	0.333	mg/kg wet	3.333		83	30-130	4	30	
2,4-Dichlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130	0.4	30	
2,4-Dimethylphenol	2.78	0.333	mg/kg wet	3.333		83	30-130	7	30	
2,4-Dinitrophenol	3.22	1.67	mg/kg wet	3.333		97	30-130	8	30	
2,4-Dinitrotoluene	3.03	0.167	mg/kg wet	3.333		91	40-140	0.3	30	
2,6-Dinitrotoluene	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
2-Chloronaphthalene	2.30	0.333	mg/kg wet	3.333		69	40-140	5	30	
2-Chlorophenol	2.36	0.333	mg/kg wet	3.333		71	30-130	2	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DC02446 - 3546										
2-Methylnaphthalene	2.31	0.333	mg/kg wet	3.333		69	40-140	1	30	
2-Methylphenol	2.38	0.333	mg/kg wet	3.333		71	30-130	6	30	
2-Nitroaniline	2.30	0.333	mg/kg wet	3.333		69	40-140	21	30	
2-Nitrophenol	2.52	0.333	mg/kg wet	3.333		76	30-130	12	30	
3,3'-Dichlorobenzidine	2.54	0.333	mg/kg wet	3.333		76	40-140	3	30	
3+4-Methylphenol	5.15	0.667	mg/kg wet	6.667		77	30-130	3	30	
3-Nitroaniline	2.64	0.333	mg/kg wet	3.333		79	40-140	8	30	
4,6-Dinitro-2-Methylphenol	3.28	1.67	mg/kg wet	3.333		98	30-130	3	30	
4-Bromophenyl-phenylether	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
4-Chloro-3-Methylphenol	2.65	0.333	mg/kg wet	3.333		80	30-130	11	30	
4-Chloroaniline	1.60	0.667	mg/kg wet	3.333		48	40-140	9	30	
4-Chloro-phenyl-phenyl ether	2.67	0.333	mg/kg wet	3.333		80	40-140	6	30	
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140	8	30	
4-Nitrophenol	2.51	1.67	mg/kg wet	3.333		75	30-130	13	30	
Acenaphthene	2.44	0.333	mg/kg wet	3.333		73	40-140	6	30	
Acenaphthylene	2.26	0.333	mg/kg wet	3.333		68	40-140	7	30	
Acetophenone	2.37	0.667	mg/kg wet	3.333		71	40-140	2	30	
Aniline	1.64	0.667	mg/kg wet	3.333		49	40-140	6	30	
Anthracene	2.84	0.333	mg/kg wet	3.333		85	40-140	6	30	
Azobenzene	2.37	0.333	mg/kg wet	3.333		71	40-140	21	30	
Benzo(a)anthracene	3.02	0.110	mg/kg wet	3.333		91	40-140	0.5	30	
Benzo(a)pyrene	3.20	0.100	mg/kg wet	3.333		96	40-140	1	30	
Benzo(b)fluoranthene	3.03	0.100	mg/kg wet	3.333		91	40-140	2	30	
Benzo(g,h,i)perylene	3.10	0.100	mg/kg wet	3.333		93	40-140	0.06	30	
Benzo(k)fluoranthene	3.12	0.100	mg/kg wet	3.333		94	40-140	0.1	30	
Benzoic Acid	2.81	1.67	mg/kg wet	3.333		84	40-140	3	30	
Benzyl Alcohol	1.96	0.333	mg/kg wet	3.333		59	40-140	4	30	
bis(2-Chloroethoxy)methane	2.22	0.333	mg/kg wet	3.333		67	40-140	9	30	
bis(2-Chloroethyl)ether	2.29	0.100	mg/kg wet	3.333		69	40-140	3	30	
bis(2-chloroisopropyl)Ether	2.17	0.333	mg/kg wet	3.333		65	40-140	6	30	
bis(2-Ethylhexyl)phthalate	2.89	0.333	mg/kg wet	3.333		87	40-140	1	30	
Butylbenzylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140	0.2	30	
Carbazole	3.04	0.333	mg/kg wet	3.333		91	40-140	3	30	
Chrysene	3.06	0.083	mg/kg wet	3.333		92	40-140	1	30	
Dibenzo(a,h)Anthracene	3.10	0.083	mg/kg wet	3.333		93	40-140	0.3	30	
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140	7	30	
Diethylphthalate	2.92	0.333	mg/kg wet	3.333		88	40-140	4	30	
Dimethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140	7	30	
Di-n-butylphthalate	3.10	0.333	mg/kg wet	3.333		93	40-140	5	30	
Di-n-octylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	3	30	
Fluoranthene	3.14	0.333	mg/kg wet	3.333		94	40-140	0.9	30	
Fluorene	2.68	0.333	mg/kg wet	3.333		80	40-140	8	30	
Hexachlorobenzene	2.84	0.100	mg/kg wet	3.333		85	40-140	4	30	
Hexachlorobutadiene	2.31	0.333	mg/kg wet	3.333		69	40-140	3	30	
Hexachlorocyclopentadiene	1.59	1.67	mg/kg wet	3.333		48	40-140	2	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02446 - 3546

Hexachloroethane	2.24	0.333	mg/kg wet	3.333		67	40-140	0.3	30	
Indeno(1,2,3-cd)Pyrene	3.09	0.110	mg/kg wet	3.333		93	40-140	0.04	30	
Isophorone	2.32	0.333	mg/kg wet	3.333		70	40-140	10	30	
Naphthalene	2.26	0.083	mg/kg wet	3.333		68	40-140	2	30	
Nitrobenzene	2.73	0.333	mg/kg wet	3.333		82	40-140	15	30	
N-Nitrosodimethylamine	2.34	0.333	mg/kg wet	3.333		70	40-140	6	30	
N-Nitroso-Di-n-Propylamine	2.51	0.333	mg/kg wet	3.333		75	40-140	3	30	
N-nitrosodiphenylamine	2.73	0.333	mg/kg wet	3.333		82	40-140	8	30	
Pentachlorophenol	3.41	0.333	mg/kg wet	3.333		102	30-130	5	30	
Phenanthrene	2.86	0.333	mg/kg wet	3.333		86	40-140	6	30	
Phenol	2.38	0.333	mg/kg wet	3.333		71	30-130	7	30	
Pyrene	3.00	0.333	mg/kg wet	3.333		90	40-140	0.7	30	
Pyridine	2.07	1.67	mg/kg wet	3.333		62	40-140	6	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.16		mg/kg wet	3.333		65	30-130			
Surrogate: 2,4,6-Tribromophenol	4.98		mg/kg wet	5.000		100	30-130			
Surrogate: 2-Chlorophenol-d4	3.58		mg/kg wet	5.000		72	30-130			
Surrogate: 2-Fluorobiphenyl	2.37		mg/kg wet	3.333		71	30-130			
Surrogate: 2-Fluorophenol	3.54		mg/kg wet	5.000		71	30-130			
Surrogate: Nitrobenzene-d5	2.77		mg/kg wet	3.333		83	30-130			
Surrogate: Phenol-d6	3.55		mg/kg wet	5.000		71	30-130			
Surrogate: p-Terphenyl-d14	3.04		mg/kg wet	3.333		91	30-130			

Classical Chemistry

Batch DC02031 - General Preparation

Duplicate	Source: 20C0705-07								
Corrosivity (pH)	3.46		S.U.	3.47				0.3	20

Batch DC02033 - General Preparation

Duplicate	Source: 20C0705-07								
Eh (ORP)	419		mv	418				0.2	20

Batch DC02328 - General Preparation

Blank									
Hexavalent Chromium	ND	0.9	mg/kg wet						
LCS									
Hexavalent Chromium	33.7	0.9	mg/kg wet	33.32		101	80-120		
LCS Dup									
Hexavalent Chromium	35.3	0.9	mg/kg wet	33.32		106	80-120	5	20
Duplicate	Source: 20C0705-07								
Hexavalent Chromium	ND	0.7	mg/kg dry	ND					20
Matrix Spike	Source: 20C0705-07								
Hexavalent Chromium	26.8	0.7	mg/kg dry	27.19	ND	99	75-125		
Matrix Spike	Source: 20C0705-07								
Hexavalent Chromium	1120	35.0	mg/kg dry	1271	ND	88	75-125		

Reference



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Classical Chemistry

Batch DC02328 - General Preparation

Hexavalent Chromium	406	10.7	mg/kg wet	384.3		106	62-138			
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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02430 - 3050B

Blank

Antimony	ND	5.00	mg/kg wet
Arsenic	ND	2.50	mg/kg wet
Beryllium	ND	0.11	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Copper	ND	2.50	mg/kg wet
Lead	ND	5.00	mg/kg wet
Nickel	ND	2.50	mg/kg wet
Selenium	ND	5.00	mg/kg wet
Silver	ND	0.50	mg/kg wet
Thallium	ND	5.00	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Antimony	39.2	15.6	mg/kg wet	51.30	76	40-160
Arsenic	202	7.81	mg/kg wet	202.0	100	80-120
Beryllium	50.5	0.34	mg/kg wet	52.10	97	80-120
Cadmium	134	1.56	mg/kg wet	149.0	90	80-120
Chromium	174	3.12	mg/kg wet	182.0	96	80-120
Copper	223	7.81	mg/kg wet	225.0	99	80-120
Lead	327	15.6	mg/kg wet	333.0	98	80-120
Nickel	167	7.81	mg/kg wet	167.0	100	80-120
Selenium	178	15.6	mg/kg wet	169.0	105	80-120
Silver	45.7	1.56	mg/kg wet	48.90	94	80-120
Thallium	68.7	15.6	mg/kg wet	82.30	84	80-120
Zinc	430	7.81	mg/kg wet	459.0	94	80-120

LCS Dup

Antimony	28.8	12.0	mg/kg wet	51.30	56	40-160	31	20	D+
Arsenic	202	6.02	mg/kg wet	202.0	100	80-120	0.1	20	
Beryllium	49.7	0.27	mg/kg wet	52.10	95	80-120	2	20	
Cadmium	131	1.20	mg/kg wet	149.0	88	80-120	2	20	
Chromium	171	2.41	mg/kg wet	182.0	94	80-120	2	20	
Copper	215	6.02	mg/kg wet	225.0	96	80-120	4	20	
Lead	327	12.0	mg/kg wet	333.0	98	80-120	0.06	20	
Nickel	160	6.02	mg/kg wet	167.0	96	80-120	4	20	
Selenium	174	12.0	mg/kg wet	169.0	103	80-120	2	20	
Silver	44.8	1.20	mg/kg wet	48.90	92	80-120	2	20	
Thallium	65.8	12.0	mg/kg wet	82.30	80	80-120	4	20	
Zinc	420	6.02	mg/kg wet	459.0	91	80-120	2	20	

Batch DC02431 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	8.89	0.591	mg/kg wet	7.760	115	80-120
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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC02431 - 7471B

LCS Dup

Mercury	8.76	0.629	mg/kg wet	7.760		113	80-120	1	20	
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02531 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethene	ND	0.0050	mg/kg wet
1,1-Dichloropropene	ND	0.0050	mg/kg wet
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet
1,2-Dibromoethane	ND	0.0050	mg/kg wet
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet
1,2-Dichloroethane	ND	0.0050	mg/kg wet
1,2-Dichloropropane	ND	0.0050	mg/kg wet
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet
1,3-Dichloropropane	ND	0.0050	mg/kg wet
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet
1,4-Dioxane	ND	0.100	mg/kg wet
1-Chlorohexane	ND	0.0050	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0500	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0500	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet
Acetone	ND	0.0500	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet
Bromodichloromethane	ND	0.0050	mg/kg wet
Bromoform	ND	0.0050	mg/kg wet
Bromomethane	ND	0.0100	mg/kg wet
Carbon Disulfide	ND	0.0050	mg/kg wet
Carbon Tetrachloride	ND	0.0050	mg/kg wet
Chlorobenzene	ND	0.0050	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02531 - 5035

Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0515</i>		mg/kg wet	<i>0.05000</i>		<i>103</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0438</i>		mg/kg wet	<i>0.05000</i>		<i>88</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>0.0489</i>		mg/kg wet	<i>0.05000</i>		<i>98</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0526</i>		mg/kg wet	<i>0.05000</i>		<i>105</i>	<i>70-130</i>			

LCS

1,1,1,2-Tetrachloroethane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,1,1-Trichloroethane	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
1,1,2,2-Tetrachloroethane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
1,1,2-Trichloroethane	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
1,1-Dichloroethane	0.0426	0.0050	mg/kg wet	0.05000		85	70-130			
1,1-Dichloroethene	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02531 - 5035

1,1-Dichloropropene	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
1,2,3-Trichlorobenzene	0.0378	0.0050	mg/kg wet	0.05000		76	70-130			
1,2,3-Trichloropropane	0.0420	0.0050	mg/kg wet	0.05000		84	70-130			
1,2,4-Trichlorobenzene	0.0403	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trimethylbenzene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
1,2-Dibromo-3-Chloropropane	0.0421	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dibromoethane	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
1,2-Dichlorobenzene	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
1,2-Dichloroethane	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
1,2-Dichloropropane	0.0448	0.0050	mg/kg wet	0.05000		90	70-130			
1,3,5-Trimethylbenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
1,3-Dichlorobenzene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
1,3-Dichloropropane	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
1,4-Dichlorobenzene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
1,4-Dioxane	0.899	0.100	mg/kg wet	1.000		90	70-130			
1-Chlorohexane	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
2,2-Dichloropropane	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
2-Butanone	0.217	0.0500	mg/kg wet	0.2500		87	70-130			
2-Chlorotoluene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
2-Hexanone	0.232	0.0500	mg/kg wet	0.2500		93	70-130			
4-Chlorotoluene	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
4-Isopropyltoluene	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
4-Methyl-2-Pentanone	0.238	0.0500	mg/kg wet	0.2500		95	70-130			
Acetone	0.198	0.0500	mg/kg wet	0.2500		79	70-130			
Benzene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Bromobenzene	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
Bromochloromethane	0.0451	0.0050	mg/kg wet	0.05000		90	70-130			
Bromodichloromethane	0.0455	0.0050	mg/kg wet	0.05000		91	70-130			
Bromoform	0.0397	0.0050	mg/kg wet	0.05000		79	70-130			
Bromomethane	0.0488	0.0100	mg/kg wet	0.05000		98	70-130			
Carbon Disulfide	0.0454	0.0050	mg/kg wet	0.05000		91	70-130			
Carbon Tetrachloride	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
Chlorobenzene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Chloroethane	0.0523	0.0100	mg/kg wet	0.05000		105	70-130			
Chloroform	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
Chloromethane	0.0443	0.0100	mg/kg wet	0.05000		89	70-130			
cis-1,2-Dichloroethene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
cis-1,3-Dichloropropene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Dibromochloromethane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
Dibromomethane	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Dichlorodifluoromethane	0.0448	0.0100	mg/kg wet	0.05000		90	70-130			
Diethyl Ether	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
Di-isopropyl ether	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
Ethyl tertiary-butyl ether	0.0415	0.0050	mg/kg wet	0.05000		83	70-130			
Ethylbenzene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology

Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02531 - 5035

Hexachlorobutadiene	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
Isopropylbenzene	0.0439	0.0050	mg/kg wet	0.05000		88	70-130			
Methyl tert-Butyl Ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Methylene Chloride	0.0438	0.0250	mg/kg wet	0.05000		88	70-130			
Naphthalene	0.0383	0.0050	mg/kg wet	0.05000		77	70-130			
n-Butylbenzene	0.0421	0.0050	mg/kg wet	0.05000		84	70-130			
n-Propylbenzene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
sec-Butylbenzene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Styrene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
tert-Butylbenzene	0.0448	0.0050	mg/kg wet	0.05000		90	70-130			
Tertiary-amyl methyl ether	0.0420	0.0050	mg/kg wet	0.05000		84	70-130			
Tetrachloroethene	0.0406	0.0050	mg/kg wet	0.05000		81	70-130			
Tetrahydrofuran	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
Toluene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
trans-1,2-Dichloroethene	0.0439	0.0050	mg/kg wet	0.05000		88	70-130			
trans-1,3-Dichloropropene	0.0417	0.0050	mg/kg wet	0.05000		83	70-130			
Trichloroethene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
Trichlorofluoromethane	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
Vinyl Acetate	0.0419	0.0050	mg/kg wet	0.05000		84	70-130			
Vinyl Chloride	0.0406	0.0100	mg/kg wet	0.05000		81	70-130			
Xylene O	0.0437	0.0050	mg/kg wet	0.05000		87	70-130			
Xylene P,M	0.0877	0.0100	mg/kg wet	0.1000		88	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0497		mg/kg wet	0.05000		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0504		mg/kg wet	0.05000		101	70-130			
Surrogate: Dibromofluoromethane	0.0505		mg/kg wet	0.05000		101	70-130			
Surrogate: Toluene-d8	0.0495		mg/kg wet	0.05000		99	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	6	25	
1,1,1-Trichloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,1,2,2-Tetrachloroethane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	6	25	
1,1,2-Trichloroethane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	6	25	
1,1-Dichloroethane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	7	25	
1,1-Dichloroethene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	8	25	
1,1-Dichloropropene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	8	25	
1,2,3-Trichlorobenzene	0.0439	0.0050	mg/kg wet	0.05000		88	70-130	15	25	
1,2,3-Trichloropropane	0.0455	0.0050	mg/kg wet	0.05000		91	70-130	8	25	
1,2,4-Trichlorobenzene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130	13	25	
1,2,4-Trimethylbenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
1,2-Dibromo-3-Chloropropane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	14	25	
1,2-Dibromoethane	0.0464	0.0050	mg/kg wet	0.05000		93	70-130	5	25	
1,2-Dichlorobenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	5	25	
1,2-Dichloroethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	5	25	
1,2-Dichloropropane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130	5	25	
1,3,5-Trimethylbenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	6	25	
1,3-Dichlorobenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02531 - 5035

1,3-Dichloropropane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130	4	25	
1,4-Dichlorobenzene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130	5	25	
1,4-Dioxane	1.06	0.100	mg/kg wet	1.000		106	70-130	16	20	
1-Chlorohexane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	9	25	
2,2-Dichloropropane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
2-Butanone	0.239	0.0500	mg/kg wet	0.2500		96	70-130	10	25	
2-Chlorotoluene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130	4	25	
2-Hexanone	0.270	0.0500	mg/kg wet	0.2500		108	70-130	15	25	
4-Chlorotoluene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	5	25	
4-Isopropyltoluene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	8	25	
4-Methyl-2-Pentanone	0.269	0.0500	mg/kg wet	0.2500		107	70-130	12	25	
Acetone	0.228	0.0500	mg/kg wet	0.2500		91	70-130	14	25	
Benzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130	6	25	
Bromobenzene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130	4	25	
Bromochloromethane	0.0470	0.0050	mg/kg wet	0.05000		94	70-130	4	25	
Bromodichloromethane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	5	25	
Bromoform	0.0423	0.0050	mg/kg wet	0.05000		85	70-130	6	25	
Bromomethane	0.0497	0.0100	mg/kg wet	0.05000		99	70-130	2	25	
Carbon Disulfide	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	8	25	
Carbon Tetrachloride	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	8	25	
Chlorobenzene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130	5	25	
Chloroethane	0.0556	0.0100	mg/kg wet	0.05000		111	70-130	6	25	
Chloroform	0.0465	0.0050	mg/kg wet	0.05000		93	70-130	4	25	
Chloromethane	0.0467	0.0100	mg/kg wet	0.05000		93	70-130	5	25	
cis-1,2-Dichloroethene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	6	25	
cis-1,3-Dichloropropene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	5	25	
Dibromochloromethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	4	25	
Dibromomethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	6	25	
Dichlorodifluoromethane	0.0482	0.0100	mg/kg wet	0.05000		96	70-130	7	25	
Diethyl Ether	0.0465	0.0050	mg/kg wet	0.05000		93	70-130	4	25	
Di-isopropyl ether	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	5	25	
Ethyl tertiary-butyl ether	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	13	25	
Ethylbenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	6	25	
Hexachlorobutadiene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	8	25	
Isopropylbenzene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130	5	25	
Methyl tert-Butyl Ether	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	9	25	
Methylene Chloride	0.0460	0.0250	mg/kg wet	0.05000		92	70-130	5	25	
Naphthalene	0.0453	0.0050	mg/kg wet	0.05000		91	70-130	17	25	
n-Butylbenzene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	11	25	
n-Propylbenzene	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	6	25	
sec-Butylbenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	7	25	
Styrene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	7	25	
tert-Butylbenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	6	25	
Tertiary-amyl methyl ether	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	15	25	
Tetrachloroethene	0.0428	0.0050	mg/kg wet	0.05000		86	70-130	5	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02531 - 5035

Tetrahydrofuran	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	12	25	
Toluene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	7	25	
trans-1,2-Dichloroethene	0.0476	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
trans-1,3-Dichloropropene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130	6	25	
Trichloroethene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	7	25	
Trichlorofluoromethane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	8	25	
Vinyl Acetate	0.0460	0.0050	mg/kg wet	0.05000		92	70-130	9	25	
Vinyl Chloride	0.0435	0.0100	mg/kg wet	0.05000		87	70-130	7	25	
Xylene O	0.0464	0.0050	mg/kg wet	0.05000		93	70-130	6	25	
Xylene P,M	0.0937	0.0100	mg/kg wet	0.1000		94	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	0.0500		mg/kg wet	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0502		mg/kg wet	0.05000		100	70-130			
Surrogate: Dibromofluoromethane	0.0502		mg/kg wet	0.05000		100	70-130			
Surrogate: Toluene-d8	0.0491		mg/kg wet	0.05000		98	70-130			

8100M Total Petroleum Hydrocarbons

Batch DC02311 - 3546

Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							

Surrogate: O-Terphenyl	5.11		mg/kg wet	5.000		102	40-140			
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LCS										
Decane (C10)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		69	30-140			
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		93	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC02311 - 3546

Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Total Petroleum Hydrocarbons	32.0	37.5	mg/kg wet	35.00		91	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140			

Surrogate: O-Terphenyl	5.00		mg/kg wet	5.000		100	40-140			
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LCS Dup

Decane (C10)	2.0	0.2	mg/kg wet	2.500		82	40-140	6	25	
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140	5	25	
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		100	40-140	3	25	
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		94	40-140	3	25	
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140	4	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		74	30-140	6	25	
Octacosane (C28)	2.6	0.2	mg/kg wet	2.500		103	40-140	4	25	
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		96	40-140	3	25	
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		101	40-140	3	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	4	25	
Total Petroleum Hydrocarbons	33.2	37.5	mg/kg wet	35.00		95	40-140	4	25	
Triacontane (C30)	2.5	0.2	mg/kg wet	2.500		100	40-140	3	25	

Surrogate: O-Terphenyl	5.07		mg/kg wet	5.000		101	40-140			
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Blank										
1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.110	mg/kg wet							
Benzo(a)pyrene	ND	0.100	mg/kg wet							
Benzo(b)fluoranthene	ND	0.100	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.100	mg/kg wet							
Benzo(k)fluoranthene	ND	0.100	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.100	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.083	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.083	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.083	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.110	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Naphthalene	ND	0.083	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.333	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.68		mg/kg wet	3.333		80	30-130			
Surrogate: 2,4,6-Tribromophenol	3.16		mg/kg wet	5.000		63	30-130			
Surrogate: 2-Chlorophenol-d4	4.10		mg/kg wet	5.000		82	30-130			
Surrogate: 2-Fluorobiphenyl	2.71		mg/kg wet	3.333		81	30-130			
Surrogate: 2-Fluorophenol	3.93		mg/kg wet	5.000		79	30-130			
Surrogate: Nitrobenzene-d5	2.55		mg/kg wet	3.333		77	30-130			
Surrogate: Phenol-d6	3.90		mg/kg wet	5.000		78	30-130			
Surrogate: p-Terphenyl-d14	3.56		mg/kg wet	3.333		107	30-130			

LCS

1,1-Biphenyl	2.27	0.167	mg/kg wet	3.333		68	40-140			
1,2,4-Trichlorobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140			
1,2-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.47	1.67	mg/kg wet	3.333		74	30-130			
2,4,5-Trichlorophenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2,4,6-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dimethylphenol	2.34	0.333	mg/kg wet	3.333		70	30-130			
2,4-Dinitrophenol	2.47	1.67	mg/kg wet	3.333		74	30-130			
2,4-Dinitrotoluene	3.08	0.167	mg/kg wet	3.333		93	40-140			
2,6-Dinitrotoluene	2.66	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.23	0.333	mg/kg wet	3.333		67	40-140			
2-Chlorophenol	2.16	0.333	mg/kg wet	3.333		65	30-130			
2-Methylnaphthalene	2.20	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.13	0.333	mg/kg wet	3.333		64	30-130			
2-Nitroaniline	2.31	0.333	mg/kg wet	3.333		69	40-140			
2-Nitrophenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
3,3'-Dichlorobenzidine	2.21	0.333	mg/kg wet	3.333		66	40-140			
3+4-Methylphenol	4.29	0.667	mg/kg wet	6.667		64	30-130			
3-Nitroaniline	2.20	0.333	mg/kg wet	3.333		66	40-140			
4,6-Dinitro-2-Methylphenol	2.60	1.67	mg/kg wet	3.333		78	30-130			
4-Bromophenyl-phenylether	2.74	0.333	mg/kg wet	3.333		82	40-140			
4-Chloro-3-Methylphenol	2.48	0.333	mg/kg wet	3.333		74	30-130			
4-Chloroaniline	1.05	0.667	mg/kg wet	3.333		31	40-140			B-



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

4-Chloro-phenyl-phenyl ether	2.65	0.333	mg/kg wet	3.333		79	40-140			
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140			
4-Nitrophenol	2.48	1.67	mg/kg wet	3.333		74	30-130			
Acenaphthene	2.27	0.333	mg/kg wet	3.333		68	40-140			
Acenaphthylene	2.14	0.333	mg/kg wet	3.333		64	40-140			
Acetophenone	2.05	0.667	mg/kg wet	3.333		61	40-140			
Aniline	1.33	0.667	mg/kg wet	3.333		40	40-140			
Anthracene	2.68	0.333	mg/kg wet	3.333		80	40-140			
Azobenzene	2.28	0.333	mg/kg wet	3.333		68	40-140			
Benzo(a)anthracene	2.98	0.110	mg/kg wet	3.333		89	40-140			
Benzo(a)pyrene	3.16	0.100	mg/kg wet	3.333		95	40-140			
Benzo(b)fluoranthene	3.32	0.100	mg/kg wet	3.333		100	40-140			
Benzo(g,h,i)perylene	3.00	0.100	mg/kg wet	3.333		90	40-140			
Benzo(k)fluoranthene	2.95	0.100	mg/kg wet	3.333		88	40-140			
Benzoic Acid	1.77	1.67	mg/kg wet	3.333		53	40-140			
Benzyl Alcohol	1.73	0.333	mg/kg wet	3.333		52	40-140			
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethyl)ether	2.09	0.100	mg/kg wet	3.333		63	40-140			
bis(2-chloroisopropyl)Ether	2.10	0.333	mg/kg wet	3.333		63	40-140			
bis(2-Ethylhexyl)phthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Butylbenzylphthalate	3.09	0.333	mg/kg wet	3.333		93	40-140			
Carbazole	2.88	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.98	0.083	mg/kg wet	3.333		89	40-140			
Dibenzo(a,h)Anthracene	3.09	0.083	mg/kg wet	3.333		93	40-140			
Dibenzofuran	2.42	0.333	mg/kg wet	3.333		73	40-140			
Diethylphthalate	2.78	0.333	mg/kg wet	3.333		83	40-140			
Dimethylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	3.03	0.333	mg/kg wet	3.333		91	40-140			
Di-n-octylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Fluorene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.79	0.083	mg/kg wet	3.333		84	40-140			
Hexachlorobutadiene	2.40	0.333	mg/kg wet	3.333		72	40-140			
Hexachlorocyclopentadiene	1.55	1.67	mg/kg wet	3.333		47	40-140			
Hexachloroethane	2.02	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	3.05	0.110	mg/kg wet	3.333		92	40-140			
Isophorone	1.83	0.333	mg/kg wet	3.333		55	40-140			
Naphthalene	2.15	0.083	mg/kg wet	3.333		65	40-140			
Nitrobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
N-Nitrosodimethylamine	1.68	0.333	mg/kg wet	3.333		50	40-140			
N-Nitroso-Di-n-Propylamine	2.08	0.333	mg/kg wet	3.333		63	40-140			
N-nitrosodiphenylamine	2.58	0.333	mg/kg wet	3.333		78	40-140			
Pentachlorophenol	2.51	0.333	mg/kg wet	3.333		75	30-130			
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Pyrene	2.93	0.333	mg/kg wet	3.333		88	40-140			
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.29		mg/kg wet	3.333		69	30-130			
Surrogate: 2,4,6-Tribromophenol	4.65		mg/kg wet	5.000		93	30-130			
Surrogate: 2-Chlorophenol-d4	3.66		mg/kg wet	5.000		73	30-130			
Surrogate: 2-Fluorobiphenyl	2.59		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	3.47		mg/kg wet	5.000		69	30-130			
Surrogate: Nitrobenzene-d5	2.30		mg/kg wet	3.333		69	30-130			
Surrogate: Phenol-d6	3.51		mg/kg wet	5.000		70	30-130			
Surrogate: p-Terphenyl-d14	3.50		mg/kg wet	3.333		105	30-130			

LCS Dup

1,1-Biphenyl	2.15	0.167	mg/kg wet	3.333		64	40-140	6	30	
1,2,4-Trichlorobenzene	2.15	0.333	mg/kg wet	3.333		65	40-140	4	30	
1,2-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		60	40-140	3	30	
1,3-Dichlorobenzene	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
1,4-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140	3	30	
2,3,4,6-Tetrachlorophenol	2.35	1.67	mg/kg wet	3.333		71	30-130	5	30	
2,4,5-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130	6	30	
2,4,6-Trichlorophenol	2.28	0.333	mg/kg wet	3.333		68	30-130	7	30	
2,4-Dichlorophenol	2.33	0.333	mg/kg wet	3.333		70	30-130	5	30	
2,4-Dimethylphenol	2.25	0.333	mg/kg wet	3.333		67	30-130	4	30	
2,4-Dinitrophenol	2.63	1.67	mg/kg wet	3.333		79	30-130	6	30	
2,4-Dinitrotoluene	2.95	0.167	mg/kg wet	3.333		89	40-140	4	30	
2,6-Dinitrotoluene	2.46	0.333	mg/kg wet	3.333		74	40-140	8	30	
2-Chloronaphthalene	2.13	0.333	mg/kg wet	3.333		64	40-140	5	30	
2-Chlorophenol	2.10	0.333	mg/kg wet	3.333		63	30-130	3	30	
2-Methylnaphthalene	2.11	0.333	mg/kg wet	3.333		63	40-140	4	30	
2-Methylphenol	2.05	0.333	mg/kg wet	3.333		62	30-130	4	30	
2-Nitroaniline	2.18	0.333	mg/kg wet	3.333		65	40-140	6	30	
2-Nitrophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	3	30	
3,3'-Dichlorobenzidine	1.98	0.333	mg/kg wet	3.333		60	40-140	11	30	
3+4-Methylphenol	4.41	0.667	mg/kg wet	6.667		66	30-130	3	30	
3-Nitroaniline	1.96	0.333	mg/kg wet	3.333		59	40-140	11	30	
4,6-Dinitro-2-Methylphenol	2.83	1.67	mg/kg wet	3.333		85	30-130	9	30	
4-Bromophenyl-phenylether	2.58	0.333	mg/kg wet	3.333		77	40-140	6	30	
4-Chloro-3-Methylphenol	2.30	0.333	mg/kg wet	3.333		69	30-130	7	30	
4-Chloroaniline	0.891	0.667	mg/kg wet	3.333		27	40-140	16	30	B-
4-Chloro-phenyl-phenyl ether	2.47	0.333	mg/kg wet	3.333		74	40-140	7	30	
4-Nitroaniline	2.65	0.333	mg/kg wet	3.333		79	40-140	2	30	
4-Nitrophenol	2.46	1.67	mg/kg wet	3.333		74	30-130	0.9	30	
Acenaphthene	2.13	0.333	mg/kg wet	3.333		64	40-140	6	30	
Acenaphthylene	2.03	0.333	mg/kg wet	3.333		61	40-140	5	30	
Acetophenone	2.01	0.667	mg/kg wet	3.333		60	40-140	2	30	
Aniline	1.18	0.667	mg/kg wet	3.333		35	40-140	12	30	B-
Anthracene	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

Azobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140	6	30	
Benzo(a)anthracene	2.89	0.110	mg/kg wet	3.333		87	40-140	3	30	
Benzo(a)pyrene	3.08	0.100	mg/kg wet	3.333		92	40-140	2	30	
Benzo(b)fluoranthene	3.05	0.100	mg/kg wet	3.333		91	40-140	9	30	
Benzo(g,h,i)perylene	2.92	0.100	mg/kg wet	3.333		87	40-140	3	30	
Benzo(k)fluoranthene	3.04	0.100	mg/kg wet	3.333		91	40-140	3	30	
Benzoic Acid	1.96	1.67	mg/kg wet	3.333		59	40-140	10	30	
Benzyl Alcohol	1.64	0.333	mg/kg wet	3.333		49	40-140	5	30	
bis(2-Chloroethoxy)methane	2.07	0.333	mg/kg wet	3.333		62	40-140	5	30	
bis(2-Chloroethyl)ether	1.99	0.100	mg/kg wet	3.333		60	40-140	5	30	
bis(2-chloroisopropyl)Ether	2.02	0.333	mg/kg wet	3.333		61	40-140	4	30	
bis(2-Ethylhexyl)phthalate	2.87	0.333	mg/kg wet	3.333		86	40-140	3	30	
Butylbenzylphthalate	3.02	0.333	mg/kg wet	3.333		91	40-140	2	30	
Carbazole	2.81	0.333	mg/kg wet	3.333		84	40-140	2	30	
Chrysene	2.88	0.083	mg/kg wet	3.333		86	40-140	4	30	
Dibenzo(a,h)Anthracene	3.01	0.083	mg/kg wet	3.333		90	40-140	3	30	
Dibenzofuran	2.27	0.333	mg/kg wet	3.333		68	40-140	6	30	
Diethylphthalate	2.63	0.333	mg/kg wet	3.333		79	40-140	6	30	
Dimethylphthalate	2.39	0.333	mg/kg wet	3.333		72	40-140	9	30	
Di-n-butylphthalate	2.92	0.333	mg/kg wet	3.333		87	40-140	4	30	
Di-n-octylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	2	30	
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140	3	30	
Fluorene	2.40	0.333	mg/kg wet	3.333		72	40-140	8	30	
Hexachlorobenzene	2.69	0.083	mg/kg wet	3.333		81	40-140	4	30	
Hexachlorobutadiene	2.34	0.333	mg/kg wet	3.333		70	40-140	3	30	
Hexachlorocyclopentadiene	1.51	1.67	mg/kg wet	3.333		45	40-140	3	30	
Hexachloroethane	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
Indeno(1,2,3-cd)Pyrene	2.97	0.110	mg/kg wet	3.333		89	40-140	3	30	
Isophorone	1.76	0.333	mg/kg wet	3.333		53	40-140	4	30	
Naphthalene	2.09	0.083	mg/kg wet	3.333		63	40-140	3	30	
Nitrobenzene	1.94	0.333	mg/kg wet	3.333		58	40-140	4	30	
N-Nitrosodimethylamine	1.64	0.333	mg/kg wet	3.333		49	40-140	2	30	
N-Nitroso-Di-n-Propylamine	2.02	0.333	mg/kg wet	3.333		61	40-140	3	30	
N-nitrosodiphenylamine	2.44	0.333	mg/kg wet	3.333		73	40-140	6	30	
Pentachlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	5	30	
Phenanthrene	2.58	0.333	mg/kg wet	3.333		77	40-140	3	30	
Phenol	2.15	0.333	mg/kg wet	3.333		65	30-130	4	30	
Pyrene	2.88	0.333	mg/kg wet	3.333		87	40-140	1	30	
Pyridine	1.80	1.67	mg/kg wet	3.333		54	40-140	1	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.19		mg/kg wet	3.333		66	30-130			
Surrogate: 2,4,6-Tribromophenol	4.36		mg/kg wet	5.000		87	30-130			
Surrogate: 2-Chlorophenol-d4	3.44		mg/kg wet	5.000		69	30-130			
Surrogate: 2-Fluorobiphenyl	2.41		mg/kg wet	3.333		72	30-130			
Surrogate: 2-Fluorophenol	3.30		mg/kg wet	5.000		66	30-130			
Surrogate: Nitrobenzene-d5	2.18		mg/kg wet	3.333		65	30-130			
Surrogate: Phenol-d6	3.33		mg/kg wet	5.000		67	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC02309 - 3546

<i>Surrogate: p-Terphenyl-d14</i>	3.34		mg/kg wet	3.333		100	30-130			
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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

Notes and Definitions

- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- ICV- Initial Calibration Verification recovery is below lower control limit (ICV-).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0704

Notes and Definitions

- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- J Reported between MDL and MRL
- ICV- Initial Calibration Verification recovery is below lower control limit (ICV-).
- IC Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
- E Reported above the quantitation limit; Estimated value (E).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0705

Notes and Definitions

- M- Matrix Spike recovery is below lower control limit (M-).
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- D Diluted.
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- E Reported above the quantitation limit; Estimated value (E).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- I Internal Standard(s) outside of criteria (I).
- IC Internal Standard(s) outside of criteria. Sample was reanalyzed to confirm (IC).
- B- Blank Spike recovery is below lower control limit (B-).
- J Reported between MDL and MRL
- Z-10 Soil pH measured in water at 21.9 °C.
- MC- Matrix spike recovery(ies) outside of criteria. Reanalysis confirms. (MC-)
- MM Majority of matrix spike compounds are outside of criteria due to matrix interferences (MM).
- MT Due to high target values, matrix spike analyte(s) is masked (MT).
- Q Calibration required quadratic regression (Q).
- SC Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- U Analyte included in the analysis, but not detected
- WL Results obtained from a deionized water leach of the sample.
- ICV- Initial Calibration Verification recovery is below lower control limit (ICV-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0708

Notes and Definitions

- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- ICV- Initial Calibration Verification recovery is below lower control limit (ICV-).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0703

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0703
 Date Received: 3/20/2020
 Project Due Date: 3/27/2020
 Days for Project: 5 Day

Shipped/Delivered Via: Client

- | | |
|--|---|
| <p>1. Air bill manifest present? <input type="checkbox"/> No
 Air No.: <u>NA</u></p> <p>2. Were custody seals present? <input type="checkbox"/> No</p> <p>3. Is radiation count <100 CPM? <input type="checkbox"/> Yes</p> <p>4. Is a Cooler Present? <input type="checkbox"/> Yes
 Temp: <u>5.6</u> Iced with: <u>Ice</u></p> <p>5. Was COC signed and dated by client? <input type="checkbox"/> Yes</p> | <p>6. Does COC match bottles? <input type="checkbox"/> Yes</p> <p>7. Is COC complete and correct? <input type="checkbox"/> Yes</p> <p>8. Were samples received intact? <input type="checkbox"/> Yes</p> <p>9. Were labs informed about <u>short holds & rushes</u>? Yes / No / <u>NA</u></p> <p>10. Were any analyses received outside of hold time? Yes / No</p> <p>_____</p> <p>_____</p> |
|--|---|

- | | |
|---|---|
| <p>11. Any Subcontracting needed? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____</p> | <p>12. Were VOAs received? <input checked="" type="checkbox"/> Yes / No
 a. Air bubbles in aqueous VOAs? <input type="checkbox"/> Yes / No
 b. Does methanol cover soil completely? <input checked="" type="checkbox"/> Yes / No / NA</p> |
|---|---|

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: 3/20/20 Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: 3/20/20 Time: 1959 By: dn

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	26047	Yes	N/A	Yes	8 oz jar	NP	
1	26048	Yes	N/A	Yes	VOA Vial	DI Water	
1	26049	Yes	N/A	Yes	VOA Vial	DI Water	
1	26050	Yes	N/A	Yes	VOA Vial	MeOH	

2nd Review

- Were all containers scanned into storage/lab?** Initials: AA
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 3/20/20 1930
 Reviewed By: [Signature] Date & Time: 3/20/20 1959
 Delivered By: [Signature] Date & Time: 3/20/20 1959

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0704
 Date Received: 3/20/2020
 Project Due Date: 3/27/2020
 Days for Project: 5 Day

Shipped/Delivered Via: _____ Client _____

- 1. Air bill manifest present? No
Air No.: _____ NA _____
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 5.6 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

- 12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: 3/20/20
 b. Low Level VOA vials frozen: Date: 3/20/20

Time: 2:00 By: WV

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	26051	Yes	N/A	Yes	8 oz jar	NP	
1	26061	Yes	N/A	Yes	VOA Vial	DI Water	
1	26062	Yes	N/A	Yes	VOA Vial	DI Water	
1	26081	Yes	N/A	Yes	VOA Vial	MeOH	
1	26219	Yes	N/A	Yes	VOA Vial	MeOH	
2	26052	Yes	N/A	Yes	8 oz jar	NP	
2	26063	Yes	N/A	Yes	VOA Vial	DI Water	
2	26064	Yes	N/A	Yes	VOA Vial	DI Water	
2	26082	Yes	N/A	Yes	VOA Vial	MeOH	
2	26220	Yes	N/A	Yes	VOA Vial	MeOH	
3	26053	Yes	N/A	Yes	8 oz jar	NP	
3	26065	Yes	N/A	Yes	VOA Vial	DI Water	
3	26066	Yes	N/A	Yes	VOA Vial	DI Water	
3	26083	Yes	N/A	Yes	VOA Vial	MeOH	
4	26054	Yes	N/A	Yes	8 oz jar	NP	
4	26067	Yes	N/A	Yes	VOA Vial	DI Water	
4	26068	Yes	N/A	Yes	VOA Vial	DI Water	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0704
 Date Received: 3/20/2020

4	26084	Yes	N/A	Yes	VOA Vial	MeOH
5	26055	Yes	N/A	Yes	8 oz jar	NP
5	26069	Yes	N/A	Yes	VOA Vial	DI Water
5	26070	Yes	N/A	Yes	VOA Vial	DI Water
5	26085	Yes	N/A	Yes	VOA Vial	MeOH
6	26056	Yes	N/A	Yes	8 oz jar	NP
6	26071	Yes	N/A	Yes	VOA Vial	DI Water
6	26072	Yes	N/A	Yes	VOA Vial	DI Water
6	26086	Yes	N/A	Yes	VOA Vial	MeOH
7	26057	Yes	N/A	Yes	8 oz jar	NP
7	26073	Yes	N/A	Yes	VOA Vial	DI Water
7	26074	Yes	N/A	Yes	VOA Vial	DI Water
7	26087	Yes	N/A	Yes	VOA Vial	MeOH
8	26058	Yes	N/A	Yes	8 oz jar	NP
8	26075	Yes	N/A	Yes	VOA Vial	DI Water
8	26076	Yes	N/A	Yes	VOA Vial	DI Water
8	26088	Yes	N/A	Yes	VOA Vial	MeOH
9	26059	Yes	N/A	Yes	8 oz jar	NP
9	26077	Yes	N/A	Yes	VOA Vial	DI Water
9	26078	Yes	N/A	Yes	VOA Vial	DI Water
9	26089	Yes	N/A	Yes	VOA Vial	MeOH
10	26060	Yes	N/A	Yes	8 oz jar	NP
10	26079	Yes	N/A	Yes	VOA Vial	DI Water
10	26080	Yes	N/A	Yes	VOA Vial	DI Water
10	26090	Yes	N/A	Yes	VOA Vial	MeOH

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials JA

Yes / No

Yes / No / NA

Yes / No / NA

Yes / No / NA

Yes / No / NA

Completed

By: [Signature]

Date & Time: 3/20/20 1940

Reviewed

By: [Signature]

Date & Time: 3/20/20 2002

Delivered

By: [Signature]

Date & Time: 3/20/20 2002

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0705
 Date Received: 3/20/2020
 Project Due Date: 3/27/2020
 Days for Project: 5 Day

Shipped/Delivered Via: _____ Client _____

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 5.6 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes No
- ESS Sample IDs: _____
- Analysis: _____
- TAT: _____

- 12. Were VOAs received? Yes / No
- a. Air bubbles in aqueous VOAs? Yes / No
- b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
- a. If metals preserved upon receipt: Date: 3/20/20
- b. Low Level VOA vials frozen: Date: 3/20/20

Time: _____ By: _____
 Time: 2023 By: MA

Sample Receiving Notes:

COC = EA-19-0-2.5 Label = EA-19-20-2.5

Samples for Hex Cr only have 1 jar provided

- 14. Was there a need to contact Project Manager? Yes / No
- a. Was there a need to contact the client? Yes / No
- Who was contacted? Jonathan Alvarez Date: 3/27/20

Time: 1500 By: ML

ID on COC is correct.

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	26091	Yes	N/A	Yes	8 oz jar	NP	
1	26113	Yes	N/A	Yes	VOA Vial	DI Water	
1	26114	Yes	N/A	Yes	VOA Vial	DI Water	
1	26145	Yes	N/A	Yes	VOA Vial	MeOH	
2	26092	Yes	N/A	Yes	8 oz jar	NP	
2	26115	Yes	N/A	Yes	VOA Vial	DI Water	
2	26116	Yes	N/A	Yes	VOA Vial	DI Water	
2	26146	Yes	N/A	Yes	VOA Vial	MeOH	
3	26093	Yes	N/A	Yes	8 oz jar	NP	
3	26117	Yes	N/A	Yes	VOA Vial	DI Water	
3	26118	Yes	N/A	Yes	VOA Vial	DI Water	
3	26147	Yes	N/A	Yes	VOA Vial	MeOH	
4	26094	Yes	N/A	Yes	8 oz jar	NP	
4	26107	Yes	N/A	Yes	8 oz jar	NP	
4	26108	Yes	N/A	Yes	8 oz jar	NP	
4	26119	Yes	N/A	Yes	VOA Vial	DI Water	
4	26120	Yes	N/A	Yes	VOA Vial	DI Water	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0705
 Date Received: 3/20/2020

4	26148	Yes	N/A	Yes	VOA Vial	MeOH
4	26161	Yes	N/A	Yes	VOA Vial	DI Water
4	26162	Yes	N/A	Yes	VOA Vial	DI Water
4	26163	Yes	N/A	Yes	VOA Vial	DI Water
4	26164	Yes	N/A	Yes	VOA Vial	DI Water
4	26169	Yes	N/A	Yes	VOA Vial	MeOH
4	26170	Yes	N/A	Yes	VOA Vial	MeOH
5	26095	Yes	N/A	Yes	8 oz jar	NP
5	26121	Yes	N/A	Yes	VOA Vial	DI Water
5	26122	Yes	N/A	Yes	VOA Vial	DI Water
5	26149	Yes	N/A	Yes	VOA Vial	MeOH
6	26096	Yes	N/A	Yes	8 oz jar	NP
6	26123	Yes	N/A	Yes	VOA Vial	DI Water
6	26124	Yes	N/A	Yes	VOA Vial	DI Water
6	26150	Yes	N/A	Yes	VOA Vial	MeOH
7	26097	Yes	N/A	Yes	8 oz jar	NP
7	26111	Yes	N/A	Yes	8 oz jar	NP
7	26125	Yes	N/A	Yes	VOA Vial	DI Water
7	26126	Yes	N/A	Yes	VOA Vial	DI Water
7	26151	Yes	N/A	Yes	VOA Vial	MeOH
8	26098	Yes	N/A	Yes	8 oz jar	NP
8	26112	Yes	N/A	Yes	8 oz jar	NP
8	26127	Yes	N/A	Yes	VOA Vial	DI Water
8	26128	Yes	N/A	Yes	VOA Vial	DI Water
8	26152	Yes	N/A	Yes	VOA Vial	MeOH
9	26099	Yes	N/A	Yes	8 oz jar	NP
9	26129	Yes	N/A	Yes	VOA Vial	DI Water
9	26130	Yes	N/A	Yes	VOA Vial	DI Water
9	26153	Yes	N/A	Yes	VOA Vial	MeOH
9	26254	Yes	N/A	Yes	VOA Vial	MeOH
10	26100	Yes	N/A	Yes	8 oz jar	NP
10	26109	Yes	N/A	Yes	8 oz jar	NP
10	26110	Yes	N/A	Yes	8 oz jar	NP
10	26131	Yes	N/A	Yes	VOA Vial	DI Water
10	26132	Yes	N/A	Yes	VOA Vial	DI Water
10	26154	Yes	N/A	Yes	VOA Vial	MeOH
10	26165	Yes	N/A	Yes	VOA Vial	DI Water
10	26166	Yes	N/A	Yes	VOA Vial	DI Water
10	26167	Yes	N/A	Yes	VOA Vial	DI Water
10	26168	Yes	N/A	Yes	VOA Vial	DI Water
10	26171	Yes	N/A	Yes	VOA Vial	MeOH
10	26172	Yes	N/A	Yes	VOA Vial	MeOH
10	26259	Yes	N/A	Yes	VOA Vial	MeOH
10	26260	Yes	N/A	Yes	VOA Vial	MeOH
10	26261	Yes	N/A	Yes	VOA Vial	MeOH
11	26101	Yes	N/A	Yes	8 oz jar	NP
11	26133	Yes	N/A	Yes	VOA Vial	DI Water
11	26134	Yes	N/A	Yes	VOA Vial	DI Water
11	26155	Yes	N/A	Yes	VOA Vial	MeOH
11	26255	Yes	N/A	Yes	VOA Vial	MeOH
12	26102	Yes	N/A	Yes	8 oz jar	NP
12	26135	Yes	N/A	Yes	VOA Vial	DI Water
12	26136	Yes	N/A	Yes	VOA Vial	DI Water

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0705
 Date Received: 3/20/2020

12	26156	Yes	N/A	Yes	VOA Vial	MeOH
12	26256	Yes	N/A	Yes	VOA Vial	MeOH
13	26103	Yes	N/A	Yes	8 oz jar	NP
13	26137	Yes	N/A	Yes	VOA Vial	DI Water
13	26138	Yes	N/A	Yes	VOA Vial	DI Water
13	26157	Yes	N/A	Yes	VOA Vial	MeOH
14	26104	Yes	N/A	Yes	8 oz jar	NP
14	26139	Yes	N/A	Yes	VOA Vial	DI Water
14	26140	Yes	N/A	Yes	VOA Vial	DI Water
14	26158	Yes	N/A	Yes	VOA Vial	MeOH
15	26105	Yes	N/A	Yes	8 oz jar	NP
15	26141	Yes	N/A	Yes	VOA Vial	DI Water
15	26142	Yes	N/A	Yes	VOA Vial	DI Water
15	26159	Yes	N/A	Yes	VOA Vial	MeOH
15	26257	Yes	N/A	Yes	VOA Vial	MeOH
16	26143	Yes	N/A	Yes	VOA Vial	DI Water
16	26144	Yes	N/A	Yes	VOA Vial	DI Water
16	26160	Yes	N/A	Yes	VOA Vial	MeOH
16	26258	Yes	N/A	Yes	VOA Vial	MeOH

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials

[Handwritten Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

Completed
By:

[Handwritten Signature]

Date & Time:

3/20/20 2015

Reviewed
By:

[Handwritten Signature]

Date & Time:

3/20/20 2023

Delivered
By:

[Handwritten Signature]

Date & Time:

3/20/20 2023

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0705
 Date Received: 3/20/2020
 Project Due Date: 3/27/2020
 Days for Project: 5 Day

Shipped/Delivered Via: _____ Client _____

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 5.6 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: 3/20/20
 b. Low Level VOA vials frozen: Date: 3/20/20

Time: _____ By: _____
 Time: 2023 By: MA

Sample Receiving Notes:

COC = EA-19-0-2.5 Label = EA-19-20-2.5

Samples for Hex Cr only have 1 jar provided

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	26091	Yes	N/A	Yes	8 oz jar	NP	
1	26113	Yes	N/A	Yes	VOA Vial	DI Water	
1	26114	Yes	N/A	Yes	VOA Vial	DI Water	
1	26145	Yes	N/A	Yes	VOA Vial	MeOH	
2	26092	Yes	N/A	Yes	8 oz jar	NP	
2	26115	Yes	N/A	Yes	VOA Vial	DI Water	
2	26116	Yes	N/A	Yes	VOA Vial	DI Water	
2	26146	Yes	N/A	Yes	VOA Vial	MeOH	
3	26093	Yes	N/A	Yes	8 oz jar	NP	
3	26117	Yes	N/A	Yes	VOA Vial	DI Water	
3	26118	Yes	N/A	Yes	VOA Vial	DI Water	
3	26147	Yes	N/A	Yes	VOA Vial	MeOH	
4	26094	Yes	N/A	Yes	8 oz jar	NP	
4	26107	Yes	N/A	Yes	8 oz jar	NP	
4	26108	Yes	N/A	Yes	8 oz jar	NP	
4	26119	Yes	N/A	Yes	VOA Vial	DI Water	
4	26120	Yes	N/A	Yes	VOA Vial	DI Water	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0705
 Date Received: 3/20/2020

4	26148	Yes	N/A	Yes	VOA Vial	MeOH
4	26161	Yes	N/A	Yes	VOA Vial	DI Water
4	26162	Yes	N/A	Yes	VOA Vial	DI Water
4	26163	Yes	N/A	Yes	VOA Vial	DI Water
4	26164	Yes	N/A	Yes	VOA Vial	DI Water
4	26169	Yes	N/A	Yes	VOA Vial	MeOH
4	26170	Yes	N/A	Yes	VOA Vial	MeOH
5	26095	Yes	N/A	Yes	8 oz jar	NP
5	26121	Yes	N/A	Yes	VOA Vial	DI Water
5	26122	Yes	N/A	Yes	VOA Vial	DI Water
5	26149	Yes	N/A	Yes	VOA Vial	MeOH
6	26096	Yes	N/A	Yes	8 oz jar	NP
6	26123	Yes	N/A	Yes	VOA Vial	DI Water
6	26124	Yes	N/A	Yes	VOA Vial	DI Water
6	26150	Yes	N/A	Yes	VOA Vial	MeOH
7	26097	Yes	N/A	Yes	8 oz jar	NP
7	26111	Yes	N/A	Yes	8 oz jar	NP
7	26125	Yes	N/A	Yes	VOA Vial	DI Water
7	26126	Yes	N/A	Yes	VOA Vial	DI Water
7	26151	Yes	N/A	Yes	VOA Vial	MeOH
8	26098	Yes	N/A	Yes	8 oz jar	NP
8	26112	Yes	N/A	Yes	8 oz jar	NP
8	26127	Yes	N/A	Yes	VOA Vial	DI Water
8	26128	Yes	N/A	Yes	VOA Vial	DI Water
8	26152	Yes	N/A	Yes	VOA Vial	MeOH
9	26099	Yes	N/A	Yes	8 oz jar	NP
9	26129	Yes	N/A	Yes	VOA Vial	DI Water
9	26130	Yes	N/A	Yes	VOA Vial	DI Water
9	26153	Yes	N/A	Yes	VOA Vial	MeOH
9	26254	Yes	N/A	Yes	VOA Vial	MeOH
10	26100	Yes	N/A	Yes	8 oz jar	NP
10	26109	Yes	N/A	Yes	8 oz jar	NP
10	26110	Yes	N/A	Yes	8 oz jar	NP
10	26131	Yes	N/A	Yes	VOA Vial	DI Water
10	26132	Yes	N/A	Yes	VOA Vial	DI Water
10	26154	Yes	N/A	Yes	VOA Vial	MeOH
10	26165	Yes	N/A	Yes	VOA Vial	DI Water
10	26166	Yes	N/A	Yes	VOA Vial	DI Water
10	26167	Yes	N/A	Yes	VOA Vial	DI Water
10	26168	Yes	N/A	Yes	VOA Vial	DI Water
10	26171	Yes	N/A	Yes	VOA Vial	MeOH
10	26172	Yes	N/A	Yes	VOA Vial	MeOH
10	26259	Yes	N/A	Yes	VOA Vial	MeOH
10	26260	Yes	N/A	Yes	VOA Vial	MeOH
10	26261	Yes	N/A	Yes	VOA Vial	MeOH
11	26101	Yes	N/A	Yes	8 oz jar	NP
11	26133	Yes	N/A	Yes	VOA Vial	DI Water
11	26134	Yes	N/A	Yes	VOA Vial	DI Water
11	26155	Yes	N/A	Yes	VOA Vial	MeOH
11	26255	Yes	N/A	Yes	VOA Vial	MeOH
12	26102	Yes	N/A	Yes	8 oz jar	NP
12	26135	Yes	N/A	Yes	VOA Vial	DI Water
12	26136	Yes	N/A	Yes	VOA Vial	DI Water

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0705
 Date Received: 3/20/2020

12	26156	Yes	N/A	Yes	VOA Vial	MeOH
12	26256	Yes	N/A	Yes	VOA Vial	MeOH
13	26103	Yes	N/A	Yes	8 oz jar	NP
13	26137	Yes	N/A	Yes	VOA Vial	DI Water
13	26138	Yes	N/A	Yes	VOA Vial	DI Water
13	26157	Yes	N/A	Yes	VOA Vial	MeOH
14	26104	Yes	N/A	Yes	8 oz jar	NP
14	26139	Yes	N/A	Yes	VOA Vial	DI Water
14	26140	Yes	N/A	Yes	VOA Vial	DI Water
14	26158	Yes	N/A	Yes	VOA Vial	MeOH
15	26105	Yes	N/A	Yes	8 oz jar	NP
15	26141	Yes	N/A	Yes	VOA Vial	DI Water
15	26142	Yes	N/A	Yes	VOA Vial	DI Water
15	26159	Yes	N/A	Yes	VOA Vial	MeOH
15	26257	Yes	N/A	Yes	VOA Vial	MeOH
16	26143	Yes	N/A	Yes	VOA Vial	DI Water
16	26144	Yes	N/A	Yes	VOA Vial	DI Water
16	26160	Yes	N/A	Yes	VOA Vial	MeOH
16	26258	Yes	N/A	Yes	VOA Vial	MeOH

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials

[Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

Completed
By:

[Signature]

Date & Time:

3/20/20 2015

Reviewed
By:

[Signature]

Date & Time:

3/20/20 2023

Delivered
By:

[Signature]

3/20/20 2023

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0708
 Date Received: 3/23/2020
 Project Due Date: 3/30/2020
 Days for Project: 5 Day

Shipped/Delivered Via: Client

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: 3/24/20 Time: _____ By: Client

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	26262	Yes	N/A	Yes	8 oz jar	NP	
1	26264	Yes	N/A	Yes	VOA Vial	DI Water	
1	26265	Yes	N/A	Yes	VOA Vial	DI Water	
1	26268	Yes	N/A	Yes	VOA Vial	MeOH	
2	26263	Yes	N/A	Yes	8 oz jar	NP	
2	26266	Yes	N/A	Yes	VOA Vial	DI Water	
2	26267	Yes	N/A	Yes	VOA Vial	DI Water	
2	26269	Yes	N/A	Yes	VOA Vial	MeOH	
3	26270	Yes	N/A	Yes	VOA Vial	MeOH	
3	26271	Yes	N/A	Yes	VOA Vial	DI Water	
3	26272	Yes	N/A	Yes	VOA Vial	DI Water	

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Initials [Signature]

- Yes / No
- Yes / No / NA
- Yes / No / NA
- Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

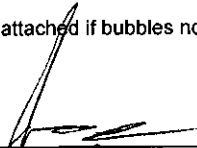

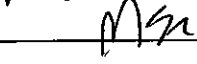
Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0708

Date Received: 3/23/2020

Are VOA stickers attached if bubbles noted?

Yes / No / NA

Completed By:		Date & Time:	<u>3/27/20</u>	<u>9:57</u>
Reviewed By:		Date & Time:	<u>3/23/20</u>	<u>1035</u>
Delivered By:			<u>3/23/20</u>	<u>1035</u>

ESS Laboratory

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 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
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CHAIN OF CUSTODY

ESS Lab # **2000703**

Reporting Limits

Electronic Deliverables Data Checker Excel **pg 4 of 4**

Other (Please Specify --)

Turn Time **5** Days

Regulatory State **RI Remediation**

Is this project for any of the following?:
 CT RCP MA MCP RGP **RI REM**

Company Name **EA Engineering**

Contact Person **Jonathan Alvarez**

City **Warwick** State **RI**

Telephone Number **401-287-0364** FAX Number

Project # **1525817** Project Name **RIDEM-TAC Sunnyside Phase II**

Address **301 Metro Center Blvd** PO #

Zip Code Email Address **j.alvarez@east.com**

Analysis	hdm	3/23/20																		
	TPH	SVOC	PP13 Metals	VOC - Standards	VOC - Low Level															
	X	X	X	X	X															

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID
1	3/19/20	00:00	Grab	Soil	EA-Dup - HazMat 2

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DIH2O 11-Other*

Number of Containers per Sample: **1 1 1 2 1**

Laboratory Use Only

Cooler Present: Drop Off

Seals Intact: Pickup

Cooler Temperature: **5.6 °C, 2.2**

Sampled by: **Beitha Chambers**

Comments: **RIDEM Remediation Regulations GB Criteria**

Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) [Signature] 3/20/20 1720	Received By: (Signature, Date & Time) [Signature] 3/20/20	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
--	---	---	---------------------------------------



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CHAIN OF CUSTODY

ESS Lab # **220004** Page **1** of **4**
ELECTRONIC DELIVERABLES (Final Reports are PDF)
 Limit Checker State Forms EQiS
 Excel Hard Copy Enviro Data
 CLP-Like Package Other (Specify) →

Turn Time > 5 5 4 3 2/ 1 Same Day
 Regulatory State: Criteria:
 Is this project for any of the following?:
 CT RCP MA MCP RGP Permit 401 WQ

CLIENT INFORMATION

Client: **EA Engineering**
 Address: **301 Metrotech Blvd, Ste 102**
Wasswick, RI 02880
 Phone: **401-287-0364**
 Email Distribution List: **john.laloz@east.com**
cmawxwell@east.com
bchambers@east.com

PROJECT INFORMATION

Project Name: **RISDEM - TAC Summary Phase II**
 Project Location: **92 Sunnyside, Nonsisset RI**
 Project Number: **1525817**
 Project Manager: **Janeethan Alvarez**
 Bill to: **malina@east.com**
 PO#: _____
 Quote#: _____

REQUESTED ANALYSES

Sample ID	Collection Date	Sample Type	Sample Matrix	Sample ID	TPH	SWC	PP3 Metals	VOC - Low Level	TPH-GRO	TPH-DRO	Lead	BTEX - Standards	BTEX - Low Level	Total Number of Bottles
1	3/11/20	0910	soil	EA-9-0-2.5	X				X	X	X	X	X	6
2	1000			EA-9-25-27.5	X				X	X	X	X	X	5
3	1045			EA-10-0-2.5	X	X	X	X						4
4	1145			EA-10-15-17.5	X	X	X	X						4
5	1230			EA-17-0-2.5	X	X	X	X						4
6	1300			EA-17-15-17.5	X	X	X	X						4
7	1515			EA-13-0-2.5	X	X	X	X						4
8	1530			EA-13-20-22.5	X	X	X	X						4
9	1615			EA-14-0-2.5	X	X	X	X						4
10	1625		X	EA-14-15-17.5	X	X	X	X						4

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubittainer J-Jar O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2SO3 8-ZnAc2, NaOH 9-NH4Cl 10-DI.H2O 11-Other*
 Sampled by: **B. Rose Chambers, Great Trigon** Chain needs to be filled out neatly and completely for on time delivery.

Comments: * Please specify "Other" preservative and containers types in this space
S.C. RISDEM Remediation Regulations GB Criteria
 Dissolved Filtration Lab Filter
 All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
<i>[Signature]</i>	3/11/20	1720	<i>[Signature]</i>		
<i>[Signature]</i>			<i>[Signature]</i>		



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 Fax: 401-461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time > 5 4 3 2 1 Same Day
 Regulatory State: RI Criteria: Remediation
 Is this project for any of the following?:
 CT RCP MA MCP RGP Permit 401 WQ

ESS Lab # **J00005** Page **3** of **4**

ELECTRONIC DELIVERABLES (Final Reports are PDF)
 Limit Checker State Forms EQUIS
 Excel Hard Copy Enviro Data
 CLP-Like Package Other (Specify) →

CLIENT INFORMATION

Client: EA Engineering
 Address: 301 Metro Center Blvd STE102
 Warwick, RI 02886
 Phone: 401-736-3440
 Email Distribution List:
 cmaxwell@eaest.com; behambers@eaest.com
 jakovc@eaest.com

PROJECT INFORMATION

Project Name: RIDEM TAC - Sunnyside
 Project Location: 92 Sunnyside Ave, Norwood, RI
 Project Number: Jonathan Ambrose
 Project Manager: 1525817
 Bill to: m@na@eaest.com
 PO#:
 Quote#:
 Client acknowledges that sampling is compliant with all EPA / State regulatory programs

REQUESTED ANALYSES

ESS Lab ID	Collection Date	Sample Type	Sample Matrix	Sample ID	TPH 8100	SVOC	PP13 Metals	VOC high	VOC LL	TPH-GR0	TPH-DR0	Lead	BTEX-Standards	BTEX-Low	Total Number of Bottles
11	3/20/20	Grab	Soil	EA-8-0-2.5	X	X	X	X		X	X	X	X	X	
12	1330			EA-8-15-2.0	X	X	X	X		X	X	X	X	X	
13	1430			EA-20-0-2.5	X	X	X	X		X	X	X	X	X	
14	1445			EA-20-15-17.5	X	X	X	X		X	X	X	X	X	
10	1230			EA-7-10-15 MS	X	X	X	X		X	X	X	X	X	
10	1230			EA-7-10-15 MSD	X	X	X	X		X	X	X	X	X	
4	0850			EA-16-14.5-17 MS	X	X	X	X		X	X	X	X	X	
4	0850			EA-16-14.5-17 MSD	X	X	X	X		X	X	X	X	X	
15	00:00			EA-8-Sup-PT						X	X	X	X	X	
16	3/19/20	Grab	Lab Repairs	EA-Trip Blank-031920						X	X	X	X	X	
Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitiainer J-Jar O-Other P-Poly S-Sterile V-Vial Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-IL 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAcAc, NaOH 9-NH4Cl 10-DI H2O 11-Other*															

Comments: * Please specify "Other" preservative and containers types in this space

RIDEM Remediation Regulations GB Analytical Limits
 S-612.5

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Relinquished by (Signature)	Date	Received by (Signature)	Date	Relinquished by (Signature)	Date	Received by (Signature)	Date
<i>[Signature]</i>	3/20/20	<i>[Signature]</i>	1720				
<i>[Signature]</i>							

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CHAIN OF CUSTODY

Turn Time: Standard Rush: Island
 Regulatory State: Rhode Island
 Is this project for any of the following?:
 MA-MCP CT-RCP RGP Remediation
 MA-MCP CT-RCP RGP Remediation

Company Name: EA Engineering Inc
 Contact Person: Jonathan Alvarez
 City: Warwick State: R.I.
 Telephone Number: 401-287-0364 FAX Number: Bill to mdina@east.com
 Project # 1525817 Project Name: RIDEM-TMC Surroundside Phase II
 Address: 301 Metro Center Blvd Ste B2 PO #
 Zip Code: 02886 Email Address: Salvarez@peaest.com

ESS Lab # 206708

Reporting Limits

Electronic Deliverables Limit Checker Excel
 Other (Please Specify) → Please send final report on CD

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis	TPH	SVOC	PP3 Metals	VOC-Standards	VOC-Low	Limit Checker	Excel	
1	3/20/02	1630	Grab	Soil	EA21-0-2.5		X	X	X	X	X	X	X	
2	3/20/02	1705	Grab	Sal	EA-21-32.5-35		X	X	X	X	X	X	X	
3	3/20/02	1630	Grab	Empty vial	ETrip Blank-0320020									
Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other							ag	ag	ag	ag	ag			
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc2, NaOH 9-NH4Cl 10-DI H2O 11-Other							1	1	1	1	1	1	1	2
Number of Containers:							1	1	1	1	1	1	2	

Laboratory Use Only

Cooler Present: _____
 Seals Intact: _____
 Cooler Temperature: ICE °C
 Relinquished by: (Signature, Date & Time) Britta Cervantes 3/23/02
 Relinquished by: (Signature, Date & Time) Britta Cervantes 3/23/02
 Relinquished by: (Signature, Date & Time) _____
 Relinquished by: (Signature, Date & Time) _____

Sampled by: Britta Cervantes

Comments:
 Please specify "Other" preservative and containers types in this space
 ↓ RIDEM Remediation GB analytical limits
 ↓ All samples frozen w/in 48 hrs of collection

Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)



CERTIFICATE OF ANALYSIS

Jonathan Alvarez
EA Engineering, Science, and Technology
301 Metro Center Blvd, Suite 102
Warwick, RI 02886

RE: RIDEM-TAC-Sunnyside Phase II (1525818)
ESS Laboratory Work Order Number: 20C0577

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 5:41 pm, Mar 25, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

SAMPLE RECEIPT

The following samples were received on March 18, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on March 18, 2020 at 1845.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0577-01	EA-11-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0577-02	EA-11-29-30	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0577-03	EA-12-0-2.5	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0577-04	EA-12-22.5-25	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0577-05	EA-DUP-HM-1	Soil	6010C, 7471B, 8100M, 8260B Low, 8270D
20C0577-06	Trip Blank - 031820	Soil	8260B Low



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

- D0C0312-CCV1 **Calibration required quadratic regression (O).**
2,4-Dinitrophenol (120% @ 80-120%), 4,6-Dinitro-2-Methylphenol (118% @ 80-120%), Benzoic Acid (114% @ 80-120%), Pentachlorophenol (116% @ 80-120%)
- D0C0312-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Hexachlorocyclopentadiene
- D0C0313-CCV1 **Calibration required quadratic regression (O).**
2,4-Dinitrophenol (129% @ 80-120%), 4,6-Dinitro-2-Methylphenol (121% @ 80-120%), Benzoic Acid (127% @ 80-120%), Pentachlorophenol (109% @ 80-120%)
- D0C0313-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrophenol (29% @ 20%), 2-Nitroaniline (21% @ 20%), 4,6-Dinitro-2-Methylphenol (21% @ 20%), Benzoic Acid (27% @ 20%)
- D0C0339-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (96% @ 80-120%), 4,6-Dinitro-2-Methylphenol (97% @ 80-120%), Benzoic Acid (88% @ 80-120%), Pentachlorophenol (91% @ 80-120%)
- D0C0339-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Dibenzo(a,h)Anthracene (22% @ 20%)
- DC01744-BS1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (33% @ 40-140%)
- DC01744-BSD1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (24% @ 40-140%)
- DC01744-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
4-Chloroaniline (32% @ 30%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.76)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Arsenic	ND (2.38)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Beryllium	0.13 (0.10)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Cadmium	ND (0.48)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Chromium	3.39 (0.95)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Copper	2.46 (2.38)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Lead	ND (4.76)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Mercury	ND (0.026)		7471B		1	MKS	03/20/20 10:35	0.79	40	DC01951
Nickel	ND (2.38)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Selenium	ND (4.76)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Silver	ND (0.48)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Thallium	ND (4.76)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950
Zinc	6.56 (2.38)		6010C		1	KJK	03/20/20 1:47	2.19	100	DC01950



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 5.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,1,1-Trichloroethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,1,2,2-Tetrachloroethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,1,2-Trichloroethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,1-Dichloroethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,1-Dichloroethene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,1-Dichloropropene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2,3-Trichlorobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2,3-Trichloropropane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2,4-Trichlorobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2,4-Trimethylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2-Dibromo-3-Chloropropane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2-Dibromoethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2-Dichlorobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2-Dichloroethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,2-Dichloropropane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,3,5-Trimethylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,3-Dichlorobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,3-Dichloropropane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,4-Dichlorobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1,4-Dioxane	ND (0.0914)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
1-Chlorohexane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
2,2-Dichloropropane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
2-Butanone	ND (0.0457)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
2-Chlorotoluene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
2-Hexanone	ND (0.0457)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
4-Chlorotoluene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
4-Isopropyltoluene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
4-Methyl-2-Pentanone	ND (0.0457)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Acetone	ND (0.0457)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Benzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Bromobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 5.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Bromodichloromethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Bromoform	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Bromomethane	ND (0.0091)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Carbon Disulfide	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Carbon Tetrachloride	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Chlorobenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Chloroethane	ND (0.0091)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Chloroform	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Chloromethane	ND (0.0091)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
cis-1,2-Dichloroethene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
cis-1,3-Dichloropropene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Dibromochloromethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Dibromomethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Dichlorodifluoromethane	ND (0.0091)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Diethyl Ether	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Di-isopropyl ether	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Ethyl tertiary-butyl ether	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Ethylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Hexachlorobutadiene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Isopropylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Methyl tert-Butyl Ether	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Methylene Chloride	ND (0.0228)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Naphthalene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
n-Butylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
n-Propylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
sec-Butylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Styrene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
tert-Butylbenzene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Tertiary-amyl methyl ether	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Tetrachloroethene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Tetrahydrofuran	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 5.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
trans-1,2-Dichloroethene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
trans-1,3-Dichloropropene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Trichloroethene	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Trichlorofluoromethane	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Vinyl Acetate	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Vinyl Chloride	ND (0.0091)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Xylene O	ND (0.0046)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Xylene P,M	ND (0.0091)		8260B Low		1	03/19/20 19:57	D0C0358	DC01938
Xylenes (Total)	ND (0.00914)		8260B Low		1	03/19/20 19:57		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 20.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 3/18/20 18:25

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (37.9)		8100M		1	03/19/20 9:04	D0C0341	DC01743
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>109 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
1,2,4-Trichlorobenzene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
1,2-Dichlorobenzene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
1,3-Dichlorobenzene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
1,4-Dichlorobenzene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,3,4,6-Tetrachlorophenol	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,4,5-Trichlorophenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,4,6-Trichlorophenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,4-Dichlorophenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,4-Dimethylphenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,4-Dinitrophenol	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,4-Dinitrotoluene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2,6-Dinitrotoluene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2-Chloronaphthalene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2-Chlorophenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2-Methylnaphthalene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2-Methylphenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2-Nitroaniline	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
2-Nitrophenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
3,3'-Dichlorobenzidine	ND (0.729)		8270D		1	03/19/20 7:44	D0C0313	DC01744
3+4-Methylphenol	ND (0.729)		8270D		1	03/19/20 7:44	D0C0313	DC01744
3-Nitroaniline	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4,6-Dinitro-2-Methylphenol	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4-Bromophenyl-phenylether	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4-Chloro-3-Methylphenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4-Chloroaniline	ND (0.729)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4-Chloro-phenyl-phenyl ether	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4-Nitroaniline	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
4-Nitrophenol	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Acenaphthene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Acenaphthylene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Acetophenone	ND (0.729)		8270D		1	03/19/20 7:44	D0C0313	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.729)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Anthracene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Azobenzene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzo(a)anthracene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzo(a)pyrene	ND (0.182)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzo(b)fluoranthene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzo(g,h,i)perylene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzo(k)fluoranthene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzoic Acid	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Benzyl Alcohol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
bis(2-Chloroethoxy)methane	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
bis(2-Chloroethyl)ether	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
bis(2-chloroisopropyl)Ether	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
bis(2-Ethylhexyl)phthalate	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Butylbenzylphthalate	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Carbazole	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Chrysene	ND (0.182)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Dibenzo(a,h)Anthracene	ND (0.182)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Dibenzofuran	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Diethylphthalate	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Dimethylphthalate	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Di-n-butylphthalate	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Di-n-octylphthalate	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Fluoranthene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Fluorene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Hexachlorobenzene	ND (0.182)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Hexachlorobutadiene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Hexachlorocyclopentadiene	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Hexachloroethane	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Indeno(1,2,3-cd)Pyrene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Isophorone	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Naphthalene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-0-2.5
Date Sampled: 03/18/20 09:22
Percent Solids: 96
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
N-Nitrosodimethylamine	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
N-Nitroso-Di-n-Propylamine	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
N-nitrosodiphenylamine	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Pentachlorophenol	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Phenanthrene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Phenol	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Pyrene	ND (0.364)		8270D		1	03/19/20 7:44	D0C0313	DC01744
Pyridine	ND (1.82)		8270D		1	03/19/20 7:44	D0C0313	DC01744

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>85 %</i>		<i>30-130</i>
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>103 %</i>		<i>30-130</i>
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>84 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>82 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorophenol</i>	<i>78 %</i>		<i>30-130</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>76 %</i>		<i>30-130</i>
<i>Surrogate: Phenol-d6</i>	<i>83 %</i>		<i>30-130</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>109 %</i>		<i>30-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.30)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Arsenic	ND (2.15)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Beryllium	0.11 (0.09)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Cadmium	ND (0.43)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Chromium	8.87 (0.86)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Copper	8.10 (2.15)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Lead	ND (4.30)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Mercury	ND (0.033)		7471B		1	MKS	03/20/20 10:37	0.69	40	DC01951
Nickel	6.06 (2.15)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Selenium	ND (4.30)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Silver	ND (0.43)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Thallium	ND (4.30)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950
Zinc	16.4 (2.15)		6010C		1	KJK	03/20/20 1:51	2.66	100	DC01950



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 4.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,1,1-Trichloroethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,1,2,2-Tetrachloroethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,1,2-Trichloroethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,1-Dichloroethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,1-Dichloroethene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,1-Dichloropropene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2,3-Trichlorobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2,3-Trichloropropane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2,4-Trichlorobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2,4-Trimethylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2-Dibromo-3-Chloropropane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2-Dibromoethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2-Dichlorobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2-Dichloroethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,2-Dichloropropane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,3,5-Trimethylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,3-Dichlorobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,3-Dichloropropane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,4-Dichlorobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1,4-Dioxane	ND (0.119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
1-Chlorohexane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
2,2-Dichloropropane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
2-Butanone	ND (0.0595)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
2-Chlorotoluene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
2-Hexanone	ND (0.0595)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
4-Chlorotoluene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
4-Isopropyltoluene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
4-Methyl-2-Pentanone	ND (0.0595)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Acetone	ND (0.0595)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Benzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Bromobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 4.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Bromodichloromethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Bromoform	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Bromomethane	ND (0.0119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Carbon Disulfide	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Carbon Tetrachloride	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Chlorobenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Chloroethane	ND (0.0119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Chloroform	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Chloromethane	ND (0.0119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
cis-1,2-Dichloroethene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
cis-1,3-Dichloropropene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Dibromochloromethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Dibromomethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Dichlorodifluoromethane	ND (0.0119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Diethyl Ether	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Di-isopropyl ether	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Ethyl tertiary-butyl ether	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Ethylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Hexachlorobutadiene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Isopropylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Methyl tert-Butyl Ether	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Methylene Chloride	ND (0.0298)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Naphthalene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
n-Butylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
n-Propylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
sec-Butylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Styrene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
tert-Butylbenzene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Tertiary-amyl methyl ether	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Tetrachloroethene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Tetrahydrofuran	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 4.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
trans-1,2-Dichloroethene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
trans-1,3-Dichloropropene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Trichloroethene	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Trichlorofluoromethane	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Vinyl Acetate	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Vinyl Chloride	ND (0.0119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Xylene O	ND (0.0060)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Xylene P,M	ND (0.0119)		8260B Low		1	03/19/20 20:22	D0C0358	DC01938
Xylenes (Total)	ND (0.0119)		8260B Low		1	03/19/20 20:22		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 20.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 3/18/20 18:25

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (41.4)		8100M		1	03/19/20 9:37	D0C0341	DC01743
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>109 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
1,2,4-Trichlorobenzene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
1,2-Dichlorobenzene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
1,3-Dichlorobenzene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
1,4-Dichlorobenzene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,3,4,6-Tetrachlorophenol	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,4,5-Trichlorophenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,4,6-Trichlorophenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,4-Dichlorophenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,4-Dimethylphenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,4-Dinitrophenol	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,4-Dinitrotoluene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2,6-Dinitrotoluene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2-Chloronaphthalene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2-Chlorophenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2-Methylnaphthalene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2-Methylphenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2-Nitroaniline	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
2-Nitrophenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
3,3'-Dichlorobenzidine	ND (0.752)		8270D		1	03/19/20 8:10	D0C0313	DC01744
3+4-Methylphenol	ND (0.752)		8270D		1	03/19/20 8:10	D0C0313	DC01744
3-Nitroaniline	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4,6-Dinitro-2-Methylphenol	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4-Bromophenyl-phenylether	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4-Chloro-3-Methylphenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4-Chloroaniline	ND (0.752)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4-Chloro-phenyl-phenyl ether	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4-Nitroaniline	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
4-Nitrophenol	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Acenaphthene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Acenaphthylene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Acetophenone	ND (0.752)		8270D		1	03/19/20 8:10	D0C0313	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.752)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Anthracene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Azobenzene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzo(a)anthracene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzo(a)pyrene	ND (0.188)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzo(b)fluoranthene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzo(g,h,i)perylene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzo(k)fluoranthene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzoic Acid	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Benzyl Alcohol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
bis(2-Chloroethoxy)methane	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
bis(2-Chloroethyl)ether	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
bis(2-chloroisopropyl)Ether	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
bis(2-Ethylhexyl)phthalate	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Butylbenzylphthalate	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Carbazole	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Chrysene	ND (0.188)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Dibenzo(a,h)Anthracene	ND (0.188)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Dibenzofuran	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Diethylphthalate	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Dimethylphthalate	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Di-n-butylphthalate	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Di-n-octylphthalate	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Fluoranthene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Fluorene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Hexachlorobenzene	ND (0.188)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Hexachlorobutadiene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Hexachlorocyclopentadiene	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Hexachloroethane	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Indeno(1,2,3-cd)Pyrene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Isophorone	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Naphthalene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-11-29-30
Date Sampled: 03/18/20 09:55
Percent Solids: 87
Initial Volume: 15.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
N-Nitrosodimethylamine	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
N-Nitroso-Di-n-Propylamine	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
N-nitrosodiphenylamine	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Pentachlorophenol	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Phenanthrene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Phenol	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Pyrene	ND (0.376)		8270D		1	03/19/20 8:10	D0C0313	DC01744
Pyridine	ND (1.88)		8270D		1	03/19/20 8:10	D0C0313	DC01744

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>81 %</i>		<i>30-130</i>
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>107 %</i>		<i>30-130</i>
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>85 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorophenol</i>	<i>76 %</i>		<i>30-130</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>81 %</i>		<i>30-130</i>
<i>Surrogate: Phenol-d6</i>	<i>86 %</i>		<i>30-130</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>111 %</i>		<i>30-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (3.86)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Arsenic	ND (1.93)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Beryllium	0.09 (0.08)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Cadmium	ND (0.39)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Chromium	4.22 (0.77)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Copper	4.97 (1.93)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Lead	ND (3.86)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Mercury	ND (0.029)		7471B		1	MKS	03/20/20 10:39	0.71	40	DC01951
Nickel	4.12 (1.93)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Selenium	ND (3.86)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Silver	ND (0.39)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Thallium	ND (3.86)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950
Zinc	14.2 (1.93)		6010C		1	KJK	03/20/20 12:41	2.73	100	DC01950



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,1,1-Trichloroethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,1,2,2-Tetrachloroethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,1,2-Trichloroethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,1-Dichloroethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,1-Dichloroethene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,1-Dichloropropene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2,3-Trichlorobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2,3-Trichloropropane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2,4-Trichlorobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2,4-Trimethylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2-Dibromo-3-Chloropropane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2-Dibromoethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2-Dichlorobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2-Dichloroethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,2-Dichloropropane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,3,5-Trimethylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,3-Dichlorobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,3-Dichloropropane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,4-Dichlorobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1,4-Dioxane	ND (0.105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
1-Chlorohexane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
2,2-Dichloropropane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
2-Butanone	ND (0.0526)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
2-Chlorotoluene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
2-Hexanone	ND (0.0526)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
4-Chlorotoluene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
4-Isopropyltoluene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
4-Methyl-2-Pentanone	ND (0.0526)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Acetone	ND (0.0526)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Benzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Bromobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Bromodichloromethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Bromoform	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Bromomethane	ND (0.0105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Carbon Disulfide	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Carbon Tetrachloride	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Chlorobenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Chloroethane	ND (0.0105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Chloroform	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Chloromethane	ND (0.0105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
cis-1,2-Dichloroethene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
cis-1,3-Dichloropropene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Dibromochloromethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Dibromomethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Dichlorodifluoromethane	ND (0.0105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Diethyl Ether	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Di-isopropyl ether	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Ethyl tertiary-butyl ether	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Ethylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Hexachlorobutadiene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Isopropylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Methyl tert-Butyl Ether	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Methylene Chloride	ND (0.0263)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Naphthalene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
n-Butylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
n-Propylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
sec-Butylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Styrene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
tert-Butylbenzene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Tertiary-amyl methyl ether	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Tetrachloroethene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Tetrahydrofuran	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-12-0-2.5
 Date Sampled: 03/18/20 10:30
 Percent Solids: 95
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
 ESS Laboratory Sample ID: 20C0577-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
trans-1,2-Dichloroethene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
trans-1,3-Dichloropropene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Trichloroethene	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Trichlorofluoromethane	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Vinyl Acetate	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Vinyl Chloride	ND (0.0105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Xylene O	ND (0.0053)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Xylene P,M	ND (0.0105)		8260B Low		1	03/19/20 20:48	D0C0358	DC01938
Xylenes (Total)	ND (0.0105)		8260B Low		1	03/19/20 20:48		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 3/18/20 18:25

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (40.7)		8100M		1	03/19/20 10:10	D0C0341	DC01743
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>106 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
1,2,4-Trichlorobenzene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
1,2-Dichlorobenzene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
1,3-Dichlorobenzene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
1,4-Dichlorobenzene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,3,4,6-Tetrachlorophenol	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,4,5-Trichlorophenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,4,6-Trichlorophenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,4-Dichlorophenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,4-Dimethylphenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,4-Dinitrophenol	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,4-Dinitrotoluene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2,6-Dinitrotoluene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2-Chloronaphthalene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2-Chlorophenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2-Methylnaphthalene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2-Methylphenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2-Nitroaniline	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
2-Nitrophenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
3,3'-Dichlorobenzidine	ND (0.697)		8270D		1	03/19/20 21:42	D0C0339	DC01744
3+4-Methylphenol	ND (0.697)		8270D		1	03/19/20 21:42	D0C0339	DC01744
3-Nitroaniline	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4,6-Dinitro-2-Methylphenol	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4-Bromophenyl-phenylether	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4-Chloro-3-Methylphenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4-Chloroaniline	ND (0.697)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4-Chloro-phenyl-phenyl ether	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4-Nitroaniline	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
4-Nitrophenol	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Acenaphthene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Acenaphthylene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Acetophenone	ND (0.697)		8270D		1	03/19/20 21:42	D0C0339	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.697)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Anthracene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Azobenzene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzo(a)anthracene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzo(a)pyrene	ND (0.175)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzo(b)fluoranthene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzo(g,h,i)perylene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzo(k)fluoranthene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzoic Acid	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Benzyl Alcohol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
bis(2-Chloroethoxy)methane	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
bis(2-Chloroethyl)ether	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
bis(2-chloroisopropyl)Ether	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
bis(2-Ethylhexyl)phthalate	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Butylbenzylphthalate	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Carbazole	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Chrysene	ND (0.175)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Dibenzo(a,h)Anthracene	ND (0.175)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Dibenzofuran	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Diethylphthalate	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Dimethylphthalate	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Di-n-butylphthalate	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Di-n-octylphthalate	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Fluoranthene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Fluorene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Hexachlorobenzene	ND (0.175)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Hexachlorobutadiene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Hexachlorocyclopentadiene	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Hexachloroethane	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Indeno(1,2,3-cd)Pyrene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Isophorone	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Naphthalene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-0-2.5
Date Sampled: 03/18/20 10:30
Percent Solids: 95
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
N-Nitrosodimethylamine	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
N-Nitroso-Di-n-Propylamine	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
N-nitrosodiphenylamine	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Pentachlorophenol	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Phenanthrene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Phenol	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Pyrene	ND (0.348)		8270D		1	03/19/20 21:42	D0C0339	DC01744
Pyridine	ND (1.75)		8270D		1	03/19/20 21:42	D0C0339	DC01744

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	75 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	104 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	78 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	83 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	73 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	76 %		30-130
<i>Surrogate: Phenol-d6</i>	75 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	81 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (4.09)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Arsenic	ND (2.05)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Beryllium	0.11 (0.09)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Cadmium	ND (0.41)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Chromium	15.2 (0.82)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Copper	26.4 (2.05)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Lead	ND (4.09)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Mercury	ND (0.028)		7471B		1	MKS	03/20/20 10:41	0.78	40	DC01951
Nickel	14.1 (2.05)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Selenium	ND (4.09)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Silver	ND (0.41)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Thallium	ND (4.09)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950
Zinc	35.1 (2.05)		6010C		1	KJK	03/20/20 1:59	2.72	100	DC01950



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90
Initial Volume: 5.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,1,1-Trichloroethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,1,2,2-Tetrachloroethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,1,2-Trichloroethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,1-Dichloroethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,1-Dichloroethene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,1-Dichloropropene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2,3-Trichlorobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2,3-Trichloropropane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2,4-Trichlorobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2,4-Trimethylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2-Dibromo-3-Chloropropane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2-Dibromoethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2-Dichlorobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2-Dichloroethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,2-Dichloropropane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,3,5-Trimethylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,3-Dichlorobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,3-Dichloropropane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,4-Dichlorobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1,4-Dioxane	ND (0.0943)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
1-Chlorohexane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
2,2-Dichloropropane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
2-Butanone	ND (0.0471)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
2-Chlorotoluene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
2-Hexanone	ND (0.0471)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
4-Chlorotoluene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
4-Isopropyltoluene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
4-Methyl-2-Pentanone	ND (0.0471)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Acetone	ND (0.0471)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Benzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Bromobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90
Initial Volume: 5.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Bromodichloromethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Bromoform	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Bromomethane	ND (0.0094)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Carbon Disulfide	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Carbon Tetrachloride	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Chlorobenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Chloroethane	ND (0.0094)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Chloroform	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Chloromethane	ND (0.0094)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
cis-1,2-Dichloroethene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
cis-1,3-Dichloropropene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Dibromochloromethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Dibromomethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Dichlorodifluoromethane	ND (0.0094)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Diethyl Ether	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Di-isopropyl ether	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Ethyl tertiary-butyl ether	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Ethylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Hexachlorobutadiene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Isopropylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Methyl tert-Butyl Ether	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Methylene Chloride	ND (0.0236)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Naphthalene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
n-Butylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
n-Propylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
sec-Butylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Styrene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
tert-Butylbenzene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Tertiary-amyl methyl ether	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Tetrachloroethene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Tetrahydrofuran	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90
Initial Volume: 5.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
trans-1,2-Dichloroethene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
trans-1,3-Dichloropropene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Trichloroethene	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Trichlorofluoromethane	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Vinyl Acetate	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Vinyl Chloride	ND (0.0094)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Xylene O	ND (0.0047)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Xylene P,M	ND (0.0094)		8260B Low		1	03/19/20 21:13	D0C0358	DC01938
Xylenes (Total)	ND (0.00943)		8260B Low		1	03/19/20 21:13		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>97 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-12-22.5-25
 Date Sampled: 03/18/20 10:44
 Percent Solids: 90
 Initial Volume: 20.2
 Final Volume: 1
 Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
 ESS Laboratory Sample ID: 20C0577-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: ZLC
 Prepared: 3/18/20 18:25

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (41.3)		8100M		1	03/19/20 10:43	D0C0341	DC01743
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>111 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
1,2,4-Trichlorobenzene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
1,2-Dichlorobenzene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
1,3-Dichlorobenzene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
1,4-Dichlorobenzene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,3,4,6-Tetrachlorophenol	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,4,5-Trichlorophenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,4,6-Trichlorophenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,4-Dichlorophenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,4-Dimethylphenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,4-Dinitrophenol	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,4-Dinitrotoluene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2,6-Dinitrotoluene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2-Chloronaphthalene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2-Chlorophenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2-Methylnaphthalene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2-Methylphenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2-Nitroaniline	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
2-Nitrophenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
3,3'-Dichlorobenzidine	ND (0.768)		8270D		1	03/19/20 22:08	D0C0339	DC01744
3+4-Methylphenol	ND (0.768)		8270D		1	03/19/20 22:08	D0C0339	DC01744
3-Nitroaniline	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4,6-Dinitro-2-Methylphenol	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4-Bromophenyl-phenylether	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4-Chloro-3-Methylphenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4-Chloroaniline	ND (0.768)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4-Chloro-phenyl-phenyl ether	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4-Nitroaniline	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
4-Nitrophenol	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Acenaphthene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Acenaphthylene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Acetophenone	ND (0.768)		8270D		1	03/19/20 22:08	D0C0339	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.768)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Anthracene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Azobenzene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzo(a)anthracene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzo(a)pyrene	ND (0.192)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzo(b)fluoranthene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzo(g,h,i)perylene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzo(k)fluoranthene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzoic Acid	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Benzyl Alcohol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
bis(2-Chloroethoxy)methane	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
bis(2-Chloroethyl)ether	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
bis(2-chloroisopropyl)Ether	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
bis(2-Ethylhexyl)phthalate	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Butylbenzylphthalate	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Carbazole	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Chrysene	ND (0.192)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Dibenzo(a,h)Anthracene	ND (0.192)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Dibenzofuran	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Diethylphthalate	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Dimethylphthalate	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Di-n-butylphthalate	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Di-n-octylphthalate	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Fluoranthene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Fluorene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Hexachlorobenzene	ND (0.192)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Hexachlorobutadiene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Hexachlorocyclopentadiene	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Hexachloroethane	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Indeno(1,2,3-cd)Pyrene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Isophorone	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Naphthalene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-12-22.5-25
Date Sampled: 03/18/20 10:44
Percent Solids: 90
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
N-Nitrosodimethylamine	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
N-Nitroso-Di-n-Propylamine	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
N-nitrosodiphenylamine	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Pentachlorophenol	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Phenanthrene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Phenol	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Pyrene	ND (0.383)		8270D		1	03/19/20 22:08	D0C0339	DC01744
Pyridine	ND (1.92)		8270D		1	03/19/20 22:08	D0C0339	DC01744

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	77 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	121 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	78 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	86 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	72 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	80 %		30-130
<i>Surrogate: Phenol-d6</i>	74 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	89 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (3.86)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Arsenic	ND (1.93)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Beryllium	0.10 (0.09)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Cadmium	ND (0.39)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Chromium	4.67 (0.77)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Copper	5.05 (1.93)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Lead	ND (3.86)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Mercury	ND (0.034)		7471B		1	MKS	03/20/20 10:55	0.63	40	DC01951
Nickel	4.56 (1.93)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Selenium	ND (3.86)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Silver	ND (0.39)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Thallium	ND (3.86)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950
Zinc	16.1 (1.93)		6010C		1	KJK	03/20/20 2:30	2.77	100	DC01950



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93
Initial Volume: 4.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,1,1-Trichloroethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,1,2,2-Tetrachloroethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,1,2-Trichloroethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,1-Dichloroethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,1-Dichloroethene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,1-Dichloropropene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2,3-Trichlorobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2,3-Trichloropropane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2,4-Trichlorobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2,4-Trimethylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2-Dibromo-3-Chloropropane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2-Dibromoethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2-Dichlorobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2-Dichloroethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,2-Dichloropropane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,3,5-Trimethylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,3-Dichlorobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,3-Dichloropropane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,4-Dichlorobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1,4-Dioxane	ND (0.119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
1-Chlorohexane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
2,2-Dichloropropane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
2-Butanone	ND (0.0595)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
2-Chlorotoluene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
2-Hexanone	ND (0.0595)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
4-Chlorotoluene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
4-Isopropyltoluene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
4-Methyl-2-Pentanone	ND (0.0595)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Acetone	ND (0.0595)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Benzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Bromobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93
Initial Volume: 4.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Bromodichloromethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Bromoform	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Bromomethane	ND (0.0119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Carbon Disulfide	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Carbon Tetrachloride	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Chlorobenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Chloroethane	ND (0.0119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Chloroform	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Chloromethane	ND (0.0119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
cis-1,2-Dichloroethene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
cis-1,3-Dichloropropene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Dibromochloromethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Dibromomethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Dichlorodifluoromethane	ND (0.0119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Diethyl Ether	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Di-isopropyl ether	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Ethyl tertiary-butyl ether	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Ethylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Hexachlorobutadiene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Isopropylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Methyl tert-Butyl Ether	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Methylene Chloride	ND (0.0297)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Naphthalene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
n-Butylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
n-Propylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
sec-Butylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Styrene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
tert-Butylbenzene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Tertiary-amyl methyl ether	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Tetrachloroethene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Tetrahydrofuran	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-DUP-HM-1
 Date Sampled: 03/18/20 00:00
 Percent Solids: 93
 Initial Volume: 4.5
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
 ESS Laboratory Sample ID: 20C0577-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
trans-1,2-Dichloroethene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
trans-1,3-Dichloropropene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Trichloroethene	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Trichlorofluoromethane	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Vinyl Acetate	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Vinyl Chloride	ND (0.0119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Xylene O	ND (0.0059)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Xylene P,M	ND (0.0119)		8260B Low		1	03/20/20 17:13	D0C0370	DC02015
Xylenes (Total)	ND (0.0119)		8260B Low		1	03/20/20 17:13		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>117 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>107 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 3/18/20 18:25

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (41.4)		8100M		1	03/19/20 11:16	D0C0341	DC01743
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>104 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
1,2,4-Trichlorobenzene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
1,2-Dichlorobenzene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
1,3-Dichlorobenzene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
1,4-Dichlorobenzene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,3,4,6-Tetrachlorophenol	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,4,5-Trichlorophenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,4,6-Trichlorophenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,4-Dichlorophenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,4-Dimethylphenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,4-Dinitrophenol	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,4-Dinitrotoluene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2,6-Dinitrotoluene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2-Chloronaphthalene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2-Chlorophenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2-Methylnaphthalene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2-Methylphenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2-Nitroaniline	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
2-Nitrophenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
3,3'-Dichlorobenzidine	ND (0.729)		8270D		1	03/19/20 22:34	D0C0339	DC01744
3+4-Methylphenol	ND (0.729)		8270D		1	03/19/20 22:34	D0C0339	DC01744
3-Nitroaniline	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4,6-Dinitro-2-Methylphenol	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4-Bromophenyl-phenylether	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4-Chloro-3-Methylphenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4-Chloroaniline	ND (0.729)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4-Chloro-phenyl-phenyl ether	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4-Nitroaniline	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
4-Nitrophenol	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Acenaphthene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Acenaphthylene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Acetophenone	ND (0.729)		8270D		1	03/19/20 22:34	D0C0339	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.729)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Anthracene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Azobenzene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzo(a)anthracene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzo(a)pyrene	ND (0.182)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzo(b)fluoranthene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzo(g,h,i)perylene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzo(k)fluoranthene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzoic Acid	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Benzyl Alcohol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
bis(2-Chloroethoxy)methane	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
bis(2-Chloroethyl)ether	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
bis(2-chloroisopropyl)Ether	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
bis(2-Ethylhexyl)phthalate	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Butylbenzylphthalate	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Carbazole	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Chrysene	ND (0.182)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Dibenzo(a,h)Anthracene	ND (0.182)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Dibenzofuran	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Diethylphthalate	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Dimethylphthalate	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Di-n-butylphthalate	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Di-n-octylphthalate	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Fluoranthene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Fluorene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Hexachlorobenzene	ND (0.182)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Hexachlorobutadiene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Hexachlorocyclopentadiene	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Hexachloroethane	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Indeno(1,2,3-cd)Pyrene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Isophorone	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Naphthalene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-DUP-HM-1
Date Sampled: 03/18/20 00:00
Percent Solids: 93
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 3/18/20 18:35

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
N-Nitrosodimethylamine	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
N-Nitroso-Di-n-Propylamine	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
N-nitrosodiphenylamine	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Pentachlorophenol	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Phenanthrene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Phenol	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Pyrene	ND (0.364)		8270D		1	03/19/20 22:34	D0C0339	DC01744
Pyridine	ND (1.82)		8270D		1	03/19/20 22:34	D0C0339	DC01744

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	78 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	106 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	75 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	85 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	71 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	78 %		30-130
<i>Surrogate: Phenol-d6</i>	73 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	94 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank - 031820
Date Sampled: 03/18/20 09:22
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-06
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,1,1-Trichloroethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,1,2,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,1,2-Trichloroethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,1-Dichloroethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,1-Dichloroethene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,1-Dichloropropene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2,3-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2,3-Trichloropropane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2,4-Trichlorobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2,4-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2-Dibromoethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2-Dichloroethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,3,5-Trimethylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,3-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,3-Dichloropropane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,4-Dichlorobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1,4-Dioxane	ND (0.100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
1-Chlorohexane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
2,2-Dichloropropane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
2-Butanone	ND (0.0500)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
2-Chlorotoluene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
2-Hexanone	ND (0.0500)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
4-Chlorotoluene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
4-Isopropyltoluene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
4-Methyl-2-Pentanone	ND (0.0500)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Acetone	ND (0.0500)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Benzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Bromobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank - 031820
Date Sampled: 03/18/20 09:22
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-06
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Bromodichloromethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Bromoform	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Bromomethane	ND (0.0100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Carbon Disulfide	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Carbon Tetrachloride	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Chlorobenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Chloroethane	ND (0.0100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Chloroform	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Chloromethane	ND (0.0100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
cis-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
cis-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Dibromochloromethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Dibromomethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Dichlorodifluoromethane	ND (0.0100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Diethyl Ether	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Di-isopropyl ether	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Ethyl tertiary-butyl ether	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Ethylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Hexachlorobutadiene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Isopropylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Methyl tert-Butyl Ether	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Methylene Chloride	ND (0.0250)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Naphthalene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
n-Butylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
n-Propylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
sec-Butylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Styrene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
tert-Butylbenzene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Tertiary-amyl methyl ether	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Tetrachloroethene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Tetrahydrofuran	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank - 031820
Date Sampled: 03/18/20 09:22
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20C0577
ESS Laboratory Sample ID: 20C0577-06
Sample Matrix: Soil
Units: mg/kg wet
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
trans-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
trans-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Trichloroethene	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Trichlorofluoromethane	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Vinyl Acetate	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Vinyl Chloride	ND (0.0100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Xylene O	ND (0.0050)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Xylene P,M	ND (0.0100)		8260B Low		1	03/19/20 15:41	D0C0358	DC01938
Xylenes (Total)	ND (0.0100)		8260B Low		1	03/19/20 15:41		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>107 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>97 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC01950 - 3050B

Blank

Antimony	ND	5.00	mg/kg wet
Arsenic	ND	2.50	mg/kg wet
Beryllium	ND	0.11	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Copper	ND	2.50	mg/kg wet
Lead	ND	5.00	mg/kg wet
Nickel	ND	2.50	mg/kg wet
Selenium	ND	5.00	mg/kg wet
Silver	ND	0.50	mg/kg wet
Thallium	ND	5.00	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Antimony	40.1	12.7	mg/kg wet	51.30	78	40-160
Arsenic	178	6.33	mg/kg wet	202.0	88	80-120
Beryllium	46.1	0.28	mg/kg wet	52.10	88	80-120
Cadmium	121	1.27	mg/kg wet	149.0	81	80-120
Chromium	160	2.53	mg/kg wet	182.0	88	80-120
Copper	205	6.33	mg/kg wet	225.0	91	80-120
Lead	299	12.7	mg/kg wet	333.0	90	80-120
Nickel	149	6.33	mg/kg wet	167.0	90	80-120
Selenium	150	12.7	mg/kg wet	169.0	89	80-120
Silver	42.0	1.27	mg/kg wet	48.90	86	80-120
Thallium	64.0	12.7	mg/kg wet	82.30	78	62-139
Zinc	392	6.33	mg/kg wet	459.0	85	80-120

LCS Dup

Antimony	39.9	12.5	mg/kg wet	51.30	78	40-160	0.3	20
Arsenic	173	6.25	mg/kg wet	202.0	86	80-120	3	20
Beryllium	44.2	0.28	mg/kg wet	52.10	85	80-120	4	20
Cadmium	119	1.25	mg/kg wet	149.0	80	80-120	1	20
Chromium	159	2.50	mg/kg wet	182.0	87	80-120	0.7	20
Copper	202	6.25	mg/kg wet	225.0	90	80-120	1	20
Lead	294	12.5	mg/kg wet	333.0	88	80-120	2	20
Nickel	148	6.25	mg/kg wet	167.0	88	80-120	1	20
Selenium	149	12.5	mg/kg wet	169.0	88	80-120	0.8	20
Silver	41.3	1.25	mg/kg wet	48.90	84	80-120	2	20
Thallium	63.3	12.5	mg/kg wet	82.30	77	62-139	1	20
Zinc	385	6.25	mg/kg wet	459.0	84	80-120	2	20

Batch DC01951 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	8.68	0.521	mg/kg wet	7.760	112	80-120
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CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DC01951 - 7471B

LCS Dup

Mercury	8.60	0.591	mg/kg wet	7.760		111	80-120	0.9	20	
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC01938 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethene	ND	0.0050	mg/kg wet
1,1-Dichloropropene	ND	0.0050	mg/kg wet
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet
1,2-Dibromoethane	ND	0.0050	mg/kg wet
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet
1,2-Dichloroethane	ND	0.0050	mg/kg wet
1,2-Dichloropropane	ND	0.0050	mg/kg wet
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet
1,3-Dichloropropane	ND	0.0050	mg/kg wet
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet
1,4-Dioxane	ND	0.100	mg/kg wet
1-Chlorohexane	ND	0.0050	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0500	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0500	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet
Acetone	ND	0.0500	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet
Bromodichloromethane	ND	0.0050	mg/kg wet
Bromoform	ND	0.0050	mg/kg wet
Bromomethane	ND	0.0100	mg/kg wet
Carbon Disulfide	ND	0.0050	mg/kg wet
Carbon Tetrachloride	ND	0.0050	mg/kg wet
Chlorobenzene	ND	0.0050	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC01938 - 5035

Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0551		mg/kg wet	0.05000		110	70-130			
Surrogate: 4-Bromofluorobenzene	0.0492		mg/kg wet	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0531		mg/kg wet	0.05000		106	70-130			
Surrogate: Toluene-d8	0.0486		mg/kg wet	0.05000		97	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
1,1,1-Trichloroethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
1,1,2,2-Tetrachloroethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
1,1,2-Trichloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
1,1-Dichloroethane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
1,1-Dichloroethene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC01938 - 5035

1,1-Dichloropropene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
1,2,3-Trichlorobenzene	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
1,2,3-Trichloropropane	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
1,2,4-Trichlorobenzene	0.0431	0.0050	mg/kg wet	0.05000		86	70-130			
1,2,4-Trimethylbenzene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dibromo-3-Chloropropane	0.0387	0.0050	mg/kg wet	0.05000		77	70-130			
1,2-Dibromoethane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dichlorobenzene	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dichloroethane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
1,2-Dichloropropane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,3,5-Trimethylbenzene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
1,3-Dichlorobenzene	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
1,3-Dichloropropane	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
1,4-Dichlorobenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
1,4-Dioxane	0.850	0.100	mg/kg wet	1.000		85	70-130			
1-Chlorohexane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
2,2-Dichloropropane	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
2-Butanone	0.249	0.0500	mg/kg wet	0.2500		100	70-130			
2-Chlorotoluene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
2-Hexanone	0.221	0.0500	mg/kg wet	0.2500		88	70-130			
4-Chlorotoluene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
4-Isopropyltoluene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
4-Methyl-2-Pentanone	0.236	0.0500	mg/kg wet	0.2500		95	70-130			
Acetone	0.244	0.0500	mg/kg wet	0.2500		97	70-130			
Benzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
Bromobenzene	0.0455	0.0050	mg/kg wet	0.05000		91	70-130			
Bromochloromethane	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Bromodichloromethane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
Bromoform	0.0379	0.0050	mg/kg wet	0.05000		76	70-130			
Bromomethane	0.0578	0.0100	mg/kg wet	0.05000		116	70-130			
Carbon Disulfide	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Carbon Tetrachloride	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Chlorobenzene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
Chloroethane	0.0494	0.0100	mg/kg wet	0.05000		99	70-130			
Chloroform	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
Chloromethane	0.0472	0.0100	mg/kg wet	0.05000		94	70-130			
cis-1,2-Dichloroethene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
cis-1,3-Dichloropropene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
Dibromochloromethane	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Dibromomethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Dichlorodifluoromethane	0.0504	0.0100	mg/kg wet	0.05000		101	70-130			
Diethyl Ether	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
Di-isopropyl ether	0.0513	0.0050	mg/kg wet	0.05000		103	70-130			
Ethyl tertiary-butyl ether	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
Ethylbenzene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC01938 - 5035

Hexachlorobutadiene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Isopropylbenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
Methyl tert-Butyl Ether	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Methylene Chloride	0.0472	0.0250	mg/kg wet	0.05000		94	70-130			
Naphthalene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
n-Butylbenzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
n-Propylbenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
sec-Butylbenzene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Styrene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
tert-Butylbenzene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Tertiary-amyl methyl ether	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
Tetrachloroethene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Tetrahydrofuran	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Toluene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
trans-1,2-Dichloroethene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
trans-1,3-Dichloropropene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Trichloroethene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
Trichlorofluoromethane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
Vinyl Acetate	0.0428	0.0050	mg/kg wet	0.05000		86	70-130			
Vinyl Chloride	0.0521	0.0100	mg/kg wet	0.05000		104	70-130			
Xylene O	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Xylene P,M	0.0971	0.0100	mg/kg wet	0.1000		97	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0514		mg/kg wet	0.05000		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0499		mg/kg wet	0.05000		100	70-130			
Surrogate: Dibromofluoromethane	0.0512		mg/kg wet	0.05000		102	70-130			
Surrogate: Toluene-d8	0.0496		mg/kg wet	0.05000		99	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	4	25	
1,1,1-Trichloroethane	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	1	25	
1,1,2,2-Tetrachloroethane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	5	25	
1,1,2-Trichloroethane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
1,1-Dichloroethane	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
1,1-Dichloroethene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
1,1-Dichloropropene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
1,2,3-Trichlorobenzene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	7	25	
1,2,3-Trichloropropane	0.0450	0.0050	mg/kg wet	0.05000		90	70-130	6	25	
1,2,4-Trichlorobenzene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130	7	25	
1,2,4-Trimethylbenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	4	25	
1,2-Dibromo-3-Chloropropane	0.0416	0.0050	mg/kg wet	0.05000		83	70-130	7	25	
1,2-Dibromoethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	5	25	
1,2-Dichlorobenzene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
1,2-Dichloroethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	4	25	
1,2-Dichloropropane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	2	25	
1,3,5-Trimethylbenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	5	25	
1,3-Dichlorobenzene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC01938 - 5035

1,3-Dichloropropane	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
1,4-Dichlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
1,4-Dioxane	0.942	0.100	mg/kg wet	1.000		94	70-130	10	20	
1-Chlorohexane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	2	25	
2,2-Dichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
2-Butanone	0.259	0.0500	mg/kg wet	0.2500		104	70-130	4	25	
2-Chlorotoluene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	3	25	
2-Hexanone	0.227	0.0500	mg/kg wet	0.2500		91	70-130	3	25	
4-Chlorotoluene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	4	25	
4-Isopropyltoluene	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	3	25	
4-Methyl-2-Pentanone	0.246	0.0500	mg/kg wet	0.2500		98	70-130	4	25	
Acetone	0.240	0.0500	mg/kg wet	0.2500		96	70-130	1	25	
Benzene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
Bromobenzene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130	6	25	
Bromochloromethane	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
Bromodichloromethane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	5	25	
Bromoform	0.0401	0.0050	mg/kg wet	0.05000		80	70-130	6	25	
Bromomethane	0.0605	0.0100	mg/kg wet	0.05000		121	70-130	5	25	
Carbon Disulfide	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
Carbon Tetrachloride	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
Chlorobenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Chloroethane	0.0505	0.0100	mg/kg wet	0.05000		101	70-130	2	25	
Chloroform	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	3	25	
Chloromethane	0.0484	0.0100	mg/kg wet	0.05000		97	70-130	2	25	
cis-1,2-Dichloroethene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	4	25	
cis-1,3-Dichloropropene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	4	25	
Dibromochloromethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	6	25	
Dibromomethane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	6	25	
Dichlorodifluoromethane	0.0512	0.0100	mg/kg wet	0.05000		102	70-130	2	25	
Diethyl Ether	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
Di-isopropyl ether	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	4	25	
Ethyl tertiary-butyl ether	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	5	25	
Ethylbenzene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
Hexachlorobutadiene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
Isopropylbenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	3	25	
Methyl tert-Butyl Ether	0.0496	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Methylene Chloride	0.0492	0.0250	mg/kg wet	0.05000		98	70-130	4	25	
Naphthalene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
n-Butylbenzene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	4	25	
n-Propylbenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	3	25	
sec-Butylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	3	25	
Styrene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
tert-Butylbenzene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	4	25	
Tertiary-amyl methyl ether	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	5	25	
Tetrachloroethene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC01938 - 5035

Tetrahydrofuran	0.0452	0.0050	mg/kg wet	0.05000		90	70-130	4	25	
Toluene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
trans-1,2-Dichloroethene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
trans-1,3-Dichloropropene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	6	25	
Trichloroethene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Trichlorofluoromethane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	1	25	
Vinyl Acetate	0.0454	0.0050	mg/kg wet	0.05000		91	70-130	6	25	
Vinyl Chloride	0.0525	0.0100	mg/kg wet	0.05000		105	70-130	0.8	25	
Xylene O	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
Xylene P,M	0.101	0.0100	mg/kg wet	0.1000		101	70-130	4	25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0501</i>		mg/kg wet	<i>0.05000</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0497</i>		mg/kg wet	<i>0.05000</i>		<i>99</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>0.0507</i>		mg/kg wet	<i>0.05000</i>		<i>101</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0496</i>		mg/kg wet	<i>0.05000</i>		<i>99</i>	<i>70-130</i>			

Batch DC02015 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02015 - 5035

Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0545		mg/kg wet	0.05000		109	70-130			



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02015 - 5035

Surrogate: 4-Bromofluorobenzene	0.0493		mg/kg wet	0.05000		99	70-130			
Surrogate: Dibromofluoromethane	0.0520		mg/kg wet	0.05000		104	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
1,1,1-Trichloroethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
1,1,2,2-Tetrachloroethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,1,2-Trichloroethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,1-Dichloroethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
1,1-Dichloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
1,1-Dichloropropene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
1,2,3-Trichlorobenzene	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
1,2,3-Trichloropropane	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
1,2,4-Trichlorobenzene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
1,2,4-Trimethylbenzene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dibromo-3-Chloropropane	0.0394	0.0050	mg/kg wet	0.05000		79	70-130			
1,2-Dibromoethane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichlorobenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
1,2-Dichloroethane	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,2-Dichloropropane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
1,3,5-Trimethylbenzene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
1,3-Dichlorobenzene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
1,3-Dichloropropane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
1,4-Dichlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
1,4-Dioxane	1.02	0.100	mg/kg wet	1.000		102	70-130			
1-Chlorohexane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
2,2-Dichloropropane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
2-Butanone	0.289	0.0500	mg/kg wet	0.2500		116	70-130			
2-Chlorotoluene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.250	0.0500	mg/kg wet	0.2500		100	70-130			
4-Chlorotoluene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
4-Isopropyltoluene	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
4-Methyl-2-Pentanone	0.261	0.0500	mg/kg wet	0.2500		104	70-130			
Acetone	0.309	0.0500	mg/kg wet	0.2500		124	70-130			
Benzene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
Bromobenzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Bromochloromethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Bromodichloromethane	0.0573	0.0050	mg/kg wet	0.05000		115	70-130			
Bromoform	0.0411	0.0050	mg/kg wet	0.05000		82	70-130			
Bromomethane	0.0626	0.0100	mg/kg wet	0.05000		125	70-130			
Carbon Disulfide	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Carbon Tetrachloride	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Chlorobenzene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
Chloroethane	0.0514	0.0100	mg/kg wet	0.05000		103	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02015 - 5035

Chloroform	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Chloromethane	0.0515	0.0100	mg/kg wet	0.05000		103	70-130			
cis-1,2-Dichloroethene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
cis-1,3-Dichloropropene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
Dibromochloromethane	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Dibromomethane	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
Dichlorodifluoromethane	0.0541	0.0100	mg/kg wet	0.05000		108	70-130			
Diethyl Ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Di-isopropyl ether	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
Ethyl tertiary-butyl ether	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
Ethylbenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Hexachlorobutadiene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
Isopropylbenzene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Methyl tert-Butyl Ether	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Methylene Chloride	0.0539	0.0250	mg/kg wet	0.05000		108	70-130			
Naphthalene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
n-Butylbenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
n-Propylbenzene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
sec-Butylbenzene	0.0485	0.0050	mg/kg wet	0.05000		97	70-130			
Styrene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
tert-Butylbenzene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Tertiary-amyl methyl ether	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Tetrachloroethene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Tetrahydrofuran	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
Toluene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130			
trans-1,2-Dichloroethene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
trans-1,3-Dichloropropene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Trichloroethene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
Trichlorofluoromethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Vinyl Acetate	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
Vinyl Chloride	0.0553	0.0100	mg/kg wet	0.05000		111	70-130			
Xylene O	0.0513	0.0050	mg/kg wet	0.05000		103	70-130			
Xylene P,M	0.102	0.0100	mg/kg wet	0.1000		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0534		mg/kg wet	0.05000		107	70-130			
Surrogate: 4-Bromofluorobenzene	0.0509		mg/kg wet	0.05000		102	70-130			
Surrogate: Dibromofluoromethane	0.0530		mg/kg wet	0.05000		106	70-130			
Surrogate: Toluene-d8	0.0501		mg/kg wet	0.05000		100	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
1,1,1-Trichloroethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
1,1,2,2-Tetrachloroethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	9	25	
1,1,2-Trichloroethane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	9	25	
1,1-Dichloroethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	5	25	
1,1-Dichloroethene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	7	25	
1,1-Dichloropropene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	5	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02015 - 5035

1,2,3-Trichlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	8	25	
1,2,3-Trichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	10	25	
1,2,4-Trichlorobenzene	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	7	25	
1,2,4-Trimethylbenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	5	25	
1,2-Dibromo-3-Chloropropane	0.0456	0.0050	mg/kg wet	0.05000		91	70-130	15	25	
1,2-Dibromoethane	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	11	25	
1,2-Dichlorobenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	7	25	
1,2-Dichloroethane	0.0587	0.0050	mg/kg wet	0.05000		117	70-130	7	25	
1,2-Dichloropropane	0.0572	0.0050	mg/kg wet	0.05000		114	70-130	7	25	
1,3,5-Trimethylbenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	6	25	
1,3-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	8	25	
1,3-Dichloropropane	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	10	25	
1,4-Dichlorobenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	4	25	
1,4-Dioxane	1.11	0.100	mg/kg wet	1.000		111	70-130	8	20	
1-Chlorohexane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
2,2-Dichloropropane	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	6	25	
2-Butanone	0.310	0.0500	mg/kg wet	0.2500		124	70-130	7	25	
2-Chlorotoluene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	5	25	
2-Hexanone	0.284	0.0500	mg/kg wet	0.2500		114	70-130	13	25	
4-Chlorotoluene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	7	25	
4-Isopropyltoluene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	6	25	
4-Methyl-2-Pentanone	0.301	0.0500	mg/kg wet	0.2500		120	70-130	14	25	
Acetone	0.320	0.0500	mg/kg wet	0.2500		128	70-130	4	25	
Benzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	5	25	
Bromobenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
Bromochloromethane	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
Bromodichloromethane	0.0618	0.0050	mg/kg wet	0.05000		124	70-130	7	25	
Bromoform	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	12	25	
Bromomethane	0.0651	0.0100	mg/kg wet	0.05000		130	70-130	4	25	
Carbon Disulfide	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	6	25	
Carbon Tetrachloride	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
Chlorobenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	7	25	
Chloroethane	0.0541	0.0100	mg/kg wet	0.05000		108	70-130	5	25	
Chloroform	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	6	25	
Chloromethane	0.0541	0.0100	mg/kg wet	0.05000		108	70-130	5	25	
cis-1,2-Dichloroethene	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	6	25	
cis-1,3-Dichloropropene	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	7	25	
Dibromochloromethane	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	11	25	
Dibromomethane	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	8	25	
Dichlorodifluoromethane	0.0566	0.0100	mg/kg wet	0.05000		113	70-130	4	25	
Diethyl Ether	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	9	25	
Di-isopropyl ether	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	6	25	
Ethyl tertiary-butyl ether	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Ethylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
Hexachlorobutadiene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	8	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch DC02015 - 5035

Isopropylbenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	6	25	
Methyl tert-Butyl Ether	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	9	25	
Methylene Chloride	0.0572	0.0250	mg/kg wet	0.05000		114	70-130	6	25	
Naphthalene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	11	25	
n-Butylbenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	6	25	
n-Propylbenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
sec-Butylbenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	6	25	
Styrene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
tert-Butylbenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	6	25	
Tertiary-amyl methyl ether	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
Tetrachloroethene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	6	25	
Tetrahydrofuran	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	15	25	
Toluene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
trans-1,2-Dichloroethene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	5	25	
trans-1,3-Dichloropropene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	10	25	
Trichloroethene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	7	25	
Trichlorofluoromethane	0.0593	0.0050	mg/kg wet	0.05000		119	70-130	5	25	
Vinyl Acetate	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	12	25	
Vinyl Chloride	0.0581	0.0100	mg/kg wet	0.05000		116	70-130	5	25	
Xylene O	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	0.0537		mg/kg wet	0.05000		107	70-130			
Surrogate: 4-Bromofluorobenzene	0.0512		mg/kg wet	0.05000		102	70-130			
Surrogate: Dibromofluoromethane	0.0529		mg/kg wet	0.05000		106	70-130			
Surrogate: Toluene-d8	0.0506		mg/kg wet	0.05000		101	70-130			

8100M Total Petroleum Hydrocarbons

Batch DC01743 - 3546

Blank

Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							

Surrogate: O-Terphenyl 4.67 mg/kg wet 5.000 93 40-140



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC01743 - 3546

LCS

Decane (C10)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		101	40-140			
Dodecane (C12)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		101	40-140			
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Nonane (C9)	1.9	0.2	mg/kg wet	2.500		75	30-140			
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		101	40-140			
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		101	40-140			
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Total Petroleum Hydrocarbons	33.6	37.5	mg/kg wet	35.00		96	40-140			
Triacotane (C30)	2.5	0.2	mg/kg wet	2.500		100	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>5.07</i>		mg/kg wet	<i>5.000</i>		<i>101</i>	<i>40-140</i>			
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LCS Dup

Decane (C10)	2.2	0.2	mg/kg wet	2.500		88	40-140	4	25	
Docosane (C22)	2.6	0.2	mg/kg wet	2.500		103	40-140	2	25	
Dodecane (C12)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		102	40-140	2	25	
Hexacosane (C26)	2.6	0.2	mg/kg wet	2.500		102	40-140	2	25	
Hexadecane (C16)	2.4	0.2	mg/kg wet	2.500		97	40-140	3	25	
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		102	40-140	3	25	
Nonane (C9)	2.0	0.2	mg/kg wet	2.500		78	30-140	4	25	
Octacosane (C28)	2.6	0.2	mg/kg wet	2.500		103	40-140	2	25	
Octadecane (C18)	2.5	0.2	mg/kg wet	2.500		99	40-140	3	25	
Tetracosane (C24)	2.6	0.2	mg/kg wet	2.500		103	40-140	2	25	
Tetradecane (C14)	2.4	0.2	mg/kg wet	2.500		95	40-140	3	25	
Total Petroleum Hydrocarbons	34.4	37.5	mg/kg wet	35.00		98	40-140	3	25	
Triacotane (C30)	2.5	0.2	mg/kg wet	2.500		101	40-140	2	25	

<i>Surrogate: O-Terphenyl</i>	<i>5.24</i>		mg/kg wet	<i>5.000</i>		<i>105</i>	<i>40-140</i>			
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

Blank

1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

2,4,6-Trichlorophenol	ND	0.333	mg/kg wet
2,4-Dichlorophenol	ND	0.333	mg/kg wet
2,4-Dimethylphenol	ND	0.333	mg/kg wet
2,4-Dinitrophenol	ND	1.67	mg/kg wet
2,4-Dinitrotoluene	ND	0.333	mg/kg wet
2,6-Dinitrotoluene	ND	0.333	mg/kg wet
2-Chloronaphthalene	ND	0.333	mg/kg wet
2-Chlorophenol	ND	0.333	mg/kg wet
2-Methylnaphthalene	ND	0.333	mg/kg wet
2-Methylphenol	ND	0.333	mg/kg wet
2-Nitroaniline	ND	0.333	mg/kg wet
2-Nitrophenol	ND	0.333	mg/kg wet
3,3'-Dichlorobenzidine	ND	0.667	mg/kg wet
3+4-Methylphenol	ND	0.667	mg/kg wet
3-Nitroaniline	ND	0.333	mg/kg wet
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet
4-Chloroaniline	ND	0.667	mg/kg wet
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet
4-Nitroaniline	ND	0.333	mg/kg wet
4-Nitrophenol	ND	1.67	mg/kg wet
Acenaphthene	ND	0.333	mg/kg wet
Acenaphthylene	ND	0.333	mg/kg wet
Acetophenone	ND	0.667	mg/kg wet
Aniline	ND	0.667	mg/kg wet
Anthracene	ND	0.333	mg/kg wet
Azobenzene	ND	0.333	mg/kg wet
Benzo(a)anthracene	ND	0.333	mg/kg wet
Benzo(a)pyrene	ND	0.167	mg/kg wet
Benzo(b)fluoranthene	ND	0.333	mg/kg wet
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet
Benzo(k)fluoranthene	ND	0.333	mg/kg wet
Benzoic Acid	ND	1.67	mg/kg wet
Benzyl Alcohol	ND	0.333	mg/kg wet
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet
Butylbenzylphthalate	ND	0.333	mg/kg wet
Carbazole	ND	0.333	mg/kg wet
Chrysene	ND	0.167	mg/kg wet
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet
Dibenzofuran	ND	0.333	mg/kg wet
Diethylphthalate	ND	0.333	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.34		mg/kg wet	3.333		70	30-130			
Surrogate: 2,4,6-Tribromophenol	3.41		mg/kg wet	5.000		68	30-130			
Surrogate: 2-Chlorophenol-d4	3.58		mg/kg wet	5.000		72	30-130			
Surrogate: 2-Fluorobiphenyl	2.46		mg/kg wet	3.333		74	30-130			
Surrogate: 2-Fluorophenol	3.68		mg/kg wet	5.000		74	30-130			
Surrogate: Nitrobenzene-d5	2.40		mg/kg wet	3.333		72	30-130			
Surrogate: Phenol-d6	3.63		mg/kg wet	5.000		73	30-130			
Surrogate: p-Terphenyl-d14	3.46		mg/kg wet	3.333		104	30-130			

LCS

1,1-Biphenyl	2.52	0.333	mg/kg wet	3.333		76	40-140			
1,2,4-Trichlorobenzene	2.33	0.333	mg/kg wet	3.333		70	40-140			
1,2-Dichlorobenzene	2.23	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.24	0.333	mg/kg wet	3.333		67	40-140			
1,4-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140			
2,3,4,6-Tetrachlorophenol	2.77	1.67	mg/kg wet	3.333		83	30-130			
2,4,5-Trichlorophenol	2.80	0.333	mg/kg wet	3.333		84	30-130			
2,4,6-Trichlorophenol	2.72	0.333	mg/kg wet	3.333		82	30-130			
2,4-Dichlorophenol	2.57	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dimethylphenol	2.56	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dinitrophenol	3.93	1.67	mg/kg wet	3.333		118	30-130			
2,4-Dinitrotoluene	3.26	0.333	mg/kg wet	3.333		98	40-140			
2,6-Dinitrotoluene	2.94	0.333	mg/kg wet	3.333		88	40-140			
2-Chloronaphthalene	2.47	0.333	mg/kg wet	3.333		74	40-140			
2-Chlorophenol	2.37	0.333	mg/kg wet	3.333		71	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

2-Methylnaphthalene	2.40	0.333	mg/kg wet	3.333		72	40-140			
2-Methylphenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2-Nitroaniline	2.84	0.333	mg/kg wet	3.333		85	40-140			
2-Nitrophenol	2.27	0.333	mg/kg wet	3.333		68	30-130			
3,3'-Dichlorobenzidine	2.20	0.667	mg/kg wet	3.333		66	40-140			
3+4-Methylphenol	4.94	0.667	mg/kg wet	6.667		74	30-130			
3-Nitroaniline	2.45	0.333	mg/kg wet	3.333		73	40-140			
4,6-Dinitro-2-Methylphenol	3.94	1.67	mg/kg wet	3.333		118	30-130			
4-Bromophenyl-phenylether	2.91	0.333	mg/kg wet	3.333		87	40-140			
4-Chloro-3-Methylphenol	2.76	0.333	mg/kg wet	3.333		83	30-130			
4-Chloroaniline	1.10	0.667	mg/kg wet	3.333		33	40-140			B-
4-Chloro-phenyl-phenyl ether	2.76	0.333	mg/kg wet	3.333		83	40-140			
4-Nitroaniline	2.95	0.333	mg/kg wet	3.333		88	40-140			
4-Nitrophenol	2.97	1.67	mg/kg wet	3.333		89	30-130			
Acenaphthene	2.56	0.333	mg/kg wet	3.333		77	40-140			
Acenaphthylene	2.39	0.333	mg/kg wet	3.333		72	40-140			
Acetophenone	2.32	0.667	mg/kg wet	3.333		70	40-140			
Aniline	1.67	0.667	mg/kg wet	3.333		50	40-140			
Anthracene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Azobenzene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)anthracene	3.22	0.333	mg/kg wet	3.333		97	40-140			
Benzo(a)pyrene	3.35	0.167	mg/kg wet	3.333		101	40-140			
Benzo(b)fluoranthene	3.28	0.333	mg/kg wet	3.333		98	40-140			
Benzo(g,h,i)perylene	3.30	0.333	mg/kg wet	3.333		99	40-140			
Benzo(k)fluoranthene	3.25	0.333	mg/kg wet	3.333		98	40-140			
Benzoic Acid	3.43	1.67	mg/kg wet	3.333		103	40-140			
Benzyl Alcohol	1.81	0.333	mg/kg wet	3.333		54	40-140			
bis(2-Chloroethoxy)methane	2.42	0.333	mg/kg wet	3.333		73	40-140			
bis(2-Chloroethyl)ether	2.29	0.333	mg/kg wet	3.333		69	40-140			
bis(2-chloroisopropyl)Ether	2.28	0.333	mg/kg wet	3.333		68	40-140			
bis(2-Ethylhexyl)phthalate	3.14	0.333	mg/kg wet	3.333		94	40-140			
Butylbenzylphthalate	3.37	0.333	mg/kg wet	3.333		101	40-140			
Carbazole	3.18	0.333	mg/kg wet	3.333		95	40-140			
Chrysene	3.25	0.167	mg/kg wet	3.333		97	40-140			
Dibenzo(a,h)Anthracene	3.26	0.167	mg/kg wet	3.333		98	40-140			
Dibenzofuran	2.63	0.333	mg/kg wet	3.333		79	40-140			
Diethylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140			
Dimethylphthalate	2.83	0.333	mg/kg wet	3.333		85	40-140			
Di-n-butylphthalate	3.28	0.333	mg/kg wet	3.333		98	40-140			
Di-n-octylphthalate	2.98	0.333	mg/kg wet	3.333		90	40-140			
Fluoranthene	3.19	0.333	mg/kg wet	3.333		96	40-140			
Fluorene	2.86	0.333	mg/kg wet	3.333		86	40-140			
Hexachlorobenzene	2.94	0.167	mg/kg wet	3.333		88	40-140			
Hexachlorobutadiene	2.35	0.333	mg/kg wet	3.333		70	40-140			
Hexachlorocyclopentadiene	1.68	1.67	mg/kg wet	3.333		50	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

Hexachloroethane	2.23	0.333	mg/kg wet	3.333		67	40-140			
Indeno(1,2,3-cd)Pyrene	3.31	0.333	mg/kg wet	3.333		99	40-140			
Isophorone	2.05	0.333	mg/kg wet	3.333		62	40-140			
Naphthalene	2.34	0.333	mg/kg wet	3.333		70	40-140			
Nitrobenzene	2.29	0.333	mg/kg wet	3.333		69	40-140			
N-Nitrosodimethylamine	2.10	0.333	mg/kg wet	3.333		63	40-140			
N-Nitroso-Di-n-Propylamine	2.39	0.333	mg/kg wet	3.333		72	40-140			
N-nitrosodiphenylamine	2.92	0.333	mg/kg wet	3.333		88	40-140			
Pentachlorophenol	3.58	1.67	mg/kg wet	3.333		107	30-130			
Phenanthrene	2.98	0.333	mg/kg wet	3.333		90	40-140			
Phenol	2.40	0.333	mg/kg wet	3.333		72	30-130			
Pyrene	3.20	0.333	mg/kg wet	3.333		96	40-140			
Pyridine	2.28	1.67	mg/kg wet	3.333		68	40-140			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	2.35		mg/kg wet	3.333		71	30-130			
<i>Surrogate: 2,4,6-Tribromophenol</i>	4.62		mg/kg wet	5.000		92	30-130			
<i>Surrogate: 2-Chlorophenol-d4</i>	3.71		mg/kg wet	5.000		74	30-130			
<i>Surrogate: 2-Fluorobiphenyl</i>	2.67		mg/kg wet	3.333		80	30-130			
<i>Surrogate: 2-Fluorophenol</i>	3.76		mg/kg wet	5.000		75	30-130			
<i>Surrogate: Nitrobenzene-d5</i>	2.49		mg/kg wet	3.333		75	30-130			
<i>Surrogate: Phenol-d6</i>	3.78		mg/kg wet	5.000		76	30-130			
<i>Surrogate: p-Terphenyl-d14</i>	3.43		mg/kg wet	3.333		103	30-130			

LCS Dup

1,1-Biphenyl	2.48	0.333	mg/kg wet	3.333		74	40-140	1	30	
1,2,4-Trichlorobenzene	2.29	0.333	mg/kg wet	3.333		69	40-140	2	30	
1,2-Dichlorobenzene	2.23	0.333	mg/kg wet	3.333		67	40-140	0.2	30	
1,3-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140	0.6	30	
1,4-Dichlorobenzene	2.23	0.333	mg/kg wet	3.333		67	40-140	0.4	30	
2,3,4,6-Tetrachlorophenol	2.68	1.67	mg/kg wet	3.333		80	30-130	3	30	
2,4,5-Trichlorophenol	2.71	0.333	mg/kg wet	3.333		81	30-130	3	30	
2,4,6-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	3	30	
2,4-Dichlorophenol	2.48	0.333	mg/kg wet	3.333		74	30-130	3	30	
2,4-Dimethylphenol	2.51	0.333	mg/kg wet	3.333		75	30-130	2	30	
2,4-Dinitrophenol	3.82	1.67	mg/kg wet	3.333		115	30-130	3	30	
2,4-Dinitrotoluene	3.19	0.333	mg/kg wet	3.333		96	40-140	2	30	
2,6-Dinitrotoluene	2.84	0.333	mg/kg wet	3.333		85	40-140	4	30	
2-Chloronaphthalene	2.40	0.333	mg/kg wet	3.333		72	40-140	3	30	
2-Chlorophenol	2.31	0.333	mg/kg wet	3.333		69	30-130	2	30	
2-Methylnaphthalene	2.34	0.333	mg/kg wet	3.333		70	40-140	3	30	
2-Methylphenol	2.32	0.333	mg/kg wet	3.333		70	30-130	3	30	
2-Nitroaniline	2.76	0.333	mg/kg wet	3.333		83	40-140	3	30	
2-Nitrophenol	2.24	0.333	mg/kg wet	3.333		67	30-130	1	30	
3,3'-Dichlorobenzidine	1.93	0.667	mg/kg wet	3.333		58	40-140	13	30	
3+4-Methylphenol	4.77	0.667	mg/kg wet	6.667		72	30-130	4	30	
3-Nitroaniline	2.10	0.333	mg/kg wet	3.333		63	40-140	15	30	
4,6-Dinitro-2-Methylphenol	3.84	1.67	mg/kg wet	3.333		115	30-130	3	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

4-Bromophenyl-phenylether	2.89	0.333	mg/kg wet	3.333		87	40-140	0.7	30	
4-Chloro-3-Methylphenol	2.67	0.333	mg/kg wet	3.333		80	30-130	3	30	
4-Chloroaniline	0.796	0.667	mg/kg wet	3.333		24	40-140	32	30	B-, D+
4-Chloro-phenyl-phenyl ether	2.68	0.333	mg/kg wet	3.333		80	40-140	3	30	
4-Nitroaniline	2.81	0.333	mg/kg wet	3.333		84	40-140	5	30	
4-Nitrophenol	2.81	1.67	mg/kg wet	3.333		84	30-130	5	30	
Acenaphthene	2.47	0.333	mg/kg wet	3.333		74	40-140	4	30	
Acenaphthylene	2.33	0.333	mg/kg wet	3.333		70	40-140	3	30	
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140	2	30	
Aniline	1.47	0.667	mg/kg wet	3.333		44	40-140	13	30	
Anthracene	2.91	0.333	mg/kg wet	3.333		87	40-140	2	30	
Azobenzene	2.85	0.333	mg/kg wet	3.333		85	40-140	0.9	30	
Benzo(a)anthracene	3.19	0.333	mg/kg wet	3.333		96	40-140	0.8	30	
Benzo(a)pyrene	3.38	0.167	mg/kg wet	3.333		102	40-140	0.9	30	
Benzo(b)fluoranthene	3.25	0.333	mg/kg wet	3.333		98	40-140	0.7	30	
Benzo(g,h,i)perylene	3.32	0.333	mg/kg wet	3.333		100	40-140	0.4	30	
Benzo(k)fluoranthene	3.32	0.333	mg/kg wet	3.333		100	40-140	2	30	
Benzoic Acid	3.35	1.67	mg/kg wet	3.333		100	40-140	2	30	
Benzyl Alcohol	1.83	0.333	mg/kg wet	3.333		55	40-140	0.9	30	
bis(2-Chloroethoxy)methane	2.38	0.333	mg/kg wet	3.333		71	40-140	2	30	
bis(2-Chloroethyl)ether	2.27	0.333	mg/kg wet	3.333		68	40-140	1	30	
bis(2-chloroisopropyl)Ether	2.24	0.333	mg/kg wet	3.333		67	40-140	2	30	
bis(2-Ethylhexyl)phthalate	3.14	0.333	mg/kg wet	3.333		94	40-140	0.08	30	
Butylbenzylphthalate	3.39	0.333	mg/kg wet	3.333		102	40-140	0.7	30	
Carbazole	3.06	0.333	mg/kg wet	3.333		92	40-140	4	30	
Chrysene	3.20	0.167	mg/kg wet	3.333		96	40-140	1	30	
Dibenzo(a,h)Anthracene	3.30	0.167	mg/kg wet	3.333		99	40-140	1	30	
Dibenzofuran	2.57	0.333	mg/kg wet	3.333		77	40-140	2	30	
Diethylphthalate	2.93	0.333	mg/kg wet	3.333		88	40-140	1	30	
Dimethylphthalate	2.74	0.333	mg/kg wet	3.333		82	40-140	3	30	
Di-n-butylphthalate	3.20	0.333	mg/kg wet	3.333		96	40-140	2	30	
Di-n-octylphthalate	3.05	0.333	mg/kg wet	3.333		92	40-140	2	30	
Fluoranthene	3.07	0.333	mg/kg wet	3.333		92	40-140	4	30	
Fluorene	2.77	0.333	mg/kg wet	3.333		83	40-140	3	30	
Hexachlorobenzene	2.86	0.167	mg/kg wet	3.333		86	40-140	3	30	
Hexachlorobutadiene	2.34	0.333	mg/kg wet	3.333		70	40-140	0.1	30	
Hexachlorocyclopentadiene	1.73	1.67	mg/kg wet	3.333		52	40-140	3	30	
Hexachloroethane	2.26	0.333	mg/kg wet	3.333		68	40-140	1	30	
Indeno(1,2,3-cd)Pyrene	3.34	0.333	mg/kg wet	3.333		100	40-140	0.8	30	
Isophorone	2.06	0.333	mg/kg wet	3.333		62	40-140	0.05	30	
Naphthalene	2.29	0.333	mg/kg wet	3.333		69	40-140	2	30	
Nitrobenzene	2.27	0.333	mg/kg wet	3.333		68	40-140	0.8	30	
N-Nitrosodimethylamine	2.12	0.333	mg/kg wet	3.333		64	40-140	1	30	
N-Nitroso-Di-n-Propylamine	2.34	0.333	mg/kg wet	3.333		70	40-140	2	30	
N-nitrosodiphenylamine	2.90	0.333	mg/kg wet	3.333		87	40-140	0.8	30	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DC01744 - 3546

Pentachlorophenol	3.47	1.67	mg/kg wet	3.333		104	30-130	3	30	
Phenanthrene	2.91	0.333	mg/kg wet	3.333		87	40-140	2	30	
Phenol	2.33	0.333	mg/kg wet	3.333		70	30-130	3	30	
Pyrene	3.22	0.333	mg/kg wet	3.333		96	40-140	0.4	30	
Pyridine	2.24	1.67	mg/kg wet	3.333		67	40-140	2	30	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>2.32</i>		mg/kg wet	<i>3.333</i>		<i>70</i>	<i>30-130</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>4.48</i>		mg/kg wet	<i>5.000</i>		<i>90</i>	<i>30-130</i>			
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>3.57</i>		mg/kg wet	<i>5.000</i>		<i>71</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>2.57</i>		mg/kg wet	<i>3.333</i>		<i>77</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>3.62</i>		mg/kg wet	<i>5.000</i>		<i>72</i>	<i>30-130</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>2.39</i>		mg/kg wet	<i>3.333</i>		<i>72</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d6</i>	<i>3.57</i>		mg/kg wet	<i>5.000</i>		<i>71</i>	<i>30-130</i>			
<i>Surrogate: p-Terphenyl-d14</i>	<i>3.37</i>		mg/kg wet	<i>3.333</i>		<i>101</i>	<i>30-130</i>			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

Notes and Definitions

- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- ICV- Initial Calibration Verification recovery is below lower control limit (ICV-).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20C0577

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0577

Shipped/Delivered Via: _____ Client _____

Date Received: 3/18/2020

Project Due Date: 3/25/2020

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA

6. Does COC match bottles? Yes

2. Were custody seals present? No

7. Is COC complete and correct? Yes

3. Is radiation count <100 CPM? Yes

8. Were samples received intact? Yes

4. Is a Cooler Present? Yes

9. Were labs informed about short holds & rushes? Yes / No NA

Temp: 3.4 Iced with: Ice

10. Were any analyses received outside of hold time? Yes No

5. Was COC signed and dated by client? Yes

11. Any Subcontracting needed? Yes No

12. Were VOAs received? Yes / No NA

ESS Sample IDs: _____

a. Air bubbles in aqueous VOAs? Yes / No NA

Analysis: _____

b. Does methanol cover soil completely? Yes / No NA

TAT: _____

13. Are the samples properly preserved? Yes / No

a. If metals preserved upon receipt: Date: _____ Time: _____

b. Low Level VOA vials frozen: Date: 3/18/20 Time: 18:45

By: _____

By: [Signature]

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No

a. Was there a need to contact the client? Yes / No

Who was contacted? _____ Date: _____

Time: _____

By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	24679	Yes	N/A	Yes	VOA Vial	MeOH	
1	24685	Yes	N/A	Yes	VOA Vial	DI Water	
1	24686	Yes	N/A	Yes	VOA Vial	DI Water	
1	24697	Yes	N/A	Yes	8 oz jar	NP	
2	24680	Yes	N/A	Yes	VOA Vial	MeOH	
2	24687	Yes	N/A	Yes	VOA Vial	DI Water	
2	24688	Yes	N/A	Yes	VOA Vial	DI Water	
2	24698	Yes	N/A	Yes	8 oz jar	NP	
3	24681	Yes	N/A	Yes	VOA Vial	MeOH	
3	24689	Yes	N/A	Yes	VOA Vial	DI Water	
3	24690	Yes	N/A	Yes	VOA Vial	DI Water	
3	24699	Yes	N/A	Yes	8 oz jar	NP	
4	24682	Yes	N/A	Yes	VOA Vial	MeOH	
4	24691	Yes	N/A	Yes	VOA Vial	DI Water	
4	24692	Yes	N/A	Yes	VOA Vial	DI Water	
4	24700	Yes	N/A	Yes	8 oz jar	NP	
5	24683	Yes	N/A	Yes	VOA Vial	MeOH	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20C0577

Date Received: 3/18/2020

5	24693	Yes	N/A	Yes	VOA Vial	DI Water
5	24694	Yes	N/A	Yes	VOA Vial	DI Water
5	24701	Yes	N/A	Yes	8 oz jar	NP
6	24684	Yes	N/A	Yes	VOA Vial	MeOH
6	24695	Yes	N/A	Yes	VOA Vial	DI Water

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials _____

Yes No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

Completed

By: _____

Date & Time: _____

3/18/20 18:45

Reviewed

By: _____

Date & Time: _____

3/18/20 18:45

Delivered

By: _____

3/18/20 18:45



185 Frances Avenue
Cranston, RI 02921
Phone: 401-461-7181
Fax: 401-461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time > 5 5 4 3 2 1 Same Day

Regulatory State: RI Criteria: Remediation Regs GB

Is this project for any of the following?:

CT RCP MA MCP RGP Permit 401 WQ

ESS Lab # 20C0577 Page of

ELECTRONIC DELIVERABLES (Final Reports are PDF)

Limit Checker State Forms EQUsL

Excel Hard Copy Enviro Data

CLP-Like Package Other (Specify) All sample bags delivered as one project report

CLIENT INFORMATION

Client: RIDEM EA Engineering

Address: 301 Metro Center Blvd
Suite 102, Warwick, RI

Phone: 401-287-0364

Email Distribution List: j.alvarez@east.com
emass@east.com
benam@east.com

PROJECT INFORMATION

Project Name: RIDEM-Tac-Sunnyside Russell

Project Location: Woonsocket, RI

Project Number: 1525818

Project Manager: Sonathana Alvarez

Bill to: Molina@east.com

PO#:

Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs

REQUESTED ANALYSES

ESS Lab ID	Collection Date	Sample Type	Sample Matrix	Sample ID	TPH	SVOC	PP3 Metals	VOC High	VOC Low	Total Number of Bottles
1	3/18/20	Grab	Soil	EA-11-0-2.5	X	X	X	X	X	4
2	3/18/20	Grab	Soil	EA-11-29-30	X	X	X	X	X	4
3	3/18/20	Grab	Soil	EA-12-0-2.5	X	X	X	X	X	4
4	3/18/20	Grab	Soil	EA-12-22-5-25	X	X	X	X	X	4
5	3/18/20	Grab	Soil	EA-Dup-HW-1	X	X	X	X	X	4
6	3/18/20	Grab	Blank	Trip Blank - 031820	X	X	X	X	X	2

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubittainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAcAc, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Sampled by: Bette Chambers

Chain needs to be filled out neatly and completely for on time delivery.

Comments: * Please specify "Other" preservative and containers types in this space

- RIDEM Remediation Regulations GB Analytical Limits.

- Sampling planned 3/18-3/20/20. Please include all sampling analytical results into one final project report for Sunnyside Ave Phase II Investigation.

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time	Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
<u>Bette Chambers</u>	<u>1306</u>	<u>3/18/20</u>	<u>[Signature]</u>								

3.4 10



CERTIFICATE OF ANALYSIS

Jonathan Alvarez
EA Engineering, Science, and Technology
301 Metro Center Blvd, Suite 102
Warwick, RI 02886

RE: RIDEM-TAC-Sunnyside Phase II (1525817)
ESS Laboratory Work Order Number: 20D0048

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:50 pm, Apr 09, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0048

SAMPLE RECEIPT

The following samples were received on April 02, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
20D0048-01	Soil-IDW-4-1-20	Soil	1010, 1311, 1311/6010C, 7.3.3.2, 7.3.4.1, 9045



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0048

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0048

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Soil-IDW-4-1-20
Date Sampled: 04/01/20 17:45
Percent Solids: 87

ESS Laboratory Work Order: 20D0048
ESS Laboratory Sample ID: 20D0048-01
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A TCLP

1311 TCLP Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>TCLP Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	ND (0.050)		1311/6010C		1	KJK	04/03/20 20:05	50	50	DD00331



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Soil-IDW-4-1-20
Date Sampled: 04/01/20 17:45
Percent Solids: 87

ESS Laboratory Work Order: 20D0048
ESS Laboratory Sample ID: 20D0048-01
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	5.66 (N/A)		9045		1	CCP	04/02/20 21:29	S.U.	DD00234
Corrosivity (pH) Sample Temp	Soil pH measured in water at 20.5 °C.								
Flashpoint	> 200 (N/A)		1010		1	CCP	04/03/20 15:30	°F	DD00329
Reactive Cyanide	ND (2.0)		7.3.3.2		1	JLK	04/06/20 17:03	mg/kg	DD00657
Reactive Sulfide	ND (2.0)		7.3.4.1		1	JLK	04/06/20 17:03	mg/kg	DD00657



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Soil-IDW-4-1-20
Date Sampled: 04/01/20 17:45
Percent Solids: 87
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1311

ESS Laboratory Work Order: 20D0048
ESS Laboratory Sample ID: 20D0048-01
Sample Matrix: Soil
Units: °C
Analyst: MKS
Prepared: 4/2/20 18:25

TCLP Extraction by 1311

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Batch</u>
Temperature (Min C)	20.0 (N/A)		1311		1	MKS	04/03/20 10:50	DD00249
Temperature (Max C)	20.6 (N/A)		1311		1	MKS	04/03/20 10:50	DD00249
Temperature (Range)	Temperature is not within 23 +/-2 °C. (N/A)							



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0048

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

1311 TCLP Metals

Batch DD00331 - 3005A_TCLP

Blank

Lead	ND	0.050	mg/L							
------	----	-------	------	--	--	--	--	--	--	--

LCS

Lead	0.472	0.050	mg/L	0.5000		94	80-120			
------	-------	-------	------	--------	--	----	--------	--	--	--

LCS Dup

Lead	0.467	0.050	mg/L	0.5000		93	80-120	1	20	
------	-------	-------	------	--------	--	----	--------	---	----	--

Classical Chemistry

Batch DD00329 - General Preparation

Reference

Flashpoint	81		°F	81.00		99	97.9-102.1			
------------	----	--	----	-------	--	----	------------	--	--	--

Batch DD00657 - General Preparation

Blank

Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							

LCS

Reactive Cyanide	4.0	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	ND	2.0	mg/kg	10.00		0	0-44			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0048

Notes and Definitions

- Z18 Temperature is not within 23 +/-2 °C.
- Z-10 Soil pH measured in water at 20.5 °C.
- U Analyte included in the analysis, but not detected
- > Greater than.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0048

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20D0048
 Date Received: 4/2/2020
 Project Due Date: 4/9/2020
 Days for Project: 5 Day

Shipped/Delivered Via: _____ Client _____

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 3.9 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about **short holds & rushes**? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	29599	Yes	N/A	Yes	8 oz jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials [Signature]
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 4/2/20 16:03
 Reviewed By: [Signature] Date & Time: 4/2/20 17:12
 Delivered By: [Signature] Date & Time: 4/20/20 17:16

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **20D0048**

Turn Time: _____ Rush: _____

Regulatory State: **RI**

Is this project for any of the following?:

MA-MCP CT-RCP RGP Remediation

Project # **1525817** Project Name **RIDEM TAC-Sunnyside Phase II**

Address **301 Metro Center Blvd**

City **Rhode Island** Zip Code **02886** PO # _____

State **RI** Email Address **j.alvarez@ea-est.com**

Telephone Number **401-287-0364** FAX Number _____

Company Name **EA Engineering**

Contact Person **Jonathan Alvarez**

City **Warwick** State **RI**

Telephone Number **401-287-0364** FAX Number _____

Reporting Limits

Electronic Deliverables Limit Checker Excel
 Other (Please Specify) → _____

Analysis

Compositing X
 Flash Point X
 TCLP Lead X

Soil-IDW-4-1-20

Sample ID

Sample Matrix

Sample Type

Collection Time

ESS Lab ID

1 4/1/20 1745

Soil

Soil

Soil

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc2, NaOH 9-NH4Cl 10-DI H2O 11-Other

Number of Containers:

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: **33.9 °C**

Relinquished by: (Signature, Date & Time)

[Signature] 4/2/20 1100

Relinquished by: (Signature, Date & Time)

[Signature] 4/2/20 1100

Relinquished By: (Signature, Date & Time)

Sampled by: **G Jamigian**

Comments:

Please specify "Other" preservative and containers types in this space

- Analyze to RIDEM Remediation Standards
 - Lead sample field filtered

Received By: (Signature, Date & Time)

Relinquished By: (Signature, Date & Time)

Received By: (Signature, Date & Time)

Received By: (Signature, Date & Time)

Relinquished By: (Signature, Date & Time)

Received By: (Signature, Date & Time)



CERTIFICATE OF ANALYSIS

Jonathan Alvarez
EA Engineering, Science, and Technology
301 Metro Center Blvd, Suite 102
Warwick, RI 02886

RE: RIDEM-TAC-Sunnyside Phase II (1525817)
ESS Laboratory Work Order Number: 20D0047

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 6:04 pm, Apr 09, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

SAMPLE RECEIPT

The following samples were received on April 02, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
20D0047-01	EA-MW-2	Ground Water	6010C, 6020A, 7010, 7470A, 8100M, 8260B, 8270D
20D0047-02	EA-MW-13	Ground Water	6010C, 6020A, 7010, 7470A, 8100M, 8260B, 8270D
20D0047-03	EA-MW-17	Ground Water	6010C, 6020A, 7010, 7470A, 8100M, 8260B, 8270D
20D0047-04	EA-MW-20	Ground Water	6010C, 6020A, 7010, 7470A, 8100M, 8260B, 8270D
20D0047-05	EA-MW-DUP	Ground Water	6010C, 6020A, 7010, 7470A, 8100M, 8260B, 8270D
20D0047-06	EA-MW-9	Ground Water	6020A, 8015C, 8260B
20D0047-07	PET-DUP	Ground Water	6020A, 8015C, 8260B
20D0047-08	Trip Blank	Ground Water	8260B



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

- 20D0047-04 **Internal Standard(s) outside of criteria (I).**
Perylene-d12 (35% @ 50-200%)
- D0D0080-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (120% @ 80-120%), 4,6-Dinitro-2-Methylphenol (116% @ 80-120%), Benzoic Acid (144% @ 80-120%), Pentachlorophenol (134% @ 80-120%)
- D0D0080-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Benzoic Acid (44% @ 20%), Pentachlorophenol (34% @ 20%)
- D0D0080-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexachlorocyclopentadiene (27% @ 20%)
- D0D0080-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Hexachlorocyclopentadiene
- D0D0129-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (107% @ 80-120%), 4,6-Dinitro-2-Methylphenol (113% @ 80-120%), Benzoic Acid (113% @ 80-120%), Pentachlorophenol (126% @ 80-120%)
- D0D0129-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Pentachlorophenol (26% @ 20%)
- D0D0129-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexachlorocyclopentadiene (28% @ 20%)
- D0D0129-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Hexachlorocyclopentadiene
- D0D0159-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (94% @ 80-120%), 4,6-Dinitro-2-Methylphenol (109% @ 80-120%), Benzoic Acid (94% @ 80-120%), Pentachlorophenol (115% @ 80-120%)
- D0D0159-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Benzyl Alcohol (25% @ 20%)
- D0D0159-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Hexachlorocyclopentadiene

No other observations noted.

End of Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

DATA USABILITY LINKS

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- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (1.0)		6020A		1	NAR	04/06/20 13:00	50	25	DD00239
Arsenic	ND (2.5)		7010		1	KJK	04/07/20 16:34	50	25	DD00239
Beryllium	ND (0.5)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Cadmium	ND (2.5)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Chromium	ND (10.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Copper	ND (10.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Lead	ND (10.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Mercury	ND (0.20)		7470A		1	MKS	04/06/20 11:09	20	40	DD00327
Nickel	ND (25.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Selenium	ND (25.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Silver	ND (5.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239
Thallium	ND (1.0)		6020A		1	NAR	04/06/20 13:00	50	25	DD00239
Zinc	ND (25.0)		6010C		1	KJK	04/03/20 18:34	50	25	DD00239



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	04/03/20 10:02	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>97 %</i>		<i>40-140</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/06/20 13:38	D0D0103	DD00641
1-Chlorohexane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
2-Butanone	ND (0.0100)		8260B		1	04/06/20 13:38	D0D0103	DD00641
2-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
2-Hexanone	ND (0.0100)		8260B		1	04/06/20 13:38	D0D0103	DD00641
4-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Acetone	ND (0.0100)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Benzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Bromobenzene	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Bromodichloromethane	ND (0.0006)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Bromoform	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Bromomethane	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Carbon Disulfide	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Chlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Chloroethane	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Chloroform	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Chloromethane	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Dibromochloromethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Dibromomethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Diethyl Ether	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Di-isopropyl ether	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Ethylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Hexachloroethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Isopropylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Methylene Chloride	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Naphthalene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
n-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
n-Propylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
sec-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Styrene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
tert-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Tetrachloroethene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: EA-MW-2
 Date Sampled: 04/01/20 11:10
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
 ESS Laboratory Sample ID: 20D0047-01
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Toluene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Trichloroethene	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Vinyl Acetate	ND (0.0050)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Vinyl Chloride	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Xylene O	ND (0.0010)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Xylene P,M	ND (0.0020)		8260B		1	04/06/20 13:38	D0D0103	DD00641
Xylenes (Total)	ND (0.00200)		8260B		1	04/06/20 13:38		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
1,2,4-Trichlorobenzene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
1,2-Dichlorobenzene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
1,3-Dichlorobenzene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
1,4-Dichlorobenzene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,3,4,6-Tetrachlorophenol	ND (0.0481)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,4,5-Trichlorophenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,4,6-Trichlorophenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,4-Dichlorophenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,4-Dimethylphenol	ND (0.0481)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,4-Dinitrophenol	ND (0.0481)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,4-Dinitrotoluene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2,6-Dinitrotoluene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2-Chloronaphthalene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2-Chlorophenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2-Methylnaphthalene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2-Methylphenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2-Nitroaniline	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
2-Nitrophenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
3,3'-Dichlorobenzidine	ND (0.0192)		8270D		1	04/08/20 18:45	D0D0159	DD00219
3+4-Methylphenol	ND (0.0192)		8270D		1	04/08/20 18:45	D0D0159	DD00219
3-Nitroaniline	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4,6-Dinitro-2-Methylphenol	ND (0.0481)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4-Bromophenyl-phenylether	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4-Chloro-3-Methylphenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4-Chloroaniline	ND (0.0192)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4-Chloro-phenyl-phenyl ether	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4-Nitroaniline	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
4-Nitrophenol	ND (0.0481)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Acenaphthene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Acenaphthylene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Acetophenone	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Anthracene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Azobenzene	ND (0.0192)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzo(a)anthracene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzo(a)pyrene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzo(b)fluoranthene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzo(g,h,i)perylene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzo(k)fluoranthene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzoic Acid	ND (0.0962)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Benzyl Alcohol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
bis(2-Chloroethoxy)methane	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
bis(2-Chloroethyl)ether	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
bis(2-chloroisopropyl)Ether	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
bis(2-Ethylhexyl)phthalate	ND (0.0058)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Butylbenzylphthalate	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Carbazole	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Chrysene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Dibenzo(a,h)Anthracene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Dibenzofuran	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Diethylphthalate	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Dimethylphthalate	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Di-n-butylphthalate	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Di-n-octylphthalate	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Fluoranthene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Fluorene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Hexachlorobenzene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Hexachlorobutadiene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Hexachlorocyclopentadiene	ND (0.0240)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Hexachloroethane	ND (0.0048)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Indeno(1,2,3-cd)Pyrene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Isophorone	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Naphthalene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-2
Date Sampled: 04/01/20 11:10
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
N-Nitrosodimethylamine	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
N-Nitroso-Di-n-Propylamine	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
N-nitrosodiphenylamine	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Pentachlorophenol	ND (0.0481)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Phenanthrene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Phenol	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Pyrene	ND (0.0096)		8270D		1	04/08/20 18:45	D0D0159	DD00219
Pyridine	ND (0.0962)		8270D		1	04/08/20 18:45	D0D0159	DD00219

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	80 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	100 %		15-110
<i>Surrogate: 2-Chlorophenol-d4</i>	74 %		15-110
<i>Surrogate: 2-Fluorobiphenyl</i>	82 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	55 %		15-110
<i>Surrogate: Nitrobenzene-d5</i>	85 %		30-130
<i>Surrogate: Phenol-d6</i>	76 %		15-110
<i>Surrogate: p-Terphenyl-d14</i>	102 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (1.0)		6020A		1	NAR	04/06/20 13:05	50	25	DD00239
Arsenic	ND (2.5)		7010		1	KJK	04/07/20 16:40	50	25	DD00239
Beryllium	ND (0.5)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Cadmium	ND (2.5)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Chromium	ND (10.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Copper	ND (10.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Lead	ND (10.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Mercury	ND (0.20)		7470A		1	MKS	04/06/20 11:11	20	40	DD00327
Nickel	ND (25.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Selenium	ND (25.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Silver	ND (5.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239
Thallium	ND (1.0)		6020A		1	NAR	04/06/20 13:05	50	25	DD00239
Zinc	ND (25.0)		6010C		1	KJK	04/03/20 18:38	50	25	DD00239



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	04/03/20 10:35	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		95 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/06/20 14:05	D0D0103	DD00641
1-Chlorohexane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
2-Butanone	ND (0.0100)		8260B		1	04/06/20 14:05	D0D0103	DD00641
2-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
2-Hexanone	ND (0.0100)		8260B		1	04/06/20 14:05	D0D0103	DD00641
4-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Acetone	ND (0.0100)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Benzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Bromobenzene	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Bromodichloromethane	ND (0.0006)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Bromoform	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Bromomethane	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Carbon Disulfide	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Chlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Chloroethane	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Chloroform	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Chloromethane	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Dibromochloromethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Dibromomethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Diethyl Ether	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Di-isopropyl ether	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Ethylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Hexachloroethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Isopropylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Methylene Chloride	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Naphthalene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
n-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
n-Propylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
sec-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Styrene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
tert-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Tetrachloroethene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Toluene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Trichloroethene	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Vinyl Acetate	ND (0.0050)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Vinyl Chloride	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Xylene O	ND (0.0010)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Xylene P,M	ND (0.0020)		8260B		1	04/06/20 14:05	D0D0103	DD00641
Xylenes (Total)	ND (0.00200)		8260B		1	04/06/20 14:05		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
1,2,4-Trichlorobenzene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
1,2-Dichlorobenzene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
1,3-Dichlorobenzene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
1,4-Dichlorobenzene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,3,4,6-Tetrachlorophenol	ND (0.0485)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,4,5-Trichlorophenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,4,6-Trichlorophenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,4-Dichlorophenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,4-Dimethylphenol	ND (0.0485)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,4-Dinitrophenol	ND (0.0485)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,4-Dinitrotoluene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2,6-Dinitrotoluene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2-Chloronaphthalene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2-Chlorophenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2-Methylnaphthalene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2-Methylphenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2-Nitroaniline	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
2-Nitrophenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
3,3'-Dichlorobenzidine	ND (0.0194)		8270D		1	04/07/20 21:59	D0D0129	DD00219
3+4-Methylphenol	ND (0.0194)		8270D		1	04/07/20 21:59	D0D0129	DD00219
3-Nitroaniline	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4,6-Dinitro-2-Methylphenol	ND (0.0485)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4-Bromophenyl-phenylether	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4-Chloro-3-Methylphenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4-Chloroaniline	ND (0.0194)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4-Chloro-phenyl-phenyl ether	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4-Nitroaniline	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
4-Nitrophenol	ND (0.0485)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Acenaphthene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Acenaphthylene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Acetophenone	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Anthracene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Azobenzene	ND (0.0194)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzo(a)anthracene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzo(a)pyrene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzo(b)fluoranthene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzo(g,h,i)perylene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzo(k)fluoranthene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzoic Acid	ND (0.0971)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Benzyl Alcohol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
bis(2-Chloroethoxy)methane	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
bis(2-Chloroethyl)ether	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
bis(2-chloroisopropyl)Ether	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
bis(2-Ethylhexyl)phthalate	ND (0.0058)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Butylbenzylphthalate	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Carbazole	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Chrysene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Dibenzo(a,h)Anthracene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Dibenzofuran	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Diethylphthalate	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Dimethylphthalate	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Di-n-butylphthalate	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Di-n-octylphthalate	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Fluoranthene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Fluorene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Hexachlorobenzene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Hexachlorobutadiene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Hexachlorocyclopentadiene	ND (0.0243)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Hexachloroethane	ND (0.0049)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Indeno(1,2,3-cd)Pyrene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Isophorone	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Naphthalene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-13
Date Sampled: 04/01/20 17:20
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
N-Nitrosodimethylamine	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
N-Nitroso-Di-n-Propylamine	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
N-nitrosodiphenylamine	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Pentachlorophenol	ND (0.0485)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Phenanthrene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Phenol	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Pyrene	ND (0.0097)		8270D		1	04/07/20 21:59	D0D0129	DD00219
Pyridine	ND (0.0971)		8270D		1	04/07/20 21:59	D0D0129	DD00219

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>88 %</i>		<i>30-130</i>
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>106 %</i>		<i>15-110</i>
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>87 %</i>		<i>15-110</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>88 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorophenol</i>	<i>78 %</i>		<i>15-110</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>90 %</i>		<i>30-130</i>
<i>Surrogate: Phenol-d6</i>	<i>84 %</i>		<i>15-110</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>97 %</i>		<i>30-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (1.0)		6020A		1	NAR	04/06/20 13:11	50	25	DD00239
Arsenic	ND (2.5)		7010		1	KJK	04/07/20 16:46	50	25	DD00239
Beryllium	ND (0.5)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Cadmium	ND (2.5)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Chromium	ND (10.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Copper	ND (10.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Lead	ND (10.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Mercury	ND (0.20)		7470A		1	MKS	04/06/20 11:13	20	40	DD00327
Nickel	ND (25.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Selenium	ND (25.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Silver	ND (5.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239
Thallium	ND (1.0)		6020A		1	NAR	04/06/20 13:11	50	25	DD00239
Zinc	33.9 (25.0)		6010C		1	KJK	04/03/20 18:43	50	25	DD00239



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.29 (0.19)		8100M		1	04/03/20 11:08	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		93 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2,4-Trichlorobenzene	0.0205 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2,4-Trimethylbenzene	0.0017 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2-Dichlorobenzene	0.0034 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/06/20 14:31	D0D0103	DD00641
1-Chlorohexane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
2-Butanone	ND (0.0100)		8260B		1	04/06/20 14:31	D0D0103	DD00641
2-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
2-Hexanone	ND (0.0100)		8260B		1	04/06/20 14:31	D0D0103	DD00641
4-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Acetone	ND (0.0100)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Benzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Bromobenzene	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Bromodichloromethane	ND (0.0006)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Bromoform	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Bromomethane	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Carbon Disulfide	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Chlorobenzene	0.0182 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Chloroethane	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Chloroform	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Chloromethane	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Dibromochloromethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Dibromomethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Diethyl Ether	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Di-isopropyl ether	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Ethylbenzene	0.0018 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Hexachloroethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Isopropylbenzene	0.0128 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Methylene Chloride	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Naphthalene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
n-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
n-Propylbenzene	0.0044 (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
sec-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Styrene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
tert-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Tetrachloroethene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Toluene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Trichloroethene	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Vinyl Acetate	ND (0.0050)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Vinyl Chloride	ND (0.0010)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Xylene O	0.318 (0.0100)		8260B		10	04/07/20 12:38	D0D0103	DD00641
Xylene P,M	ND (0.0020)		8260B		1	04/06/20 14:31	D0D0103	DD00641
Xylenes (Total)	0.318 (0.0100)		8260B		10	04/07/20 12:38		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
1,2,4-Trichlorobenzene	0.0136 (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
1,2-Dichlorobenzene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
1,3-Dichlorobenzene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
1,4-Dichlorobenzene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,3,4,6-Tetrachlorophenol	ND (0.0481)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,4,5-Trichlorophenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,4,6-Trichlorophenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,4-Dichlorophenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,4-Dimethylphenol	ND (0.0481)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,4-Dinitrophenol	ND (0.0481)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,4-Dinitrotoluene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2,6-Dinitrotoluene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2-Chloronaphthalene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2-Chlorophenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2-Methylnaphthalene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2-Methylphenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2-Nitroaniline	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
2-Nitrophenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
3,3'-Dichlorobenzidine	ND (0.0192)		8270D		1	04/07/20 22:27	D0D0129	DD00219
3+4-Methylphenol	ND (0.0192)		8270D		1	04/07/20 22:27	D0D0129	DD00219
3-Nitroaniline	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4,6-Dinitro-2-Methylphenol	ND (0.0481)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4-Bromophenyl-phenylether	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4-Chloro-3-Methylphenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4-Chloroaniline	ND (0.0192)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4-Chloro-phenyl-phenyl ether	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4-Nitroaniline	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
4-Nitrophenol	ND (0.0481)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Acenaphthene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Acenaphthylene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Acetophenone	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Anthracene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Azobenzene	ND (0.0192)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzo(a)anthracene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzo(a)pyrene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzo(b)fluoranthene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzo(g,h,i)perylene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzo(k)fluoranthene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzoic Acid	ND (0.0962)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Benzyl Alcohol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
bis(2-Chloroethoxy)methane	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
bis(2-Chloroethyl)ether	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
bis(2-chloroisopropyl)Ether	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
bis(2-Ethylhexyl)phthalate	ND (0.0058)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Butylbenzylphthalate	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Carbazole	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Chrysene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Dibenzo(a,h)Anthracene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Dibenzofuran	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Diethylphthalate	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Dimethylphthalate	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Di-n-butylphthalate	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Di-n-octylphthalate	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Fluoranthene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Fluorene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Hexachlorobenzene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Hexachlorobutadiene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Hexachlorocyclopentadiene	ND (0.0240)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Hexachloroethane	ND (0.0048)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Indeno(1,2,3-cd)Pyrene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Isophorone	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Naphthalene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-17
Date Sampled: 04/01/20 15:35
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
N-Nitrosodimethylamine	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
N-Nitroso-Di-n-Propylamine	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
N-nitrosodiphenylamine	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Pentachlorophenol	ND (0.0481)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Phenanthrene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Phenol	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Pyrene	ND (0.0096)		8270D		1	04/07/20 22:27	D0D0129	DD00219
Pyridine	ND (0.0962)		8270D		1	04/07/20 22:27	D0D0129	DD00219

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	83 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	108 %		15-110
<i>Surrogate: 2-Chlorophenol-d4</i>	87 %		15-110
<i>Surrogate: 2-Fluorobiphenyl</i>	86 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	79 %		15-110
<i>Surrogate: Nitrobenzene-d5</i>	87 %		30-130
<i>Surrogate: Phenol-d6</i>	86 %		15-110
<i>Surrogate: p-Terphenyl-d14</i>	48 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (1.0)		6020A		1	NAR	04/06/20 13:16	50	25	DD00239
Arsenic	ND (2.5)		7010		1	KJK	04/07/20 16:53	50	25	DD00239
Beryllium	ND (0.5)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Cadmium	ND (2.5)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Chromium	ND (10.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Copper	ND (10.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Lead	ND (10.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Mercury	ND (0.20)		7470A		1	MKS	04/06/20 11:16	20	40	DD00327
Nickel	ND (25.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Selenium	ND (25.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Silver	ND (5.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239
Thallium	ND (1.0)		6020A		1	NAR	04/06/20 13:16	50	25	DD00239
Zinc	852 (25.0)		6010C		1	KJK	04/03/20 18:46	50	25	DD00239



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.38 (0.19)		8100M		1	04/03/20 11:41	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		88 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2,3-Trichlorobenzene	0.0065 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2,4-Trichlorobenzene	0.0478 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2,4-Trimethylbenzene	0.0056 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2-Dichlorobenzene	0.0820 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,3,5-Trimethylbenzene	0.0013 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,4-Dichlorobenzene	0.0057 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/06/20 14:58	D0D0103	DD00641
1-Chlorohexane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
2-Butanone	ND (0.0100)		8260B		1	04/06/20 14:58	D0D0103	DD00641
2-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
2-Hexanone	ND (0.0100)		8260B		1	04/06/20 14:58	D0D0103	DD00641
4-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Acetone	ND (0.0100)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Benzene	0.0016 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Bromobenzene	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Bromodichloromethane	ND (0.0006)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Bromoform	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Bromomethane	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Carbon Disulfide	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Chlorobenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Chloroethane	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Chloroform	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Chloromethane	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
cis-1,2-Dichloroethene	0.0034 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Dibromochloromethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Dibromomethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Diethyl Ether	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Di-isopropyl ether	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Ethylbenzene	0.0034 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Hexachloroethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Isopropylbenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Methylene Chloride	ND (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Naphthalene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
n-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
n-Propylbenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
sec-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Styrene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
tert-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Tetrachloroethene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Toluene	0.0012 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Trichloroethene	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Vinyl Acetate	ND (0.0050)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Vinyl Chloride	ND (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Xylene O	0.0064 (0.0010)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Xylene P,M	0.0044 (0.0020)		8260B		1	04/06/20 14:58	D0D0103	DD00641
Xylenes (Total)	0.0108 (0.00200)		8260B		1	04/06/20 14:58		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
1,2,4-Trichlorobenzene	0.0309 (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
1,2-Dichlorobenzene	0.0497 (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
1,3-Dichlorobenzene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
1,4-Dichlorobenzene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,3,4,6-Tetrachlorophenol	ND (0.0490)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,4,5-Trichlorophenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,4,6-Trichlorophenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,4-Dichlorophenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,4-Dimethylphenol	ND (0.0490)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,4-Dinitrophenol	ND (0.0490)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,4-Dinitrotoluene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2,6-Dinitrotoluene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2-Chloronaphthalene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2-Chlorophenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2-Methylnaphthalene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2-Methylphenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2-Nitroaniline	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
2-Nitrophenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
3,3'-Dichlorobenzidine	ND (0.0196)		8270D		1	04/08/20 19:12	D0D0159	DD00219
3+4-Methylphenol	ND (0.0196)		8270D		1	04/08/20 19:12	D0D0159	DD00219
3-Nitroaniline	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4,6-Dinitro-2-Methylphenol	ND (0.0490)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4-Bromophenyl-phenylether	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4-Chloro-3-Methylphenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4-Chloroaniline	ND (0.0196)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4-Chloro-phenyl-phenyl ether	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4-Nitroaniline	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
4-Nitrophenol	ND (0.0490)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Acenaphthene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Acenaphthylene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Acetophenone	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Anthracene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Azobenzene	ND (0.0196)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzo(a)anthracene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzo(a)pyrene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzo(b)fluoranthene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzo(g,h,i)perylene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzo(k)fluoranthene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzoic Acid	ND (0.0980)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Benzyl Alcohol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
bis(2-Chloroethoxy)methane	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
bis(2-Chloroethyl)ether	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
bis(2-chloroisopropyl)Ether	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
bis(2-Ethylhexyl)phthalate	0.0158 (0.0059)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Butylbenzylphthalate	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Carbazole	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Chrysene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Dibenzo(a,h)Anthracene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Dibenzofuran	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Diethylphthalate	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Dimethylphthalate	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Di-n-butylphthalate	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Di-n-octylphthalate	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Fluoranthene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Fluorene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Hexachlorobenzene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Hexachlorobutadiene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Hexachlorocyclopentadiene	ND (0.0245)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Hexachloroethane	ND (0.0049)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Indeno(1,2,3-cd)Pyrene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Isophorone	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Naphthalene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-20
Date Sampled: 04/01/20 13:35
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
N-Nitrosodimethylamine	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
N-Nitroso-Di-n-Propylamine	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
N-nitrosodiphenylamine	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Pentachlorophenol	ND (0.0490)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Phenanthrene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Phenol	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Pyrene	ND (0.0098)		8270D		1	04/08/20 19:12	D0D0159	DD00219
Pyridine	ND (0.0980)		8270D		1	04/08/20 19:12	D0D0159	DD00219

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	83 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	104 %		15-110
<i>Surrogate: 2-Chlorophenol-d4</i>	87 %		15-110
<i>Surrogate: 2-Fluorobiphenyl</i>	88 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	79 %		15-110
<i>Surrogate: Nitrobenzene-d5</i>	85 %		30-130
<i>Surrogate: Phenol-d6</i>	81 %		15-110
<i>Surrogate: p-Terphenyl-d14</i>	41 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (1.0)		6020A		1	NAR	04/06/20 13:44	50	25	DD00239
Arsenic	ND (2.5)		7010		1	KJK	04/07/20 17:34	50	25	DD00239
Beryllium	ND (0.5)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Cadmium	ND (2.5)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Chromium	ND (10.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Copper	ND (10.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Lead	ND (10.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Mercury	ND (0.20)		7470A		1	MKS	04/06/20 11:33	20	40	DD00327
Nickel	ND (25.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Selenium	ND (25.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Silver	ND (5.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239
Thallium	ND (1.0)		6020A		1	NAR	04/06/20 13:44	50	25	DD00239
Zinc	27.6 (25.0)		6010C		1	KJK	04/03/20 19:06	50	25	DD00239



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8100M Total Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.24 (0.19)		8100M		1	04/03/20 13:20	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		85 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2,4-Trichlorobenzene	0.0195 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2,4-Trimethylbenzene	0.0014 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2-Dichlorobenzene	0.0030 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/06/20 20:45	D0D0103	DD00641
1-Chlorohexane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
2-Butanone	ND (0.0100)		8260B		1	04/06/20 20:45	D0D0103	DD00641
2-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
2-Hexanone	ND (0.0100)		8260B		1	04/06/20 20:45	D0D0103	DD00641
4-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Acetone	ND (0.0100)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Benzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Bromobenzene	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Bromodichloromethane	ND (0.0006)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Bromoform	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Bromomethane	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Carbon Disulfide	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Chlorobenzene	0.0182 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Chloroethane	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Chloroform	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Chloromethane	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Dibromochloromethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Dibromomethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Diethyl Ether	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Di-isopropyl ether	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Ethylbenzene	0.0016 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Hexachloroethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Isopropylbenzene	0.0118 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Methylene Chloride	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Naphthalene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
n-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
n-Propylbenzene	0.0039 (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
sec-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Styrene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
tert-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Tetrachloroethene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Toluene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Trichloroethene	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Vinyl Acetate	ND (0.0050)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Vinyl Chloride	ND (0.0010)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Xylene O	0.322 (0.0100)		8260B		10	04/07/20 13:05	D0D0103	DD00641
Xylene P,M	ND (0.0020)		8260B		1	04/06/20 20:45	D0D0103	DD00641
Xylenes (Total)	0.322 (0.0100)		8260B		10	04/07/20 13:05		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	102 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	105 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
1,2,4-Trichlorobenzene	0.0131 (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
1,2-Dichlorobenzene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
1,3-Dichlorobenzene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
1,4-Dichlorobenzene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,3,4,6-Tetrachlorophenol	ND (0.0476)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,4,5-Trichlorophenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,4,6-Trichlorophenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,4-Dichlorophenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,4-Dimethylphenol	ND (0.0476)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,4-Dinitrophenol	ND (0.0476)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,4-Dinitrotoluene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2,6-Dinitrotoluene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2-Chloronaphthalene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2-Chlorophenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2-Methylnaphthalene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2-Methylphenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2-Nitroaniline	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
2-Nitrophenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
3,3'-Dichlorobenzidine	ND (0.0190)		8270D		1	04/08/20 0:16	D0D0129	DD00219
3+4-Methylphenol	ND (0.0190)		8270D		1	04/08/20 0:16	D0D0129	DD00219
3-Nitroaniline	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4,6-Dinitro-2-Methylphenol	ND (0.0476)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4-Bromophenyl-phenylether	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4-Chloro-3-Methylphenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4-Chloroaniline	ND (0.0190)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4-Chloro-phenyl-phenyl ether	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4-Nitroaniline	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
4-Nitrophenol	ND (0.0476)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Acenaphthene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Acenaphthylene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Acetophenone	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aniline	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Anthracene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Azobenzene	ND (0.0190)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzo(a)anthracene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzo(a)pyrene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzo(b)fluoranthene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzo(g,h,i)perylene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzo(k)fluoranthene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzoic Acid	ND (0.0952)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Benzyl Alcohol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
bis(2-Chloroethoxy)methane	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
bis(2-Chloroethyl)ether	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
bis(2-chloroisopropyl)Ether	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
bis(2-Ethylhexyl)phthalate	ND (0.0057)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Butylbenzylphthalate	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Carbazole	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Chrysene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Dibenzo(a,h)Anthracene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Dibenzofuran	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Diethylphthalate	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Dimethylphthalate	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Di-n-butylphthalate	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Di-n-octylphthalate	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Fluoranthene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Fluorene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Hexachlorobenzene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Hexachlorobutadiene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Hexachlorocyclopentadiene	ND (0.0238)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Hexachloroethane	ND (0.0048)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Indeno(1,2,3-cd)Pyrene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Isophorone	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Naphthalene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3520C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: TJ
Prepared: 4/3/20 14:00

8270D Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Nitrobenzene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
N-Nitrosodimethylamine	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
N-Nitroso-Di-n-Propylamine	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
N-nitrosodiphenylamine	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Pentachlorophenol	ND (0.0476)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Phenanthrene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Phenol	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Pyrene	ND (0.0095)		8270D		1	04/08/20 0:16	D0D0129	DD00219
Pyridine	ND (0.0952)		8270D		1	04/08/20 0:16	D0D0129	DD00219

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	81 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	101 %		15-110
<i>Surrogate: 2-Chlorophenol-d4</i>	83 %		15-110
<i>Surrogate: 2-Fluorobiphenyl</i>	78 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	74 %		15-110
<i>Surrogate: Nitrobenzene-d5</i>	77 %		30-130
<i>Surrogate: Phenol-d6</i>	77 %		15-110
<i>Surrogate: p-Terphenyl-d14</i>	44 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-9
Date Sampled: 04/01/20 09:35
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-06
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	1.2 (1.0)		6020A		1	KJK	04/03/20 12:00	10	10	DD00315



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-9
Date Sampled: 04/01/20 09:35
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	0.39 (0.19)		8015C		1	04/03/20 13:53	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		93 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-9
Date Sampled: 04/01/20 09:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MEK
Prepared: 4/6/20 8:00

8015C Gasoline Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	ND (0.050)		8015C		1	04/06/20 21:19	D0D0107	DD00662
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		<i>109 %</i>		<i>70-130</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: EA-MW-9
Date Sampled: 04/01/20 09:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8021B by 8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.001)		8260B		1	04/07/20 13:31	D0D0125	DD00729
Ethylbenzene	ND (0.001)		8260B		1	04/07/20 13:31	D0D0125	DD00729
Methyl tert-Butyl Ether	ND (0.001)		8260B		1	04/07/20 13:31	D0D0125	DD00729
Toluene	ND (0.001)		8260B		1	04/07/20 13:31	D0D0125	DD00729
Xylene O	ND (0.001)		8260B		1	04/07/20 13:31	D0D0125	DD00729
Xylene P,M	ND (0.002)		8260B		1	04/07/20 13:31	D0D0125	DD00729
Xylenes (Total)	ND (0.00300)		8260B		1	04/07/20 13:31		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: PET-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-07
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Lead	1.6 (1.0)		6020A		1	KJK	04/03/20 12:05	10	10	DD00315



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: PET-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-07
Sample Matrix: Ground Water
Units: mg/L
Analyst: CAD
Prepared: 4/2/20 17:45

8015C Diesel Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Diesel Range Organics (C10-C28)	0.39 (0.19)		8015C		1	04/03/20 14:26	D0D0064	DD00109
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		95 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: PET-DUP
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-07
Sample Matrix: Ground Water
Units: mg/L
Analyst: MEK
Prepared: 4/6/20 8:00

8015C Gasoline Range Organics

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Gasoline Range Organics (C6-C10)	ND (0.050)		8015C		1	04/06/20 22:00	D0D0107	DD00662
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: 2,5-Dibromotoluene - FID</i>		<i>109 %</i>		<i>70-130</i>				



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
 Client Project ID: RIDEM-TAC-Sunnyside Phase II
 Client Sample ID: PET-DUP
 Date Sampled: 04/01/20 00:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
 ESS Laboratory Sample ID: 20D0047-07
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

8021B by 8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Benzene	ND (0.001)		8260B		1	04/07/20 13:58	D0D0125	DD00729
Ethylbenzene	ND (0.001)		8260B		1	04/07/20 13:58	D0D0125	DD00729
Methyl tert-Butyl Ether	ND (0.001)		8260B		1	04/07/20 13:58	D0D0125	DD00729
Toluene	ND (0.001)		8260B		1	04/07/20 13:58	D0D0125	DD00729
Xylene O	ND (0.001)		8260B		1	04/07/20 13:58	D0D0125	DD00729
Xylene P,M	ND (0.002)		8260B		1	04/07/20 13:58	D0D0125	DD00729
Xylenes (Total)	ND (0.00300)		8260B		1	04/07/20 13:58		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	96 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	104 %		70-130
<i>Surrogate: Toluene-d8</i>	96 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/06/20 13:11	D0D0103	DD00641
1-Chlorohexane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
2-Butanone	ND (0.0100)		8260B		1	04/06/20 13:11	D0D0103	DD00641
2-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
2-Hexanone	ND (0.0100)		8260B		1	04/06/20 13:11	D0D0103	DD00641
4-Chlorotoluene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Acetone	ND (0.0100)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Benzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Bromobenzene	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Bromodichloromethane	ND (0.0006)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Bromoform	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Bromomethane	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Carbon Disulfide	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Chlorobenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Chloroethane	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Chloroform	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Chloromethane	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Dibromochloromethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Dibromomethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Diethyl Ether	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Di-isopropyl ether	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Ethylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Hexachloroethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Isopropylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Methylene Chloride	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Naphthalene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
n-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
n-Propylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
sec-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Styrene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
tert-Butylbenzene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Tetrachloroethene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II
Client Sample ID: Trip Blank
Date Sampled: 04/01/20 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 20D0047
ESS Laboratory Sample ID: 20D0047-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Toluene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Trichloroethene	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Vinyl Acetate	ND (0.0050)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Vinyl Chloride	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Xylene O	ND (0.0010)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Xylene P,M	ND (0.0020)		8260B		1	04/06/20 13:11	D0D0103	DD00641
Xylenes (Total)	ND (0.00200)		8260B		1	04/06/20 13:11		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Dissolved Metals

Batch DD00315 - 200.7/6010BNoDigest

Blank

Lead	ND	1.0	ug/L							
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LCS

Lead	20.2		ug/L	19.98		101	80-120			
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Total Metals

Batch DD00239 - 3005A/200.7

Blank

Beryllium	ND	0.5	ug/L							
Cadmium	ND	2.5	ug/L							
Chromium	ND	10.0	ug/L							
Copper	ND	10.0	ug/L							
Lead	ND	10.0	ug/L							
Nickel	ND	25.0	ug/L							
Selenium	ND	25.0	ug/L							
Silver	ND	5.0	ug/L							
Zinc	ND	25.0	ug/L							

Blank

Antimony	ND	1.0	ug/L							
Thallium	ND	1.0	ug/L							

Blank

Arsenic	ND	2.5	ug/L							
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LCS

Beryllium	25.3	0.5	ug/L	25.00		101	80-120			
Cadmium	122	2.5	ug/L	125.0		98	80-120			
Chromium	258	10.0	ug/L	250.0		103	80-120			
Copper	261	10.0	ug/L	250.0		104	80-120			
Lead	256	10.0	ug/L	250.0		103	80-120			
Nickel	259	25.0	ug/L	250.0		104	80-120			
Selenium	503	25.0	ug/L	500.0		101	80-120			
Silver	128	5.0	ug/L	125.0		102	80-120			
Zinc	253	25.0	ug/L	250.0		101	80-120			

LCS

Antimony	243	5.0	ug/L	250.0		97	80-120			
Thallium	234	5.0	ug/L	250.0		93	80-120			

LCS

Arsenic	203	62.5	ug/L	250.0		81	80-120			
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LCS Dup

Beryllium	25.6	0.5	ug/L	25.00		103	80-120	1	20	
Cadmium	123	2.5	ug/L	125.0		98	80-120	0.3	20	
Chromium	261	10.0	ug/L	250.0		105	80-120	1	20	
Copper	265	10.0	ug/L	250.0		106	80-120	2	20	
Lead	257	10.0	ug/L	250.0		103	80-120	0.1	20	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch DD00239 - 3005A/200.7

Nickel	263	25.0	ug/L	250.0		105	80-120	1	20	
Selenium	506	25.0	ug/L	500.0		101	80-120	0.6	20	
Silver	130	5.0	ug/L	125.0		104	80-120	2	20	
Zinc	266	25.0	ug/L	250.0		106	80-120	5	20	

LCS Dup

Antimony	241	5.0	ug/L	250.0		97	80-120	0.5	20	
Thallium	237	5.0	ug/L	250.0		95	80-120	1	20	

LCS Dup

Arsenic	212	62.5	ug/L	250.0		85	80-120	4	20	
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Batch DD00327 - 245.1/7470A

Blank

Mercury	ND	0.20	ug/L							
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LCS

Mercury	5.61	0.20	ug/L	6.042		93	80-120			
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LCS Dup

Mercury	5.83	0.20	ug/L	6.042		96	80-120	4	20	
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8015C Diesel Range Organics

Batch DD00109 - 3510C

Blank

Decane (C10)	ND	0.005	mg/L							
Diesel Range Organics (C10-C28)	ND	0.20	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.0876</i>		mg/L	<i>0.1000</i>		<i>88</i>	<i>40-140</i>			
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LCS

Decane (C10)	0.036	0.005	mg/L	0.05000		72	40-140			
Diesel Range Organics (C10-C28)	0.510	0.20	mg/L	0.5500		93	40-140			
Docosane (C22)	0.050	0.005	mg/L	0.05000		99	40-140			
Dodecane (C12)	0.041	0.005	mg/L	0.05000		81	40-140			
Eicosane (C20)	0.049	0.005	mg/L	0.05000		98	40-140			
Hexacosane (C26)	0.050	0.005	mg/L	0.05000		100	40-140			
Hexadecane (C16)	0.045	0.005	mg/L	0.05000		90	40-140			
Nonadecane (C19)	0.049	0.005	mg/L	0.05000		98	40-140			



CERTIFICATE OF ANALYSIS

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8015C Diesel Range Organics

Batch DD00109 - 3510C

Octacosane (C28)	0.051	0.005	mg/L	0.05000		101	40-140			
Octadecane (C18)	0.047	0.005	mg/L	0.05000		94	40-140			
Tetracosane (C24)	0.050	0.005	mg/L	0.05000		99	40-140			
Tetradecane (C14)	0.042	0.005	mg/L	0.05000		85	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0873</i>		mg/L	<i>0.1000</i>		<i>87</i>	<i>40-140</i>			
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LCS Dup

Decane (C10)	0.037	0.005	mg/L	0.05000		73	40-140	1	20	
Diesel Range Organics (C10-C28)	0.493	0.20	mg/L	0.5500		90	40-140	3	20	
Docosane (C22)	0.047	0.005	mg/L	0.05000		94	40-140	5	20	
Dodecane (C12)	0.041	0.005	mg/L	0.05000		82	40-140	0.7	20	
Eicosane (C20)	0.047	0.005	mg/L	0.05000		93	40-140	5	20	
Hexacosane (C26)	0.047	0.005	mg/L	0.05000		95	40-140	5	20	
Hexadecane (C16)	0.044	0.005	mg/L	0.05000		89	40-140	2	20	
Nonadecane (C19)	0.047	0.005	mg/L	0.05000		94	40-140	5	20	
Octacosane (C28)	0.048	0.005	mg/L	0.05000		97	40-140	5	20	
Octadecane (C18)	0.045	0.005	mg/L	0.05000		90	40-140	4	20	
Tetracosane (C24)	0.047	0.005	mg/L	0.05000		94	40-140	5	20	
Tetradecane (C14)	0.042	0.005	mg/L	0.05000		85	40-140	0.2	20	

<i>Surrogate: O-Terphenyl</i>	<i>0.0824</i>		mg/L	<i>0.1000</i>		<i>82</i>	<i>40-140</i>			
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8015C Gasoline Range Organics

Batch DD00662 - 5030B

Blank

Gasoline Range Organics (C6-C10)	ND	0.050	mg/L							
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<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>0.0547</i>		mg/L	<i>0.05000</i>		<i>109</i>	<i>70-130</i>			
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LCS

Gasoline Range Organics (C6-C10)	1.13	0.050	mg/L	1.050		107	70-130			
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<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>0.0583</i>		mg/L	<i>0.05000</i>		<i>117</i>	<i>70-130</i>			
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LCS Dup

Gasoline Range Organics (C6-C10)	1.13	0.050	mg/L	1.050		108	70-130	0.6	30	
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<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>0.0547</i>		mg/L	<i>0.05000</i>		<i>109</i>	<i>70-130</i>			
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8021B by 8260B Volatile Organic Compounds

Batch DD00729 - 5030B

Blank

Benzene	ND	0.001	mg/L							
Ethylbenzene	ND	0.001	mg/L							
Methyl tert-Butyl Ether	ND	0.001	mg/L							
Toluene	ND	0.001	mg/L							
Xylene O	ND	0.001	mg/L							



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8021B by 8260B Volatile Organic Compounds

Batch DD00729 - 5030B

Xylene P,M	ND	0.002	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0253		mg/L	0.02500		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0246		mg/L	0.02500		98	70-130			
Surrogate: Dibromofluoromethane	0.0269		mg/L	0.02500		108	70-130			
Surrogate: Toluene-d8	0.0246		mg/L	0.02500		98	70-130			

LCS

Benzene	0.01	0.001	mg/L	0.01000		107	70-130			
Ethylbenzene	0.01	0.001	mg/L	0.01000		96	70-130			
Methyl tert-Butyl Ether	0.009	0.001	mg/L	0.01000		93	70-130			
Toluene	0.01	0.001	mg/L	0.01000		106	70-130			
Xylene O	0.01	0.001	mg/L	0.01000		95	70-130			
Xylene P,M	0.02	0.002	mg/L	0.02000		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0261		mg/L	0.02500		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.0245		mg/L	0.02500		98	70-130			
Surrogate: Dibromofluoromethane	0.0263		mg/L	0.02500		105	70-130			
Surrogate: Toluene-d8	0.0238		mg/L	0.02500		95	70-130			

LCS Dup

Benzene	0.01	0.001	mg/L	0.01000		105	70-130	2	25	
Ethylbenzene	0.01	0.001	mg/L	0.01000		108	70-130	12	25	
Methyl tert-Butyl Ether	0.009	0.001	mg/L	0.01000		92	70-130	0.3	25	
Toluene	0.01	0.001	mg/L	0.01000		99	70-130	7	25	
Xylene O	0.01	0.001	mg/L	0.01000		104	70-130	9	25	
Xylene P,M	0.02	0.002	mg/L	0.02000		110	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	0.0247		mg/L	0.02500		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0254		mg/L	0.02500		101	70-130			
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0248		mg/L	0.02500		99	70-130			

8100M Total Petroleum Hydrocarbons

Batch DD00109 - 3510C

Blank

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacotane (C30)	ND	0.005	mg/L							



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8100M Total Petroleum Hydrocarbons

Batch DD00109 - 3510C

<i>Surrogate: O-Terphenyl</i>	<i>0.0876</i>		mg/L	<i>0.1000</i>		<i>88</i>	<i>40-140</i>			
LCS										
Decane (C10)	0.036	0.005	mg/L	0.05000		72	40-140			
Docosane (C22)	0.050	0.005	mg/L	0.05000		99	40-140			
Dodecane (C12)	0.041	0.005	mg/L	0.05000		81	40-140			
Eicosane (C20)	0.049	0.005	mg/L	0.05000		98	40-140			
Hexacosane (C26)	0.050	0.005	mg/L	0.05000		100	40-140			
Hexadecane (C16)	0.045	0.005	mg/L	0.05000		90	40-140			
Nonadecane (C19)	0.049	0.005	mg/L	0.05000		98	40-140			
Nonane (C9)	0.032	0.005	mg/L	0.05000		64	30-140			
Octacosane (C28)	0.051	0.005	mg/L	0.05000		101	40-140			
Octadecane (C18)	0.047	0.005	mg/L	0.05000		94	40-140			
Tetracosane (C24)	0.050	0.005	mg/L	0.05000		99	40-140			
Tetradecane (C14)	0.042	0.005	mg/L	0.05000		85	40-140			
Total Petroleum Hydrocarbons	0.649	0.20	mg/L	0.7000		93	40-140			
Triacontane (C30)	0.050	0.005	mg/L	0.05000		100	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0873</i>		mg/L	<i>0.1000</i>		<i>87</i>	<i>40-140</i>			
LCS Dup										
Decane (C10)	0.037	0.005	mg/L	0.05000		73	40-140	1	25	
Docosane (C22)	0.047	0.005	mg/L	0.05000		94	40-140	5	25	
Dodecane (C12)	0.041	0.005	mg/L	0.05000		82	40-140	0.7	25	
Eicosane (C20)	0.047	0.005	mg/L	0.05000		93	40-140	5	25	
Hexacosane (C26)	0.047	0.005	mg/L	0.05000		95	40-140	5	25	
Hexadecane (C16)	0.044	0.005	mg/L	0.05000		89	40-140	2	25	
Nonadecane (C19)	0.047	0.005	mg/L	0.05000		94	40-140	5	25	
Nonane (C9)	0.033	0.005	mg/L	0.05000		65	30-140	2	25	
Octacosane (C28)	0.048	0.005	mg/L	0.05000		97	40-140	5	25	
Octadecane (C18)	0.045	0.005	mg/L	0.05000		90	40-140	4	25	
Tetracosane (C24)	0.047	0.005	mg/L	0.05000		94	40-140	5	25	
Tetradecane (C14)	0.042	0.005	mg/L	0.05000		85	40-140	0.2	25	
Total Petroleum Hydrocarbons	0.627	0.20	mg/L	0.7000		90	40-140	3	25	
Triacontane (C30)	0.048	0.005	mg/L	0.05000		95	40-140	5	25	

<i>Surrogate: O-Terphenyl</i>	<i>0.0824</i>		mg/L	<i>0.1000</i>		<i>82</i>	<i>40-140</i>			
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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

Blank										
1,1,1,2-Tetrachloroethane	ND	0.0010	mg/L							
1,1,1-Trichloroethane	ND	0.0010	mg/L							
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L							
1,1,2-Trichloroethane	ND	0.0010	mg/L							
1,1-Dichloroethane	ND	0.0010	mg/L							



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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

1,1-Dichloroethene	ND	0.0010	mg/L							
1,1-Dichloropropene	ND	0.0020	mg/L							
1,2,3-Trichlorobenzene	ND	0.0010	mg/L							
1,2,3-Trichloropropane	ND	0.0010	mg/L							
1,2,4-Trichlorobenzene	ND	0.0010	mg/L							
1,2,4-Trimethylbenzene	ND	0.0010	mg/L							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/L							
1,2-Dibromoethane	ND	0.0010	mg/L							
1,2-Dichlorobenzene	ND	0.0010	mg/L							
1,2-Dichloroethane	ND	0.0010	mg/L							
1,2-Dichloropropane	ND	0.0010	mg/L							
1,3,5-Trimethylbenzene	ND	0.0010	mg/L							
1,3-Dichlorobenzene	ND	0.0010	mg/L							
1,3-Dichloropropane	ND	0.0010	mg/L							
1,4-Dichlorobenzene	ND	0.0010	mg/L							
1,4-Dioxane - Screen	ND	0.500	mg/L							
1-Chlorohexane	ND	0.0010	mg/L							
2,2-Dichloropropane	ND	0.0010	mg/L							
2-Butanone	ND	0.0100	mg/L							
2-Chlorotoluene	ND	0.0010	mg/L							
2-Hexanone	ND	0.0100	mg/L							
4-Chlorotoluene	ND	0.0010	mg/L							
4-Isopropyltoluene	ND	0.0010	mg/L							
4-Methyl-2-Pentanone	ND	0.0250	mg/L							
Acetone	ND	0.0100	mg/L							
Benzene	ND	0.0010	mg/L							
Bromobenzene	ND	0.0020	mg/L							
Bromochloromethane	ND	0.0010	mg/L							
Bromodichloromethane	ND	0.0006	mg/L							
Bromoform	ND	0.0010	mg/L							
Bromomethane	ND	0.0020	mg/L							
Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							



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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0247		mg/L	0.02500		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0244		mg/L	0.02500		98	70-130			
Surrogate: Dibromofluoromethane	0.0258		mg/L	0.02500		103	70-130			
Surrogate: Toluene-d8	0.0240		mg/L	0.02500		96	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0108	0.0010	mg/L	0.01000		108	70-130			
1,1,1-Trichloroethane	0.0104	0.0010	mg/L	0.01000		104	70-130			
1,1,2,2-Tetrachloroethane	0.0109	0.0005	mg/L	0.01000		109	70-130			
1,1,2-Trichloroethane	0.0108	0.0010	mg/L	0.01000		108	70-130			
1,1-Dichloroethane	0.0110	0.0010	mg/L	0.01000		110	70-130			
1,1-Dichloroethene	0.0104	0.0010	mg/L	0.01000		104	70-130			
1,1-Dichloropropene	0.0104	0.0020	mg/L	0.01000		104	70-130			
1,2,3-Trichlorobenzene	0.0111	0.0010	mg/L	0.01000		111	70-130			
1,2,3-Trichloropropane	0.0097	0.0010	mg/L	0.01000		97	70-130			
1,2,4-Trichlorobenzene	0.0106	0.0010	mg/L	0.01000		106	70-130			
1,2,4-Trimethylbenzene	0.0113	0.0010	mg/L	0.01000		113	70-130			
1,2-Dibromo-3-Chloropropane	0.0089	0.0050	mg/L	0.01000		89	70-130			
1,2-Dibromoethane	0.0104	0.0010	mg/L	0.01000		104	70-130			
1,2-Dichlorobenzene	0.0113	0.0010	mg/L	0.01000		113	70-130			
1,2-Dichloroethane	0.0104	0.0010	mg/L	0.01000		104	70-130			
1,2-Dichloropropane	0.0108	0.0010	mg/L	0.01000		108	70-130			



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

1,3,5-Trimethylbenzene	0.0111	0.0010	mg/L	0.01000		111	70-130			
1,3-Dichlorobenzene	0.0114	0.0010	mg/L	0.01000		114	70-130			
1,3-Dichloropropane	0.0113	0.0010	mg/L	0.01000		113	70-130			
1,4-Dichlorobenzene	0.0110	0.0010	mg/L	0.01000		110	70-130			
1,4-Dioxane - Screen	0.442	0.500	mg/L	0.2000		221	0-332			
1-Chlorohexane	0.0092	0.0010	mg/L	0.01000		92	70-130			
2,2-Dichloropropane	0.0105	0.0010	mg/L	0.01000		105	70-130			
2-Butanone	0.0495	0.0100	mg/L	0.05000		99	70-130			
2-Chlorotoluene	0.0110	0.0010	mg/L	0.01000		110	70-130			
2-Hexanone	0.0440	0.0100	mg/L	0.05000		88	70-130			
4-Chlorotoluene	0.0112	0.0010	mg/L	0.01000		112	70-130			
4-Isopropyltoluene	0.0106	0.0010	mg/L	0.01000		106	70-130			
4-Methyl-2-Pentanone	0.0524	0.0250	mg/L	0.05000		105	70-130			
Acetone	0.0418	0.0100	mg/L	0.05000		84	70-130			
Benzene	0.0103	0.0010	mg/L	0.01000		103	70-130			
Bromobenzene	0.0107	0.0020	mg/L	0.01000		107	70-130			
Bromochloromethane	0.0102	0.0010	mg/L	0.01000		102	70-130			
Bromodichloromethane	0.0108	0.0006	mg/L	0.01000		108	70-130			
Bromoform	0.0096	0.0010	mg/L	0.01000		96	70-130			
Bromomethane	0.0089	0.0020	mg/L	0.01000		89	70-130			
Carbon Disulfide	0.0103	0.0010	mg/L	0.01000		103	70-130			
Carbon Tetrachloride	0.0112	0.0010	mg/L	0.01000		112	70-130			
Chlorobenzene	0.0107	0.0010	mg/L	0.01000		107	70-130			
Chloroethane	0.0092	0.0020	mg/L	0.01000		92	70-130			
Chloroform	0.0106	0.0010	mg/L	0.01000		106	70-130			
Chloromethane	0.0076	0.0020	mg/L	0.01000		76	70-130			
cis-1,2-Dichloroethene	0.0102	0.0010	mg/L	0.01000		102	70-130			
cis-1,3-Dichloropropene	0.0114	0.0004	mg/L	0.01000		114	70-130			
Dibromochloromethane	0.0094	0.0010	mg/L	0.01000		94	70-130			
Dibromomethane	0.0103	0.0010	mg/L	0.01000		103	70-130			
Dichlorodifluoromethane	0.0093	0.0020	mg/L	0.01000		93	70-130			
Diethyl Ether	0.0090	0.0010	mg/L	0.01000		90	70-130			
Di-isopropyl ether	0.0103	0.0010	mg/L	0.01000		103	70-130			
Ethyl tertiary-butyl ether	0.0100	0.0010	mg/L	0.01000		100	70-130			
Ethylbenzene	0.0108	0.0010	mg/L	0.01000		108	70-130			
Hexachlorobutadiene	0.0117	0.0006	mg/L	0.01000		117	70-130			
Hexachloroethane	0.0084	0.0010	mg/L	0.01000		84	70-130			
Isopropylbenzene	0.0111	0.0010	mg/L	0.01000		111	70-130			
Methyl tert-Butyl Ether	0.0094	0.0010	mg/L	0.01000		94	70-130			
Methylene Chloride	0.0104	0.0020	mg/L	0.01000		104	70-130			
Naphthalene	0.0107	0.0010	mg/L	0.01000		107	70-130			
n-Butylbenzene	0.0113	0.0010	mg/L	0.01000		113	70-130			
n-Propylbenzene	0.0106	0.0010	mg/L	0.01000		106	70-130			
sec-Butylbenzene	0.0109	0.0010	mg/L	0.01000		109	70-130			
Styrene	0.0105	0.0010	mg/L	0.01000		105	70-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

tert-Butylbenzene	0.0106	0.0010	mg/L	0.01000		106	70-130			
Tertiary-amyl methyl ether	0.0100	0.0010	mg/L	0.01000		100	70-130			
Tetrachloroethene	0.0081	0.0010	mg/L	0.01000		81	70-130			
Tetrahydrofuran	0.0095	0.0050	mg/L	0.01000		95	70-130			
Toluene	0.0107	0.0010	mg/L	0.01000		107	70-130			
trans-1,2-Dichloroethene	0.0102	0.0010	mg/L	0.01000		102	70-130			
trans-1,3-Dichloropropene	0.0095	0.0004	mg/L	0.01000		95	70-130			
Trichloroethene	0.0099	0.0010	mg/L	0.01000		99	70-130			
Trichlorofluoromethane	0.0107	0.0010	mg/L	0.01000		107	70-130			
Vinyl Acetate	0.0111	0.0050	mg/L	0.01000		111	70-130			
Vinyl Chloride	0.0089	0.0010	mg/L	0.01000		89	70-130			
Xylene O	0.0103	0.0010	mg/L	0.01000		103	70-130			
Xylene P,M	0.0217	0.0020	mg/L	0.02000		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0251		mg/L	0.02500		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Dibromofluoromethane	0.0255		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0250		mg/L	0.02500		100	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0106	0.0010	mg/L	0.01000		106	70-130	2	25	
1,1,1-Trichloroethane	0.0107	0.0010	mg/L	0.01000		107	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0117	0.0005	mg/L	0.01000		117	70-130	7	25	
1,1,2-Trichloroethane	0.0107	0.0010	mg/L	0.01000		107	70-130	1	25	
1,1-Dichloroethane	0.0100	0.0010	mg/L	0.01000		100	70-130	10	25	
1,1-Dichloroethene	0.0105	0.0010	mg/L	0.01000		105	70-130	0.3	25	
1,1-Dichloropropene	0.0104	0.0020	mg/L	0.01000		104	70-130	0.1	25	
1,2,3-Trichlorobenzene	0.0109	0.0010	mg/L	0.01000		109	70-130	2	25	
1,2,3-Trichloropropane	0.0104	0.0010	mg/L	0.01000		104	70-130	7	25	
1,2,4-Trichlorobenzene	0.0111	0.0010	mg/L	0.01000		111	70-130	4	25	
1,2,4-Trimethylbenzene	0.0110	0.0010	mg/L	0.01000		110	70-130	3	25	
1,2-Dibromo-3-Chloropropane	0.0090	0.0050	mg/L	0.01000		90	70-130	1	25	
1,2-Dibromoethane	0.0109	0.0010	mg/L	0.01000		109	70-130	5	25	
1,2-Dichlorobenzene	0.0114	0.0010	mg/L	0.01000		114	70-130	1	25	
1,2-Dichloroethane	0.0103	0.0010	mg/L	0.01000		103	70-130	1	25	
1,2-Dichloropropane	0.0103	0.0010	mg/L	0.01000		103	70-130	4	25	
1,3,5-Trimethylbenzene	0.0114	0.0010	mg/L	0.01000		114	70-130	3	25	
1,3-Dichlorobenzene	0.0114	0.0010	mg/L	0.01000		114	70-130	0.8	25	
1,3-Dichloropropane	0.0111	0.0010	mg/L	0.01000		111	70-130	2	25	
1,4-Dichlorobenzene	0.0107	0.0010	mg/L	0.01000		107	70-130	2	25	
1,4-Dioxane - Screen	0.343	0.500	mg/L	0.2000		171	0-332	25	200	
1-Chlorohexane	0.0094	0.0010	mg/L	0.01000		94	70-130	2	25	
2,2-Dichloropropane	0.0104	0.0010	mg/L	0.01000		104	70-130	2	25	
2-Butanone	0.0526	0.0100	mg/L	0.05000		105	70-130	6	25	
2-Chlorotoluene	0.0110	0.0010	mg/L	0.01000		110	70-130	0.5	25	
2-Hexanone	0.0462	0.0100	mg/L	0.05000		92	70-130	5	25	
4-Chlorotoluene	0.0109	0.0010	mg/L	0.01000		109	70-130	2	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

4-Isopropyltoluene	0.0105	0.0010	mg/L	0.01000		105	70-130	0.2	25	
4-Methyl-2-Pentanone	0.0516	0.0250	mg/L	0.05000		103	70-130	1	25	
Acetone	0.0470	0.0100	mg/L	0.05000		94	70-130	12	25	
Benzene	0.0107	0.0010	mg/L	0.01000		107	70-130	3	25	
Bromobenzene	0.0105	0.0020	mg/L	0.01000		105	70-130	2	25	
Bromochloromethane	0.0103	0.0010	mg/L	0.01000		103	70-130	1	25	
Bromodichloromethane	0.0115	0.0006	mg/L	0.01000		115	70-130	6	25	
Bromoform	0.0101	0.0010	mg/L	0.01000		101	70-130	5	25	
Bromomethane	0.0095	0.0020	mg/L	0.01000		95	70-130	6	25	
Carbon Disulfide	0.0104	0.0010	mg/L	0.01000		104	70-130	1	25	
Carbon Tetrachloride	0.0111	0.0010	mg/L	0.01000		111	70-130	0.5	25	
Chlorobenzene	0.0104	0.0010	mg/L	0.01000		104	70-130	3	25	
Chloroethane	0.0090	0.0020	mg/L	0.01000		90	70-130	3	25	
Chloroform	0.0106	0.0010	mg/L	0.01000		106	70-130	0.4	25	
Chloromethane	0.0083	0.0020	mg/L	0.01000		83	70-130	9	25	
cis-1,2-Dichloroethene	0.0108	0.0010	mg/L	0.01000		108	70-130	6	25	
cis-1,3-Dichloropropene	0.0112	0.0004	mg/L	0.01000		112	70-130	1	25	
Dibromochloromethane	0.0093	0.0010	mg/L	0.01000		93	70-130	1	25	
Dibromomethane	0.0111	0.0010	mg/L	0.01000		111	70-130	7	25	
Dichlorodifluoromethane	0.0094	0.0020	mg/L	0.01000		94	70-130	1	25	
Diethyl Ether	0.0096	0.0010	mg/L	0.01000		96	70-130	6	25	
Di-isopropyl ether	0.0105	0.0010	mg/L	0.01000		105	70-130	2	25	
Ethyl tertiary-butyl ether	0.0102	0.0010	mg/L	0.01000		102	70-130	2	25	
Ethylbenzene	0.0108	0.0010	mg/L	0.01000		108	70-130	0.2	25	
Hexachlorobutadiene	0.0106	0.0006	mg/L	0.01000		106	70-130	10	25	
Hexachloroethane	0.0082	0.0010	mg/L	0.01000		82	70-130	2	25	
Isopropylbenzene	0.0112	0.0010	mg/L	0.01000		112	70-130	0.3	25	
Methyl tert-Butyl Ether	0.0095	0.0010	mg/L	0.01000		95	70-130	0.5	25	
Methylene Chloride	0.0103	0.0020	mg/L	0.01000		103	70-130	0.9	25	
Naphthalene	0.0115	0.0010	mg/L	0.01000		115	70-130	7	25	
n-Butylbenzene	0.0111	0.0010	mg/L	0.01000		111	70-130	2	25	
n-Propylbenzene	0.0112	0.0010	mg/L	0.01000		112	70-130	6	25	
sec-Butylbenzene	0.0111	0.0010	mg/L	0.01000		111	70-130	2	25	
Styrene	0.0102	0.0010	mg/L	0.01000		102	70-130	3	25	
tert-Butylbenzene	0.0110	0.0010	mg/L	0.01000		110	70-130	4	25	
Tertiary-amyl methyl ether	0.0101	0.0010	mg/L	0.01000		101	70-130	2	25	
Tetrachloroethene	0.0083	0.0010	mg/L	0.01000		83	70-130	2	25	
Tetrahydrofuran	0.0079	0.0050	mg/L	0.01000		79	70-130	18	25	
Toluene	0.0108	0.0010	mg/L	0.01000		108	70-130	1	25	
trans-1,2-Dichloroethene	0.0109	0.0010	mg/L	0.01000		109	70-130	6	25	
trans-1,3-Dichloropropene	0.0094	0.0004	mg/L	0.01000		94	70-130	0.7	25	
Trichloroethene	0.0099	0.0010	mg/L	0.01000		99	70-130	0.1	25	
Trichlorofluoromethane	0.0108	0.0010	mg/L	0.01000		108	70-130	1	25	
Vinyl Acetate	0.0104	0.0050	mg/L	0.01000		104	70-130	7	25	
Vinyl Chloride	0.0093	0.0010	mg/L	0.01000		93	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DD00641 - 5030B

Xylene O	0.0109	0.0010	mg/L	0.01000		109	70-130	6	25	
Xylene P,M	0.0215	0.0020	mg/L	0.02000		108	70-130	1	25	
Surrogate: 1,2-Dichloroethane-d4	0.0241		mg/L	0.02500		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Dibromofluoromethane	0.0249		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0240		mg/L	0.02500		96	70-130			

8270D Semi-Volatile Organic Compounds

Batch DD00219 - 3520C

Blank

1,1-Biphenyl	ND	0.0100	mg/L							
1,2,4-Trichlorobenzene	ND	0.0100	mg/L							
1,2-Dichlorobenzene	ND	0.0100	mg/L							
1,3-Dichlorobenzene	ND	0.0100	mg/L							
1,4-Dichlorobenzene	ND	0.0100	mg/L							
2,3,4,6-Tetrachlorophenol	ND	0.0500	mg/L							
2,4,5-Trichlorophenol	ND	0.0100	mg/L							
2,4,6-Trichlorophenol	ND	0.0100	mg/L							
2,4-Dichlorophenol	ND	0.0100	mg/L							
2,4-Dimethylphenol	ND	0.0500	mg/L							
2,4-Dinitrophenol	ND	0.0500	mg/L							
2,4-Dinitrotoluene	ND	0.0100	mg/L							
2,6-Dinitrotoluene	ND	0.0100	mg/L							
2-Chloronaphthalene	ND	0.0100	mg/L							
2-Chlorophenol	ND	0.0100	mg/L							
2-Methylnaphthalene	ND	0.0100	mg/L							
2-Methylphenol	ND	0.0100	mg/L							
2-Nitroaniline	ND	0.0100	mg/L							
2-Nitrophenol	ND	0.0100	mg/L							
3,3'-Dichlorobenzidine	ND	0.0200	mg/L							
3+4-Methylphenol	ND	0.0200	mg/L							
3-Nitroaniline	ND	0.0100	mg/L							
4,6-Dinitro-2-Methylphenol	ND	0.0500	mg/L							
4-Bromophenyl-phenylether	ND	0.0100	mg/L							
4-Chloro-3-Methylphenol	ND	0.0100	mg/L							
4-Chloroaniline	ND	0.0200	mg/L							
4-Chloro-phenyl-phenyl ether	ND	0.0100	mg/L							
4-Nitroaniline	ND	0.0100	mg/L							
4-Nitrophenol	ND	0.0500	mg/L							
Acenaphthene	ND	0.0100	mg/L							
Acenaphthylene	ND	0.0100	mg/L							
Acetophenone	ND	0.0100	mg/L							
Aniline	ND	0.0100	mg/L							
Anthracene	ND	0.0100	mg/L							
Azobenzene	ND	0.0200	mg/L							



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DD00219 - 3520C

Benzo(a)anthracene	ND	0.0100	mg/L							
Benzo(a)pyrene	ND	0.0100	mg/L							
Benzo(b)fluoranthene	ND	0.0100	mg/L							
Benzo(g,h,i)perylene	ND	0.0100	mg/L							
Benzo(k)fluoranthene	ND	0.0100	mg/L							
Benzoic Acid	ND	0.100	mg/L							
Benzyl Alcohol	ND	0.0100	mg/L							
bis(2-Chloroethoxy)methane	ND	0.0100	mg/L							
bis(2-Chloroethyl)ether	ND	0.0100	mg/L							
bis(2-chloroisopropyl)Ether	ND	0.0100	mg/L							
bis(2-Ethylhexyl)phthalate	ND	0.0060	mg/L							
Butylbenzylphthalate	ND	0.0100	mg/L							
Carbazole	ND	0.0100	mg/L							
Chrysene	ND	0.0100	mg/L							
Dibenzo(a,h)Anthracene	ND	0.0100	mg/L							
Dibenzofuran	ND	0.0100	mg/L							
Diethylphthalate	ND	0.0100	mg/L							
Dimethylphthalate	ND	0.0100	mg/L							
Di-n-butylphthalate	ND	0.0100	mg/L							
Di-n-octylphthalate	ND	0.0100	mg/L							
Fluoranthene	ND	0.0100	mg/L							
Fluorene	ND	0.0100	mg/L							
Hexachlorobenzene	ND	0.0100	mg/L							
Hexachlorobutadiene	ND	0.0100	mg/L							
Hexachlorocyclopentadiene	ND	0.0250	mg/L							
Hexachloroethane	ND	0.0050	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.0100	mg/L							
Isophorone	ND	0.0100	mg/L							
Naphthalene	ND	0.0100	mg/L							
Nitrobenzene	ND	0.0100	mg/L							
N-Nitrosodimethylamine	ND	0.0100	mg/L							
N-Nitroso-Di-n-Propylamine	ND	0.0100	mg/L							
N-nitrosodiphenylamine	ND	0.0100	mg/L							
Pentachlorophenol	ND	0.0500	mg/L							
Phenanthrene	ND	0.0100	mg/L							
Phenol	ND	0.0100	mg/L							
Pyrene	ND	0.0100	mg/L							
Pyridine	ND	0.100	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.0873		mg/L	0.1000		87	30-130			
Surrogate: 2,4,6-Tribromophenol	0.165		mg/L	0.1500		110	15-110			
Surrogate: 2-Chlorophenol-d4	0.141		mg/L	0.1500		94	15-110			
Surrogate: 2-Fluorobiphenyl	0.0923		mg/L	0.1000		92	30-130			
Surrogate: 2-Fluorophenol	0.127		mg/L	0.1500		85	15-110			
Surrogate: Nitrobenzene-d5	0.0964		mg/L	0.1000		96	30-130			
Surrogate: Phenol-d6	0.144		mg/L	0.1500		96	15-110			
Surrogate: p-Terphenyl-d14	0.0975		mg/L	0.1000		98	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DD00219 - 3520C

LCS

1,1-Biphenyl	0.0797	0.0100	mg/L	0.1000		80	40-140			
1,2,4-Trichlorobenzene	0.0799	0.0100	mg/L	0.1000		80	40-140			
1,2-Dichlorobenzene	0.0775	0.0100	mg/L	0.1000		78	40-140			
1,3-Dichlorobenzene	0.0773	0.0100	mg/L	0.1000		77	40-140			
1,4-Dichlorobenzene	0.0754	0.0100	mg/L	0.1000		75	40-140			
2,3,4,6-Tetrachlorophenol	0.0884	0.0500	mg/L	0.1000		88	30-130			
2,4,5-Trichlorophenol	0.0935	0.0100	mg/L	0.1000		93	30-130			
2,4,6-Trichlorophenol	0.0919	0.0100	mg/L	0.1000		92	30-130			
2,4-Dichlorophenol	0.0874	0.0100	mg/L	0.1000		87	30-130			
2,4-Dimethylphenol	0.0835	0.0500	mg/L	0.1000		84	30-130			
2,4-Dinitrophenol	0.102	0.0500	mg/L	0.1000		102	30-130			
2,4-Dinitrotoluene	0.0900	0.0100	mg/L	0.1000		90	40-140			
2,6-Dinitrotoluene	0.0919	0.0100	mg/L	0.1000		92	40-140			
2-Chloronaphthalene	0.0785	0.0100	mg/L	0.1000		78	40-140			
2-Chlorophenol	0.0777	0.0100	mg/L	0.1000		78	30-130			
2-Methylnaphthalene	0.0818	0.0100	mg/L	0.1000		82	40-140			
2-Methylphenol	0.0826	0.0100	mg/L	0.1000		83	30-130			
2-Nitroaniline	0.0832	0.0100	mg/L	0.1000		83	40-140			
2-Nitrophenol	0.0784	0.0100	mg/L	0.1000		78	30-130			
3,3'-Dichlorobenzidine	0.0821	0.0200	mg/L	0.1000		82	40-140			
3+4-Methylphenol	0.174	0.0200	mg/L	0.2000		87	30-130			
3-Nitroaniline	0.0858	0.0100	mg/L	0.1000		86	40-140			
4,6-Dinitro-2-Methylphenol	0.0972	0.0500	mg/L	0.1000		97	30-130			
4-Bromophenyl-phenylether	0.0880	0.0100	mg/L	0.1000		88	40-140			
4-Chloro-3-Methylphenol	0.0909	0.0100	mg/L	0.1000		91	30-130			
4-Chloroaniline	0.0701	0.0200	mg/L	0.1000		70	40-140			
4-Chloro-phenyl-phenyl ether	0.0848	0.0100	mg/L	0.1000		85	40-140			
4-Nitroaniline	0.0841	0.0100	mg/L	0.1000		84	40-140			
4-Nitrophenol	0.0894	0.0500	mg/L	0.1000		89	30-130			
Acenaphthene	0.0826	0.0100	mg/L	0.1000		83	40-140			
Acenaphthylene	0.0745	0.0100	mg/L	0.1000		74	40-140			
Acetophenone	0.0843	0.0100	mg/L	0.1000		84	40-140			
Aniline	0.0674	0.0100	mg/L	0.1000		67	40-140			
Anthracene	0.0832	0.0100	mg/L	0.1000		83	40-140			
Azobenzene	0.0840	0.0200	mg/L	0.1000		84	40-140			
Benzo(a)anthracene	0.0850	0.0100	mg/L	0.1000		85	40-140			
Benzo(a)pyrene	0.0863	0.0100	mg/L	0.1000		86	40-140			
Benzo(b)fluoranthene	0.0837	0.0100	mg/L	0.1000		84	40-140			
Benzo(g,h,i)perylene	0.0876	0.0100	mg/L	0.1000		88	40-140			
Benzo(k)fluoranthene	0.0851	0.0100	mg/L	0.1000		85	40-140			
Benzoic Acid	0.0955	0.100	mg/L	0.1000		96	40-140			
Benzyl Alcohol	0.0803	0.0100	mg/L	0.1000		80	40-140			
bis(2-Chloroethoxy)methane	0.0851	0.0100	mg/L	0.1000		85	40-140			
bis(2-Chloroethyl)ether	0.0864	0.0100	mg/L	0.1000		86	40-140			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DD00219 - 3520C

bis(2-chloroisopropyl)Ether	0.0797	0.0100	mg/L	0.1000		80	40-140			
bis(2-Ethylhexyl)phthalate	0.0882	0.0060	mg/L	0.1000		88	40-140			
Butylbenzylphthalate	0.0911	0.0100	mg/L	0.1000		91	40-140			
Carbazole	0.0881	0.0100	mg/L	0.1000		88	40-140			
Chrysene	0.0855	0.0100	mg/L	0.1000		86	40-140			
Dibenzo(a,h)Anthracene	0.0874	0.0100	mg/L	0.1000		87	40-140			
Dibenzofuran	0.0825	0.0100	mg/L	0.1000		82	40-140			
Diethylphthalate	0.0891	0.0100	mg/L	0.1000		89	40-140			
Dimethylphthalate	0.0913	0.0100	mg/L	0.1000		91	40-140			
Di-n-butylphthalate	0.0930	0.0100	mg/L	0.1000		93	40-140			
Di-n-octylphthalate	0.0849	0.0100	mg/L	0.1000		85	40-140			
Fluoranthene	0.0888	0.0100	mg/L	0.1000		89	40-140			
Fluorene	0.0877	0.0100	mg/L	0.1000		88	40-140			
Hexachlorobenzene	0.0837	0.0100	mg/L	0.1000		84	40-140			
Hexachlorobutadiene	0.0793	0.0100	mg/L	0.1000		79	40-140			
Hexachlorocyclopentadiene	0.0490	0.0250	mg/L	0.1000		49	40-140			
Hexachloroethane	0.0771	0.0050	mg/L	0.1000		77	40-140			
Indeno(1,2,3-cd)Pyrene	0.0875	0.0100	mg/L	0.1000		88	40-140			
Isophorone	0.0720	0.0100	mg/L	0.1000		72	40-140			
Naphthalene	0.0802	0.0100	mg/L	0.1000		80	40-140			
Nitrobenzene	0.0806	0.0100	mg/L	0.1000		81	40-140			
N-Nitrosodimethylamine	0.0759	0.0100	mg/L	0.1000		76	40-140			
N-Nitroso-Di-n-Propylamine	0.0858	0.0100	mg/L	0.1000		86	40-140			
N-nitrosodiphenylamine	0.0836	0.0100	mg/L	0.1000		84	40-140			
Pentachlorophenol	0.102	0.0500	mg/L	0.1000		102	30-130			
Phenanthrene	0.0842	0.0100	mg/L	0.1000		84	40-140			
Phenol	0.0840	0.0100	mg/L	0.1000		84	30-130			
Pyrene	0.0836	0.0100	mg/L	0.1000		84	40-140			
Pyridine	0.0706	0.100	mg/L	0.1000		71	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.0763		mg/L	0.1000		76	30-130			
Surrogate: 2,4,6-Tribromophenol	0.147		mg/L	0.1500		98	15-110			
Surrogate: 2-Chlorophenol-d4	0.122		mg/L	0.1500		81	15-110			
Surrogate: 2-Fluorobiphenyl	0.0837		mg/L	0.1000		84	30-130			
Surrogate: 2-Fluorophenol	0.107		mg/L	0.1500		71	15-110			
Surrogate: Nitrobenzene-d5	0.0872		mg/L	0.1000		87	30-130			
Surrogate: Phenol-d6	0.125		mg/L	0.1500		83	15-110			
Surrogate: p-Terphenyl-d14	0.0879		mg/L	0.1000		88	30-130			

LCS Dup

1,1-Biphenyl	0.0858	0.0100	mg/L	0.1000		86	40-140	7	20	
1,2,4-Trichlorobenzene	0.0855	0.0100	mg/L	0.1000		85	40-140	7	20	
1,2-Dichlorobenzene	0.0831	0.0100	mg/L	0.1000		83	40-140	7	20	
1,3-Dichlorobenzene	0.0829	0.0100	mg/L	0.1000		83	40-140	7	20	
1,4-Dichlorobenzene	0.0813	0.0100	mg/L	0.1000		81	40-140	7	20	
2,3,4,6-Tetrachlorophenol	0.0967	0.0500	mg/L	0.1000		97	30-130	9	20	
2,4,5-Trichlorophenol	0.103	0.0100	mg/L	0.1000		103	30-130	9	20	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DD00219 - 3520C

2,4,6-Trichlorophenol	0.0994	0.0100	mg/L	0.1000		99	30-130	8	20	
2,4-Dichlorophenol	0.0947	0.0100	mg/L	0.1000		95	30-130	8	20	
2,4-Dimethylphenol	0.0897	0.0500	mg/L	0.1000		90	30-130	7	20	
2,4-Dinitrophenol	0.108	0.0500	mg/L	0.1000		108	30-130	6	20	
2,4-Dinitrotoluene	0.0985	0.0100	mg/L	0.1000		98	40-140	9	20	
2,6-Dinitrotoluene	0.0987	0.0100	mg/L	0.1000		99	40-140	7	20	
2-Chloronaphthalene	0.0839	0.0100	mg/L	0.1000		84	40-140	7	20	
2-Chlorophenol	0.0837	0.0100	mg/L	0.1000		84	30-130	7	20	
2-Methylnaphthalene	0.0889	0.0100	mg/L	0.1000		89	40-140	8	20	
2-Methylphenol	0.0884	0.0100	mg/L	0.1000		88	30-130	7	20	
2-Nitroaniline	0.0915	0.0100	mg/L	0.1000		92	40-140	10	20	
2-Nitrophenol	0.0854	0.0100	mg/L	0.1000		85	30-130	9	20	
3,3'-Dichlorobenzidine	0.0875	0.0200	mg/L	0.1000		88	40-140	6	20	
3+4-Methylphenol	0.185	0.0200	mg/L	0.2000		92	30-130	6	20	
3-Nitroaniline	0.0928	0.0100	mg/L	0.1000		93	40-140	8	20	
4,6-Dinitro-2-Methylphenol	0.104	0.0500	mg/L	0.1000		104	30-130	7	20	
4-Bromophenyl-phenylether	0.0938	0.0100	mg/L	0.1000		94	40-140	6	20	
4-Chloro-3-Methylphenol	0.0994	0.0100	mg/L	0.1000		99	30-130	9	20	
4-Chloroaniline	0.0759	0.0200	mg/L	0.1000		76	40-140	8	20	
4-Chloro-phenyl-phenyl ether	0.0917	0.0100	mg/L	0.1000		92	40-140	8	20	
4-Nitroaniline	0.0904	0.0100	mg/L	0.1000		90	40-140	7	20	
4-Nitrophenol	0.0973	0.0500	mg/L	0.1000		97	30-130	8	20	
Acenaphthene	0.0886	0.0100	mg/L	0.1000		89	40-140	7	20	
Acenaphthylene	0.0799	0.0100	mg/L	0.1000		80	40-140	7	20	
Acetophenone	0.0902	0.0100	mg/L	0.1000		90	40-140	7	20	
Aniline	0.0713	0.0100	mg/L	0.1000		71	40-140	6	20	
Anthracene	0.0897	0.0100	mg/L	0.1000		90	40-140	8	20	
Azobenzene	0.0906	0.0200	mg/L	0.1000		91	40-140	8	20	
Benzo(a)anthracene	0.0923	0.0100	mg/L	0.1000		92	40-140	8	20	
Benzo(a)pyrene	0.0934	0.0100	mg/L	0.1000		93	40-140	8	20	
Benzo(b)fluoranthene	0.102	0.0100	mg/L	0.1000		102	40-140	20	20	
Benzo(g,h,i)perylene	0.0949	0.0100	mg/L	0.1000		95	40-140	8	20	
Benzo(k)fluoranthene	0.0800	0.0100	mg/L	0.1000		80	40-140	6	20	
Benzoic Acid	0.101	0.100	mg/L	0.1000		101	40-140	5	20	
Benzyl Alcohol	0.0851	0.0100	mg/L	0.1000		85	40-140	6	20	
bis(2-Chloroethoxy)methane	0.0910	0.0100	mg/L	0.1000		91	40-140	7	20	
bis(2-Chloroethyl)ether	0.0935	0.0100	mg/L	0.1000		94	40-140	8	20	
bis(2-chloroisopropyl)Ether	0.0865	0.0100	mg/L	0.1000		86	40-140	8	20	
bis(2-Ethylhexyl)phthalate	0.0939	0.0060	mg/L	0.1000		94	40-140	6	20	
Butylbenzylphthalate	0.0981	0.0100	mg/L	0.1000		98	40-140	7	20	
Carbazole	0.0945	0.0100	mg/L	0.1000		95	40-140	7	20	
Chrysene	0.0909	0.0100	mg/L	0.1000		91	40-140	6	20	
Dibenzo(a,h)Anthracene	0.0946	0.0100	mg/L	0.1000		95	40-140	8	20	
Dibenzofuran	0.0891	0.0100	mg/L	0.1000		89	40-140	8	20	
Diethylphthalate	0.0958	0.0100	mg/L	0.1000		96	40-140	7	20	



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270D Semi-Volatile Organic Compounds

Batch DD00219 - 3520C

Dimethylphthalate	0.101	0.0100	mg/L	0.1000		101	40-140	10	20	
Di-n-butylphthalate	0.0997	0.0100	mg/L	0.1000		100	40-140	7	20	
Di-n-octylphthalate	0.0937	0.0100	mg/L	0.1000		94	40-140	10	20	
Fluoranthene	0.0964	0.0100	mg/L	0.1000		96	40-140	8	20	
Fluorene	0.0950	0.0100	mg/L	0.1000		95	40-140	8	20	
Hexachlorobenzene	0.0910	0.0100	mg/L	0.1000		91	40-140	8	20	
Hexachlorobutadiene	0.0844	0.0100	mg/L	0.1000		84	40-140	6	20	
Hexachlorocyclopentadiene	0.0521	0.0250	mg/L	0.1000		52	40-140	6	20	
Hexachloroethane	0.0836	0.0050	mg/L	0.1000		84	40-140	8	20	
Indeno(1,2,3-cd)Pyrene	0.0948	0.0100	mg/L	0.1000		95	40-140	8	20	
Isophorone	0.0774	0.0100	mg/L	0.1000		77	40-140	7	20	
Naphthalene	0.0869	0.0100	mg/L	0.1000		87	40-140	8	20	
Nitrobenzene	0.0868	0.0100	mg/L	0.1000		87	40-140	7	20	
N-Nitrosodimethylamine	0.0809	0.0100	mg/L	0.1000		81	40-140	6	20	
N-Nitroso-Di-n-Propylamine	0.0916	0.0100	mg/L	0.1000		92	40-140	7	20	
N-nitrosodiphenylamine	0.0901	0.0100	mg/L	0.1000		90	40-140	7	20	
Pentachlorophenol	0.110	0.0500	mg/L	0.1000		110	30-130	7	20	
Phenanthrene	0.0914	0.0100	mg/L	0.1000		91	40-140	8	20	
Phenol	0.0899	0.0100	mg/L	0.1000		90	30-130	7	20	
Pyrene	0.0912	0.0100	mg/L	0.1000		91	40-140	9	20	
Pyridine	0.0769	0.100	mg/L	0.1000		77	40-140	9	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.0814		mg/L	0.1000		81	30-130			
Surrogate: 2,4,6-Tribromophenol	0.158		mg/L	0.1500		105	15-110			
Surrogate: 2-Chlorophenol-d4	0.130		mg/L	0.1500		87	15-110			
Surrogate: 2-Fluorobiphenyl	0.0890		mg/L	0.1000		89	30-130			
Surrogate: 2-Fluorophenol	0.117		mg/L	0.1500		78	15-110			
Surrogate: Nitrobenzene-d5	0.0931		mg/L	0.1000		93	30-130			
Surrogate: Phenol-d6	0.133		mg/L	0.1500		88	15-110			
Surrogate: p-Terphenyl-d14	0.0934		mg/L	0.1000		93	30-130			



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
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ESS Laboratory Work Order: 20D0047

Notes and Definitions

- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- ICV- Initial Calibration Verification recovery is below lower control limit (ICV-).
- I Internal Standard(s) outside of criteria (I).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: EA Engineering, Science, and Technology
Client Project ID: RIDEM-TAC-Sunnyside Phase II

ESS Laboratory Work Order: 20D0047

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20D0047

Date Received: 4/2/2020

Project Due Date: 4/9/2020

Days for Project: 5 Day

Shipped/Delivered Via: _____ Client _____

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 3.9 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about **short holds & rushes**? Yes / No NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	29533	Yes	N/A	Yes	1L Amber	NP	
1	29534	Yes	N/A	Yes	1L Amber	NP	
1	29535	Yes	N/A	Yes	1L Amber	NP	
1	29536	Yes	N/A	Yes	1L Amber	NP	
1	29557	Yes	N/A	Yes	250 mL Poly	HNO3	
1	29563	Yes	No	Yes	VOA Vial	HCl	
1	29564	Yes	No	Yes	VOA Vial	HCl	
1	29565	Yes	No	Yes	VOA Vial	HCl	
2	29537	Yes	N/A	Yes	1L Amber	NP	
2	29538	Yes	N/A	Yes	1L Amber	NP	
2	29539	Yes	N/A	Yes	1L Amber	NP	
2	29540	Yes	N/A	Yes	1L Amber	NP	
2	29558	Yes	N/A	Yes	250 mL Poly	HNO3	
2	29566	Yes	No	Yes	VOA Vial	HCl	
2	29567	Yes	No	Yes	VOA Vial	HCl	
2	29568	Yes	No	Yes	VOA Vial	HCl	
3	29541	Yes	N/A	Yes	1L Amber	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20D0047
 Date Received: 4/2/2020

3	29542	Yes	N/A	Yes	1L Amber	NP
3	29543	Yes	N/A	Yes	1L Amber	NP
3	29544	Yes	N/A	Yes	1L Amber	NP
3	29559	Yes	N/A	Yes	250 mL Poly	HNO3
3	29569	Yes	No	Yes	VOA Vial	HCl
3	29570	Yes	No	Yes	VOA Vial	HCl
3	29571	Yes	No	Yes	VOA Vial	HCl
4	29517	Yes	N/A	Yes	1L Amber	NP
4	29518	Yes	N/A	Yes	1L Amber	NP
4	29519	Yes	N/A	Yes	1L Amber	NP
4	29520	Yes	N/A	Yes	1L Amber	NP
4	29521	Yes	N/A	Yes	1L Amber	NP
4	29522	Yes	N/A	Yes	1L Amber	NP
4	29523	Yes	N/A	Yes	1L Amber	NP
4	29524	Yes	N/A	Yes	1L Amber	NP
4	29525	Yes	N/A	Yes	250 mL Poly	HNO3
4	29526	Yes	N/A	Yes	250 mL Poly	HNO3
4	29527	Yes	No	Yes	VOA Vial	HCl
4	29528	Yes	No	Yes	VOA Vial	HCl
4	29529	Yes	No	Yes	VOA Vial	HCl
4	29530	Yes	No	Yes	VOA Vial	HCl
4	29531	Yes	No	Yes	VOA Vial	HCl
4	29532	Yes	No	Yes	VOA Vial	HCl
4	29545	Yes	N/A	Yes	1L Amber	NP
4	29546	Yes	N/A	Yes	1L Amber	NP
4	29547	Yes	N/A	Yes	1L Amber	NP
4	29548	Yes	N/A	Yes	1L Amber	NP
4	29560	Yes	N/A	Yes	250 mL Poly	HNO3
4	29572	Yes	No	Yes	VOA Vial	HCl
4	29573	Yes	No	Yes	VOA Vial	HCl
4	29574	Yes	No	Yes	VOA Vial	HCl
5	29549	Yes	N/A	Yes	1L Amber	NP
5	29550	Yes	N/A	Yes	1L Amber	NP
5	29551	Yes	N/A	Yes	1L Amber	NP
5	29552	Yes	N/A	Yes	1L Amber	NP
5	29561	Yes	N/A	Yes	250 mL Poly	HNO3
5	29575	Yes	No	Yes	VOA Vial	HCl
5	29576	Yes	No	Yes	VOA Vial	HCl
5	29577	Yes	No	Yes	VOA Vial	HCl
6	29553	Yes	N/A	Yes	1L Amber	NP
6	29554	Yes	N/A	Yes	1L Amber	NP
6	29562	Yes	N/A	Yes	250 mL Poly	HNO3
6	29578	Yes	No	Yes	VOA Vial	HCl
6	29579	Yes	No	Yes	VOA Vial	HCl
6	29580	Yes	No	Yes	VOA Vial	HCl
6	30051	Yes	No	Yes	VOA Vial	HCl
6	30052	Yes	No	Yes	VOA Vial	HCl
6	30053	Yes	No	Yes	VOA Vial	HCl
7	29581	Yes	N/A	Yes	1L Amber	NP
7	29582	Yes	N/A	Yes	1L Amber	NP
7	29585	Yes	No	Yes	VOA Vial	HCl
7	29586	Yes	No	Yes	VOA Vial	HCl
7	29587	Yes	No	Yes	VOA Vial	HCl

ESS Laboratory Sample and Cooler Receipt Checklist

Client: EA Engineering, Science, and Technology - TB

ESS Project ID: 20D0047
 Date Received: 4/2/2020

7	29588	Yes	No	Yes	VOA Vial	HCl
7	29589	Yes	No	Yes	VOA Vial	HCl
7	29590	Yes	No	Yes	VOA Vial	HCl
7	29597	Yes	N/A	Yes	250 mL Poly	HNO3
8	29591	Yes	No	Yes	VOA Vial	HCl
8	29592	Yes	No	Yes	VOA Vial	HCl

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials SA
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

Completed

By: [Signature]

Date & Time: 4/2/20 1710

Reviewed

By: [Signature]

Date & Time: 2/12/20 1700

Delivered

By: [Signature]

Date & Time: 4/2/20 1720



185 Frances Avenue
Cranston, RI 02921
Phone: 401-461-7181
Fax: 401-461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 2000047 Page 1 of 2

ELECTRONIC DELIVERABLES (Final Reports are PDF)

Limit Checker State Forms EQUIS
 Excel Hard Copy Enviro Data
 CLP-Like Package Other (Specify) →

Turn Time >5 5 4 3 2 1 Same Day

Regulatory State: RI Criteria: Remed. Regs GB

Is this project for any of the following?:

CT RCP MA MCP RGP Permit 401 WQ

CLIENT INFORMATION

Client: EA Engineering
Address: 301 Metro Center Blvd Suite 102
Warwick, RI
Phone: 401-287-0364
Email Distribution List: j.alvarez@eaest.com
bchambers@eaest.com

PROJECT INFORMATION

Project Name: RIDEM TAC-Sunnyside Phase II
Project Location: 92 Sunnyside Ave, Woonsocket RI
Project Number: 1525817
Project Manager: Jonathan Alvarez
Bill to: Rachel Simpson
POB: rachel.simpson@dem.ri.gov
Quote#:

REQUESTED ANALYSES

Client acknowledges that sampling is compliant with all EPA / State regulatory programs

TPH	SVOC	VOC	PP13 metals	TPH-DRO	TPH-GRO	BTEX	Dissolved Lead (Pb)	Total Number of Bottles
X	X	X	X					
X	X	X	X					
X	X	X	X					
X	X	X	X					
X	X	X	X					
X	X	X	X					
X	X	X	X					
				X	X	X	X	
				X	X	X	X	
		X				X		

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	TPH	SVOC	VOC	PP13 metals	TPH-DRO	TPH-GRO	BTEX	Dissolved Lead (Pb)	Total Number of Bottles
1	4/1/20	1110	Grab	Groundwater	MW-EA-2	X	X	X	X					
2		1720			MW-EA-13	X	X	X	X					
3		1535			MW-EA-17	X	X	X	X					
4		1255			MW-EA-20	X	X	X	X					
5		0000			MW-EA-20 EA-MW-DUP	X	X	X	X					
4		1315			MW-EA-20-MS	X	X	X	X					
4		1335			MW-EA-20-MSD	X	X	X	X					
6		0935			MW-EA9					X	X	X	X	
7		0000			MW-EA Pet-Dup					X	X	X	X	
8				lab prepared	Trip Blank			X				X		

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Sampled by: G Janigan Chain needs to be filled out neatly and completely for on time delivery.

Comments: * Please specify "Other" preservative and containers types in this space
- Analyze to RIDEM Remediation GB Standards
- Lead sample field filtered
Ice 39

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration Lab Filter

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
	4/2/20	1100					

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Appendix L

Analytical Summary Tables

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Table 1
2019 Soil Analytical Summary Table
92 Sunnyside Avenue
Woonsocket, Rhode Island

Compound	Residential Direct Exposure Criteria µg/kg	Industrial/Commercial Direct Exposure Criteria µg/kg	GB Leachability Criteria µg/kg	Parcel ID Boring ID/Parent Sample ID Sample ID Sample Date Depth (feet)	92 Sunnyside Avenue (Plat 3/Lot 97)														
					EA-1		EA-2		EA-3		EA-4								
					EA-1-0-2	EA-1-20-24	EA-2-0-2	EA-2-18-20	EA-3-0-2	EA-3-6-10	EA-4-0-2	EA-4-2-6	EA-Duplicate						
					9/19/2019	9/19/2019	9/20/2019	9/20/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019						
Metals - µg/kg																			
Antimony	10,000	820,000	-		1,820	<750	<111	<114	<750	<750	3,100	<750	<750						
Arsenic	7,000	7,000	-		5,590	991	3,530	4,730	1,830	2,520	10,100	708	986						
Beryllium	1,500	1,500	-		214	<54	282	346	101	75.3	<51.7	52.6	63.9						
Cadmium	39,000	1,000,000	-		1,690	<108	<111	<114	<104	<102	338	<103	<103						
Chromium	1,400,000	10,000,000	-		29,700	16,900	8,090	7,310	6,890	5,500	10,800	3,800	5,000						
Copper	3,100,000	10,000,000	-		25,900	3,030	13,700	3,940	4,280	4,250	17,800	3,120	2,570						
Lead	150,000	500,000	-		92,700	5,690	17,700	3,320	2,970	1,890	60,200	2,340	2,010						
Nickel	1,000,000	10,000,000	-		8,250	2,370	7.53	4,920	3,160	2,730	13,000	2,110	2,610						
Selenium	390,000	10,000,000	-		<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000						
Silver	200,000	10,000,000	-		<107	<108	<111	<114	<104	<102	<103	<103	<103						
Thallium	5,500.0	140,000	-		<268	<270	<276	<285	<260	<254	<258	<257	<258						
Zinc	6,000,000	10,000,000	-		424,000	16,200	28,500	15,400	12,000	10,800	26,300	8,210	9,520						
Mercury	23,000	610,000	-		49.6	<35.6	<36.5	<37.6	<34.4	<33.6	62	<34.0	<34.0						
PCBs - µg/kg																			
Aroclor-1016 (PCB-1016)	-	-	-		<10.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Aroclor-1221 (PCB-1221)	-	-	-		<10.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Aroclor-1232 (PCB-1232)	-	-	-		<10.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Aroclor-1242 (PCB-1242)	-	-	-		<10.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Aroclor-1248 (PCB-1248)	-	-	-		<10.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Aroclor-1254 (PCB-1254)	-	-	-		21.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Aroclor-1260 (PCB-1260)	-	-	-		<10.7	<539	<11.0	<11.3	<10.4	<10.1	<10.3	<10.3	<10.3						
Total PCBs as Aroclors	10,000	10,000	10,000		85.9	<3773	<77	79.1	<72.8	<70.7	<72.1	<72.1	<72.1						
TPH - µg/kg																			
C9-C36 TPH	500,000	2,500,000	2,500,000		230,000	15,400,000	585,000	37,500	44,500	199,000	47,400	13,500	13,100						
VOCs - µg/kg																			
Acetone	7,800,000	10,000,000	-		<561	<5830	<586	<628	<553	<475	<531	<617	<528						
Acrylonitrile	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Benzene	2,500	200,000	4,300		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Bromobenzene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Bromochloromethane	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Bromodichloromethane	10,000	92,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Bromoform	81,000	720,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Bromomethane	800	2,900,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
2-Butanone (MEK)	-	-	-		<561	<5830	<586	<628	<553	<475	<531	<617	<528						
n-Butylbenzene	-	-	-		<280	3,920	<293	<314	<276	<237	<266	<308	<264						
tert-Butylbenzene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
sec-Butylbenzene	-	-	-		<280	2,920	<293	<314	<276	<237	<266	<308	<264						
Carbon disulfide	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Carbon tetrachloride	1,500	44,000	5,000		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Chlorobenzene	210,000	10,000,000	100,000		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Chloroethane (Ethyl chloride)	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Chloroform	1,200	940,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Chloromethane	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
2-Chlorotoluene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
4-Chlorotoluene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,2-Dibromo-3-chloropropane (DBCP)	500	4,100	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Dibromochloromethane	7,600	68,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,2-Dibromoethane (EDB)	10	70	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Dibromomethane (Methylene bromide)	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
trans-1,4-Dichloro-2-butene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,2-Dichlorobenzene	510,000	10,000,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,3-Dichlorobenzene	430,000	10,000,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,4-Dichlorobenzene	27,000	240,000	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Dichlorodifluoromethane (Freon-12)	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,2-Dichloroethane	900	63,000	2,300		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,1-Dichloroethane	920,000	10,000,000	700		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
cis-1,2-Dichloroethene	630,000	10,000,000	60,000		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,1-Dichloroethene	200	9,500	700		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
trans-1,2-Dichloroethene	-	-	92,000		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
2,2-Dichloropropane	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,2-Dichloropropane	1,900	84,000	70,000		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,3-Dichloropropane	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
1,1-Dichloropropene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
cis-1,3-Dichloropropene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
trans-1,3-Dichloropropene	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						
Diethyl ether	-	-	-		<280	<2910	<293	<314	<276	<237	<266	<308	<264						

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Table 3
 2019 Groundwater Analytical Summary Table
 92 Sunnyside Avenue
 Woonsocket, Rhode Island

Compound	GA	GB	Parcel ID	92 Sunnyside Ave	Trip Blanks	
	Groundwater	Groundwater	Monitoring Well ID	92 Sunnyside Ave (Plat 3/Lot 97)	Trip Blank-	Trip Blank
	Criteria	Criteria			EA-1	
	µg/L	µg/L	Sample ID	MW-EA-1	092419	
			Sample Date	9/24/2019	9/24/2019	9/25/2019
Metals - µg/L						
Antimony	6	-		<3	N/A	N/A
Arsenic	10	-		10.4	N/A	N/A
Beryllium	4	-		<1	N/A	N/A
Cadmium	5	-		2.0	N/A	N/A
Chromium	100	-		69.1	N/A	N/A
Copper	-	-		32.0	N/A	N/A
Lead	15	-		99.7	N/A	N/A
Nickel	100	-		17.3	N/A	N/A
Selenium	50	-		<5	N/A	N/A
Silver	-	-		<2	N/A	N/A
Thallium	2	-		<5	N/A	N/A
Zinc	-	-		240	N/A	N/A
Mercury	2	-		<0.2	N/A	N/A
PCBs - µg/L						
Aroclor-1016 (PCB-1016)	-	-		<0.500	N/A	N/A
Aroclor-1221 (PCB-1221)	-	-		<0.500	N/A	N/A
Aroclor-1232 (PCB-1232)	-	-		<0.500	N/A	N/A
Aroclor-1242 (PCB-1242)	-	-		<0.500	N/A	N/A
Aroclor-1248 (PCB-1248)	-	-		<0.500	N/A	N/A
Aroclor-1254 (PCB-1254)	-	-		<0.500	N/A	N/A
Aroclor-1260 (PCB-1260)	-	-		<0.500	N/A	N/A
Total PCBs as Aroclors	0.5	-		<3.5	N/A	N/A
TPH - µg/L						
C9-C36 TPH	-	-		4.610	N/A	N/A
VOCs - µg/L						
Acetone	-	-		18.2	<5.00	<5.00
Acrylonitrile	-	-		<1.00	<1.00	<1.00
Benzene	5	140		49.6	<1.00	<1.00
Bromobenzene	-	-		<1.00	<1.00	<1.00
Bromochloromethane	80*	-		<1.00	<1.00	<1.00
Bromodichloromethane	80*	-		<1.00	<1.00	<1.00
Bromoform	80*	-		<1.00	<1.00	<1.00
Bromomethane	80*	-		<1.00	<1.00	<1.00
2-Butanone (MEK)	-	-		<5.00	<5.00	<5.00
sec-Butylbenzene	-	-		<1.00	<1.00	<1.00
tert-Butylbenzene	-	-		<1.00	<1.00	<1.00
n-Butylbenzene	-	-		<1.00	<1.00	<1.00
Carbon disulfide	-	-		<1.00	<1.00	<1.00
Carbon tetrachloride	5	70		<1.00	<1.00	<1.00
Chlorobenzene	100	3,200		4.80	<1.00	<1.00
Chloroethane (Ethyl chloride)	-	-		<1.00	<1.00	<1.00
Chloroform	80*	-		<1.00	<1.00	<1.00
Chloromethane	-	-		<1.00	<1.00	<1.00
2-Chlorotoluene	-	-		2.40	<1.00	<1.00
4-Chlorotoluene	-	-		3.44	<1.00	<1.00
1,2-Dibromo-3-chloropropane (DBCP)	0.2	2		<1.00	<1.00	<1.00
Dibromochloromethane	80*	-		<1.00	<1.00	<1.00
1,2-Dibromoethane (Ethylene dibromide, EDB)	0.1	-		<1.00	<1.00	<1.00
Dibromomethane (Methylene bromide)	80*	-		<1.00	<1.00	<1.00
trans-1,4-Dichloro-2-butene	-	-		<1.00	<1.00	<1.00
1,4-Dichlorobenzene	-	-		<1.00	<1.00	<1.00
1,3-Dichlorobenzene	-	-		<1.00	<1.00	<1.00
1,2-Dichlorobenzene	-	-		2.62	<1.00	<1.00
Dichlorodifluoromethane (Freon-12)	80*	-		<1.00	<1.00	<1.00
1,2-Dichloroethane	5	110		<1.00	<1.00	<1.00
1,1-Dichloroethane	-	-		<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	100	2,800		<1.00	<1.00	<1.00
1,1-Dichloroethene	7	7		<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	70	2,400		<1.00	<1.00	<1.00
1,3-Dichloropropane	-	-		<1.00	<1.00	<1.00
1,2-Dichloropropane	5	3,000		<1.00	<1.00	<1.00
2,2-Dichloropropane	-	-		<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	-	-		<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	-	-		<1.00	<1.00	<1.00
1,1-Dichloropropene	-	-		<1.00	<1.00	<1.00
Diethyl ether	-	-		<1.00	<1.00	<1.00
1,4-Dioxane	-	-		<20.0	<20.0	<20.0
Ethylbenzene	700	1,600		45.6	<1.00	<1.00
Hexachlorobutadiene	-	-		<1.00	<1.00	<1.00
2-Hexanone (MBK)	-	-		<5.00	<5.00	<5.00
Isopropylbenzene (Cumene)	-	-		6.50	<1.00	<1.00

Table 3
 2019 Groundwater Analytical Summary Table
 92 Sunnyside Avenue
 Woonsocket, Rhode Island

Compound	GA	GB	Parcel ID	92 Sunnyside Ave	Trip Blanks	
	Groundwater	Groundwater	Monitoring Well ID	EA-1	Trip Blank-	Trip Blank
	Criteria	Criteria		MW-EA-1	092419	
	µg/L	µg/L		Sample ID	9/24/2019	9/25/2019
			Sample Date	9/24/2019	9/25/2019	9/25/2019
4-Isopropyltoluene (p-Isopropyltoluene)	-	-		2.84	<1.00	<1.00
Methyl tert-butyl ether (MTBE)	40	5,000		<1.00	<1.00	<1.00
Methylene chloride (Dichloromethane)	5	-		<1.00	<1.00	<1.00
4-Methyl-2-pentanone (MIBK)	-	-		<5.00	<5.00	<5.00
Naphthalene	-	-		95.6	<1.00	<1.00
n-Propylbenzene	-	-		8.97	<1.00	<1.00
Styrene	100	2,200		<1.00	<1.00	<1.00
1,1,1,2-Tetrachloroethane	-	-		<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	-	-		<1.00	<1.00	<1.00
Tetrachloroethene	5	150		<1.00	<1.00	<1.00
Tetrahydrofuran (THF)	-	-		<1.00	<1.00	<1.00
Toluene	1,000	1,700		13.1	<1.00	<1.00
1,2,4-Trichlorobenzene	-	-		<1.00	<1.00	<1.00
1,2,3-Trichlorobenzene	-	-		<1.00	<1.00	<1.00
1,1,1-Trichloroethane	200	3,100		<1.00	<1.00	<1.00
1,1,2-Trichloroethane	5	-		<1.00	<1.00	<1.00
Trichloroethene	5	540		<1.00	<1.00	<1.00
Trichlorofluoromethane (Freon 11)	80*	-		<1.00	<1.00	<1.00
1,2,3-Trichloropropane	-	-		<1.00	<1.00	<1.00
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	-	-		<1.00	<1.00	<1.00
1,3,5-Trimethylbenzene	-	-		24.4	<1.00	<1.00
1,2,4-Trimethylbenzene	-	-		91.7	<1.00	<1.00
Vinyl chloride	2	2		<1.00	<1.00	<1.00
m,p-Xylene	-	-		97.4	<1.00	<1.00
o-Xylene	10	-		54.5	<1.00	<1.00
SVOC PAH - µg/L						
Acenaphthene	-	-		<1.00	N/A	N/A
Acenaphthylene	-	-		<1.00	N/A	N/A
Anthracene	-	-		<1.00	N/A	N/A
Benzo[a]anthracene	-	-		<1.00	N/A	N/A
Benzo[a]pyrene	0.2	-		<1.00	N/A	N/A
Benzo[b]fluoranthene	-	-		<1.00	N/A	N/A
Benzo[g,h,i]perylene	-	-		<1.00	N/A	N/A
Benzo[k]fluoranthene	-	-		<1.00	N/A	N/A
Chrysene	-	-		<1.00	N/A	N/A
Dibenz(a,h)anthracene	-	-		<1.00	N/A	N/A
Fluoranthene	-	-		<1.00	N/A	N/A
Fluorene	-	-		<1.00	N/A	N/A
Indeno(1,2,3-cd)pyrene	-	-		<1.00	N/A	N/A
2-Methylnaphthalene	-	-		<1.00	N/A	N/A
Naphthalene	100	-		<1.00	N/A	N/A
Phenanthrene	-	-		<1.00	N/A	N/A
Pyrene	-	-		<1.00	N/A	N/A
<p>Orange shading denotes concentration detected above GB Groundwater Objectives</p> <p>Yellow shading denotes laboratory reporting limit above GB Groundwater Objective</p> <p>10,000 Bold text denoted detection greater than the laboratory reporting limit</p>						
<p>NOTES:</p> <p>µg/L = Micrograms per liter of water</p> <p>PCB = Polychlorinated Biphenyls</p> <p>TPH = Total Petroleum Hydrocarbon</p> <p>VOC = Volatile Organic Compounds</p> <p>SVOC PAH = Semivolatile Organic Compound - Polycyclic Aromatic Hydrocarbon</p> <p>- = No Standard Value</p> <p>< = Not detected above laboratory reporting limit</p> <p>N/A = Not Analyzed</p> <p>Groundwater Standards obtained from the Rhode Island Department of Environmental Management <i>Rules and Regulations for the Investigation and Remediation of Hazardous Releases</i> as amended 1/2019.</p>						

Table 4
2020 Groundwater Analytical Summary Table
92 Sunnyside Avenue
Woonsocket, Rhode Island

Compound	GA Groundwater Criteria µg/L	GB Groundwater Criteria µg/L	Sampling Parameter Monitoring Well ID Sample ID Sample Date	Petroleum Targeted		Hazardous Materials				
				MW-9		MW-2	MW-17		MW-13	MW-20
				EA-MW-9	MW-Pet-Dup	EA-MW-2	EA-MW-17	MW-Haz-Dup	EA-MW-13	EA-MW-20
				4/1/2020	4/1/2020	4/1/2020	4/1/2020	4/1/2020	4/1/2020	4/1/2020
Metals - µg/L										
Antimony	6	-		NS	NS	<1	<1	<1	<1	<1
Arsenic	10	-		NS	NS	<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium	4	-		NS	NS	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	5	-		NS	NS	<2.5	<2.5	<2.5	<2.5	<2.5
Chromium	100	-		NS	NS	<10	<10	<10	<10	<10
Copper	-	-		NS	NS	<10	<10	<10	<10	<10
Lead	15	-		NS	NS	<10	<10	<10	<10	<10
Mercury	100	-		NS	NS	<0.2	<0.2	<0.2	<0.2	<0.2
Nickel	50	-		NS	NS	<25	<25	<25	<25	<25
Selenium	-	-		NS	NS	<25	<25	<25	<25	<25
Silver	2	-		NS	NS	<5	<5	<5	<5	<5
Thallium	-	-		NS	NS	<1	<1	<1	<1	<1
Zinc	2	-		NS	NS	<25	33.9	27.6	852	<25
Dissolved Metals - µg/L										
Lead	0.5	-		1.2	1.6	NS	NS	NS	NS	NS
TPH - µg/L										
C9-C36 TPH (8100 Method)	-	-		NS	NS	<190	1,290	1,240	<190	1380
C10-C28 Diesel Range Organics (8015 Method)	-	-		390	390	NS	NS	NS	NS	NS
C6-C10 Gasoline Range Organics (8015 Method)	-	-		<50	<50	NS	NS	NS	NS	NS
VOCs - µg/L										
1,1,1,2-Tetrachloroethane	-	-		NS	NS	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	-	3,100		NS	NS	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	5	-		NS	NS	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	-	-		NS	NS	<1	<1	<1	<1	<1
1,1-Dichloroethane	80*	-		NS	NS	<1	<1	<1	<1	<1
1,1-Dichloroethene	80*	7		NS	NS	<1	<1	<1	<1	<1
1,1-Dichloropropene	80*	-		NS	NS	<2	<2	<2	<2	<2
1,2,3-Trichlorobenzene	80*	-		NS	NS	<1	<1	<1	<1	6.5
1,2,3-Trichloropropane	-	-		NS	NS	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	-	-		NS	NS	<1	20.5	19.5	<1	47.8
1,2,4-Trimethylbenzene	-	-		NS	NS	<1	1.7	1.4	<1	5.6
1,2-Dibromo-3-Chloropropane	-	2		NS	NS	<5	<5	<5	<5	<5
1,2-Dibromoethane	-	-		NS	NS	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	5	-		NS	NS	<1	3.4	3.0	<1	82
1,2-Dichloroethane	100	110		NS	NS	<1	<1	<1	<1	<1
1,2-Dichloropropane	-	3,000		NS	NS	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	80*	-		NS	NS	<1	<1	<1	<1	1.3
1,3-Dichlorobenzene	-	-		NS	NS	<1	<1	<1	<1	<1
1,3-Dichloropropane	-	-		NS	NS	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	-	-		NS	NS	<1	<1	<1	<1	5.7
1,4-Dioxane - Screen	0.2	-		NS	NS	<500	<500	<500	<500	<500
1-Chlorohexane	80*	-		NS	NS	<1	<1	<1	<1	<1
2,2-Dichloropropane	0.1	-		NS	NS	<1	<1	<1	<1	<1
2-Butanone	80*	-		NS	NS	<10	<10	<10	<10	<10
2-Chlorotoluene	-	-		NS	NS	<1	<1	<1	<1	<1
2-Hexanone	-	-		NS	NS	<10	<10	<10	<10	<10
4-Chlorotoluene	-	-		NS	NS	<1	<1	<1	<1	<1
4-Isopropyltoluene	-	-		NS	NS	<1	<1	<1	<1	<1
4-Methyl-2-Pentanone	80*	-		NS	NS	<25	<25	<25	<25	<25
Acetone	5	-		NS	NS	<10	<10	<10	<10	<10
Benzene	-	140		<1	<1	<1	<1	<1	<1	1.6
Bromobenzene	100	-		NS	NS	<2	<2	<2	<2	<2
Bromochloromethane	7	-		NS	NS	<1	<1	<1	<1	<1
Bromodichloromethane	70	-		NS	NS	<0.6	<0.6	<0.6	<0.6	<0.6
Bromoform	-	-		NS	NS	<1	<1	<1	<1	<1
Bromomethane	5	-		NS	NS	<2	<2	<2	<2	<2
Carbon Disulfide	-	-		NS	NS	<1	<1	<1	<1	<1
Carbon Tetrachloride	-	70		NS	NS	<1	<1	<1	<1	<1
Chlorobenzene	-	3,200		NS	NS	<1	18.2	18.2	<1	<1
Chloroethane	-	-		NS	NS	<2	<2	<2	<2	<2
Chloroform	-	-		NS	NS	<1	<1	<1	<1	<1
Chloromethane	-	-		NS	NS	<2	<2	<2	<2	<2
cis-1,2-Dichloroethene	700	2,400		NS	NS	<1	<1	<1	<1	3.4
cis-1,3-Dichloropropene	-	-		NS	NS	<0.4	<0.4	<0.4	<0.4	<0.4
Dibromochloromethane	-	-		NS	NS	<1	<1	<1	<1	<1
Dibromomethane	-	-		NS	NS	<1	<1	<1	<1	<1
Dichlorodifluoromethane	-	-		NS	NS	<2	<2	<2	<2	<2
Diethyl Ether	40	-		NS	NS	<1	<1	<1	<1	<1
Di-isopropyl ether	5	-		NS	NS	<1	<1	<1	<1	<1
Ethyl tertiary-butyl ether	-	-		NS	NS	<1	<1	<1	<1	<1
Ethylbenzene	-	1,600		<1	<1	<1	1.8	1.6	<1	3.4
Hexachlorobutadiene	-	-		NS	NS	<0.6	<0.6	<0.6	<0.6	<0.6
Hexachloroethane	100	-		NS	NS	<1	<1	<1	<1	<1
Isopropylbenzene	-	-		NS	NS	<1	12.8	11.8	<1	<1
Methyl tert-Butyl Ether	-	5,000		<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	5	-		NS	NS	<2	<2	<2	<2	<2
Naphthalene	-	-		NS	NS	<1	<1	<1	<1	<1
n-Butylbenzene	1,000	-		NS	NS	<1	<1	<1	<1	<1
n-Propylbenzene	-	-		NS	NS	<1	4.4	3.9	<1	<1
sec-Butylbenzene	-	-		NS	NS	<1	<1	<1	<1	<1
Styrene	200	2,200		NS	NS	<1	<1	<1	<1	<1
tert-Butylbenzene	5	-		NS	NS	<1	<1	<1	<1	<1
Tertiary-amyl methyl ether	5	-		NS	NS	<1	<1	<1	<1	<1
Tetrachloroethene	80*	150.0		NS	NS	<1	<1	<1	<1	<1
Tetrahydrofuran	-	-		NS	NS	<5	<5	<5	<5	<5
Toluene	-	1,700.0		<1	<1	<1	<1	<1	<1	1.2
trans-1,2-Dichloroethene	-	2,800.0		NS	NS	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	-	-		NS	NS	<0.4	<0.4	<0.4	<0.4	<0.4
Trichloroethene	-	540.0		NS	NS	<1	<1	<1	<1	<1
Trichlorofluoromethane	-	-		NS	NS	<1	<1	<1	<1	<1
Vinyl Acetate	-	-		NS	NS	<5	<5	<5	<5	<5
Vinyl Chloride	-	2.0		NS	NS	<1	<1	<1	<1	<1
Xylene O	2	-		<1	<1	<1	318	322	<1	6.4
Xylene P,M	10	-		<2	<2	<2	<2	<2	<2	4.4
Xylenes (Total)	-	-		<3	<3	<2	318	322	<2	10.8

Table 4
2020 Groundwater Analytical Summary Table
92 Sunnyside Avenue
Woonsocket, Rhode Island

Compound	GA Groundwater Criteria	GB Groundwater Criteria	Sampling Parameter Monitoring Well ID	Petroleum Targeted		Hazardous Materials				
				MW-9		MW-2	MW-17		MW-13	MW-20
				EA-MW-9	MW-Pet-Dup	EA-MW-2	EA-MW-17	MW-Haz-Dup	EA-MW-13	EA-MW-20
				4/1/2020	4/1/2020	4/1/2020	4/1/2020	4/1/2020	4/1/2020	4/1/2020
SVOC - µg/L										
1,1-Biphenyl	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
1,2,4-Trichlorobenzene	-	-	-	NS	NS	<9.6	13.6	13.1	<9.7	30.9
1,2-Dichlorobenzene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	49.7
1,3-Dichlorobenzene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
1,4-Dichlorobenzene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2,3,4,6-Tetrachlorophenol	-	-	-	NS	NS	<48.1	<48.1	<47.6	<48.5	<49
2,4,5-Trichlorophenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2,4,6-Trichlorophenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2,4-Dichlorophenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2,4-Dimethylphenol	-	-	-	NS	NS	<48.1	<48.1	<47.6	<48.5	<49
2,4-Dinitrophenol	-	-	-	NS	NS	<48.1	<48.1	<47.6	<48.5	<49
2,4-Dinitrotoluene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2,6-Dinitrotoluene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2-Chloronaphthalene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2-Chlorophenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2-Methylnaphthalene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2-Methylphenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2-Nitroaniline	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2-Nitrophenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
2,3'-Dichlorobenzidine	-	-	-	NS	NS	<19.2	<19.2	<19	<19.4	<19.6
2,4-Methylphenol	-	-	-	NS	NS	<19.2	<19.2	<19	<19.4	<19.6
2-Nitroaniline	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
4,6-Dinitro-2-Methylphenol	-	-	-	NS	NS	<48.1	<48.1	<47.6	<48.5	<49
4-Bromophenyl-phenylether	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
4-Chloro-3-Methylphenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
4-Chloroaniline	-	-	-	NS	NS	<19.2	<19.2	<19	<19.4	<19.6
4-Chloro-phenyl-phenyl ether	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
4-Nitroaniline	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
4-Nitrophenol	-	-	-	NS	NS	<48.1	<48.1	<47.6	<48.5	<49
Acenaphthene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Acenaphthylene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Acetophenone	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Aniline	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Anthracene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Azobenzene	-	-	-	NS	NS	<19.2	<19.2	<19	<19.4	<19.6
Benzo(a)anthracene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Benzo(a)pyrene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Benzo(b)fluoranthene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Benzo(g,h,i)perylene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Benzo(k)fluoranthene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Benzoic Acid	-	-	-	NS	NS	<96.2	<96.2	<95.2	<97.1	<98
Benzyl Alcohol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
bis(2-Chloroethoxy)methane	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
bis(2-Chloroethyl)ether	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
bis(2-chloroisopropyl)Ether	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
bis(2-Ethylhexyl)phthalate	-	-	-	NS	NS	<5.8	<5.8	<5.7	<5.8	15.8
Butylbenzylphthalate	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Carbazole	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Chrysene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Dibenzo(a,h)Anthracene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Dibenzofuran	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Diethylphthalate	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Dimethylphthalate	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Di-n-butylphthalate	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Di-n-octylphthalate	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Fluoranthene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Fluorene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Hexachlorobenzene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Hexachlorobutadiene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Hexachlorocyclopentadiene	-	-	-	NS	NS	<24	<24	<23.8	<24.3	<24.5
Hexachloroethane	-	-	-	NS	NS	<4.8	<4.8	<4.8	<4.9	<4.9
Indeno(1,2,3-cd)Pyrene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Isophorone	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Naphthalene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Nitrobenzene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
N-Nitrosodimethylamine	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
N-Nitroso-Di-n-Propylamine	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
N-nitrosodiphenylamine	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Pentachlorophenol	-	-	-	NS	NS	<48.1	<48.1	<47.6	<48.5	<49
Phenanthrene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Phenol	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Pyrene	-	-	-	NS	NS	<9.6	<9.6	<9.5	<9.7	<9.8
Pyridine	0.2	-	-	NS	NS	<96.2	<96.2	<95.2	<97.1	<98

Orange shading denotes concentration detected above GB Groundwater Objectives
Yellow shading denotes laboratory reporting limit above GB Groundwater Objective
10,000 Bold text denotes detection greater than the laboratory reporting limit

NOTES:
µg/L = Micrograms per liter of water
TPH = Total Petroleum Hydrocarbon
VOC = Volatile Organic Compounds
SVOC = Semivolatile Organic Compound
- = No Standard Value
< = Not detected above laboratory reporting limit
NS = Not sampled
Groundwater Standards obtained from the Rhode Island Department of Environmental Management *Rules and Regulations for the Investigation and Remediation of Hazardous Releases* as amended 1/2019.

Appendix M

Disposal Documentation

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NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

RID 980 524 268

2. Page 1 of 1

3. Emergency Response Phone

(800) 839 3975

4. Waste Tracking Number

5. Generator's Name and Mailing Address
169 MAIN ST

CITY OF WOONSOCKET

Generator's Site Address (if different than mailing address)
92 SUNNYSIDE AVE

WOONSOCKET, RI 02895

WOONSOCKET RI 02895

Generator's Phone:

(401) 767 9237

U.S. EPA ID Number

MAD 084 814 136

6. Transporter 1 Company Name

EQ NORTHEAST, INC

U.S. EPA ID Number

7. Transporter 2 Company Name

8. Designated Facility Name and Site Address
EQ DETROIT, INC
1923 FREDERICK STREET
DETROIT MI 48211
Facility's Phone: (313) 347 1300

U.S. EPA ID Number

MID 980 091 566

9. Waste Shipping Name and Description

1. Non Hazardous Liquid Waste, Not DOT Not RCRA Regulated
NR

10. Containers

No.	Type
002	DM
001	DM
001	

11. Total Quantity

070

12. Unit Wt./Vol.

G

2. NON HAZARDOUS SOLID WASTE, NOT DOT NOT RCRA REGULATED

DM

P

3.

001

350

4.

13. Special Handling Instructions and Additional Information

F209018DET / Groundwater 2 F209018DET / IDW Soil / WOW 11035300
(1955) (1955)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offoror's Printed/Typed Name

Signature

Month Day Year

10/12/20

GENERATOR

15. International Shipments

Import to U.S.

Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

10/15/20

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

Manifest Reference Number:

U.S. EPA ID Number

17b. Alternate Facility (or Generator)

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

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Appendix N

Public Notice Summary

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Parcel ID: 3-68
ROQUEZ ALEXANDER
28 SUNNYSIDE AVE
WOONSOCKET RI 02895

Parcel ID: 3-74
KHAMPHASEUTH ENG
MANYVANH
73 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Parcel ID: 3-7
CKG DEVELOPMENT CO LLC
176 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Parcel ID: 9-193
FAIRMOUNT FOUNDRY INC
25 SECOND AVE
WOONSOCKET RI 02895-5194

Parcel ID: 3-38
LUSSIER ROBERT J
AMY B
P O BOX 3003
WOONSOCKET RI 02895

Parcel ID: 3-77
BARBOSA TOMMY O
222 MASON STREET
WOONSOCKET RI 02895

Parcel ID: 3-71
BENNETT RONALD H
SUZANNE
151 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Parcel ID: 3-59
SOUVANNAVONG SAENGMANY S
SAKOUN S
99 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Parcel ID: 3-58
CASTO PHILIP
45 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Parcel ID: 3-36
SAVAGE JASON R
HOPE M TOUPIN
212 MASON STREET
WOONSOCKET RI 02895

Parcel ID: 3-69
SEAMONE GREGORY T
38 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Parcel ID: 3-97
ODONNELL P J + SONS INC
P O BOX 206
WOONSOCKET RI 02895-0780

Parcel ID: 3-41
PROVIDENCE + WORCESTER
RAILROAD COMPANY
75 HAMMOND STREET
WORCESTER MA 01601

Parcel ID: 9-16
PROVIDENCE + WORCESTER
RAILROAD COMPANY
75 HAMMOND STREET
WORCESTER MA 01601

Parcel ID: 3-37
REILLY ROBERT ET AL
248 MASON STREET
WOONSOCKET RI 02895

Parcel ID: 3-64
DEWEY SHERYLL A
REBECCA J JONES
262 MASON STREET
WOONSOCKET RI 02895

Parcel ID: 3-8
SYLVESTRE SHAWN P
198 MASON STREET
WOONSOCKET RI 02895

Parcel ID: 3-32
LUSSIER ROBERT J TRUSTEE
PO BOX 3003
WOONSOCKET RI 02895

Parcel ID: 3-122
WILSON WALLACE ET AL
57 SUNNYSIDE AVE
WOONSOCKET RI 02895-5103

Parcel ID: 3-73
BLACKSTONE VALLEY HOUSING LLC
52 OAKLAND AVENUE
CRANSTON RI 02910

Parcel ID: 3-125
ANTUNES MANUELA
85 SUNNYSIDE AVENUE
WOONSOCKET RI 02895

Abbuter Notification List
92 and 176 Sunnyside Avenue
Woonsocket, Rhode Island

Abutting Site Parcel	Title	First Name	Last Name	Company Name	Parcel ID	Prop Address Line 1	Prop City	Prop State	Prop zip	Mail Address Line 1	Mail City	Mail State	Mail zip
Plat 3 Lot 7 (176 Sunnyside Avenue)		Ronald & Suzanne	Bennett	-	3-71	151 Sunnyside Avenue	Woonsocket	RI	02895	151 Sunnyside Avenue	Woonsocket	RI	02895
		Sophia	Adair	-	3-76	195 Sunnyside Avenue	Woonsocket	RI	02895	195 Sunnyside Avenue	Woonsocket	RI	02895
		Samuel & Marian	Ruiz	-	3-39	203 Sunnyside Avenue	Woonsocket	RI	02895	203 Sunnyside Avenue	Woonsocket	RI	02895
		-	-	Woonsocket Housing Authority	3-48	2 Bourden Blvd	Woonsocket	RI	02895	679 Social Street	Woonsocket	RI	02895-2026
		-	-	Providence + Worcester Railroad Company	3-41	0 Mason Street	Woonsocket	RI	02895	75 Hammond Street	Worcester	MA	01601
Plat 3 Lot 97 (92 Sunnyside Avenue)		Alexander	Roquez	-	3-68	28 Sunnyside Avenue	Woonsocket	RI	02895	28 Sunnyside Avenue	Woonsocket	RI	02895
		Gregory	Seamone	-	3-69	38 Sunnyside Avenue	Woonsocket	RI	02895	38 Sunnyside Avenue	Woonsocket	RI	02895
		Philip	Casto	-	3-58	45 Sunnyside Avenue	Woonsocket	RI	02895	45 Sunnyside Avenue	Woonsocket	RI	02895
		Wallace	Wilson Et. Al.	-	3-122	57 Sunnyside Avenue	Woonsocket	RI	02895-5103	57 Sunnyside Avenue	Woonsocket	RI	02895-5103
		Eng Manyvanh	Khampaseuth	-	3-74	73 Sunnyside Avenue	Woonsocket	RI	02895	73 Sunnyside Avenue	Woonsocket	RI	02895
		Manuela	Antunes	-	3-125	85 Sunnyside Avenue	Woonsocket	RI	02895	85 Sunnyside Avenue	Woonsocket	RI	02895
		Saengmany & Sakoun	Souvannavong	-	3-59	99 Sunnyside Avenue	Woonsocket	RI	02895	99 Sunnyside Avenue	Woonsocket	RI	02895
		-	-	Blackstone Valley Housing LLC	3-73	115 Sunnyside Avenue	Woonsocket	RI	02895	52 Oakland Avenue	Cranston	RI	02910
		Robert & Amy	Lussier	-	3-38	236 Mason Street	Woonsocket	RI	02895	PO Box 3003	Woonsocket	RI	02895
		Robert	Lusier	Trustee	3-32	24 Mason Street	Woonsocket	RI	02895	PO Box 3003	Woonsocket	RI	02895
		Tommy	Barbosa	-	3-77	222 Mason Street	Woonsocket	RI	02895	222 Mason Street	Woonsocket	RI	02895
		Jason Savage &	Hope Toupin	-	3-36	212 Mason Street	Woonsocket	RI	02895	212 Mason Street	Woonsocket	RI	02895
		Robert	Reilly Et. Al.	-	3-37	248 Mason Street	Woonsocket	RI	02895	248 Mason Street	Woonsocket	RI	02895
		Sheryll Dewey &	Rebecca Jones	-	3-64	262 Mason Street	Woonsocket	RI	02895	262 Mason Street	Woonsocket	RI	02895
		Shawn	Sylvetre	-	3-8	198 Mason Street	Woonsocket	RI	02895	198 Mason Street	Woonsocket	RI	02895
	-	-	Fairmount Foundary Inc.	9-193	25 Second Avenue	Woonsocket	RI	02895	25 Second Avenue	Woonsocket	RI	02895-5194	
	-	-	Providence + Worcester Railroad Company	3-41 and 9-16	0 Mason Street	Woonsocket	RI	02895	75 Hammond Street	Worcester	MA	01601	
City of Woonsocket		Steven	Lima	City of Woonsocket	3-7 and 3-97	92 and 176 Sunnyside Avenue	Woonsocket	RI	02895	169 Main Street	Woonsocket	RI	02895
RIDEM Manager		Rachel	Simpson	Rhode Island Department of Environmental Protection	N/A	Office of Waste Management	-	-	-	235 Promenade Street	Providence	RI	02908

**ENVIRONMENTAL SITE REMEDIATION IN
PROGRESS
92 AND 176 SUNNYSIDE AVENUE
WOONSOCKET, RHODE ISLAND**

**EPA HAZARDOUS SUBSTANCE ASSESSMENT
GRANT FY2019**

PROPERTY OWNED BY: CITY OF WOONSOCKET

PROPERTY OPERATED BY: CITY OF WOONSOCKET

SITE REMEDIATION
BEING PERFORMED BY: EA ENGINEERING, SCIENCE,
AND TECHNOLOGY, INC.,
PBC

FOR MORE INFORMATION
CONTACT: STEVEN LIMA
CITY OF WOONSOCKET
TEL. NO. 401-767-9231

RACHEL SIMPSON
RIDEM, OFFICE OF WASTE
MANAGEMENT
TEL. NO. 401-222-2797, Ext.
7105

TOM DALEY, PROJECT
MANAGER
EA ENGINEERING, SCIENCE,
& TECHNOLOGY
TEL. NO. 401-736-3440, Ext.
1803

**REMEDIACION AMBIENTAL EN PROGRESO
92 AND 176 SUNNYSIDE AVENUE
WOONSOCKET, RHODE ISLAND**

**FONDO PARA EVALUACION DE SUBSTANCIAS
PELIGROSAS DE EPA FY2019**

PROPIETARIO: CIUDAD DE WOONSOCKET

PROPIEDAD OPERADA
POR: CIUDAD DE WOONSOCKET

REMEDIACION AMBIENTAL
EJECUTADA POR: EA ENGINEERING,
SCIENCE, AND
TECHNOLOGY, INC., PBC

PARA MAS INFORMACION
CONTACTAR: STEVEN LIMA
CIUDAD DE WOONSOCKET
TEL. NO. 401-767-9231

RACHEL SIMPSON
RIDEM, OFICINA DE
GERENCIA DE DESECHOS
TEL. NO. 401-222-2797, Ext.
7105

TOM DALEY, GERENTE DE
PROYECTO
EA ENGINEERING,
SCIENCE, & TECHNOLOGY
TEL. NO. 401-736-3440, Ext.
1815



EA Engineering, Science, and Technology, Inc., PBC

301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
Telephone: 401-736-3440
www.eaest.com

22 August 2019

Re: Notification to Abutters – Site Investigation
92 and 176 Sunnyside Avenue
Woonsocket, Rhode Island
EA Project Number: 15258.13

To Whom It May Concern:

In accordance with the Rhode Island Department of Environmental Management (RIDEM) Office of Waste Management Rules and *Regulations for the Investigation and Remediation of Hazardous Material Releases* (Remediation Regulations, DEM-DSR-01-93, as re-codified January 2019), and the Industrial Property Remediation and Reuse Act (R.I. General Law 23-19.14, Section 11), EA Engineering, Science, and Technology, Inc., PBC (EA) hereby notifies you as an abutting property owner, tenant or interested party, of the intent to conduct an environmental site investigation at 92 and 176 Sunnyside Avenue (the Site). The Site is additionally identified by the Woonsocket Tax Assessor's office as Plat 3/Lots 97 and 7.

The project is being funded under the RIDEM Targeted Brownfield Assessment program through its Environmental Protection Agency (EPA)-awarded Hazardous Substance Assessment Grant. A fact sheet describing details about the site and the proposed investigation is attached.

The investigation is scheduled to be conducted beginning in September 2019. The site work is expected to take approximately two to three days. The results of the investigation should be available in October 2019.

For more information regarding this notice or this investigation, or to make arrangements to review Department records pertaining to this property location, contact the RIDEM project manager, Ms. Rachel Simpson, at (401) 222-2797, Ext. 7105.

Sincerely,

EA ENGINEERING, SCIENCE,
AND TECHNOLOGY, INC., PBC

A handwritten signature in blue ink, appearing to read 'Thomas Daley', written over a white background.

Thomas Daley
Project Manager

Attachment: Fact Sheet



EA Engineering, Science, and Technology, Inc., PBC

301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
Telephone: 401-736-3440
www.eaest.com

22 Agosto 2019

Re: Notificación a Propietarios – Investigación del Sitio
92 y 176 Sunnyside Avenue
Woonsocket, Rhode Island
EA Numero de Proyecto: 15258.13

A quien pueda interesar,

De conformidad con la Oficina de Gerencia de Desechos y las Regulaciones para la Investigación y Remediación de Materiales Peligrosos para la Salud y el Ambiente (Regulaciones para Remediación DEM-DSR-01-93, Enero 2019) del Departamento Gerencial del Ambiente de Rhode Island (RIDEM); y la Ley de Remediación y Reusó de Propiedades Industriales (R.I. General Law 23-19.14, Seccion 11), EA Engineering, Science, and Technology, Inc., PBC (EA) te notifica a ti como propietario adyacente, inquilino o grupo interesado, el objetivo de conducir una investigación ambiental en 92 y 176 Avenida Sunnyside (El sitio). El sitio esta adicionalmente identificado por el la Oficina del Asesor de Impuestos como Plat 3/Lots 97 y 7.

El proyecto será fundado por el programa de Asesoramiento Especifico de Brownfield de RIDEM por medio de la Agencia de Protección del Ambiente (EPA)- y su adjudicación de fondos para el estudio de sustancias peligrosas. Adjunto a esta carta, podrá encontrar una hoja informativa con más detalles acerca del sitio y la investigación propuesta.

Esta investigación está programada para ser conducida a principios de septiembre de 2019. Se espera que este trabajo tenga una duración de tres días. Los resultados obtenidos en esta investigación estarán disponibles en Octubre de 2019.

Para más información con respecto a esta carta o esta investigación, o para consultar el registro del Departamento relacionados a esta propiedad, contactar al gerente de Proyecto de RIDEM, Ms. Rachel Simpson, a (401) 222-2797, Ext. 7105.

Atentamente,

EA ENGINEERING, SCIENCE,
AND TECHNOLOGY, INC., PBC

Thomas Daley
Gerente de Proyecto

Archivo Adjunto: Hoja Informativa

FACT SHEET

Proposed Site Investigation at:

**92 and 176 Sunnyside Avenue Island
Woonsocket Tax Assessor Plat 3/Lots 97 and 7
Woonsocket, Rhode**

Property Owner: City of Woonsocket, RI

The properties to be investigated are former industrial properties. The investigation site is bounded by Sunnyside Avenue to the northwest and a railroad track easement to the southeast. Currently the site is vacant with the exception of three dilapidated buildings located on the property. The remaining areas of the site consist mainly of undeveloped wooded or overgrown vegetated areas.

The site has had a long history of prior industrial through the 1900s. Former uses included a hide & tallow company, a chemical manufacturing company, a paint manufacturing company, a lumber yard and a fuel oil company. The majority of the former buildings that were located on the property were destroyed by fires in the 1980s and 1990s.

Several site investigations have been previously completed on the southwestern portion of the site (176 Sunnyside Ave.) including investigations conducted in 2003, 2004, 2005, 2011, 2014, and a recent Phase I Environmental Site Assessment conducted in October 2018. Investigations of subsurface conditions on Lot 7 have revealed evidence of the presence of volatile organic compounds, (VOCs), total petroleum hydrocarbons (TPH), benzo(a)pyrene, manganese, and arsenic in soils, and ethylbenzene and toluene in groundwater above the applicable RI Department of Environmental Management (RIDEM) standards. The northeastern portion of the site (92 Sunnyside Ave.) has not been investigated. This proposed site investigation will consist of a site-wide analysis of the both parcels.

The property owner, the City of Woonsocket, is considering developing the site for residential purposes. EA Engineering, Science, and Technology Inc., PBC, will be conducting the site investigation to provide additional data on environmental conditions which may need to be remediated prior to residential development. The soil and groundwater will be sampled, and laboratory analyzed. The sampling results will be compared to RIDEM Remediation Regulation Residential Direct Exposure Criteria (RDEC) and RIDEM GB Leachability Criteria to evaluate remedial alternatives for the site. The results will help determine the extent of jurisdictional soils (above RIDEM RDEC), delineate any areas considered "clean" (below RDEC), and quantify soil and groundwater impacts due to historical industrial uses of the site. This site investigation will help identify the most appropriate and effective remedial actions to bring the site into compliance with the RIDEM Remediation Regulations, as well as improve the aesthetic value of the property and provide residential space in the Woonsocket community.

RIDEM Case Manager:

Rachel Simpson,
Environmental Scientist
RIDEM - Office of Waste Management
235 Promenade Street, Providence, RI 02908
(401) 222-4700, Ext. 7126

City of Woonsocket Project Contact

Steven Lima,
Acting Director of Planning and Development
City of Woonsocket
169 Main Street, Woonsocket, RI
(401) 767-9231

HOJA INFORMATIVA

Sitio de Investigación Propuesto:

**92 y176 Sunnyside Avenue Island
Woonsocket Tax Assessor Plat 3/Lots 97 and 7
Woonsocket, Rhode**

Propietario: Ciudad de Woonsocket, RI

Las propiedades a ser investigada, solían ser fábricas. El sitio de investigación propuesto está limitado por la Avenida Sunnyside hacia el noroeste y por la vía ferroviaria hacia el suroeste. Actualmente el sitio esta desocupada con la excepción de tres edificios en ruinas. El resto de las áreas en el sitio consisten principalmente de terreno con alta vegetación.

El sitio ha tenido larga historia de actividades industriales durante los años 1900. Anteriores usos incluyen una compañía de pieles y sebo, fábrica de químicos, fábrica de pinturas, almacén de madera y una compañía de gasolina. La mayoría de los edificios que solían estar ubicados en la propiedad fueron destruidos por incendios en los años 1980 y 1990.

Varias investigaciones han sido previamente completadas en el área suroeste del sitio (176 Sunnyside Ave.) incluyendo las conducidas en 2003, 2004, 2005, 2011, 2014, y la mas reciente 1era Fase de Evaluación Ambiental, conducida en Octubre de 2018. Investigación de las condiciones del subsuelo en el Lot 7 han revelado evidencia de la presencia de compuestos orgánicos volátiles (VOCs), hidrocarburos totales de petróleo (TPH), benzo(a)pireno, manganeso, arsénico en el suelo; y etilbenceno y tolueno en el agua subterránea por encima de los niveles aceptables de RI Department of Environmental Management (RIDEM). La porción noroeste del sitio (92 Sunnyside Ave.) no han sido investigada. La investigación propuesta consistirá en una investigación del sitio complete.

El propietario, la ciudad de Woonsocket, esta considerando desarrollar el sitio como área residencial. EA Engineering, Science, and Technology Inc., PBC, conducirá la investigación para proveer datos adicionales acerca de las condiciones ambientales, las cuales podrían requerir remediación antes de desarrollar al área residencial. Muestras de suelo y agua serán tomadas y analizadas por un laboratorio. Los resultados de estas muestras serán comparados con los de RIDEM Criterio de Remediaciones y Regulaciones Residenciales para Exposiciones Directas (RDEC) y RIDEM GB Criterio de Lixiviación para evaluar alternativas de remediación para el sitio. Los resultados ayudaran a determinar el grado jurisdiccional del suelo (sobre RIDEM RIDEDEC), a delinear cualquier área clasificadas como “limpia” (debajo RIDEM RIDEDEC), y cuantificar el impacto en el suelo y agua como resultado del uso industrial. El estudio ayudara a identificar las acciones mas efectivas y apropiadas para lograr que el sitio este en cumplimiento con las Regulaciones del RIDEM, como así también mejorar el valor estético de la propiedad y proveer espacio residencial en la comunidad de Woonsocket.

RIDEM Gerente del Caso:

Rachel Simpson,
Científica Ambiental
RIDEM – Oficina de Gerencia de Desperdicios
235 Promenade Street, Providence, RI 02908
(401) 222-4700, Ext. 7126

Contacto del proyecto de la Ciudad de Woonsocket

Steven Lima,
Director de Planificación y Desarrollo
Ciudad de Woonsocket
169 Main Street, Woonsocket, RI
(401) 767-9231



Rhode Island Department of Environmental Management

Working to Protect Rhode Island's Environment

Who We Are....

The Rhode Island Department of Environmental Management (DEM) is the state agency responsible for preserving the quality of Rhode Island's environment for you and everyone who calls Rhode Island home. Our main office is conveniently located in Providence. We help protect the **AIR** you breathe, the **LAND** your homes, businesses and schools are built on, and the **WATER** you use for swimming and fishing.

What We Do....

DEM takes citizen complaints about pollution seriously and is committed to responding to complaints as quickly as possible. By contacting us, your complaint can be addressed and the investigation process can begin. Or maybe you don't have a complaint – maybe you have a question or need information about something happening in your neighborhood. We can help.

DEM receives complaints and questions about many subjects, including: illegal dumping, odor complaints from industrial facilities, illegal discharges into streams/rivers, dust problems, and similar threats to public health and the environment.

How We Can Help You....

DEM encourages your participation in helping us protect the environment and health of your community. We are here to answer your questions and investigate your complaints. Are you looking for information about a particular pollutant such as mercury or exterior lead paint?

Or maybe you are interested in learning more about a piece of property under construction near your home, or how to properly dispose of used oil? Are you concerned about illegal dumping or strange odors in your neighborhood?

We are here to serve you – please do not hesitate to contact us if you have questions, need to file a complaint about something happening in your community, or want more information about the many programs DEM runs that may directly impact you or your neighborhood. You can raise an issue anonymously or leave your name to get follow-up information.

VISIT OR CALL US:

IN PERSON:

MONDAY-FRIDAY, 8:30 AM-4:00 PM
235 PROMENADE STREET PROVIDENCE, RI
(2nd FLOOR INFORMATION DESK)

AT OUR WEB SITE:

www.dem.ri.gov

STILL HAVE QUESTIONS? CALL US:

GENERAL INFORMATION: **401-222-6800**
TDD LINE: **401-222-4462**

NEED TO FILE A COMPLAINT?
401-222-1360

AFTER HOURS
EMERGENCIES/COMPLAINTS:
401-222-3070

STILL DON'T KNOW WHO TO CALL?
TRY DEM'S OFFICE OF TECHNICAL & CUSTOMER
ASSISTANCE:
401-222-6822



Departamento de Gestión Ambiental en Rhode Island

Cómo se trabaja para proteger el medioambiente en Rhode Island

Quiénes somos...

El Departamento de Gestión Ambiental en Rhode Island (DEM) es la agencia estatal responsable de preservar la calidad del medioambiente en Rhode Island para usted y para todo aquél que considera que Rhode Island es su hogar. Nuestra oficina principal está ubicada convenientemente en Providence. Ayudamos a proteger el **AIRE** que usted respira, la **TIERRA** en donde está construido su hogar, su negocio o su escuela y el **AGUA** en donde nada o pesca.

Qué hacemos...

El DEM toma muy en serio las quejas de polución que los ciudadanos presentan y se siente comprometido a responder tales quejas tan pronto como le es posible. Al comunicarse con nosotros, se puede tratar su queja y dar comienzo a un proceso de investigación. O quizás usted no tenga una queja, quizás sea una pregunta o necesite información sobre algo que ocurrió en su vecindario. Podemos ayudar.

El DEM recibe quejas y preguntas sobre muchos temas, incluyendo: desechar basura ilegalmente, quejas de malos olores emitidos por instalaciones industriales, arrojar productos ilegales en riachuelos o ríos, problemas con el polvo y otras amenazas similares a la salud del público y del medioambiente.

Cómo podemos ayudarle...

El DEM anima su participación para ayudarnos a proteger el medioambiente y la salud de su comunidad. Estamos aquí para contestar sus preguntas e investigar sus quejas. ¿Busca información sobre un contaminante en particular, tal como el mercurio o pintura exterior con plomo?

¿ O quizás esté interesado en obtener más información sobre una propiedad en construcción cerca de su hogar o quiera saber cómo disponer

apropiadamente de aceite ya usado? ¿Se preocupa por la manera ilegal en que se desecha basura o por olores extraños en su vecindario?

Estamos aquí para servirle; por favor no dude en comunicarse con nosotros si tiene alguna pregunta, si necesita presentar una queja por algo que esté pasando en su comunidad o si desea obtener más información con respecto a los muchos programas que el DEM tiene a su cargo y que pudieran tener un impacto directo en usted o en su vecindario. Puede presentar un tema de manera anónima o puede dejar su nombre para obtener más información.

VISÍTENOS O LLÁMENOS:

PERSONALMENTE:

DE LUNES A VIERNES, DE 8:30AM A 4:00PM
235 PROMENADE STREET, PROVIDENCE, RI
(QUIOSCO DE INFORMACIÓN EN EL 2^{do} PISO)

EN NUESTRO SITIO WEB:

www.dem.ri.gov

¿AÚN TIENE PREGUNTAS? LLÁMENOS:

INFORMACIÓN GENERAL: **401-222-6800**
LÍNEA TDD: **711**

¿DESEA PRESENTAR UNA QUEJA?
401-222-1360

EMERGENCIAS O QUEJAS DESPUÉS DE HORAS
HÁBILES:
401-222-3070

¿AÚN NO SABE A QUIÉN LLAMAR?
LLAME A LA OFICINA DE AYUDA TÉCNICA Y DE
AYUDA AL CLIENTE DEL DEM
401-222-6822



Rhode Island Department of Environmental Management
Office of Waste Management
State Site Remediation & Brownfields Program

Who We Are....

The Rhode Island Department of Environmental Management's (DEM) Office of Waste Management (OWM) Site Remediation & Brownfields Program was established to provide fair, comprehensive and consistent regulation of the investigation and remediation of hazardous waste and hazardous material releases, implemented in a timely and cost-effective manner. The program is designed to determine if a site poses a threat to human health and the environment and evaluate whether or not proposed remedies effectively provide protection.

This program also supports the redevelopment and reuse of contaminated sites through the Brownfields program. Sites are identified, evaluated, cleaned up and brought back to beneficial reuse in Rhode Island communities.

What We Do....

OWM's Site Remediation & Brownfields Program regulates and provides technical oversight for the investigation and remediation of releases of hazardous waste and/or hazardous materials to the environment; ensures that those investigations and remedial activities are conducted in a consistent manner that adequately protects human health and the environment; and enforces regulations regarding the proper disposal of abandoned hazardous wastes and hazardous materials.

The Process

Cleaning a contaminated site requires investigation, planning and action. The *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases*

(<http://www.dem.ri.gov/pubs/regs/regs/waste/remreg04.pdf>) define the specific documents that are needed, or may be needed, as part of that process:

- Notification of Release;
- Site Investigation Work Plan (SIWP);
- Public Notice of Investigation;
- Site Investigation Report (SIR);
- Public Notice of Completed Site Investigation & Public Comment Period on Technical Feasibility of Proposed Remedy;
- Remedial Action Work Plan (RAWP);
- Remedial Action;
- Closure Report; and, if applicable,
- Environmental Land Usage Restriction (ELUR).

We are here to serve you – please do not hesitate to contact us if you have any questions or would like more information about one of the properties within the program that may directly impact you or your neighborhood. Under the Freedom of Information Act you have a right to review site files.

FOR MORE INFORMATION CONTACT US:

AT OUR WEB SITES:

<http://www.dem.ri.gov>

<http://www.dem.ri.gov/brownfields/default.htm>

STILL HAVE QUESTIONS?

CALL OR EMAIL US:

GENERAL INFORMATION: **401-222-2797**

TDD LINE: **401-222-4462**

Email: brownfields@dem.ri.gov



Departamento de Gestión Ambiental en Rhode Island
Oficina de Gestión de Desperdicios
Programa de Remediación en Lugares Estatales y de lugares designados como Brownfields

Quiénes somos...

El Programa de Remediación de Sitios Estatales y de Terrenos Baldíos (otros lugares designados como "Brownfields") de la Oficina de Gestión de Desperdicios (OWM), una división del Departamento de Gestión Ambiental de Rhode Island (DEM), fue establecido para proveer regulaciones justas, completas y consistentes relacionadas a la investigación y remediación de la presencia y escape de materiales peligrosos y de materiales peligrosos, que han de implementarse dentro de un tiempo prudencial y a un costo razonable. El programa está diseñado para determinar si un lugar representa una amenaza tanto a la salud humana o al medioambiente, mientras que también evalúa si las soluciones que se proponen proveen o no protección eficaz.

De la misma manera, el Programa para Terrenos Baldíos, este programa promueve reurbanización y la reutilización de lugares contaminados. Los lugares se identifican, evalúan, limpian y son devueltos a su reutilización práctica dentro de las comunidades en Rhode Island.

Qué hacemos...

El Programa de Remediación de Sitios Estatales y Terrenos Baldíos de OWM regula y provee supervisión técnica para la investigación y remediación de escapes de desperdicios peligrosos y/o de materiales peligrosos al medioambiente; asimismo, asegura que esas investigaciones y actividades de remediación se lleven a cabo de tal manera consistente que protejan de forma adecuada la salud humana y el medioambiente; de la misma manera, refuerza las regulaciones referentes a la eliminación apropiada de desperdicios abandonados peligrosos y de materiales peligrosos en general.

Cómo usted puede ayudar...

De acuerdo a lo estipulado en la Ley o acceso a documentos públicos, usted tiene derecho a revisar los expedientes de dichos lugares. La OWM desea escucharlo en caso de que tenga alguna información medioambiental de alguna propiedad de la que no

tengamos conocimiento, antes de que aprobemos su limpieza. Si tiene alguna inquietud con respecto a la reutilización de una propiedad, por favor comuníquese con nosotros y le conectaremos con el funcionario municipal apropiado.

El proceso...

El limpiar de un lugar contaminado requiere investigación, planificación y acción. *Las reglas y regulaciones para la investigación y remediación de escape de materiales peligrosos* (<http://www.dem.ri.gov/pubs/regs/regs/waste/remre04.pdf>) indican los documentos específicos que son necesarios o que pudieran ser necesarios, como parte de ese proceso:

- Notificación de la divulgación;
- Plan de trabajo para iniciar investigación del lugar (SIWP);
- Aviso público de investigación;
- Reporte de investigación del lugar (SIR);
- Aviso público de que la investigación en el lugar ha concluido y Periodo de comentario público con respecto a la viabilidad técnica de la remediación que se propone;
- Plan de trabajo de la acción de remediación a tomarse (RAWP);
- Acción de remediación;
- Informe de clausura y, de ser aplicable,
- Restricciones del uso de la tierra por razones medioambientales (ELUR).

PARA OBTENER MÁS INFORMACIÓN COMUNÍQUESE CON NOSOTROS

EN NUESTRO SITIO WEB:

<http://www.dem.ri.gov>

<http://www.dem.ri.gov/brownfields/default.htm>

¿AÚN TIENE PREGUNTAS? LLÁMENOS O ENVÍENOS UN CORREO ELECTRÓNICO:

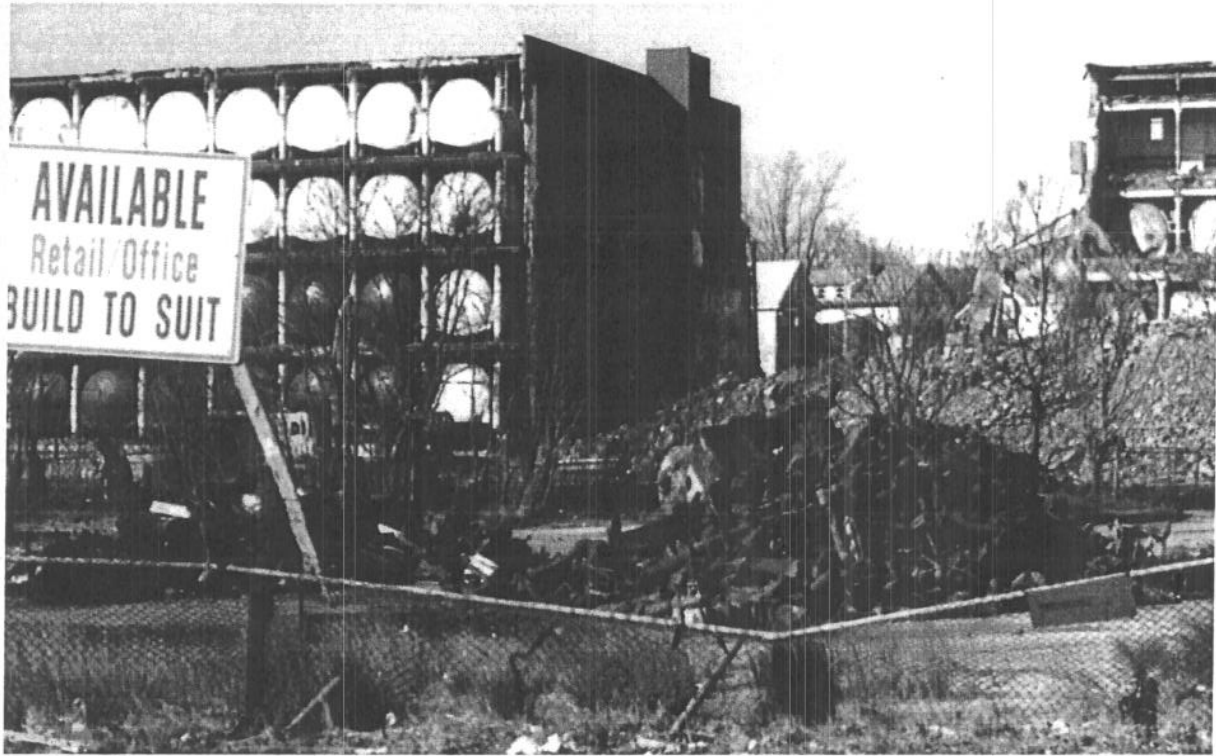
INFORMACIÓN GENERAL: **401-222-2797**

TDD RI Relay:

Marque 711

Correo electrónico: brownfields@dem.ri.gov

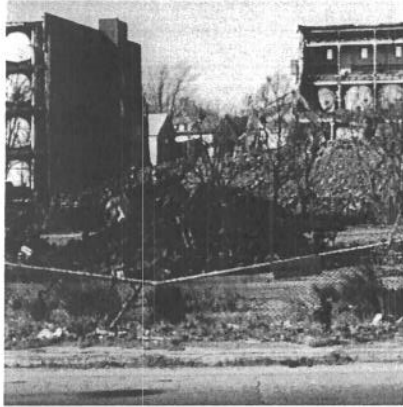
BROWN FIELDS:



Turning
bad spaces
into
good ones

How
communities
can get
involved

What is inside this booklet:



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What is a Brownfield?	1
Why can Brownfields be dangerous places?	
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What is a Brownfield?

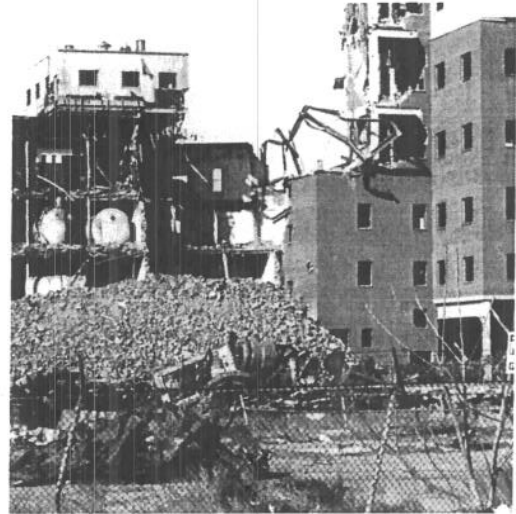
This booklet is about unused or abandoned (*a BAN dund*) buildings and places called **Brownfields**. They are dirty, sometimes dangerous places in neighborhoods. Usually Brownfields are places where old factories or other businesses were. Many times they are very messy and trashy places.

Brownfields can have all kinds of dangers – mess, falling down buildings and even dangerous, **toxic** (*Tok sick*) chemicals. Toxic means these chemicals are dangerous to human health. When a Brownfield is cleaned up, neighborhoods are better places in so many ways.

All around the country Brownfields are being cleaned

up and **redeveloped** (*re da VEL upt*) – turned into better, cleaner places – new businesses, parks and other uses. This booklet will explain what you need to know to get involved and ask good questions about Brownfield **reuse and redevelopment**.

The more you know about a Brownfield site then the more you can take part in planning. For example, let's say a Brownfield site is going to be redeveloped into a school with a community playground. Residents can get involved to help decide:



- **Is this plan for redevelopment and reuse good for the neighborhood?**
- **Is the new place going to be safe for neighborhood people?**



Why can Brownfields be dangerous places?

#1 Dangers you can see

There are two kinds of dangers or **risks** at Brownfield sites – things you can see, and things you can't see. Things you can see, like broken windows and glass, rotted wood floors, rusty nails and pipes, and old barrels, are a problem. All of these things are dangerous. Children playing

at an old Brownfield site have the most risk to get hurt. They can find old underground storage tanks, and they can fall in.

#2 Dangers you can't see

Chemicals can be at a Brownfield and you can't see them. **Some chemicals can be dangerous to human health**. They can be toxic. Toxic chemicals can make people sick if they eat them, breathe them or get them on their skin.

Chemicals

Where did the chemicals come from?

Sometimes when factories or businesses left a place, they left chemicals in pipes, barrels and buried oil tanks. These can leak. When they leak (or *leach*) into the ground, the chemicals can get into the soil and into well water and river water. Scientists test to see if the soil and water are safe.

When is a chemical dangerous?

Think of this: **chemicals are everywhere and in everything we eat and drink.** Our own bodies are made up of chemicals. And most chemicals are natural and safe. **But some chemicals, in the right amounts, can be dangerous.**

Old businesses can leave behind dangerous chemicals. For example, an old dry cleaning business can leave dangerous **VOCs** – volatile (*vo la TILE*) organic compounds – in the ground. VOCs are chemicals that can get into the air that we breathe.



Testing chemical levels – how much do they find?

If chemicals are in everything, how do the experts know what to test for?

Scientists often will test the soil and the water for chemicals. If they know what type of business was

there before, this will help scientists decide what to test for. Some of these tests are **very expensive**. So, they do the basic tests first. They may do more tests after they look at the first results.

To do the tests scientists dig holes, or **test wells**, into the ground and take samples of the water in the ground.

Understanding chemicals		
Chemical Tested	Everyday/Household Use	Business/Industry Use
Pesticides . . . . .	..Roach powder Rat poison	.. Farming or chemical company
VOC's . . . . .	..Gasoline Dry cleaners Moth balls	.. Oil refinery
Semi-volatiles . . . . .	..Soot . . . . .	.. Incinerators
Metals . . . . .	..Batteries Thermometers	.. Jewelry or plating company
<p>▲ This chart shows some of the kinds of chemicals that may be at a Brownfield site. In the <i>left</i> column is the name of the chemical. In the <i>middle</i> column you see how we use that chemical everyday, even at home. The <i>right</i> column shows what kinds of big businesses use these chemicals. This chart shows that there are many ways to use chemicals.</p>		

Standards for chemicals: how much is too much?

When scientists test a Brownfield site (the ground or the water) they want to find out **how much** of a chemical there is. The government sets safe amounts or levels for chemicals. The safe level is called a **standard**. If they find a level that is **higher than** the safe standard, then they make plans to do something to keep people safe.

What happens if a test is too high?

If the level is too high, scientists take action in different ways. Depending on the risk, they will do some or all of the following:

- Remove the contamination
- Cover it up
- Fence in the area
- Plant trees and grass
- Teach people about how to use an area
- Do more tests

Each Brownfield site is different, but the list above will give you a good idea of the kinds of actions that a contaminated site may need.

How to understand standards

Here is an example of a “standard.”

Let’s say soil at a Brownfield site was tested for **lead**. The test level was **3,500 ppm** (parts per million). The EPA (Federal Environmental Protection Agency) action level is **400 ppm**. So, the level is **higher than the standard** (3,500 ppm is higher than 400 ppm). This means something needs to be done to be sure people can be safe at or near this Brownfield site.



What is risk?

There is no such thing as living in a world with no risks. Even crossing the street can be risky. The important question is “**What is an acceptable risk?**” “**What is a risk I am willing to take?**”

Sometimes it's hard to know what is a risk? Who is at risk? For example if children are playing in a crumbling building this can be a **high risk**. Children can fall, get cut or get seriously hurt. Another example is if the air is filled with dust. This may be risky for people with asthma or older people.



Questions to ask about risk

- Is there a risk?
- Who is most at risk?
- What is the acceptable standard for this chemical?
- Is this standard for a normal size man or woman?
- Is this standard for a child?
- When can this chemical make me unhealthy?
- What could happen to me or my children?
- What about pregnant women?
- How would I know if I am sick from this chemical?
- If you say this level is safe here, does that mean this level is safe for every other place in the country?
- How can I protect myself—minimize the risk (keep the risk low)?
- How can I learn more about this risk? Who can I talk to?
- Is there something I can read?



Remember! There is no such thing as living in a world with no risks. The important thing is to understand what the risks are.

Go to the back page of this booklet for a list of agencies and phone numbers you can use.

An example of standards

The safe standard dose of aspirin for the average adult is 2 aspirin every 4 hours. Some adults can take even more than 2 aspirin safely. But if you are a small child, 2 aspirin is way too much. The standard for adults (2 aspirin) is not **the standard** for children.

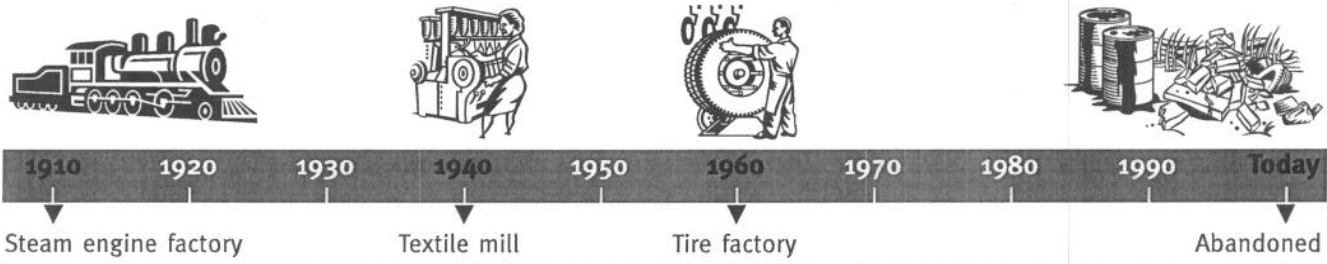
You can get involved

Residents know some important history

The past history of a site is important. Talk to the people

who have lived in the neighborhood for a long time. Maybe you are one of those people! People who worked in the facto-

ries and businesses may know what kinds of chemicals were used. This information will help the planners and scientists.



Brownfields get redeveloped into all kinds of different spaces – schools, businesses, playgrounds. Community people can help decide if the plan to build is a good one. As a resident, you can help decide:

- **Is this plan for redevelopment and reuse good for the neighborhood?**
- **Is the new place going to be safe for neighborhood people?**

There are 2 important times you can get involved with a Brownfield site:

1. Get involved when the city or developer is *planning* to cleanup, reuse or build something new at a Brownfield.

For example, a developer is planning to build a new business on an old brownfield site. It will have lots of hills and driveways to make it pretty. The developers think only adults will go to the business site. They want to follow cleanup standards for adults.

But neighborhood people know that the hills may attract lots of neighborhood children. This can be dangerous for kids. **The cleanup standards for adults may not be safe for children.** So you can give the developers good information. For example, you could ask them to make the land less inviting for kids.

Call or write your elected officials (see sample letter and phone calls on pages 8 and 9). Ask:

- **What is happening with this site?**
- **Are there plans to develop it?**
- **What are the plans?**
- **Will you hold any public meetings to talk about plans?**



2. Get involved with the cleanup plans.

The scientists and the contractors may schedule local meetings so that you can come and see and hear about the plans for cleanup. This is one of the times that you and your neighbors can be the most help and have the biggest impact. You can help decide if the plans for cleanup are good.



Questions to ask about Brownfields cleanup in your neighborhood

We have already talked about contamination and risk questions on page 4.

- When will the job start? How will you tell the neighborhood?
- Will there be a lot of noise during the cleanup?
- Will any of the waste be treated on the site? Will any chemicals be released during cleanup?
- Is it safe to truck it through the neighborhood?
- Where is the waste being taken?
- What if some of it spills out?
- Will the site be dusty during cleanup?
- What is being done about dust control? Is the dust dangerous?
- Will the chemicals smell? Will the fumes be toxic?
- Who do I complain to if I see something I think is wrong?
- What kind of signs will be posted while the work is going on?
- Will the signs be in different languages? Will they have pictures?
- Will there be guards at the street crossings to help with the truck traffic?
- Will there be a night watchman at the place where the work is being done?
- Will the site be fenced off?

What to expect during cleanup

Abandoned cars, used tires and other trash will need to be hauled away. Buildings and structures need to be taken down. Also, old fencing, asphalt parking lots and unused railroad lines will be removed. Metals, glass, boilers, old machinery and any of the

wooden pieces of the building will also be put into dumpsters and taken away to a landfill.

Trucks

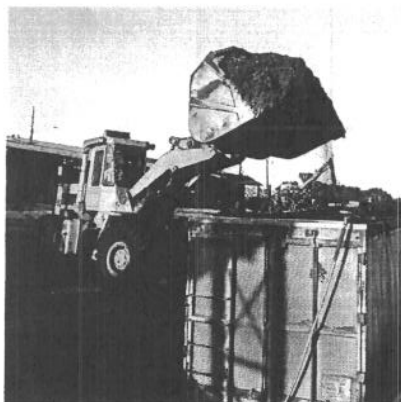
Machines will be digging holes and loading trucks. Large trucks will be traveling back and forth



over the local roads. So you want to know what is the time of day and what days of the week will they be working. Usually the contractor wants to start around **6:30 or 7:00 am** and work until **3:30 or 4:00 pm**. Unless there is a real rush to get the work done, they will work Monday-Friday. So you might ask the question, “**Do you plan to work any overtime on this project?**”

What streets will the trucks use?

Find out what roads the trucks will be using. The people who plan these projects aren't always aware of the kinds of traffic that happen in your neighborhood. You know the local roads – where people walk and drive, and where children play. Maybe there are elderly or sick people on some streets. Usually the truck drivers have more than one choice about what roads they use. You can give them good information about the best routes.



How much truck traffic and how messy?

The contractor should have an idea about how much dirt he needs to take out and bring in. So he can figure out roughly how many loads there will be – 1 truck per hour, 10 trucks per hour or something in between.

Trucks can get dirty. Ask, “**Are you going to have a wash down place for the trucks leaving the job?**” A wash down is a platform that the contractor builds and the trucks ride up on it. While the truck is on the platform, workers with hoses spray high-pressure water to clean the trucks before they go out onto the neighborhood roads. This keeps the mud on the job and keeps your neighborhood clean.

How long will the cleanup take?

Most of the time the developers have a good idea how long the project will take before they

begin. But sometimes they are surprised by the things they find. Although the developers may not be able to give you an exact answer about when the job will be done, they should be able to give a best guess for an ending date.

Children and Brownfields

Talk to your children about Brownfields and cleanup. Explain the dangers of playing at or near the site. **Remember truck drivers cannot see every spot around their trucks.** Tell your children:

- **Be extra careful when you cross streets.**
- **Don't play near the Brownfield.**



Older people should also be more careful. If you know of an older person in the neighborhood let them know that the noise and dust will only be temporary.

Take action: write letters

This is a sample letter you can use to write to officials about a Brownfield site.

Turn to the back page to find the names and addresses of agencies and people.



To _____ (write name here)
_____ (include address)

Date _____

Dear Mr./Ms. (write name here),

I am a resident of _____ Street and I am writing to express my concern about the traffic around the Valley Mills cleanup. The trucks begin at about 6:30 in the morning during the week. This is a **problem** for a number of reasons. We have older people living on this street, and children are also walking to school between 7:30 and 8:30 am.

I would like to **request** that two things happen. I believe the trucks should not start until 9:00 and stop at 4:30. Also, I believe Pine Street would be a better traffic pattern for the trucks entering and leaving the site.

I am eager to see the site cleaned up. But I am equally concerned that this cleanup is done in the best way for our neighborhood. Please call me at _____ (your phone number) or write to me at _____ (your address).

Thank you for your time.

Sincerely,

_____ (your signature)

_____ (Print your name clearly here)

◀ **1st paragraph:**
What is the problem?

◀ **2nd paragraph:**
What are you asking for?

◀ **3rd paragraph:**
How can someone get in touch with you?

Take action: make phone calls

Phone call #1: Talking about truck traffic during the cleanup.

Turn to the back page to find the names and phone numbers of agencies and people.

Resident: Hello. I would like to speak to someone about the clean up of Valley Mills. I live in the neighborhood.

Operator: Just a minute please. I'll transfer you.

Planner: Hello. Can I help you.

Resident: Yes. I am calling about the truck traffic at the cleanup site of Valley Mills. My name is _____. I live in the neighborhood ◀ Say who you are. and I would like to talk about the truck traffic.

Planner: What seems to be the problem?

Resident: I think the trucks are starting too early in the morning and causing ◀ What is the problem? problems for older people. The trucks begin coming out of the site at 6:30 in the morning. This is much too early for this neighborhood. We have many older people living here and this traffic is a problem. I want the planners to ◀ What are you asking for? know that I am calling to say that the trucks should not start until 8:00 in the morning.

Planner: I will give the traffic manager your message.

Resident: Thank you. And who is the traffic manager? Could you please spell her name for me. Before we hang up I would like ◀ Get the person's name your name. Please spell it (write it down) for me. Also I would like to give you my name and phone number. I would like someone to call me back. (Give your name, spell it and phone number.)

Thank you very much and I will wait to hear from _____ (the traffic manager's name).



Phone call #2: Finding out if there are any plans for a Brownfield site near you.

Resident: Hello. I would like to speak to someone about the empty building and vacant lot on Mills Street I live in the neighborhood.

Operator: Just a minute please. I'll transfer you.

Planner: Hello. Can I help you?

Resident: Yes. I am calling about the empty building and vacant lot on Mills Street. My name is _____. I live in the neighbor- ◀ Say who you are. hood and I would like to know if the city has any plans to redevelop or reuse this land. Who would know about this land? ◀ What are you asking for?

Planner: You will need to speak with Ms. James. Her phone number is _____.

Resident: Thank you. And can I have your name, please? ◀ Get the person's name (write it down)

Where to call or write

Here are some important phone numbers you can call to get more information about Brownfields in your neighborhood.

City of Providence, Department of Planning & Development

400 Westminster St., Providence, RI 02903
(401) 351-4300

The Providence Department of Planning and Development reviews proposals and prepares re-development plans. Residents can contact the Department to review and get involved with redevelopment plans for their neighborhood. The Department also gives low interest loans for economic development projects.

Rhode Island Department of Environmental Management (RI DEM)

Office of Waste Management

235 Promenade St., Providence, RI 02908
(401) 222-2797

The Rhode Island Department of Environmental Management (RI DEM) is a state agency responsible for regulating Brownfields reuse and redevelopment. RI DEM directs soil, air and water testing at Brownfields sites, and the agency reviews any plan for the future use. It also makes sure that contractors doing work at Brownfields follow all laws. RI DEM helps make legal agreements with developers of Brownfields sites.

Rhode Island Department of Health Office of Environmental Health Risk Assessment

Three Capitol Hill, Providence, RI 02908
(401) 222-4948

The Rhode Island Department of Health, Office of Environmental Health Risk Assessment provides information on the health effects of chemicals in people's homes, workplaces, or neighborhoods.

Environmental Protection Agency (EPA)

US EPA-NE, One Congress St., Boston, MA 02114-2023
1-800-EPA-REG1 (1-800-372-7341)

The EPA Brownfields Team provides a variety of technical and financial support involving the assessment and cleanup of Brownfields properties. Activities include community outreach; funding for assessments, job training and revolving loan funds; and expertise in hazardous materials.

Agency for Toxic Substances and Disease Registry (ATSDR)

Office of Urban Affairs, 1600 Clifton Rd, Atlanta, GA 30333
1-888-42-ATSDR (1-888-422-8737)

in Boston: ATSDR Region 1, US EPA-NE, One Congress St., Suite 1100 (HBT), Boston, MA 02114-2023
(617) 918-1495

ATSDR is the main federal public health agency that deals with hazardous waste issues. ATSDR gives states and others advice about what could be the health problems from chemicals and toxic sites.

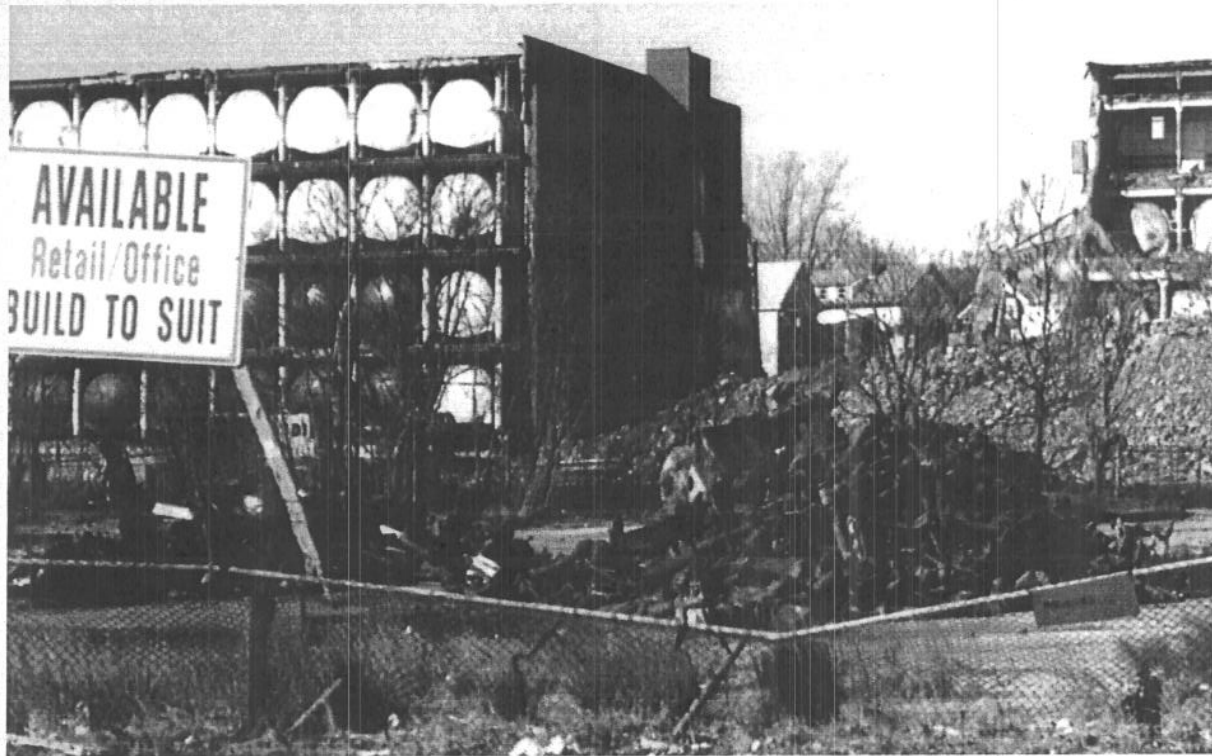
This project would like to thank The Providence Plan and the following community residents who took such an active role in this booklet's development. They are: Angela Burgio, Joseph H. Burgio, Carlos Corchado, Marisa Corchado, Mayra Corchado, William O'Brien, David G. Sifuentes, Rosa Solis, Victor Solis, and J. Taylor.

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Acknowledgement of Federal Support: ATSDR provided 69% of the total project costs, as a Federal contribution of \$63,220. The Rhode Island Department of Health provided 31% of the total costs, as an in-kind contribution of \$27,924 (1997 Omnibus Consolidated Appropriations Act Section 507).

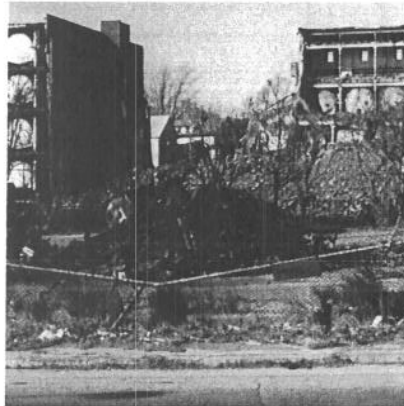
LOS TERRENOS BALDIOS:



Convertiendo
lugares malos
en lugares
buenos

Cómo pueden
participar
las
comunidades

El contenido de esta guía:



Qué es un terreno baldío?

¿Por qué los terrenos baldíos pueden ser terrenos peligrosos?

Página

1

Sustancias químicas

¿De dónde vienen las sustancias químicas?
¿Cuándo es una sustancia química peligrosa?
Analizando los niveles de las sustancias químicas—¿cuáles son los resultados?

2

El estándar de las sustancias químicas: ¿cuánto es demasiado?

¿Qué pasa si el análisis es muy altos?
Cómo entender el estándar

3

¿Qué es riesgo?

Preguntas sobre los riesgos

4

Usted puede participar

Los residentes conocen una historia importante
Participe cuando la ciudad o los urbanizadores están planificando la limpieza
Participe cuando empiecen los planes de limpieza
Preguntas sobre la limpieza

5

Qué esperar durante la limpieza

Camiones
¿Qué calles usarán los camiones?
¿Cuánto tránsito de camiones y cuán sucio será?
¿Cuánto tiempo tomará la limpieza?
Los niños y los terrenos baldíos

6

Tome acción: escriba cartas

8

Tome acción: haga llamadas

9

A quién se puede escribir o llamar (en la última página)

Qué es un terreno baldío?

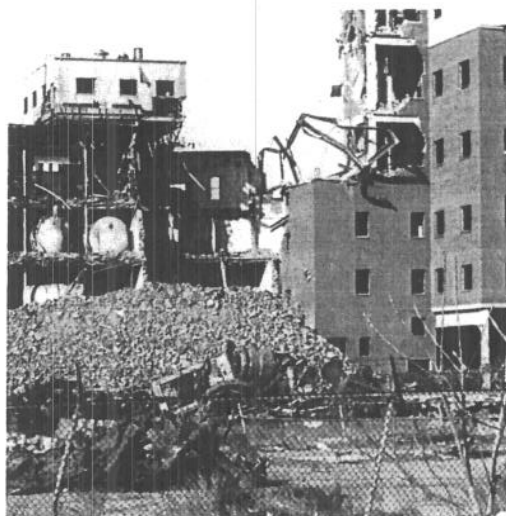
Esta guía es sobre edificios sin uso o abandonados y sitios en la ciudad llamados **terrenos baldíos**. Son lugares sucios y a veces peligrosos en su vecindario. Usualmente los terrenos baldíos son los lugares en donde funcionaban fábricas u otras industrias. Muchas veces son lugares muy sucios y llenos de basura.

Los terrenos baldíos pueden estar llenos de cosas peligrosas—suciedad, edificios en ruinas y aún sustancias químicas peligrosas y **tóxicas** (*tóc-si-cas*). Tóxico significa que esas sustancias químicas son peligrosas para la salud de los seres humanos. Cuando se limpia un terreno baldío, el vecindario se convierte en un lugar mejor.

Por todo el país se están

limpiando los terrenos baldíos y se los **reurbaniza** (convierte) en lugares mejores y más limpios—por ejemplo nuevas industrias, parques o se les da otros usos. Esta guía le explicará qué es lo que usted necesita hacer para participar (ayudar) y hacer buenas preguntas sobre el **nuevo uso** y la **nueva urbanización** de los terrenos baldíos.

Mientras usted sepa más sobre terrenos baldíos usted podrá participar en la planificación y mejora de esos lugares. Por ejemplo, supongamos que el terreno baldío será urbanizado nuevamente y se edificará una escuela con un lugar de juegos para toda la comunidad. Los vecinos pueden



participar y ayudar a decidir:

- **¿Es el plan de urbanizar nuevamente y usar los terrenos de nuevo es bueno para el vecindario?**
- **¿Será el nuevo lugar seguro para la gente del vecindario?**

¿Por qué los terrenos baldíos pueden ser lugares peligrosos?



#1 Peligros que usted puede ver

Hay dos tipos de **riesgos** en los lugares baldíos—cosas que usted puede ver y cosas que usted no puede ver. Las cosas que usted puede ver, como las ventanas y vidrios rotos, los pisos de madera podrida, los clavos y las cañerías oxidadas y los antiguos barriles son un problema. Todas esas cosas son peligrosas. Los niños que juegan en un terreno baldío viejo corren un gran riesgo. Pueden encontrar, bajo tierra, tanques de

almacenamiento y caer dentro de ellos.

#2 Peligros que usted no puede ver

Un terreno baldío puede tener sustancias químicas que usted no ve. **Algunas sustancias químicas pueden ser peligrosas para la salud de los seres humanos**. Las sustancias químicas pueden ser tóxicas y pueden producir enfermedades si las personas ingieren, respiran o tienen contacto con ellas.

Las sustancias químicas

¿De dónde vienen las sustancias químicas?

Algunas veces las antiguas fábricas o negocios dejaron en el lugar que abandonaron químicos en las cañerías, barriles y tanques de petróleo enterrados, estos pueden tener un escape. Cuando tienen un escape (o *gotean*) en el suelo, los químicos pueden entrar en el terreno y dentro del agua de pozos y de ríos. Los científicos (investigadores) analizan para ver si el agua y el suelo son seguros.

¿Cuándo es una sustancia química peligrosa?

Piense lo siguiente: **las sustancias químicas están en todas partes y en todo lo que nosotros comemos y bebemos.** Nuestros cuerpos tienen sustancias químicas. La mayoría de estos químicos son naturales y seguros. **Pero algunos químicos, en cantidades diferentes, pueden ser peligrosos.**

Los negocios antiguos pueden dejar residuos químicos peligrosos. Por ejemplo, un antiguo negocio de limpieza en seco puede dejar peligrosos residuos de COV (compuestos orgánicos volátiles) en el suelo.



Comprendiendo las sustancias químicas		
Químico analizado	Uso común Uso en la casa	Uso en la industria o negocios de:
Pesticidas . . . . .	. . . Polvo para cucarachas Veneno para ratas	. . . Agricultura o Cías químicas
COV . . . . .	. . . Gasolina Limpiadores en seco Bolitas de naftalina	. . . Refinería de petróleo
Semi-volátiles . . . . .	. . . Hollín . . . . .	. . . Incineradores
Metales . . . . .	. . . Baterías Termómetros	. . . Cías de enchapado

▲ Este gráfico demuestra algunas de las clases de químicos que se pueden encontrar en un terreno baldío. En la columna de la *izquierda* se encuentra el nombre de la sustancia química, en la columna del *medio* usted podrá ver el uso diario del químico, aún en el hogar. La columna de la *derecha* muestra qué tipo de grandes industrias usan estos químicos. Este gráfico indica que hay varias formas de usar las sustancias químicas.

Los COV son sustancias químicas que pueden estar en el aire que respiramos.

Cuando analizan los niveles de los químicos ¿qué cantidad encuentran?

Si los químicos están en todos lados ¿cómo saben los expertos lo que tienen que analizar?

Los científicos, usualmente, analizan el terreno y el agua

para descubrir químicos. Si ellos saben qué tipo de industria estaba ahí antes, eso ayudará a los científicos a decidir qué es lo que tienen que analizar. Algunos de esos análisis son **muy caros**. Por lo tanto ellos primero hacen el análisis básico. Se harán más análisis después de obtener los primeros resultados.

Para hacer los análisis, los científicos cavan hoyos, o **pozos**, dentro de la tierra y toman muestras del agua dentro de la tierra.

El estándar para sustancias químicas: ¿cuánto es demasiado?

Cuando los científicos analizan el terreno baldío (la tierra o el agua) quieren saber **los niveles** de químicos que hay. El gobierno establece cuales son las cantidades o niveles seguros para los químicos. El nivel seguro es llamado **estándar**. Si ellos encuentran un nivel que es mayor al estándar, planifican hacer algo para mantener segura a la gente.

¿Qué pasa si el análisis es muy alto?

Si el nivel es muy alto los científicos toman acciones en diferentes formas. Dependiendo del riesgo pueden hacer lo siguiente:

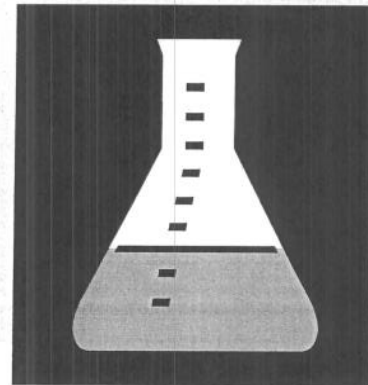
- Remover la contaminación
- Cubrirla
- Cercar el área
- Plantar árboles y césped
- Enseñarle a la gente cómo usar el área
- Hacer más análisis

Cada terreno baldío es diferente, pero la lista mencionada le da a usted una buena idea del tipo de acciones a seguir en un lugar contaminado.

Cómo entender el estándar

Veamos un ejemplo de “estándar”

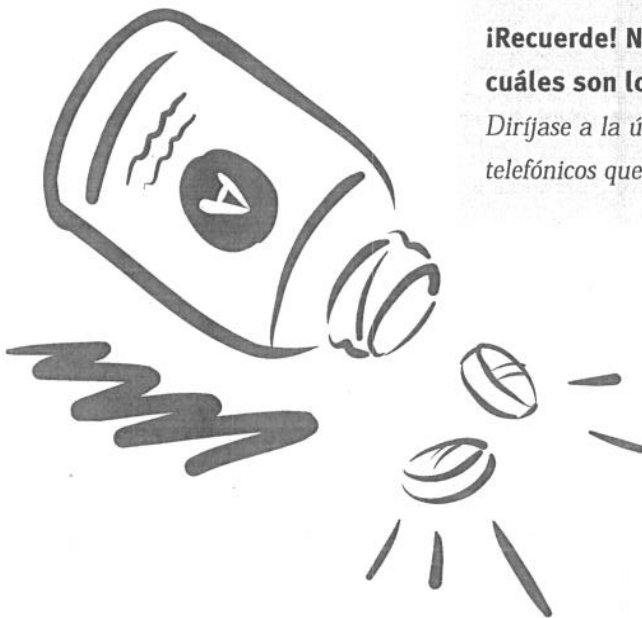
Digamos que la tierra de un terreno baldío fue analizada para saber si contenía plomo. El nivel de análisis fue de **3.500 ppm** (partes por millón). El nivel de acción de la Agencia Federal de Protección al Medio Ambiente (EPA, sus siglas en inglés) es de **400 ppm**. Por lo tanto el nivel es **mayor que el estándar** seguro (3.500 ppm es mayor que 400 ppm). Esto significa que se necesita hacer algo para asegurarse que la gente esté segura en el terreno baldío o cerca de él.



¿Qué es riesgo?

No hay ninguna cosa en el mundo que no tenga riesgos. Aún el cruzar la calle puede ser riesgoso. La pregunta importante es “¿Qué es un riesgo aceptable?”. “¿Qué es un riesgo que estoy dispuesto a aceptar?”.

A veces es difícil saber qué es un riesgo y quién está en riesgo. Por ejemplo si los niños están jugando en un edificio en ruinas eso puede ser un **gran riesgo**. Los niños se pueden caer, cortarse o lesionarse seriamente. Otro ejemplo es si el aire está lleno de polvo. Eso puede ser riesgoso para la gente con asma o para la gente mayor.



Preguntas para hacer acerca de un riesgo

- ¿Hay riesgo?
- ¿Quién está más en riesgo?
- ¿Cuál es el nivel estándar aceptable para este químico?
- ¿Cuál es el riesgo estándar para la talla de un hombre o mujer normal?
- ¿Cuál es el riesgo estándar para un niño?
- ¿Cuándo es una sustancia química insalubre?
- ¿Qué me puede suceder a mí o a mis hijos?
- ¿Qué pasa con mujeres embarazadas?
- ¿Cómo sabré si me he enfermado debido a este químico?
- Si usted dice que aquí el nivel es seguro aquí, ¿esto quiere decir que el nivel es seguro en otros lugares del país?
- ¿Cómo me puedo proteger o minimizar el riesgo (mantener bajo el riesgo)?
- ¿Cómo puedo aprender más sobre este riesgo? ¿Con quién puedo hablar?
- ¿Hay algo que yo pueda leer?



iRecuerde! No existe un mundo sin riesgos. Lo importante es saber cuáles son los riesgos.

Diríjase a la última página para ver una lista de agencias y números telefónicos que puede utilizar.

Un ejemplo de estándares

La dosis estándar segura de la aspirina para el adulto promedio es de 2 aspirinas cada 4 horas. De hecho, ciertos adultos pueden tomar más de dos aspirinas y estar seguros. Pero si es un niño pequeño, 2 aspirinas es mucho. La dosis estándar segura (de 2 aspirinas) no es la dosis **estándar** para los niños.

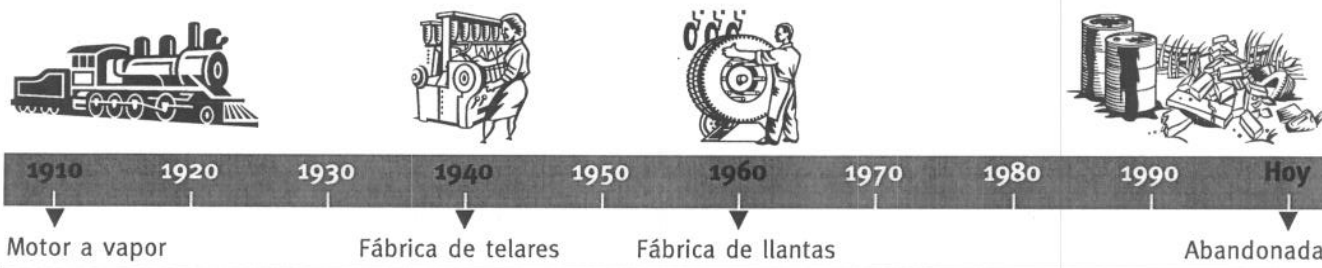
Usted puede participar

Los residentes conocen una historia importante

El pasado histórico de un lugar es importante. Hable con la gente

que ha vivido por un largo tiempo en el vecindario. Quizás usted es una de esas personas! La gente que trabajó en esas fábricas o

industrias pueden saber qué tipos de químicos se usaron. Esta información ayudará a los planificadores y a los científicos.



Los terrenos baldíos se reurbanizan en todo tipo de lugares — escuelas, negocios, lugares de juego. La gente de la comunidad puede ayudar a decidir si es bueno el plan de construcción. Como residente, usted puede ayudar a decidir:

- **¿Es este plan para la reurbanización bueno para la comunidad?**
- **¿Será seguro el nuevo lugar para la gente del vecindario?**

Hay 2 momentos importantes en los cuales usted puede participar en un terreno baldío:

1. Participe cuando la ciudad o los urbanizadores están planificando limpiar, reusar o construir algo nuevo en el sitio baldío.

Por ejemplo, digamos que los urbanizadores piensan construir una nueva industria en un terreno baldío viejo. Para ser atractivo tendrá muchas lomas y entradas de autos. Los planificadores piensan que sólo los adultos irán al área industrial. Quieren seguir los

estandares de limpieza para los adultos.

Pero la gente del vecindario sabe que las lomas pueden atraer a muchos niños del vecindario. Este puede ser peligroso para los niños. Puede ser que los estandares de limpieza para los adultos no son seguros para los niños. Pida a los planificadores que no hagan el lugar tentador para los niños.

Llame o escriba a sus funcionarios electos (vea los ejemplos de la carta y de llamadas telefónicas en las páginas 8 y 9). Pregunte:

- **¿Qué está pasando con el lugar?**
- **¿Hay planes de urbanizarlo?**
- **¿Cuáles son los planes?**
- **¿Usted llamará a reuniones públicas para hablar sobre los planes?**



2. Participe cuando empiecen los planes de limpieza

Puede ser que los científicos y los contratistas propongan un calendario con reuniones locales, por lo tanto usted podrá ir, ver y escuchar sobre los planes para la limpieza. Este es el momento en que usted y sus vecinos pueden ser de gran ayuda y tener el mayor impacto. Usted puede ayudar a decidir si los planes de limpieza son buenos.



Preguntas que pueda hacer sobre la limpieza del terreno baldío en su vecindario

Ya hemos hablado sobre la contaminación y preguntas sobre el riesgo. Vea la página 4.

- ¿Cuándo empezará el trabajo? ¿Cómo usted notificará al vecindario?
- ¿Habrá mucho ruido durante la limpieza?
- ¿Algunos de esos desperdicios serán tratados en el lugar? ¿Va a haber emanaciones de químicos durante la limpieza?
- ¿Es seguro transportarlos en camiones por el vecindario?
- ¿Adónde se llevan los desperdicios?
- ¿Qué sucede si hay un derrame de algún desperdicio?
- ¿Durante la limpieza habrá mucho polvo en el lugar?
- ¿Qué se está haciendo para controlar el polvo? ¿Es peligroso el polvo?
- ¿Los químicos emitirán olores? ¿Los gases serán tóxicos?
- ¿A quién reclamo si veo algo que creo que es incorrecto?
- ¿Qué tipos de letreros serán colocados cuando empiece el trabajo?
- ¿Los letreros serán en diferentes idiomas? ¿Tendrán dibujos?
- ¿Habrá guardianes en los cruces de las calles para ayudar con el tránsito de los camiones?
- ¿Habrá guardianes de noche en el lugar en donde se está trabajando?
- ¿El lugar será cercado?

Qué esperar durante la limpieza

Los autos abandonados, las llantas usadas y otra basura tendrá que ser transportada a otro lado. Se necesitará demoler los edificios y las estructuras. También se tendrá que remover las antiguas cercas, el asfalto de los lugares de estacionamiento y los carriles de tren abandonados. Los metales, vidrios,

calderas y maquinarias antiguas o cualquiera de las partes de madera del edificio serán puestas dentro de un recipiente para desperdicios y se los llevará a un basurero.

Camiones

Las máquinas excavarán hoyos y cargarán camiones. Camiones



grandes viajarán de ida y de vuelta sobre los caminos locales. Por lo tanto usted necesita saber durante qué horas del día y qué días de la semana estarán trabajando. Usualmente el contratista desea empezar alrededor de 6:30 ó 7:00 am y trabajar hasta las 3:30 ó 4:00 pm. Si no existe un apuro real para terminar el trabajo, ellos trabajarán de lunes a viernes. Entonces usted puede preguntar: "Planea usted trabajar tiempo extra en este proyecto?".

¿Qué calles usarán los camiones?

Averigüe qué caminos usarán los camiones. La gente que planea este proyecto no siempre está consciente del tipo de tráfico que hay en su vecindario. Usted conoce los caminos locales – por donde la gente camina y conduce y en dónde juegan los niños. Quizás hay personas ancianas o enfermas en algunas calles. Usualmente los conductores de camiones tienen más de una posibilidad para elegir la ruta que pueden usar. Usted puede informarles de las rutas mejores.



¿Cuánto tránsito de camiones habrá y cuán sucio será?

El contratista deberá tener una idea sobre cuánta tierra necesita sacar y traer. Por lo tanto él puede calcular aproximadamente cuántas cargas habrá: 1 camión por hora, 10 camiones por hora o entre 1 ó 10 camiones por hora.

Los camiones se ensucian. Pregunte, "Habrá un lavadero para los camiones que salen del área del trabajo?". Un lavadero es una plataforma que el contratista construye y por la cual los camiones pasan. Mientras el camión está sobre la plataforma, los trabajadores provistos con mangueras de alta presión lanzan agua para lavar al camión antes de salir a rodar por los caminos del vecindario. Esto mantiene el barro en el trabajo y mantiene limpio a su vecindario.

¿Cuánto tiempo tomará la limpieza?

La mayoría de los urbanizadores, antes de empezar el proyecto, tienen una buena idea de cuánto se demorarán. Pero a veces tienen

sorpresas por las cosas que encuentran. Aunque los planificadores no puedan darle a usted una respuesta exacta sobre cuándo se acabará el trabajo, ellos podrán darle un cálculo estimado de la fecha de terminación.

Los niños y los terrenos baldíos

Hable con sus niños sobre los terrenos baldíos y su limpieza. Explique los peligros de jugar en el lugar o cerca de él y los peligros de los camiones. Recuerde que los conductores de los camiones no pueden ver cada lugar alrededor de sus camiones. Dígale a sus niños que:

- Sean más cuidadosos cuando crucen la calle.
- No jueguen cerca del terreno baldío.



También la gente de edad tiene que ser más cuidadosa. Si usted conoce a una persona de edad en el vecindario, hágale saber que el ruido y el polvo sólo será transitorio.

Tome acción: escriba cartas

Este es un ejemplo de una carta que usted puede escribir a los funcionarios sobre el terreno baldío. Diríjase a la última página para ver una lista de agencias y números telefónicos.

A _____ (escriba el nombre)
_____ (incluya domicilio)

Fecha _____



Estimado Sr./Estimada Sra. (escriba el nombre):

Yo vivo en la calle _____ y le escribo para expresar mi preocupación sobre el tráfico de la limpieza de las fábricas Valley. Los camiones comienzan a transitar durante la semana cerca de las 6:30 Hs. en la mañana. Este es un **problema** por varias razones. Tenemos ancianos viviendo en esta calle y también tenemos a niños caminando entre las 7:30 y las 8:30 am.

Quisiera pedirle dos cosas. Creo que los camiones no deben empezar a transitar hasta las 9:00 y parar a las 4:30. También creo que la calle Pine sería una buena ruta para los camiones que entran y salen del lugar.

Estoy ansioso por ver este lugar limpio. Pero también me preocupa que esta limpieza sea hecha en la mejor forma para mi vecindario. Por favor llámeme al _____ (su número de teléfono) o escíbame a _____ (su domicilio).

Gracias por su atención.

Atentamente,

_____ (su firma)

_____ (escribid su nombre claramente aqui)

◀ **1er párrafo:**
¿Cuál es el problema?

◀ **2do párrafo:**
¿Qué está pidiendo?

◀ **3er párrafo:**
¿Como pueden ponerse en contacto con usted?

Tome acción: haga llamadas

Llamada telefónica #1: Haciendo un reclamo sobre problemas de tráfico de camiones durante la limpieza.

Diríjase a la última página para ver una lista de agencias y números telefónicos.

Vecino: Hola. Quisiera hablar con alguien sobre la limpieza de las fábricas Valley. Yo vivo en el vecindario.

Operador: Un minuto por favor. Transferiré su llamada.

Planificador: Hola. ¿en qué puedo ayudarle?

Vecino: Estoy llamando por el tráfico de camiones en el sitio de limpieza de las fábricas Valley. Yo vivo en el vecindario y quisiera **◀ Identifíquese** hablar sobre el tránsito de los camiones.

Planificador: ¿Cuál es el problema?

Vecino: Pienso que los camiones comienzan a transitar muy temprano en la mañana **◀ ¿Cuál es el problema?** y están causando problemas a las personas de edad. Los camiones comienzan a salir a las 6:30 de la mañana del terreno. Es muy temprano para el vecindario. Nosotros tenemos a muchos ancianos viviendo acá y este tráfico es un problema. Quisiera que los planificadores supieran de **◀ ¿Qué está pidiendo?** que estoy llamando para decirles que los camiones no deberían empezar hasta las 8:00 de la mañana.

Planificador: Bueno, le daré su mensaje al administrador del tráfico.

Vecino: Gracias. ¿Quién es el administrador del tráfico? ¿Me podría. deletrear su nombre.? Antes de colgar, quisiera su nombre y también **◀ Anote el nombre y escríbalo** quisiera darle a usted mi nombre y mi número de teléfono. Le agradecería si alguien me puede llamar. (De su nombre, deletréelo y de su número de teléfono.)

Muchas gracias y espero la llamada _____



(nombre del administrador del tráfico).

Llamada telefónica #2: Averiguando si hay planes para un sitio baldío cerca de su vecindario.

Vecino: Hola. Quisiera hablar con alguien sobre el edificio vacío y el terreno baldío en la calle Fábricas. Yo vivo en el vecindario.

Operador: Un minuto por favor. Transferiré su llamada.

Planificador: Hola. ¿En qué puedo ayudarle?

Vecino: Estoy llamando sobre el edificio vacío y el terreno baldío en la calle **◀ Identifíquese** Fábricas. Vivo en la vecindad y quisiera saber si la municipalidad tiene algún plan para reurbanizarlo o reusar ese terreno. ¿Quién **◀ ¿Qué está pidiendo?** es la persona que podría darme esta información?

Planificador: Necesitará hablar con Srta. Rios. Su número de teléfono es _____.

Vecino: Gracias. ¿Me podría **◀ Anote el nombre y escríbalo** dar su nombre, por favor?

¿Dónde llamar o escribir?

En esta página encontrará números de teléfono importantes así usted puede obtener más información acerca de los terrenos baldíos de su vecindario.

Ciudad de Providence, Departamento de Planificación y Desarrollo

400 Westminster St., Providence, RI 02903
(401) 351-4300

El Departamento de Planificación y Desarrollo hace la revisión de las propuestas y prepara los planes para el desarrollo. Los residentes pueden contactar al Departamento para revisar y asistir con los planes de desarrollo para el vecindario. El Departamento también da préstamos con bajos intereses para el desarrollo económico de proyectos.

Departamento de Medio Ambiente de Rhode Island (RI DEM) Oficina de Administración de Desperdicios (Waste Management en inglés)

235 Promenade St., Providence, RI 02908
(401) 222-2797

El Departamento de Medio Ambiente de Rhode Island (RI DEM – siglas en inglés) es una agencia estatal responsable por la regulación, el reuso y redesarrollo de los terrenos baldíos. RI DEM inspecciona el análisis de la tierra, aire y agua en los terrenos baldíos y la agencia revisa los planes para los futuros usos de estos terrenos. También asegura que el contratista trabaja siguiendo las leyes o reglamentos. RI DEM ayuda a hacer arreglos legales con las personas a cargo del desarrollo de los terrenos baldíos.

Departamento de Salud Pública de Rhode Island Oficina de Evaluación de Riesgos de salud del medio ambiente

Three Capitol Hill, Providence, RI 02908
(401) 222-4948

El Departamento de Salud Pública de Rhode Island – Oficina de Evaluación de Riesgos de salud del medio ambiente provee información sobre los efectos de las sustancias químicas en la salud de la población en sus casas, lugares de trabajos o vecindario.

Agencia de Protección del Medio Ambiente (EPA)

US EPA-NE, One Congress St., Boston, MA 02114-2023
1-800-EPA-REG1 (1-800-372-7341)

El equipo de EPA (siglas en inglés) para los terrenos baldíos provee una variedad de ayuda técnica y financiera incluyendo la evaluación y limpieza de las propiedades de terrenos baldíos. Las actividades incluyen contactar a la comunidad, tratar de generar dinero para la evaluación, entrenamiento para trabajos y conseguir fondos para préstamos y experiencia con materiales peligrosos.

Agencia de Sustancias Tóxicas y Registro de Enfermedades (ATSDR)

Office of Urban Affairs, 1600 Clifton Rd, Atlanta, GA 30333
1-888-42-ATSDR (1-888-422-8737)

en Boston: ATSDR Region 1, US EPA-NE, One Congress St., Suite 1100 (HBT), Boston, MA 02114-2023
(617) 918-1495

ATSDR es la principal agencia federal de salud pública que se dedica a los asuntos de desperdicios peligrosos. ATSDR aconseja a los estados y otras entidades acerca de cuáles pueden ser los problemas de salud derivados de los lugares con químicos y sustancias tóxicas.

Este proyecto quiere agradecer al Plan de Providence y a los residentes de las siguientes comunidades quienes tuvieron un role muy importante en el desarrollo de este librito. Ellos son: Angela Burgio, Joseph H. Burgio, Carlos Corchado, Marisa Corchado, Mayra Corchado, William O'Brien, David G. Sifuentes, Rosa Solis, Victor Solis, y J. Taylor.

La asistencia técnica para este proyecto fue provista por Christina Zarcadoulas, investigación y desarrollo del librito; Eva Anderson, diseño; Miguel Rojas traducción; y Alyson McCann, URI

Home*A*Syst; en colaboración con el Departamento de Salud Pública de Rhode Island – Oficina de Evaluación de Riesgos de salud del medio ambiente.

Asistencia Federal: ATSDR proveyó 69% del total del costo del proyecto, contribución federal \$ 63.220. El Departamento de Salud Pública de Rhode Island proveyó 31% del costo total y contribución interna de \$ 27.924 (1997 Omnibus Consolidated Appropriations Act Section 507).

TITLE 23

Health and Safety

CHAPTER 23-19.14

Industrial Property Remediation and Reuse Act

SECTION 23-19.14-5

§ 23-19.14-5. Environmental equity and public participation.

(a) The department of environmental management shall consider the effects that clean-ups would have on the populations surrounding each site and shall consider the issues of environmental equity for low income and racial minority populations. The department of environmental management will develop and implement a process to ensure community involvement throughout the investigation and remediation of contaminated sites. That process shall include, but not be limited to, the following components:

(1) Notification to abutting residents when a work plan for a site investigation is proposed;

(2) Adequate availability of all public records concerning the investigation and clean-up of the site, including, where necessary, the establishment of informational repositories in the impacted community; and

(3) Notification to abutting residents, and other interested parties, when the investigation of the site is deemed complete by the department of environmental management.

(4)(i) Whenever a site that is known to be contaminated or is suspected of being contaminated based upon its past use is considered for possible reuse as the location of a school, child-care facility, or as a recreational facility for public use, the person proposing such reuse shall, prior to the establishment of a final scope of investigation for the site and after the completion of all appropriate inquiries, hold a public meeting for the purposes of obtaining information about conditions at the site and the environmental history at the site that may be useful in establishing the scope of the investigation of the site and/or establishing the objectives for the environmental clean-up of the site. The public meeting shall be held in a city or town in which the site is located; public notice shall be given of the meeting at least ten (10) business days prior to the meeting; and following the meeting, the record of the meeting shall be open for a period of not less than ten (10) and not more than twenty (20) business days for the receipt of public comment. The results of all appropriate inquiries, analysis and the public meeting, including the comment period, shall be documented in a written report submitted to the department.

(ii) No work (remediation or construction), shall be permitted at the property until the public meeting and comment period regarding the site's proposed reuse has closed except where the director determines that such work is necessary to mitigate or prevent:

(A) an imminent threat to human health, public safety or the environment; or

(B) off-site migration of known or suspected contamination.

(iii) The public notice, meeting and comment required by this section shall be in addition to any other requirements for public notice and comment relating to the investigation or remedy of the site and may be made part of another meeting pertaining to the site provided that the minimum standards established by this section for notice and comment are met. Any investigation or remediation undertaken prior to the completion of the public comment period shall be limited to measures necessary to define and/or mitigate the imminent threat and/or off-site migration.

(iv) The director shall establish, by regulation, standards and practice, which are consistent with federal practices, for purposes of satisfying the requirement to carry out all appropriate inquiries for the purposes of this chapter, the standard for the reporting of the results of those inquiries, and the process for notification to the public of the public meeting, the standards and practices for conducting the public meeting, and reporting on public comment.

(b) Effective until January 1, 2007, the community involvement process may be coordinated, as appropriate, with the public notice and comment opportunity provided in § 23-19.14-11.

(c) The department of environmental management will develop and implement a process by which a person that is or may be affected by a release or threatened release of a hazardous material at a site located in the community in which the person works or resides may request the conduct of a site assessment; and a decision process, with objective criteria, specifying how the department will consider and appropriately respond to such requests.

(d) The department of environmental management will maintain, update not less than annually, and make available to the public a record of sites, by name and location, at which remedial actions have been completed in the previous year and are planned to be addressed under the state site remediation and Brownfields program in the upcoming year. The public record shall identify whether or not the site, on completion of the remedial action, will be suitable for unrestricted use and, if not, shall identify the institutional controls relied on in the remedy.

History of Section.

(P.L. 1995, ch. 187, § 1; P.L. 2002, ch. 186, § 1; P.L. 2006, ch. 250, § 1; P.L. 2006, ch. 275, § 1.)