

30 April 2020

Ms. Rachel Simpson, Project Manager
Rhode Island Department of Environmental Management
Office of Waste Management/Site Remediation
235 Promenade Street
Providence, RI 02908

RE: Site Investigation Report Addendum
Former Woonsocket Color and Chemical Co.
176 Sunnyside Avenue, Woonsocket, Rhode Island

Dear Ms. Simpson:

EA Engineering, Science, and Technology, Inc., PBC (EA) is pleased to submit this Site Investigation Report (SIR) Addendum to the Rhode Island Department of Environmental Management (RIDEM) for the former industrial site located at 176 Sunnyside Avenue in Woonsocket, Rhode Island, also identified by the Woonsocket Tax Assessor's office as Plat 3/Lots 7 (the Site). The property was investigated by RIDEM as part of a Phase II Environmental Site Assessment (ESA) /SIR/Targeted Brownfields Assessment (TBA) program under the Environmental Protection Agency (EPA) Hazardous Substance Assessment Grant. EA was contracted to complete the project scope under the RIDEM Technical Assistance Contractor Master Purchase Agreement Number (No.) 309.

A previous SIR was conducted and produced for this parcel in 2014 for RIDEM by Fuss and O'Neill (F&O). Due to the time which had passed since completion of the SIR, RIDEM requested limited additional investigation to confirm site conditions, completion of an RNF, and review of the alternatives presented in the original SIR. This SIR addendum will complete these three main tasks.

1. SITE DESCRIPTION AND HISTORY

The site, the former Woonsocket Color & Chemical Co., is located on the southeast side of Sunnyside Avenue in a R2 Low Density Single Family Residential zone of Woonsocket, Rhode Island (Providence County). The City of Woonsocket (the City) Tax Assessor's records identifies the subject site as Tax Assessor's Map 3, Lot 7, and is located at 176 Sunnyside Avenue. A site Locus map is included as Figure 1, and a Site Plan is included as Figure 2.

The City records indicate the site is a 1.48-acre rectangular-shaped parcel formerly owned by CKG Development Co., LLC, now owned by the City of Woonsocket due to foreclosure/tax lien. There are no improvements currently located at the site with the exception of a rail spur on the southwestern corner of the property. The site and abutting properties were historically used for industrial purposes (Fuss and O'Neill [F&O] 2014).

The Farrar Lumber Co. occupied this parcel prior to 1940. The site was occupied by Woonsocket Color & Chemical Co., a paint and chemical manufacturing company from the 1940s to the 1970s. A 1977 City Directory lists the occupant of this parcel as Duryea Products Co Inc. Gaspee Chemical Ltd. occupied this parcel from circa 1982 to circa 1987 (Beta Group, Inc. [BETA] 2018). The site was unoccupied through the 1980s and buildings at the site were destroyed by a fire in 1989. The site is currently vacant and the City is seeking interested parties to develop the site, potentially for residential purposes (F&O 2014).

2. PREVIOUS INVESTIGATIONS

Investigations were conducted at the site beginning in 2003. Investigations prior to 2014 are summarized in the 2014 SIR by F&O. The investigation conducted for the 2014 SIR and a 2018 ASTM Phase I ESA prepared by BETA are summarized below:

- An SIR/TBA for the Former Woonsocket Color & Chemical Co. was prepared by F&O for RIDEM in 2014. F&O conducted two rounds of soil and groundwater sampling at the site. In 2011, 14 soil borings were advanced on Lot 7, nine of which were completed as groundwater monitoring wells. In 2013, 12 soil borings were advanced in the adjacent P&WRR right-of-way, 10 of which were completed as monitoring wells. In total, F&O submitted 49 soil samples and 26 groundwater samples for laboratory analysis.
 - A ‘point source’ area for petroleum and volatile organic compounds (VOCs) was identified in the southeastern portion of Lot 7 with a plume of benzene, toluene, ethylbenzene and xylene (BTEX) compounds extending from the site onto the adjacent railroad parcel. Total petroleum hydrocarbon (TPH) and VOC concentrations exceeded various RIDEM direct exposure criteria (DEC) and the RIDEM Groundwater Protection Zone B (GB)-leachability criteria (LC) in soil. Ethylbenzene and toluene were detected in groundwater at concentrations above the GB Groundwater Objectives (GOs). The source of the ‘point source’ impacts is believed to be related to delivery, handling, or storage of oil and hazardous materials (OHM) at the southeastern portion of the site, in the vicinity of the rail tracks. The downgradient limit of groundwater containing BTEX was not determined during the SIR, and therefore, future evaluation of offsite groundwater conditions attributable to releases at the site may be warranted. However, the existing data set was deemed sufficient to evaluate remedial strategies for the inferred point source of soil and groundwater contamination on and adjacent to the subject site.
 - A non-point release of arsenic, polycyclic aromatic hydrocarbons (PAH) and TPH was identified in fill material on the northeastern portion of the subject site. The fill material was observed to include brick, ash, coal, and other anthropogenic materials. Three soil samples containing fill material, collected from depths less than two feet below grade at sample locations MW-210, SB-211 and MW-214, contained concentrations of arsenic and PAH which exceeded the RIDEM Industrial/Commercial (I/C) DEC and/or Residential DEC (RDEC). Other

samples of fill material collected at the subject site contained lesser concentrations of arsenic, PAH and TPH co-located with anthropogenic materials (coal, coal ash, brick, etc.). The widespread location of the fill material (in the vicinity of the former buildings) indicates the release mechanism was related to the structural fire in the 1980s, the subsequent demolition of the building, or site-wide filling.

- Additionally, F&O conducted a ground penetrating radar (GPR) survey and detected a potential UST in the northern portion of the lot. They indicated that there was a 30 percent chance this was actually a UST and was more likely a utility stub off the street.
- F&O proposed various remedial alternatives to address the contamination identified at the property. These alternatives will be summarized later in this SIR Addendum (Section 4).
- A Phase I ESA was prepared by BETA for RIDEM in 2018. BETA completed the Phase I ESA for both 176 Sunnyside Avenue and 92 Sunnyside Avenue (adjacent parcel to the north). BETA identified RECs for 176 Sunnyside Avenue as past industrial uses; known soil and groundwater contamination (as documented in the 2014 SIR); various solid waste and debris spread across the property; and the abutting railroad tracks which can be sources of contamination due to use of coal/diesel fuel and herbicides.

3. 2019 INVESTIGATION

Site investigation activities were conducted in accordance with the site specific QAPP Addendum, prepared by EA and approved by RIDEM and by EPA in July 2019. EA developed a soil and groundwater investigation for the Site that is summarized in the following sections. Two subcontractors were used to complete the project scope. Geologic – Earth Exploration, Incorporated (Geologic), supported EA as a boring subcontractor for drilling activities which required Geoprobe® equipment. Microbac Laboratories, Incorporated (Microbac) analyzed environmental samples associated with this project as a RIDEM Laboratory Contractor.

3.1 Drilling and Soil Sampling

On 19 September 2019, EA oversaw the installation of two soil borings at the project site. One shallow boring and one deep soil boring were advanced as part of this investigation. EA-5, the shallow soil boring, was installed to a depth of 10 feet (ft) below ground surface (bgs) in the former industrial area near the western property boundary. This location was selected to further delineate any impacts of anthropogenic fill and in areas where concentrations of PAHs were historically found in surficial soils. EA-6, the deep soil boring, was installed to a depth of 30 ft bgs in northeastern corner of the parcel at the inferred downgradient of the BTEX plume identified by F&O in 2014. This location was selected in attempt to identify the downgradient limit of the BTEX contaminated groundwater. EA determined that additional sampling in the

southern portion of the site was not necessary based on historical investigations in those areas. Locations of the soil borings are depicted on Figure 2 (Site Plan).

Each soil boring was advanced by Geologic using Geoprobe® direct push drilling techniques on a track mounted rig. Soils were sampled using dedicated 4-ft long, 2-inch (in.) diameter acetate sleeves during direct push sampling activities. Each sample was visually classified and logged for characterization purposes. All soils samples were screened for the presence of volatile organic vapors with a calibrated photoionization detector (PID), calibrated to 100 parts per million isobutylene standard, using the jar headspace method. Descriptions of the subsurface soils encountered are detailed in the boring logs provided as Attachment A.

The soils at each boring generally consisted of dry, tan, uniform medium and fine sand. No visual or olfactory evidence of impacted soil, or anthropogenic fill was observed in either of the borings. No significant PID readings, or evidence of the groundwater table were encountered. 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 each boring.

All of the collected soil samples and a VOC trip blank (for quality control purposes) 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.

3.2 Groundwater Sampling

The original project scope planned to complete soil boring EA-6 with a groundwater monitoring well; however, no groundwater was encountered in either of the two borings. Therefore, no monitoring wells were able to be installed. EA notified RIDEM as to the conditions at the site and received approval to forgo this component of the work plan.

Two existing groundwater monitoring wells installed by F&O in 2013 (MW-206 and MW-210) were instead sampled by EA. These monitoring wells are located along the eastern edge of the property boundary near the railroad tracks and were selected based on historically high concentrations of ethylbenzene in groundwater at these locations. The 2014 SIR and boring logs completed by F&O indicated monitoring wells MW-206 and MW-210 were installed by F&O in 2011 to depths of 18 ft and 20 ft bgs, respectively. The monitoring wells were installed with 10 ft of two-inch diameter polyvinyl chloride (PVC) slotted screen intersecting the groundwater table, and constructed with a PVC riser, sand filter pack, lower bentonite seal, concrete surface seal, and a locking steel standpipe. F&O monitoring well construction logs for MW-206 and MW-210 were included in the 2014 ESA/SIR/TBA by F&O. The locations are depicted on Figure 2 (Site Plan).

The two groundwater monitoring wells were redeveloped on 20 September 2019 due to the time which had passed (over 5 years) since the last time they were sampled. 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. No light or deep non-aqueous phase liquid was measured in either of the two monitoring wells. Initial depth to water in the monitoring wells prior to development was 14.8 ft in MW-206, and 16.0 ft in MW-210. Each monitoring well was developed by EA prior to sampling by over-pumping using a submersible whale pump and dedicated polyethylene tubing. Development continued until sediment has been removed from the well and water clarity improved. Purge water from both wells was turbid with dark black suspended solids and faint organic odor. Each monitoring well was purged dry; moderate recharge was observed at MW-206 and recharge at MW-210 was minimal.

EA conducted groundwater monitoring and sampling of monitoring wells MW-206 and MW-210 on 24 September 2019. Groundwater sampling was 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 used 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. 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. One groundwater sample per well and one field duplicate was submitted for laboratory analysis of TPH, VOC, PAH, PP13 metals, and PCBs. One trip blank, for VOCs only, was collected and extra volume for an MS/MSD was collected at MW-210. A rinsate blank was collected from the interface probe used during groundwater well gauging and sampling activities. All preservation techniques and holding times presented in the QAPP were achieved. The groundwater well development logs are provided as Attachment B and groundwater sampling log sheets are provided as Attachment C.

3.3 Summary of Analytical Results

TPH, VOC, PAH, PP13 metals, and PCBs were either not detected above laboratory reporting limits or were detected at concentrations below applicable RIDEM criteria in all soil samples collected at soil borings EA-5 and EA-6 and in the trip blank. All but three analytes had laboratory reporting limits that were below the RDEC and I/C DEC; elevated reporting limits were present for 1,2-dibromoethane, 1,1-dichloroethene, and vinyl chloride. None of these analytes are site contaminants of concern, nor have they been detected in historical soil samples collected from the site. Laboratory analytical results are included as Attachment D. The soil analytical summary table is included as Table 2.

One of the two groundwater monitoring wells sampled by EA exhibited concentrations of impacts in excess of the GB GOs. The sample from monitoring well MW-210 and its duplicate contained ethylbenzene at concentrations exceeding the RIDEM GB GO of 1,600 micrograms per liter ($\mu\text{g/L}$). Ethylbenzene was detected at a concentration of 3,920 $\mu\text{g/L}$ in the sample collected at monitoring well MW-210, and at a concentration of 5,420 $\mu\text{g/L}$ in the duplicate sample.

Ethylbenzene was detected above laboratory limits but below the GB GO in the groundwater sample collected at monitoring well MW-206. TPH, PAHs, PCBs, PP13, metals, and remaining VOCs were either not detected above laboratory reporting limits or were detected at concentrations below applicable RIDEM objectives in the groundwater. Laboratory analytical results are included as Attachment D. An excerpt of the groundwater results are shown below in Table 1 (within the text). The full groundwater analytical summary table is attached as Table 3. Monitoring well locations are depicted on Figure 2 (Site Plan).

All analytes in the groundwater samples from MW-206 and in the MW-210 parent sample had laboratory reporting limits that were below GB GOs. Four analytes in the MW-210 duplicate 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. Additionally, the relative percent difference in ethylbenzene concentrations detected in the MW-210 sample and the MW-210 duplicate was 32 percent. Although this metric is greater than accepted usability standard of 20 percent, this deficiency does not significantly affect the outcome of the investigation as the ethylbenzene concentration in both the parent and the duplicate sample exceeded the GB GO.

No VOCs were detected in the trip blanks. No contaminants of concern were detected in the rinsate blank. 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.

3.3.1 Release Notification Form

An RNF was reportedly submitted by Alliance Environmental Group, Inc. on behalf of CKG Development Co. in on 6 May 2005 (Alliance Environmental Group, Inc., 2005). This RNF described metals and BTEX detections in both soil and groundwater at the site and listed the historical use of a dry well as the source of contamination. Since that time, additional investigations have occurred at 176 Sunnyside Avenue and the nature of the impacts is now better understood. RIDEM requested that EA prepare a new RNF in response to recent detections of ethylbenzene in groundwater at concentrations exceeding GB Groundwater Criteria at 176 Sunnyside. The RNF form was prepared in conjunction with recent detections of OHM on the adjacent property (92 Sunnyside Avenue). The RNF was submitted to RIDEM on 12 March 2020 and is included as Attachment E.

3.4 Conclusions

Soil sampling results at EA-5 and EA-6 were generally consistent with existing data in regard to exceedances of the RDEC and I/C DEC; no exceedances of TPH, VOC, PAH, PP13 metals, and PCBs were detected in either borings. At soil boring EA-5, only two PAHs (fluoranthene and pyrene) were detected above laboratory reporting limits in the shallow sample, and no PAHs

were detected above laboratory limits in the deeper sample (6-10 ft bgs). Multiple PAHs were detected in shallow soils (0-2 ft bgs), with lower the concentrations of PAHs being detected in deeper soils at soil boring EA-6. These results confirm higher concentrations of PAHs in shallow soil compared to deeper soils; however, overall concentrations of these constituents are far below regulatory standards and no evidence of significant impacts due to anthropogenic fill was observed. Additionally, soil boring EA-6 was located in an area downgradient of the ethylbenzene plume mapped by F&O in 2014 to determine if BTEX soil impacts extended to this area. No VOC constituents were detected above laboratory detection limits at EA-6.

Groundwater monitoring results from monitoring wells MW-206 and MW-210 were partially consistent with historical sampling results at these monitoring wells. The historical contaminants of concern (BTEX) were detected in samples collected from both MW-206 and MW-210; however, the concentrations of BTEX were significantly lower than concentrations reported in the 2014 SIR report by F&O. BTEX concentrations detected by EA in 2019 compared to BTEX concentrations detected by F&O in 2011 and 2013 are summarized in the table below:

Table 1 – BTEX Detections at MW-206 and MW-210

Well ID	F&O 2014 SIR				EA 2019 SIR Addendum		GB-GO
	MW-206		MW-210		MW-206	MW-210	
Sample Date	7/1/2011	5/10/2013	7/1/2011	5/10/2013	9/24/2020		-
Sample Depth (ft bgs)	15	15	25	25	16.94	18.8	-
Benzene (µg/L)	11	<40	9.2	<40	1.02	2.68	140
Toluene (µg/L)	820	720	520	740	51.5	127	1,700
Ethylbenzene (µg/L)	9,300	12,000	5,600	12,000	380	3,920	1,600
M/P Xylenes (µg/L)	26,000	33,000	17,000	34,000	727	10,100	NE
o-Xylenes (µg/L)	12,000	15,000	7,800	15,000	504	5,670	NE
NOTES:							
Orange shading denotes concentration detected above GB Groundwater Objectives							
F&O = Fuss & O'Neill							
SIR/TBA = Site Investigation Report/Targeted Brownfields Assessment							
GB-GO = Groundwater Zone B Groundwater Objectives							
ft bgs = feet below ground surface							
µg/L = micrograms per Liter							
NE = None Established							
< = Not detected above laboratory reporting limit							
Groundwater Standard 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							

The decrease in BTEX concentrations in monitoring wells MW-206 and MW-210 indicate that natural degradation of petroleum compounds may be occurring in the contaminant source areas and/or within the groundwater plume.

4. REMEDIAL ALTERNATIVE REVIEW

4.1 Alternatives Presented in the 2014 SIR

In consideration of the proposed site conditions, F&O evaluated remedial alternatives to return the site to compliance with the RDEC (potential redevelopment as residential) and address

possible vapor intrusion related to volatile constituents in groundwater (site is in a GB groundwater area, so groundwater ingestion is not an exposure pathway).

The following remedial alternatives were evaluated by F&O for the point- and nonpoint-source releases originating at the subject site:

- Remedial Alternatives for Point Source Release (BTEX and TPH):
 - Monitored Natural Attenuation (MNA)
 - Excavation and off-property disposal of contaminated soil
 - In-Situ Chemical Oxidation (ISCO)
 - Phytoremediation
 - Aerobic Bioremediation

- Remedial Alternatives for Non-Point Source Release (TPH, PAH, and arsenic):
 - Excavation and off-site disposal of contaminated soil
 - Capping and implementation of an ELUR

The preferred/selected alternative for the point source release was aerobic bioremediation, whereby natural degradation of petroleum compounds is accelerated through addition of oxygen and nutrient-containing media to the subsurface. Groundwater monitoring would be required to confirm the success of the method and demonstrate long-term groundwater quality restoration. F&O presented several methods for delivery of the oxygen including air sparging, oxygen/nutrient ‘socks’, and injections. It was also noted that additional sampling for nutrient availability in the subsurface would be important to design the remedial strategy. This alternative would address the offsite plume without the need for additional infrastructure or heavy equipment interference with the railroad. The overall cost to conduct a bioremediation program was estimated between \$200,000 and \$500,000 or more, depending on the methodology used to introduce the oxygen and/or nutrients and the monitoring timeframe and scope.

The preferred/selected alternative for the non-point source impacts was soil capping with preparation and filing of an associated ELUR and Post-Construction SMP. This was the only alternative which was determined to be financially feasible due to the widespread nature of fill materials found at the property. The cap was described as being combined with site redevelopment (parking lots, building foundations) to make it more financially feasible. The costs to install a cap over the entire approximately 1.5-acre site are inferred to be approximately \$150,000 to \$300,000.

4.2 Evaluation of Previously Selected Alternatives

Point Source—Based on the time which has past since this alternative was developed, and the data collected in 2019 which indicate significantly lower groundwater concentrations of contaminants than existed in 2013, this alternative should not be implemented without first evaluating current site conditions. This alternative would therefore need to be amended to include: 1) a full round of groundwater sampling at each of the mid-plume and edge-of-plume monitoring wells (approximately 14 monitoring) for target analytes (VOC) to determine which

areas still exceed the GB-GOs, and 2) sampling of groundwater for nutrient presence to inform selection of bioremediation media. This data will yield enough information to confirm if the plume is fully delineated with existing monitoring wells and to design an enhanced bioremediation program for the area(s) where compounds still exceed the GB-GOs. If the GB-GO exceedances in the plume are not delineated by the current network, additional monitoring wells would need to be added on the parcel on the far side of the railroad parcel. The parcel where delineation may be required is identified as Plat 3, Lot 42 known as 0 Mason Street. It is currently owned by the Rhode Island Economic Development Corporation, who also owns the nearby 108 Mason Street CVS complex. There are no buildings on Lot 42 which present vapor intrusion concerns.

The addition of the groundwater and nutrient sampling are not expected to increase the total cost of the alternative, as it will allow the alternative to be more refined and efficient.

It should also be noted that since the exceedances of the DEC and GB LC occur in the groundwater 'smear zone' at the water table, soil will benefit from this groundwater remedial alternative as well and is expected to attenuate to below standards.

Non-Point Source—The remedial alternative evaluated by F&O assumed that since urban fill was spread through the entire site, that remediation was required across the site. However, only three soil samples from the fill areas exhibited concentrations of contaminants in excess of the RDEC (MW-210, SB-211 and MW-214). These borings are in the northeastern half of the property, part of which was sampled by EA in 2019 and has no impact from urban fill. With collection of only a few additional samples during a limited design investigation in conjunction with a RAWP, it is feasible that the area could be narrowed down further and possibly reducing the classification of these three exceedances as 'hot spots.' Excavation/removal of these soils may become more financially feasible and preferable if the areas are able to be narrowed down. The projected costs may be significantly lower than estimated by F&O in 2014. The protectiveness of the remedy is not affected.

5. CONCLUSIONS

The SIR Checklist and certification were provided by F&O in the 2014 SIR. Since then, 2019 investigation corroborated conditions identified in the SIR, while also indicating that such source areas may be attenuating (VOC in groundwater) or be smaller than expected (urban fill soil exceedances). As F&O did in 2014, EA also believes that the investigation of the property is largely complete and that all areas/constituents of concern have been identified. Limited delineation investigations may serve to reduce estimated costs of remediation and may be needed to fully define the leading edge of the plume heading to the east.

A pre-site investigation public notice was distributed to abutting property owners and tenants, project stakeholders, and local and state officials by F&O on 14 June 2011. No records exist showing that a post-SIR public notice was distributed at the conclusion of investigative activities in 2014. EA distributed a second public notice to abutting property owners and local and state

officials on 22 August 2019 prior to the most recent investigative activities. The subject site is located within an Environmental Justice Focus Area; therefore, the post-SIR notice will be prepared accordingly. A public notice letter, a site-specific fact sheet, two fact sheets regarding RIDEM and the Office of Waste Management State Site Remediation and Brownfields Program, and a document entitled “Brownfields: Turning Bad Spaces into Good Ones” will be prepared for distribution to abutting property owners and tenants, project stakeholders, and local and state officials. Spanish translations of these documents will also be prepared. EA will prepare the post-SIR Public in accordance with Section 1.8.7 of the Remediation Regulations upon final agency approval of this ESA/TBA/SIR Addendum.

6. REFERENCES

Alliance Environmental Group, Inc. 2005. Site Investigation Report, 176 Sunnyside Avenue, Woonsocket, Rhode Island. 22 June.

BETA Group, Inc. 2018. Phase I Environmental Site Assessment, 176 Sunnyside Avenue and 92 Sunnyside Avenue, Woonsocket, Rhode Island. 2 October.

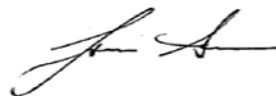
Fuss & O’Neill. 2014. SIR/TBA for the Former Woonsocket Color & Chemical Co. 176 Sunnyside Avenue, Woonsocket, Rhode Island. 13 June.

RIDEM, Office of Waste Management. 2011b. Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases. Amended January 2019.
<http://www.dem.ri.gov/pubs/regs/regs/waste/remreg11.pdf>.

It has been our pleasure providing RIDEM with this SIR Addendum for the 176 Sunnyside Avenue. If you have any questions, or require additional copies, please do not hesitate to contact me at (401)-287-0364.

Sincerely yours,

EA ENGINEERING, SCIENCE,
AND TECHNOLOGY, INC., PBC



Jonathan Alvarez, PG
Project Manager

Attachments

cc: Kevin Proft, City of Woonsocket

Figures

- 1 Site Locus
- 2 Site Plan

Tables

- 1 BTEX Detections at MW-206 and MW-210
- 2 Soil Analytical Summary Table (Attached)
- 3 Groundwater Analytical Table (Attached)

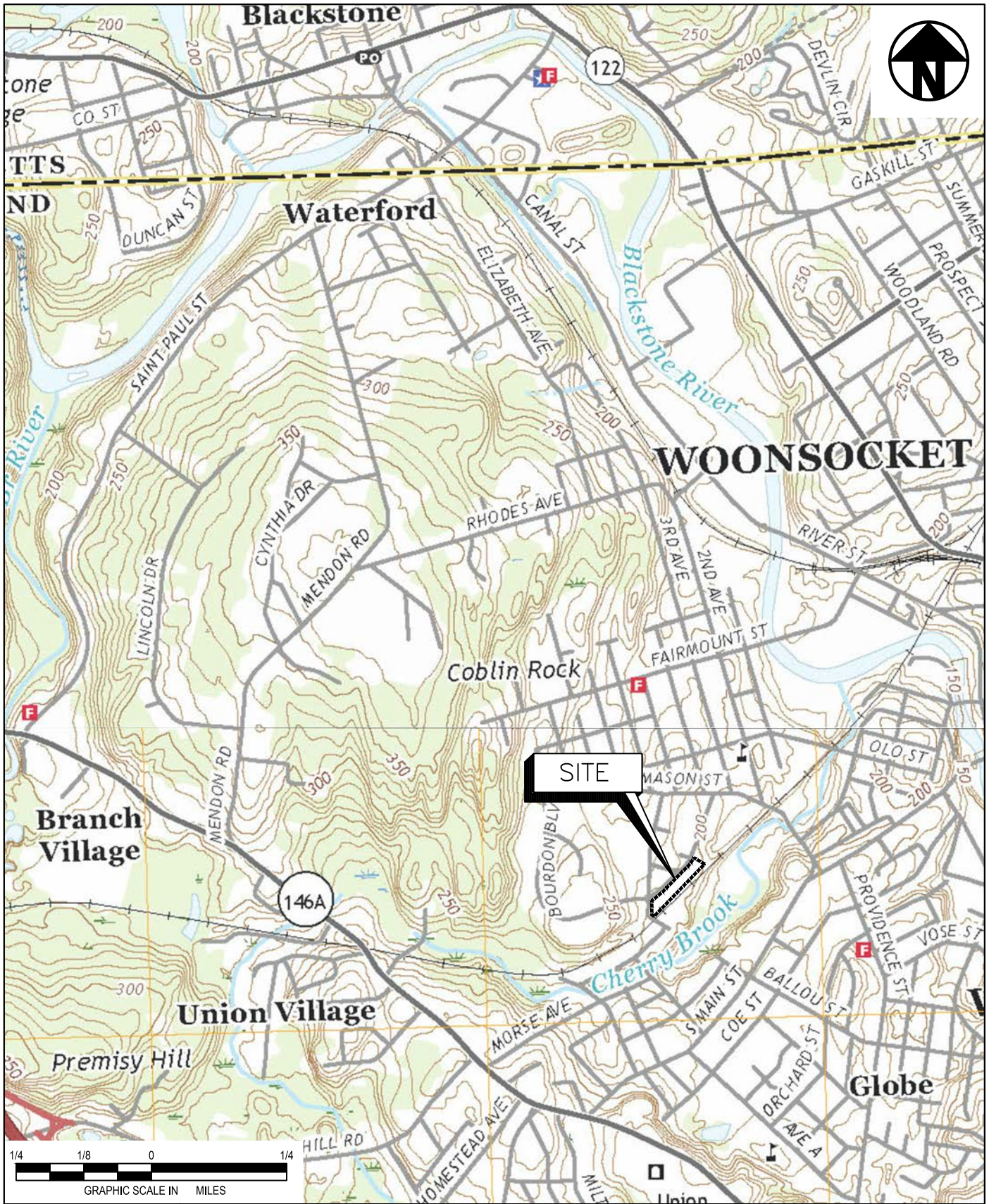
Attachments


- A Soil Boring Logs
- B Well Development Logs
- C Groundwater Sampling Logs
- D Laboratory Analytical Data
- E Release Notification Form

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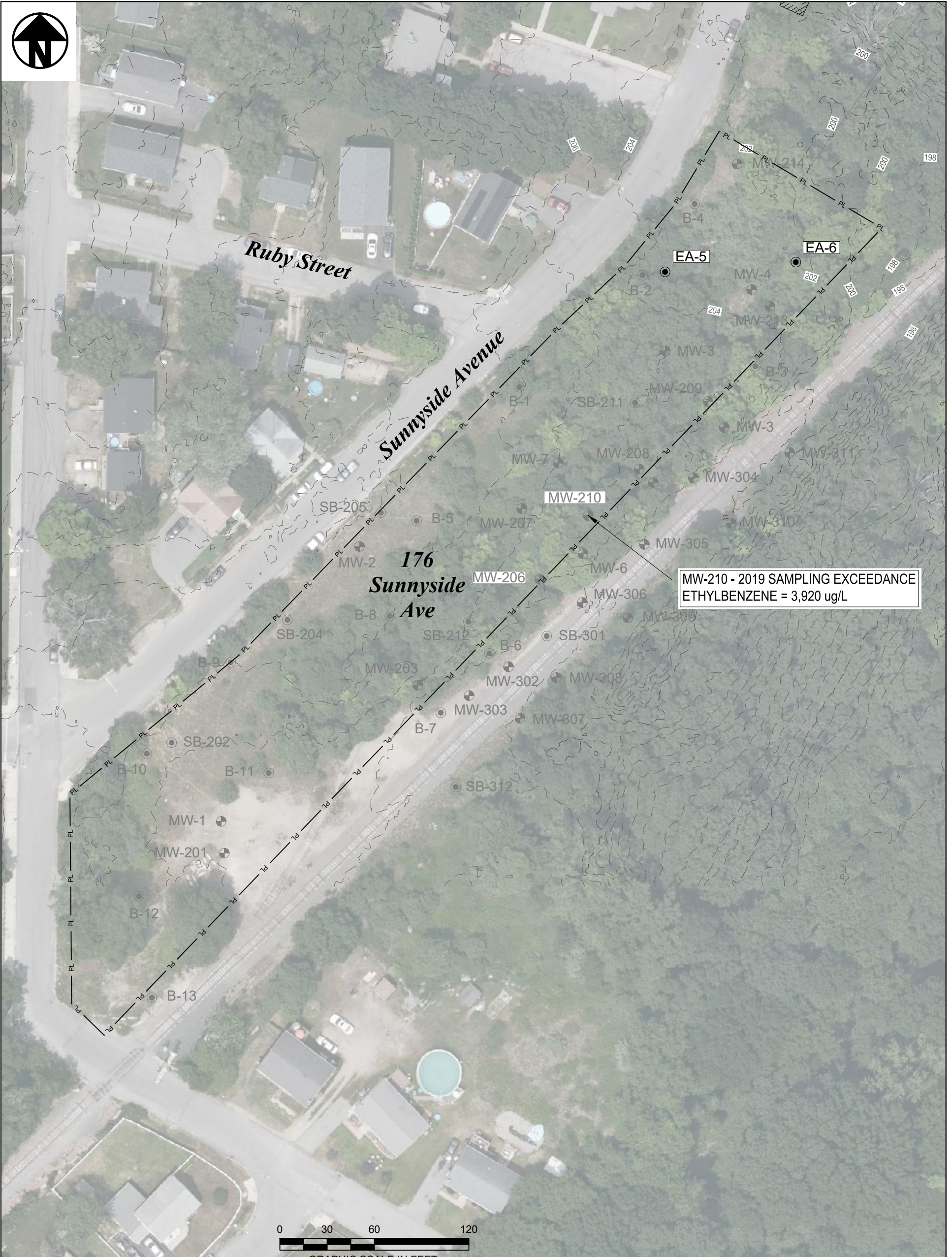
Figures

FILE PATH: \\WARWICK\FP\WARWICK\PROJECTS\1525815 - SUNNYSIDE AVE - RIDEM TAC\CAD\1525815-17-176_SUNNYSIDE.AVE - FIGURES.DWG [SITELOCUS] ALLEN, DANIEL 4/23/2020 10:49 AM



 EA Engineering, Science, and Technology, Inc., PBC		SUNNYSIDE AVENUE ADDITIONAL INVESTIGATION PLAN 176 SUNNYSIDE AVENUE WOONSOCKET, RHODE ISLAND			SITE LOCATION MAP		
DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT MGR.:	DATE:	PROJECT NUMBER:	SHEET NUMBER:	FIGURE:
BMC	DPA	CSM	JDA	APRIL 2020	15258.17	1 OF 1	1

DRAFT



LEGEND:

- EXISTING MONITORING WELL
- EXISTING SOIL BORING
- ⊙ INSTALLED EA SOIL BORING
- PL — APPROX. PROPERTY LINE

NOTES:

1. AERIAL PHOTO SOURCE: GOOGLE EARTH 2019.
2. PROPERTY BOUNDARY SOURCE: WOONSOCKET, RI ONLINE GIS, 2019.
3. HISTORICAL SAMPLING LOCATIONS SOURCE: SITE INVESTIGATION REPORT BY FUSS AND O'NEILL, 2014.
4. ALL SITE FEATURE LOCATIONS ARE APPROXIMATE.



SUNNYSIDE AVENUE
 ADDITIONAL INVESTIGATION PLAN
 176 SUNNYSIDE AVENUE
 WOONSOCKET, RHODE ISLAND

SITE PLAN

DESIGNED BY: BMC	DRAWN BY: DPA	CHECKED BY: CSM	PROJECT MGR.: JDA	DATE: APRIL 2020	PROJECT NUMBER: 15258.17	SHEET NUMBER: 1 OF 1	FIGURE: 2
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Tables

Table 3
Groundwater Analytical Summary Table
176 Sunnyside Avenue
Woonsocket, Rhode Island

Compound	GB Groundwater Criteria µg/L	Parcel ID	176 Sunnyside Avenue (Plat 3/Lot 7)			Trip Blanks	
		Monitoring Well ID	MW-206	MW-210		Trip Blank-092419	Trip Blank
		Sample ID	MW-206	MW-210	Duplicate	9/24/2019	9/25/2019
		Sample Date	9/24/2019	9/24/2019	9/25/2019	9/24/2019	9/25/2019
Metals - µg/L							
Antimony	-		<3	<3	<3	N/A	N/A
Arsenic	-		<5	17.1	17.3	N/A	N/A
Beryllium	-		<1	<1	<1	N/A	N/A
Cadmium	-		<2	13.9	9.6	N/A	N/A
Chromium	-		<2	50.8	52.7	N/A	N/A
Copper	-		2.4	60.7	57.6	N/A	N/A
Lead	-		<3	29.2	28.7	N/A	N/A
Nickel	-		<5	35.2	35.7	N/A	N/A
Selenium	-		<5	<5	<5	N/A	N/A
Silver	-		<2	<2	<2	N/A	N/A
Thallium	-		<5	<5	<5	N/A	N/A
Zinc	-		332	3,460	1,820	N/A	N/A
Mercury	-		<0.2	<0.2	<0.2	N/A	N/A
PCBs - µg/L							
Aroclor-1016 (PCB-1016)	-		<0.500	<0.500	<0.200	N/A	N/A
Aroclor-1221 (PCB-1221)	-		<0.500	<0.500	<0.200	N/A	N/A
Aroclor-1232 (PCB-1232)	-		<0.500	<0.500	<0.200	N/A	N/A
Aroclor-1242 (PCB-1242)	-		<0.500	<0.500	<0.200	N/A	N/A
Aroclor-1248 (PCB-1248)	-		<0.500	<0.500	<0.200	N/A	N/A
Aroclor-1254 (PCB-1254)	-		<0.500	<0.500	<0.200	N/A	N/A
Aroclor-1260 (PCB-1260)	-		<0.500	<0.500	<0.200	N/A	N/A
Total PCBs as Aroclors	-		<3.5	<3.5	<1.4	N/A	N/A
TPH - µg/L							
C9-C36 TPH	-		596	1,780	1,820	N/A	N/A
VOCs - µg/L							
Acetone	-		26.9	14.3	<500	<5.00	<5.00
Acrylonitrile	-		<1.00	<1.00	<50.0	<1.00	<1.00
Benzene	140		1.02	2.68	<50.0	<1.00	<1.00
Bromobenzene	-		<1.00	<1.00	<50.0	<1.00	<1.00
Bromochloromethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
Bromodichloromethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
Bromoform	-		<1.00	<1.00	<50.0	<1.00	<1.00
Bromomethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
2-Butanone (MEK)	-		<5.00	<5.00	<500	<5.00	<5.00
sec-Butylbenzene	-		<1.00	<1.00	<50.0	<1.00	<1.00
tert-Butylbenzene	-		<1.00	<1.00	<100	<1.00	<1.00
n-Butylbenzene	-		<1.00	<1.00	<50.0	<1.00	<1.00
Carbon disulfide	-		<1.00	<1.00	<100	<1.00	<1.00
Carbon tetrachloride	70		<1.00	<1.00	<50.0	<1.00	<1.00
Chlorobenzene	3,200		<1.00	<1.00	<50.0	<1.00	<1.00
Chloroethane (Ethyl chloride)	-		<1.00	<1.00	<50.0	<1.00	<1.00
Chloroform	-		<1.00	<1.00	<50.0	<1.00	<1.00
Chloromethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
2-Chlorotoluene	-		<1.00	<1.00	<50.0	<1.00	<1.00
4-Chlorotoluene	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,2-Dibromo-3-chloropropane (DBCP)	2		<1.00	<1.00	<20.0	<1.00	<1.00
Dibromochloromethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,2-Dibromoethane (Ethylene dibromide, EDB)	-		<1.00	<1.00	<5.00	<1.00	<1.00
Dibromomethane (Methylene bromide)	-		<1.00	<1.00	<50.0	<1.00	<1.00
trans-1,4-Dichloro-2-butene	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,4-Dichlorobenzene	-		<1.00	2.64	<50.0	<1.00	<1.00
1,3-Dichlorobenzene	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,2-Dichlorobenzene	-		1.21	15.5	<50.0	<1.00	<1.00
Dichlorodifluoromethane (Freon-12)	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,2-Dichloroethane	110		<1.00	<1.00	<50.0	<1.00	<1.00
1,1-Dichloroethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
trans-1,2-Dichloroethene	2,800		<1.00	<1.00	<50.0	<1.00	<1.00
1,1-Dichloroethene	7		<1.00	<1.00	<50.0	<1.00	<1.00
cis-1,2-Dichloroethene	2,400		<1.00	<1.00	<50.0	<1.00	<1.00
1,3-Dichloropropane	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,2-Dichloropropane	3,000		<1.00	<1.00	<50.0	<1.00	<1.00
2,2-Dichloropropane	-		<1.00	<1.00	<50.0	<1.00	<1.00
trans-1,3-Dichloropropene	-		<1.00	<1.00	<50.0	<1.00	<1.00
cis-1,3-Dichloropropene	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,1-Dichloropropene	-		<1.00	<1.00	<50.0	<1.00	<1.00
Diethyl ether	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,4-Dioxane	-		<20.0	<20.0	<2000	<20.0	<20.0
Ethylbenzene	1,600		380	3,920	5,420	<1.00	<1.00

Table 3
Groundwater Analytical Summary Table
176 Sunnyside Avenue
Woonsocket, Rhode Island

Compound	GB Groundwater Criteria µg/L	Parcel ID	176 Sunnyside Avenue (Plat 3/Lot 7)			Trip Blanks	
		Monitoring Well ID	MW-206	MW-210		Trip Blank-092419	Trip Blank
		Sample ID	MW-206	MW-210	Duplicate		
		Sample Date	9/24/2019	9/24/2019	9/25/2019	9/24/2019	9/25/2019
Hexachlorobutadiene	-		<1.00	<1.00	<50.0	<1.00	<1.00
2-Hexanone (MBK)	-		<5.00	<5.00	<500	<5.00	<5.00
Isopropylbenzene (Cumene)	-		8.39	67.9	<50.0	<1.00	<1.00
4-Isopropyltoluene (p-Isopropyltoluene)	-		<1.00	12.4	<50.0	<1.00	<1.00
Methyl tert-butyl ether (MTBE)	5,000		<1.00	<1.00	<50.0	<1.00	<1.00
Methylene chloride (Dichloromethane)	-		<1.00	<1.00	<50.0	<1.00	<1.00
4-Methyl-2-pentanone (MIBK)	-		<5.00	<5.00	<500	<5.00	<5.00
Naphthalene	-		4.46	25.6	<50.0	<1.00	<1.00
n-Propylbenzene	-		3.31	37.4	<50.0	<1.00	<1.00
Styrene	2,200		<1.00	<1.00	<50.0	<1.00	<1.00
1,1,1,2-Tetrachloroethane	-		<1.00	<1.00	<100	<1.00	<1.00
1,1,2,2-Tetrachloroethane	-		<1.00	<1.00	<50.0	<1.00	<1.00
Tetrachloroethene	150		<1.00	<1.00	<50.0	<1.00	<1.00
Tetrahydrofuran (THF)	-		<1.00	<1.00	<50.0	<1.00	<1.00
Toluene	1,700		51.5	127	154	<1.00	<1.00
1,2,4-Trichlorobenzene	-		<1.00	<1.00	<100	<1.00	<1.00
1,2,3-Trichlorobenzene	-		<1.00	<1.00	<100	<1.00	<1.00
1,1,1-Trichloroethane	3,100		<1.00	<1.00	<100	<1.00	<1.00
1,1,2-Trichloroethane	-		<1.00	<1.00	<100	<1.00	<1.00
Trichloroethene	540		<1.00	<1.00	<50.0	<1.00	<1.00
Trichlorofluoromethane (Freon 11)	-		<1.00	<1.00	<50.0	<1.00	<1.00
1,2,3-Trichloropropane	-		<1.00	<1.00	<100	<1.00	<1.00
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	-		<1.00	<1.00	<100	<1.00	<1.00
1,3,5-Trimethylbenzene	-		11.8	124	128	<1.00	<1.00
1,2,4-Trimethylbenzene	-		21.1	243	301	<1.00	<1.00
Vinyl chloride	2		<1.00	<1.00	<50.0	<1.00	<1.00
m,p-Xylene	-		727	10,100	13,700	<1.00	<1.00
o-Xylene	-		504	5,670	7,480	<1.00	<1.00
SVOC PAH - µg/L							
Acenaphthene	-		<1.00	<20.0	<1.00	N/A	N/A
Acenaphthylene	-		<1.00	<20.0	<1.00	N/A	N/A
Anthracene	-		<1.00	<20.0	<1.00	N/A	N/A
Benzo[a]anthracene	-		<1.00	<20.0	<1.00	N/A	N/A
Benzo[a]pyrene	-		<1.00	<20.0	<1.00	N/A	N/A
Benzo[b]fluoranthene	-		<1.00	<20.0	<1.00	N/A	N/A
Benzo[g,h,i]perylene	-		<1.00	<20.0	<1.00	N/A	N/A
Benzo[k]fluoranthene	-		<1.00	<20.0	<1.00	N/A	N/A
Chrysene	-		<1.00	<20.0	<1.00	N/A	N/A
Dibenz(a,h)anthracene	-		<1.00	<20.0	<1.00	N/A	N/A
Fluoranthene	-		<1.00	<20.0	<1.00	N/A	N/A
Fluorene	-		<1.00	<20.0	<1.00	N/A	N/A
Indeno(1,2,3-cd)pyrene	-		<1.00	<20.0	<1.00	N/A	N/A
2-Methylnaphthalene	-		<1.00	<20.0	<1.00	N/A	N/A
Naphthalene	-		<1.00	<20.0	8.04	N/A	N/A
Phenanthrene	-		<1.00	<20.0	<1.00	N/A	N/A
Pyrene	-		<1.00	<20.0	<1.00	N/A	N/A
<div style="background-color: orange; padding: 2px;">Orange shading denotes concentration detected above GB Groundwater Objectives</div> <div style="background-color: yellow; padding: 2px;">Yellow shading denotes laboratory reporting limit above GB Groundwater Objective</div> <div style="padding: 2px;">10,000 Bold text denoted detection greater than the laboratory reporting limit</div>							
NOTES: µg/L = Micrograms per liter of water PCB = Polychlorinated Biphenyls TPH = Total Petroleum Hydrocarbon VOC = Volatile Organic Compounds SVOC PAH = Semivolatile Organic Compound - Polycyclic Aromatic Hydrocarbon - = No Standard Value < = Not detected above laboratory reporting limit N/A = Not Analyzed 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.							

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Attachment A

Soil Boring Logs



**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: 176 Sunnyside Ave, Woonsocket RI
Drilling Method: Direct push - Geoprobe		Soil Boring/Well Number: EA-5
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 1515
		TIME 1530

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	
				0	0-2 ft
	15/24		1.2	1	0-2" - Dry, light brown silt and fine sand with organic matter
				2	2-24" - Dry, tan medium sand and fine gravels
					Laboratory sample EA-5-0-2 collected @ 1525
	36/48		0.1	3	2-6 ft - Dry, tan medium sand and fine gravels
				4	
				5	
				6	
	30/48		0.3	7	6-10 ft - Dry, tan medium sand with some small gravels and trace fine sand 9 to 10 ft.
				8	Laboratory sample EA-5-6-10 and MS/MSD collected @ 1530
				9	Boring terminated at 10 ft.
				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**

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: 176 Sunnyside Ave, Woonsocket RI
Drilling Method: Direct push - Geoprobe		Soil Boring/Well Number: EA-6
Sampling Method: Direct push continuous soil core in 4-ft poly liners		Sheet 1 of 2
Water Level:		Start
Time:		Finish
Date:		DATE 9/20/2019
		TIME 1400

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: Sunny
						Temperature: 75 deg. F
	20/24		0.8	0	0-2 ft	2-24" - Dry, dark brownish gray silt and fine sand with organic matter gravels Laboratory sample EA-6-0-2 collected @ 1440
				1		
				2		
	24/24		1.1	3	2-4 ft - Dry, dark grayish brown silt and fine sand, some medium sand, trace organic matter and trace small gravels	
				4		
	24/48		0.6	5	4-8 ft - Dry, light brown fine sand with some silt and trace organic matter	
				6		
				7		
				8		
	36/48		0.2	9	8-12 ft 0-24" - Dry, light brown silt and fine sand with trace organic matter 24-36" - Dry, light brown silt and fine sand with trace fine gravel	
				10		
				11		
				12		
	40/48		0.5	13	12-16 ft ~0-20" - Dry, tan medium sand and some fine gravel 20-22" - Dry, light brown medium sand with some trace silt 22-40" - Dry, light brown medium to fine sand	
				14		
				15		
				16		
	48/48		0.7	17	16-20 ft - Dry, light brown medium to fine sand with trace silt	
				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: 20 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 Investigation

Location: 176 Sunnyside Ave, Woonsocket RI

Drilling Method: Direct push - Geoprobe

Soil Boring/Well Number: EA-6

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

Sheet 2 of 2

Water Level: _____

Drilling Start Finish

Time: _____

DATE 9/20/2019 DATE 9/20/2019

Date: _____

TIME 1400 TIME 1540

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: Sunny
				Feet	Temperature: 75 deg. F	
	48/48		0.5	20	20-24 ft - Dry, light brown medium to fine sand	
				21		Laboratory sample EA-6-20-24 collected @ 1520
				22		Boring terminated at 24 ft
				23		
				24		
				25		
				26		
				27		
				28		
				29		
				30		

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: 20 September 2019
 Drilling Contractor: Geologic Earth Exploration, Inc Driller: J. LeGrand, N. Pereion

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Attachment B

Well Development Logs



FIELD RECORD OF WELL DEVELOPMENT

Project Name: Sunnyside Ave Site Investigation	Location ID: MW-206
Address: 761 & 92 Sunnyside Ave, Woonsocket RI	Date: 9/20/19
Project Number: 1525815	Time: 1000
Personnel: Britta Chambers & Dan Allen	Weather: 70 deg F, sunny
Well ID: MW-206	Ambient Air / Well Headspace (ppm):
Well Secure: Yes / No	Well Grout Date:
Well Condition: Good, locked	Depth to Product (ft): none detected
Well Diameter: 2"	Well Installation Date:
Well Completion: Standpipe	Depth to Water (ft): 14.8
Equipment: Interface probe, submersible whale pump	Depth of Well (ft): 17.5
	Length of Screen (ft):
	Depth to Pump Intake (ft): ~17-17.5

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) = 17.5 - 14.8 = 2.7 ft

Well Volume (gal/ft depth) x Liq. Depth = 2.7 x 0.163 = 0.46 gal

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	1007	14.8							
1	1010		Well runs dry after purging ~0.5 gal (~1 well volume). Black, musty odor during purge. Faint rubbery odor/organic odor.						
2									
3	1530	14.8	Return to well to regauge and observe possible recharge. Appears to have returned to water level before purge in morning.						
4									
5									
6									
7									
8									
9									
10									

Depth to Sediment Before Development: 17.5	Estimated Recharge Rate: 2.7/5.25 hrs = 0.1 gal/min
Depth to Sediment After Development: 17.48	Total Surging Time: ~3 min
Is the Sediment Thickness <1% of the Screen Length? Yes / No ** unknown	Total Amount Purged (gal): ~0.5 gal
	(Minimum 3 to 5 times the well volume)

Comments: Water very black at first. Organic debris on bottom at end of purging. Existing tubing removed by EA upon arrival; ~1 ft of saturated with black sediment.

* 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: Sunnyside Ave Site Investigation	Location ID: MW-210
Address: 761 & 92 Sunnyside Ave, Woonsocket RI	Date: 9/20/19
Project Number: 1525815	Time: 1015
Personnel: Dan Allen & Britta Chambers	Weather: Sunny, 70 deg F
Well ID: MW-210	Ambient Air / Well Headspace (ppm):
Well Secure: <u>Yes</u> / No	Well Grout Date:
Well Condition: Good	Well Installation Date:
Well Diameter: 2"	Well Completion: Standpipe with padlock
Equipment: Interface probe, submersible whale pump	Length of Screen (ft):
	Depth to Pump Intake (ft):

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) = 20.5 - 16 = 4.5 ft Well Volume (gal/ft depth) x Liq. Depth = 4.5 x 0.163 = 0.73 gal

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	1025	16.0	Purge ~0.75 gal (~1 well volume) then stop at 1030 as well runs dry. End development. Clear water at first but then very black/turbid towards end of development.						
1									
2	1540	15.8	Return to gauge well since development in morning. Appears to be recharging moderately well.						
3			Recharge rate = (20.5 - 15.8 ft) / 5.25 hr = 4.7 ft / 5.25 hr = 0.9 ft/hr = 0.15 gal/hr						
4									
5									
6									
7									
8									
9									
10									

Depth to Sediment Before Development: 16.0 Estimated Recharge Rate: ~0.25 gal/hr or 1 ft/hr

Depth to Sediment After Development: 20.73 Total Surging Time: 5 min

Is the Sediment Thickness <1% of the Screen Length? Yes / No ** Total Amount Purged (gal): 0.75 gal

(Minimum 3 to 5 times the well volume)

Comments: Water heavily sediment laden. Existing tubing removed by EA upon arrival; approximately 2.5 ft of solid black sediment (?) on inside of tubing. Faint organic/rubbery odor. Very small white worms on bottom of interface probe after well development. See pictures.

* 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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Attachment C

Groundwater Sampling Logs

**FIELD RECORD OF WELL PURGING AND SAMPLING**

Project Name: Sunnyside Ave Site Investigation	Location ID: MW-206
Project Number: 1525815	Date: 9/24/19
Personnel: Britta Chambers	Time: 0915
Sampling Method: Low Flow Peristatic	Weather: 75 deg F, sunny
Well Secure: <u>Yes</u> / No	Ambient Air / Well Headspace (ppm): N/A
Well Condition: Good	Depth to Product (ft): none detected
Well Diameter: 2"	Depth to Water (ft): 14.85
Well Completion: Standpipe	Depth of Well (ft): 17.48
Equipment: Interface probe, YSI, Peripump, Turbidity meter	Depth of Screen Interval (ft):
	Depth to Pump Intake (ft): ~16 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	0930	14.85							
1	Stopped @ 0935 to troubleshoot tubing/replace tubing. Resumed @ 0942.								
2	0945	16.03	128	16.97	309	2.58	5.92	-53.3	22.5
3	0950	16.68	152	14.96	299	1.45	5.86	-71.7	42
4	0956	17.4	108	14.26	295	1.18	5.83	-82.9	45
5	1005	Well runs dry, let rest. Total purged = ~0.75 gal (~1.5 well vol).							
6		Call project manager to update; says to sample as well was purged dry							
7	1030	16.28	100	15.25	325	0.86	6.00	-80.7	39
8	1033	16.75	100	15.07	324	0.72	5.86	-70.9	38.2
9	1036	16.94	100	14.66	328	0.68	5.85	-76.2	37.9
10	1040	Sampled.							
11		Notes: Took additional readings after talking with project manager at 1005 as parameters appeared to be reaching stabilization.							
12		Well runs dry at ~1050; let rest. Water somewhat turbid at time of sample collection.							
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: MW-206	Comments: Well continuously runs dry during sample collection; let recharge for 20-30 min at a time.
Sampling Date: 9/24/19	
Sampling Time (Start / End): 1040 - ~1430	
Sample Parameters: PAH, TPH, PP13 metals, PCB, VOC	
Total Amount Purged (L): ~1.25 gal (about 3 well vol)	



FIELD RECORD OF WELL PURGING AND SAMPLING

Project Name: Sunnyside Ave Site Investigation	Location ID: MW-210
Project Number: 1525815	Date: 9/24/19
Personnel: Britta Chambers	Time: 1130
Sampling Method: Low Flow Peristatic	Weather: Sunny, 75 deg F
Well Secure: <u>Yes</u> / No	Ambient Air / Well Headspace (ppm): N/A
Well Condition: Good	Depth to Product (ft): N/A
Well Diameter: 2"	Depth to Water (ft): 15.8
Well Completion: Standpipe	Depth of Well (ft): 20.73
Equipment: YSI, Interface probe, Peripump, Turbidity meter	Depth of Screen Interval (ft):
	Depth to Pump Intake (ft): ~17

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	1132	16.7	208	14.0	308	6.05	5.91	-35.3	56
1	1137	17.89	160	13.75	303	1.58	5.79	-40.7	108
2	1142	18.6	108	13.97	303	1.4	5.84	-44.9	85.1
3	1145	18.8	108	14.07	304	1.18	5.89	-48.5	82.8
4	1148	19.1	108	14.19	305	1.52	5.93	-51.3	37
5	1151	18.91	108	14.32	306	0.79	5.98	-57.7	109
6	1155	Stopped to troubleshoot sediment clogged tubing, water very murky. Unclogged YSI, sediment accumulation on sensors. Let well rest to recharge as discussed with project manager.							
7									
8	1244	18.6	140	14.86	373	1.49	5.8	-39.6	1701*
9	1250	18.45	100	15.08	431	0.79	6.02	-67.9	1658*
10	1253	18.65	100	17.72	431	0.86	6.05	-69.2	46
11	1258	18.8	100	14.49	429	0.49	6.04	-68.3	54
12	1301	Becomes heavily sediment laden; stop to let well rest. Very slow recharge. Discuss sample collection with project manager and decide to start collecting sample at 1340.							
13									
14		* Heavily sediment laden							
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Sample Bottle ID's: MW-210	Comments: Begin sample collection at 1340 but well continuously runs dry. Let recharge for ~30 min each time. Collected duplicate and MS/MSD on 9/25/19 after allowing overnight recharge.
Sampling Date: 9/24/19	
Sampling Time (Start / End): 1340-1545	
Sample Parameters: PAH, PCB, TPH, VOC, PP13 metals	
Total Amount Purged (L): ~2.25 gal (nearly 3 well volumes)	

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Attachment D

Laboratory Analytical Reports



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.



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	

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

Microbac Laboratories, Inc.



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

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

Client Sample ID: EA-1-0-2
 Sample Matrix: Soil/Sediment
 Lab Sample ID: D911977-01

Collected By: Customer
 Collection Date: 09/19/2019 8:35

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

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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



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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	

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



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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	

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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8082A

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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M

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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D

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

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



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	

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

EPA 3550C/EPA 8082A	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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

EPA 3550C/EPA 8100M	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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

EPA 3550C/EPA 8270D	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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

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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	

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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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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Microbac Laboratories, Inc. - Dayville

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

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 their respective results and analysis dates.



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	

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



Microbac Laboratories, Inc. - Dayville

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

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
1,2-Dichloroethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1-Dichloroethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
cis-1,2-Dichloroethene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1-Dichloroethene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
trans-1,2-Dichloroethene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
2,2-Dichloropropane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2-Dichloropropane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,3-Dichloropropane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1-Dichloropropene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
cis-1,3-Dichloropropene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
trans-1,3-Dichloropropene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Diethyl ether	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,4-Dioxane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Ethylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Hexachlorobutadiene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
2-Hexanone (MBK)	<475	475	ug/kg dry	50	Y1		09/30/19 1634	JAN
Isopropylbenzene (Cumene)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Methyl tert-butyl ether (MTBE)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Methylene chloride (Dichloromethane)	<949	949	ug/kg dry	50	Y1		09/30/19 1634	JAN
4-Methyl-2-pentanone (MIBK)	<475	475	ug/kg dry	50	Y1		09/30/19 1634	JAN
Naphthalene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
n-Propylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Styrene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1,2,2-Tetrachloroethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1,1,2-Tetrachloroethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Tetrachloroethene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Tetrahydrofuran (THF)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Toluene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2,3-Trichlorobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2,4-Trichlorobenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1,2-Trichloroethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1,1-Trichloroethane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Trichloroethene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Trichlorofluoromethane (Freon 11)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2,3-Trichloropropane	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,2,4-Trimethylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
1,3,5-Trimethylbenzene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
Vinyl chloride	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
m,p-Xylene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN
o-Xylene	<237	237	ug/kg dry	50	Y1		09/30/19 1634	JAN

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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

Microbac Laboratories, Inc.



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	

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

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-4-0-2
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-05

Collected By: Customer
Collection Date: 09/19/2019 14:50

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 their respective results and analysis dates.



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 compounds like 1,2-Dichloroethane, 1,1-Dichloroethane, etc., with their respective results and analysis dates.



Microbac Laboratories, Inc. - Dayville

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



Microbac Laboratories, Inc. - Dayville

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



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	

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	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/19/2019
Lab Sample ID: D911977-07	

Semi-Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Naphthalene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Phenanthrene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Pyrene	<34.0	34.0	ug/kg dry	1	Y1	09/26/19 1000	10/02/19 1614	GMP
Surrogate: 2-Fluorobiphenyl	47.5	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1614	GMP
Surrogate: 2-Fluorophenol	52.5	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1614	GMP
Surrogate: Nitrobenzene-d5	43.3	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1614	GMP
Surrogate: Phenol-d6	55.2	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1614	GMP
Surrogate: p-Terphenyl-d14	60.0	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1614	GMP
Surrogate: 2,4,6-Tribromophenol	66.8	Limit: 30-130	% Rec	1		09/26/19 1000	10/02/19 1614	GMP

Volatile Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 5035A/EPA 8260C								
Acetone	<528	528	ug/kg dry	50	Y1		09/30/19 1752	JAN
Acrylonitrile	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Benzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Bromobenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Bromochloromethane	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Bromodichloromethane	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Bromoform	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Bromomethane	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
2-Butanone (MEK)	<528	528	ug/kg dry	50	Y1		09/30/19 1752	JAN
n-Butylbenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
tert-Butylbenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
sec-Butylbenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Carbon disulfide	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Carbon tetrachloride	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Chlorobenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Chloroethane (Ethyl chloride)	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Chloroform	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Chloromethane	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
2-Chlorotoluene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
4-Chlorotoluene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Dibromochloromethane	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Dibromomethane (Methylene bromide)	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
trans-1,4-Dichloro-2-butene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
1,2-Dichlorobenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
1,3-Dichlorobenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
1,4-Dichlorobenzene	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN
Dichlorodifluoromethane (Freon-12)	<264	264	ug/kg dry	50	Y1		09/30/19 1752	JAN

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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 compounds like 1,2-Dichloroethane, 1,1-Dichloroethane, etc., with their respective results and analysis dates.

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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	

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	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 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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8100M								
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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
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EPA 3550C/EPA 8270D								
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

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

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
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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

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-0-2
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-08

Collected By: Customer
Collection Date: 09/19/2019 15:25

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 their respective results and analysis dates.

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CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-0-2
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I1977-08

Collected By: Customer
Collection Date: 09/19/2019 15:25

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



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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



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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	

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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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	

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



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I1977

Client Sample ID: EA-5-6-10
 Sample Matrix: Soil/Sediment
 Lab Sample ID: D9I1977-09

Collected By: Customer
 Collection Date: 09/19/2019 15:30

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

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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	

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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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			



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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			



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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	REC Limits	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>		ug/kg wet	<i>1670</i>		<i>60.8</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>1220</i>		ug/kg wet	<i>1670</i>		<i>73.1</i>	<i>30-130</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>1060</i>		ug/kg wet	<i>1670</i>		<i>63.6</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d6</i>	<i>1190</i>		ug/kg wet	<i>1670</i>		<i>71.1</i>	<i>30-130</i>			
<i>Surrogate: p-Terphenyl-d14</i>	<i>1330</i>		ug/kg wet	<i>1670</i>		<i>79.8</i>	<i>30-130</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>1400</i>		ug/kg wet	<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		



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					
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			



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D911977

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			

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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			

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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

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						
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: D911977-09			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	



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 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	



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 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:

Katherine Wall (handwritten signature)

Katherine A. Wall
Project Manager

Reported: 10/30/2019 14:44



Microbac Lat
61 Louisiana
Dayville,

MICROBAC

page 1 of 2
Lab WO #: _____
Project Manager: *[Signature]*

Copy of Report to

CUSTOMER: _____
ADDRESS: _____
DELIVERY: _____
E-MAIL: _____
PHONE: _____ FAX: _____
BILL TO: *RIDEM*
ADDRESS: *235 Fremont St*
P.O. Box
ATTN: *Rachael Simpson*
PHONE: *401-222-2777 ext. 7105*
E-MAIL: *Rachael.Simpson@dem.ri.gov*
PURCHASE ORDER #: *1525815*

Project Information

Project: *Sunnyside Ave. Site Investigation*
Location: *761 892 Sunnyside Ave, Woonsocket RI*
Project Mgr: *Tom Daley - EA Engineering*
E-MAIL: *tdaley@eaest.com*
PHONE: *401-255-9605*
FAX: _____
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:

Sample Identification

Sample Identification	Date Collected	Time Collected	Sample Matrix	Sample Type		Bottle Qty	TPH	PCB	PAH	PP3 Metals	VOC Standard <i>Low Level</i>	Preservatives					
				Composite	Grab							NON-PRES	HCL	HNO3	H2SO4	OTHER	
EA-1-0-2	9/19/19	0835	soil		x	6	x	x	x	x	x						x
EA-1-20-24		1230	soil				x	x	x	x							
EA-3-0-2		1425					x	x	x	x							
EA-3-6-10		1435					x	x	x	x							
EA-4-0-2		1450					x	x	x	x							
EA-4-2-6		1500					x	x	x	x							
EA-Duplicate		00:00															
EA-5-0-2		<i>1800</i>					x	x	x	x							
EA-5-6-10		1530					x	x	x	x							
Trip Blank - 091919	9/19/19																

CUSTODY TRANSFER

TURNAROUND TIME REQUESTED (select): Standard RUSH _____ Day
EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method: *E-MAIL* HARD COPY OTHER

COMMENTS: *Analyze to RIDEM G-B Casing Limits.*

EA-1-20-24 likely oil contaminated

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED AMBIENT 411 °C Upon receipt at lab

SAMPLER:

RECEIVED: _____
RELINQUISHED: *Britta Chambers*
RECEIVED: *NRAM*
RELINQUISHED: _____
RECEIVED: *[Signature]*



Microbac Laboratories, Inc.
61 Louisa Viens Drive
Dayville, CT 06241

Chain of Custody

www.microbac.com
800-334-0103

Copy of Report To

CUSTOMER:

ADDRESS:

DELIVERY:

E-MAIL:

PHONE:

FAX:

BILL TO: RIDEM

ADDRESS: 235 Pro Manabe St

Rte 1, RI

ATTN: Rachel Simpson

PHONE: 401-222-2797

E-MAIL: rachel.simpson@dem.si.gov

PURCHASE ORDER #: 1525815

Billing Information

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

EX-5-6-10-MO/MSD

Date Collected: 9/19/19 1530

Sample Matrix: Soil

Sample Type: Composite Grab

Bottle Qty: 6

TOP

PAH

PCB

PFAS Metals

VOC Semivolatile

Preservatives	NON-PRES	HCL	HNO ₃	H ₂ SO ₄	OTHER
	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>

CUSTODY TRANSFER

DATE TIME

TURNAROUND TIME REQUESTED (select):

Standard RUSH Day

SAMPLER:

RECEIVED:

RELINQUISHED: Britta Chambers

RECEIVED:

9/19/19 1621

RELINQUISHED:

9/19/19 1621

RECEIVED:

9/19/19 1716

Circle Delivery Method:

E-MAIL

HARD COPY

OTHER

COMMENTS:

Analyze to RIDEM 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.

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



Microbac Laboratories, Inc. - Dayville

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
Sample Matrix: Soil/Sediment
Lab Sample ID: D9I2105-01
Collected By: Customer
Collection Date: 09/20/2019 11:20

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

Metals, Total Result RL Units Dilution Note Prepared Analyzed Analyst

EPA 3050B/EPA 6010C

Table with 10 columns: Element, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows include Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Zinc.

EPA 7471B

Mercury <0.0365 0.0365 mg/kg dry 1 Y1 09/25/19 1034 09/25/19 1154 DLO

Polychlorinated Biphenyls (PCBs) - GC/ECD Result RL Units Dilution Note Prepared Analyzed Analyst

EPA 3550C/EPA 8082A

Table with 10 columns: Compound, Result, RL, Units, Dilution, Note, Prepared, Analyzed, Analyst. Rows include Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, and two Surrogate entries.

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



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	

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, Chloroform, 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



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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	

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
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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	Collected By: Customer
Sample Matrix: Soil/Sediment	Collection Date: 09/20/2019 14:40
Lab Sample ID: D9I2105-03	

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

Volatil Organic Compounds - GC/MS	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
Chlorobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Chloroethane (Ethyl chloride)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Chloroform	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Chloromethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
2-Chlorotoluene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
4-Chlorotoluene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Dibromochloromethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Dibromomethane (Methylene bromide)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
trans-1,4-Dichloro-2-butene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2-Dichlorobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,3-Dichlorobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,4-Dichlorobenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Dichlorodifluoromethane (Freon-12)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2-Dichloroethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1-Dichloroethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
cis-1,2-Dichloroethene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1-Dichloroethene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
trans-1,2-Dichloroethene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
2,2-Dichloropropane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,2-Dichloropropane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,3-Dichloropropane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1-Dichloropropene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
cis-1,3-Dichloropropene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
trans-1,3-Dichloropropene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Diethyl ether	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,4-Dioxane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Ethylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Hexachlorobutadiene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
2-Hexanone (MBK)	<473	473	ug/kg dry	50	Y1		09/30/19 2000	JAN
Isopropylbenzene (Cumene)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Methyl tert-butyl ether (MTBE)	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Methylene chloride (Dichloromethane)	<946	946	ug/kg dry	50	Y1		09/30/19 2000	JAN
4-Methyl-2-pentanone (MIBK)	<473	473	ug/kg dry	50	Y1		09/30/19 2000	JAN
Naphthalene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
n-Propylbenzene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Styrene	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1,2,2-Tetrachloroethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
1,1,1,2-Tetrachloroethane	<236	236	ug/kg dry	50	Y1		09/30/19 2000	JAN
Tetrachloroethene	<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	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



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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	

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							



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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	

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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



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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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Petroleum 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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CERTIFICATE OF ANALYSIS

D9I2105

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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D9I2105

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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D9I2105

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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D9I2105

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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CERTIFICATE OF ANALYSIS

D9I2105

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	



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D9I2105

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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CERTIFICATE OF ANALYSIS

D9I2105

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, No, Item, Yes, No. 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:

Katherine Wall (handwritten signature)

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.

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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



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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	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8270D								
Acenaphthene	<1.00	1.00	ug/L	1	Y1	09/25/19 1100	10/03/19 2204	GMP

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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	

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

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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

Volatil 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

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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



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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	

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



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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
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	

Volatile 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



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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
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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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	

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



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	

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

Microbac Laboratories, Inc.



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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	

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 1719	JAN
2-Chlorotoluene	2.40	1.00	ug/L	1	Y1		10/02/19 1719	JAN
4-Chlorotoluene	3.44	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2-Dichlorobenzene	2.62	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Diethyl ether	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		10/02/19 1719	JAN
Ethylbenzene	45.6	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1719	JAN
Isopropylbenzene (Cumene)	6.50	1.00	ug/L	1	Y1		10/02/19 1719	JAN
4-Isopropyltoluene (p-Isopropyltoluene)	2.84	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		10/02/19 1719	JAN
Naphthalene	95.6	1.00	ug/L	1	Y1		10/02/19 1719	JAN
n-Propylbenzene	8.97	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Styrene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN
Toluene	13.1	1.00	ug/L	1	Y1		10/02/19 1719	JAN
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		10/02/19 1719	JAN

Microbac Laboratories, Inc.



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	

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							



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Metals, Total	Result	RL	Units	Spike Level	Source Result	%REC	Limits	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			



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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
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
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		

Microbac Laboratories, Inc.



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									
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			



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									
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>		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			



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					
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.

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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
<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	



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-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	
1,1,2,2-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						
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

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, 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:

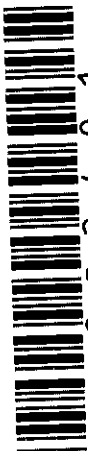
Katherine Wall (handwritten signature)

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

PVD, RI

ATTN: Rachel Simpson

PHONE: 401-222-2797 & 4105

E-MAIL: Rachel.Simpson@dem.ri.gov

PURCHASE ORDER #: 1525815

Project: Sunnyvale Ave SIR

Location: 761, 97 Sunnyvale Ave. Norwich, CT

Project Mgr: Tom Daley

E-MAIL: TDaley@earth.com

PHONE:

FAX:

Sample Identification

Sample Matrix	Sample Type		Bottle Qty	TPT	PFAH	PCB	Pb	Pb13	VOC	Preservatives					
	Composite	Grab								NON-PRES	HCL	HNO ₃	H ₂ SO ₄	OTHER	
Rinsate-092419		X	9	X	X	X	X	X	X	X	X	X	X		
MW-206		X	9	X	X	X	X	X	X	X	X	X	X		
MW-210		X	6	X	X	X	X	X	X	X	X	X	X		
MW-EA-1		X	9	X	X	X	X	X	X	X	X	X	X		
Trip Blank-092419			1						X						

PRESERVATIVE VERIFIED Initials: ML

CUSTODY TRANSFER

TURNAROUND TIME REQUESTED (select): Standard RUSH Day

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 °C Upon receipt at lab

4.1

RECEIVED: B. Chambers

RELINQUISHED: B. Chambers

RECEIVED: N. G. [Signature]

RELINQUISHED: N. G. [Signature]

RECEIVED: [Signature]



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

D912724

Client Sample ID: Duplicate	Collected By: Customer
Sample Matrix: Groundwater	Collection Date: 09/25/2019
Lab Sample ID: D912724-01	

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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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
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



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	

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

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CERTIFICATE OF ANALYSIS

D9I2724

Client Sample ID: MW-210-MS/MSD

Sample Matrix: Groundwater

Lab Sample ID: D9I2724-02

Collected By: Customer

Collection Date: 09/25/2019 10:00

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

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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	

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



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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
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



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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



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CERTIFICATE OF ANALYSIS

D9I2724

Batch Quality Control Summary: Microbac Laboratories, Inc. - Dayville

General Paramaters	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					



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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			



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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
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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
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Batch DJ90071 - 3510C W Sep Funnel - EPA 8100M



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D9I2724

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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CERTIFICATE OF ANALYSIS

D9I2724

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							



Microbac Laboratories, Inc. - Dayville

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									
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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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									
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			
Surrogate: 4-Bromofluorobenzene	51.3		ug/L	50.0		103 70-130			
Surrogate: 1,2-Dichloroethane-d4	41.2		ug/L	50.0		82.3 70-130			
Surrogate: Toluene-d8	48.6		ug/L	50.0		97.1 70-130			
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			



Microbac Laboratories, Inc. - Dayville

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									
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			
1,1,2,2-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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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					
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	

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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 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

D912724

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.

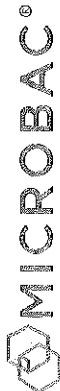
The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Handwritten signature: Katherine Wall

Katherine A. Wall
Project Manager

Reported: 10/31/2019 15:59



Microbac Labs
61 Louisa V
Dayville, OR

Copy of Report To:

CUSTOMER:

ADDRESS:

DELIVERY:

E-MAIL:

PHONE:

FAX:

BILL TO: RISEM

ADDRESS: 235 Promenade St.
P.O. RI

ATTN: Rachel Simpson

PHONE: 401-255-2797 ext. 7105

E-MAIL: rachel.simpson@dem.rigov

PURCHASE ORDER #: 1525815

Sample Identification

Duplicate

MN-210-M3/MSD

Trip Blank

IRON

Date Collected

9/25/19

9/25/19

9/26/19

9/24/19

Time Collected

00:00

10:00

09:00

17:00

Sample Matrix

Groundwater

↓

Blank

Groundwater X

Sample Type
Composite

Grab

X

X

Bottle Qty

6

9

1

2

Analysis

TPH

X

X

PCB

X

X

PTI

X

X

Metals

X

X

VOC

X

X

X

Chloride

X

X

X

Oil & Grease

X

X

X

Flashpoint

PH

Preservatives

NON-PRES

X

X

X

X

HCL

X

X

X

X

HNO₃

X

X

X

X

H₂SO₄

X

X

X

X

OTHER

CUSTODY TRANSFER

DATE TIME

SAMPLER: Britta Chambers

RECEIVED:

RELINQUISHED:

RECEIVED:

RELINQUISHED:

RECEIVED:

9/24/19 10:00

Ruthie Chambers

9/26/19 09:00

9/26/19 09:00

9/26/19 16:00

9/26/19 16:00

TURNAROUND TIME REQUESTED (select):

Standard

RUSH

Day

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Circle Delivery Method:

E-MAIL

HARD COPY

OTHER

COMMENTS:

Analyze to RI DEM GB Groundwater
RLs

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED

AMBIENT

°C Upon receipt at lab



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°

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Attachment E

Release Notification Form

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 JS

Date 3/11/20