



**POST-CLOSURE ENVIRONMENTAL MONITORING REPORT
(May 2021 Data)**

**Shawmut Avenue Landfill
New Bedford, MA 02746**
MassDEP DSWM Transmittal No. ACOP-SE-08-4004-SEP 120068

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1.0 INTRODUCTION

On behalf of the City of New Bedford, River Hawk Environmental, LLC (RHE) has prepared this Post-Closure Environmental Monitoring Report to provide the Massachusetts Department of Environmental Protection (MassDEP) with the results of post-closure landfill gas, groundwater, surface water, and sediment monitoring data collected at the Shawmut Avenue Landfill facility in May 2021. Post-Closure Landfill monitoring was conducted in accordance with the Massachusetts Solid Waste Management Regulations (310 CMR 19.00) and the requirements of the facility-specific Post-Closure Monitoring and Maintenance Plan, which was approved by the MassDEP in a letter dated April 19, 2007.

2.0 SCOPE OF WORK

The following is the Scope of Work associated with the Post-Closure Environmental Monitoring Event conducted in May 2021:

- Collection of landfill gas data at landfill gas wells, temporary monitoring points/vents, a fire hydrant, catch basins, and buildings;
- Collection of in-situ groundwater monitoring data and groundwater samples;
- Collection of in-situ surface water monitoring data and surface water samples;
- Collection of a sediment sample;
- Laboratory analysis of groundwater, surface water, and sediment samples;
- Evaluation of regulatory exceedences and data trends; and
- Preparation and submission of a Post-Closure Environmental Monitoring Report.

The following sections include information regarding sample collection procedures, results, and an evaluation of data.

3.0 MONITORING PROCEDURE & RESULTS

The following subsections include information regarding the landfill gas, groundwater, surface water, and sediment sampling procedures.

3.1 Landfill Gas Monitoring

RHE conducted landfill gas monitoring on May 7, 2021. The initial and final concentrations of methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), hydrogen sulfide (H_2S), and total organic volatiles (TOV) were measured at fourteen (14) landfill gas wells (LGW-1 through LGW-14), two (2) temporary monitoring points/vents (MP-5 and MP-6), six (6) temporary gas points (TGP-1 through TGP-6), one (1) fire hydrant (Hydrant #2), three (3) catch basins (CB-1, CB-2, and CB-3), and two (2) building structures (scale house and warehouse building). Concentrations of CH_4 , CO_2 , O_2 , and H_2S were measured in the field using a GEM 5000 Landfill Gas Meter. TOV concentrations were measured using a RAE Lite Organic Volatile Meter (OVM), which was equipped with a 10.6 eV lamp

and calibrated prior to conducting screening with 100 ppmv isobutylene span gas.

Temporary gas probes were installed by driving an AMS® Retract-A-Tip to discrete depths below the ground surface. The stainless steel Retract-A-Tips were connected to polyethylene tubing, and landfill gas samples were subsequently drawn.

At least two well/probe volumes of air were evacuated from landfill gas wells and temporary monitoring points/vents prior to the collection of final measurements. Landfill gas monitoring locations are displayed on Figure 2, and a summary of field measurements collected from the above-referenced locations is included in Table 1.

Landfill Gas Well & Temporary Monitoring Point/Vent Results:

- CH₄ was detected at landfill gas wells LGW-1, LGW-2, LGW-3, LGW-5, and LGW-6, and monitoring points/vent MP-5 at concentrations greater than 25% of the Lower Explosive Limit (LEL); however, landfill gas wells and temporary monitoring points/vents were not considered to be “fenceline monitoring locations,” since perimeter temporary gas probes were installed and screened on the same day.
- Significant concentrations of CO₂ (i.e., greater than 10%) were detected in landfill gas wells LGW-1, LGW-2, LGW-3, and LGW-6.
- Depleted O₂ concentrations (less than 19.5%) were detected at landfill gas wells LGW-1, LGW-2, LGW-3, LGW-5, and LGW-6 and temporary gas probe TGP-3.
- H₂S was detected in landfill gas wells LGW-1, LGW-2, and LGW-6.
- TOVs were not detected at a concentration greater than 1.0 ppmv.
- No significantly elevated concentrations of TOVs, CH₄, CO₂, H₂S, or TOVs, nor depleted concentrations of O₂, were detected during field screening of temporary gas probes (i.e., fenceline monitoring locations).

The results of landfill gas monitoring conducted during this Monitoring Period are generally consistent with previous landfill gas well and temporary gas probe monitoring results. It should be noted that monitoring conducted during this event did not reveal the presence of explosive gases at concentrations greater than 25% of the LEL at the property line, or beyond. Therefore, notification to the MassDEP, pursuant to 310 CMR 19.132(5)(h), was not applicable.

Catch Basin, Fire Hydrant, and Indoor Air Monitoring Results:

- No elevated concentrations of TOVs, CH₄, CO₂, H₂S, nor depleted concentrations of O₂, were detected during field screening conducted at catch basins, fire hydrants, or within the scale house or the warehouse building.

The results of catch basin and indoor air screening conducted during this Monitoring Period are generally consistent with previous monitoring results.

3.2 Groundwater Monitoring, Sampling, and Laboratory Analysis

RHE personnel collected groundwater data at nine (9) perimeter groundwater monitoring wells (CDM-1S, CDM-1D, CDM-3S, CDM-3D, CDM-4S, CDM-4D, CDM-5S, CDM-5D, and CDM-6D) on May 7, 2021. Each well was gauged for groundwater level and presence/absence of non-aqueous phase liquid (NAPL) using an electronic interface probe (EIP). Subsequent to gauging, RHE personnel purged a minimum of three well volumes of groundwater from each monitoring well using peristaltic sampling pumps and dedicated polyethylene tubing. Temperature, pH, specific conductivity, oxidation reduction potential (ORP), and dissolved oxygen (DO) were measured during monitoring well purging, using a YSI 600 XL multi-parameter meter. After the field parameters were observed to have stabilized, the flow-through cell of the multi-parameter meter was disconnected and groundwater samples were pumped directly into the sample bottles provided by the laboratory. Samples for dissolved metals analysis were field filtered using 0.45-micron filters, and samples for VOC analysis were collected using disposable polyethylene bailers. One duplicate sample (DUP-1) was collected from monitoring well CDM-1D.

Groundwater samples were submitted to Microbac Laboratory, of Dayville, CT, for laboratory analysis of parameters required by a letter entitled “Approval with Conditions” issued by the MassDEP and dated April 19, 2007. Low flow sampling logs and the complete laboratory analytical report associated with the May 2021 groundwater monitoring and sampling event are included in Appendix A. Summarized field data and laboratory analytical results are included in Table 2.

The results of laboratory analysis conducted on groundwater samples collected from perimeter monitoring wells were compared to the following standards:

- US EPA Maximum Contaminant Levels and Secondary Maximum Contaminant Levels;
- MassDEP Maximum Contaminant Levels and Secondary Maximum Contaminant Levels;
- MassDEP Office of Research and Standards Guidelines (ORSG);
- Massachusetts Contingency Plan (MCP) Method 1 GW-2 Standards (CDM-6D only); and
- MCP Method 1 GW-3 Groundwater Standards.

The following is a summary of exceedences and an evaluation of trends:

Volatile Organic Compounds:

- Cis-1,2-Dichloroethene (cis-1,2-DCE) was detected at a concentration greater than the MCL in the groundwater sample collected from monitoring well CDM-3D.
- Trichloroethylene (TCE) was detected at a concentration greater than the MCL in the groundwater sample collected from monitoring well CDM-3D.
- Vinyl Chloride (VC) was detected at a concentration greater than the MCL in the groundwater sample collected from monitoring well CDM-4D.
- 1,4-Dioxane was detected at a concentration greater than the MassDEP ORSG Standard in groundwater samples collected from monitoring wells CDM-1D, CDM-4S, CDM-4D, CDM-5S,

and CDM-5D.

These results are generally consistent with the results of previous groundwater sampling rounds.

Inorganic Parameters and Dissolved Metals:

- pH was outside of the SMCL at monitoring wells CDM-3S and CDM-5S.
- Total Dissolved Solids (TDS) was detected at a concentration greater than the SMCL in the groundwater samples collected from monitoring wells CDM-1S, CDM-1D, CDM-4S, CDM-4D, CDM-5S, and CDM-5D.
- Dissolved Arsenic was detected at a concentration greater than the MCLs in the groundwater sample collected from monitoring well CDM-3S.
- Dissolved Iron was detected at concentrations greater than the SMCLs in groundwater samples collected from monitoring wells CDM-1S, CDM-1D, CDM-3S, CDM-4S, CDM-4D, and/or CDM-5D.
- Dissolved Manganese was detected at concentrations greater than the SMCLs in groundwater samples collected from monitoring wells CDM-1S, CDM-1D, CDM-3S, CDM-3D, CDM-4S, CDM-4D, CDM-5S, and/or CDM-5D.
- Dissolved Sodium was detected at concentrations greater than the ORSG in groundwater samples collected from all monitoring wells.
- Chloride was detected at concentrations greater than the SMCLs in groundwater samples collected from monitoring wells CDM-4S and CDM-4D.

These results are generally consistent with the results of previous groundwater sampling rounds.

PCBs:

- One PCB analyte (Aroclor 1016) was detected at a concentration greater than the MCL in the groundwater samples collected from monitoring wells CDM-5S and CDM-5D.

The results are consistent with the results of recent monitoring events. These conditions will be monitored during future events.

Quality Control Samples:

- RHE personnel collected a duplicate sample of groundwater from monitoring well CDM-1D. The results of laboratory analyses conducted on the duplicate sample (DUP-1) closely matched the results of analyses conducted on the original sample (CDM-1D).
- A field blank (de-ionized water) was collected during the sample collection process. The results of VOC analysis conducted on the field blank sample did not reveal the presence of VOCs at concentrations greater than the analytical method detection limit.

3.3 Surface Water Sampling and Laboratory Analysis

RHE personnel collected surface water samples from three (3) surface water sampling locations (SW-1, SW-2, and SW-3) on May 7, 2021. Temperature, pH, specific conductivity, and dissolved oxygen (DO) were measured at the surface water sampling locations using an in-situ multi-parameter meter. Surface water samples were submitted to Microbac Laboratory for laboratory analysis of parameters required by a letter entitled “Approval with Conditions” issued by the MassDEP and dated April 19, 2007. The complete laboratory analytical report associated with the May 2021 surface water sampling event is included in Appendix A, and summarized laboratory analytical results are included in Table 3.

In accordance with the requirements of 310 CMR 19.00, the results of laboratory analyses conducted on surface water samples have been compared to the established National Recommended Water Quality Criteria (NRWQC) for each parameter. The NRWQC for certain hardness-dependent metals analytes (cadmium, copper, lead, silver, and zinc) was calculated in accordance with Appendix B of the NRWQC Guideline (2009). The following is an evaluation of the results of laboratory analysis conducted on surface water samples in comparison to the NRWQC:

Volatile Organic Compounds:

- No VOC analytes were detected at concentrations greater than the MCLs, SMCLs, and/or MassDEP ORSGs.

Inorganic Parameters and Dissolved Metals:

- Alkalinity was detected at concentrations greater than the NRWQC in surface water samples collected at SW-1, SW-2, and SW-3.

PCBs:

- PCBs were not detected at concentrations greater than the analytical method detection limit.

These results are generally consistent with the results of previous surface water sampling rounds.

3.4 Sediment Sampling and Laboratory Analysis

RHE personnel collected one (1) sediment sample (SED-1) on May 7, 2021. The sediment sample was submitted to Microbac Laboratory for laboratory analysis of polychlorinated biphenyls (PCBs), as specified in a letter entitled “Approval with Conditions” issued by the MassDEP and dated April 19, 2007. The complete laboratory analytical report associated with the May 2021 sediment sampling event is included in Appendix A. Summarized laboratory analytical results are included in Table 4.

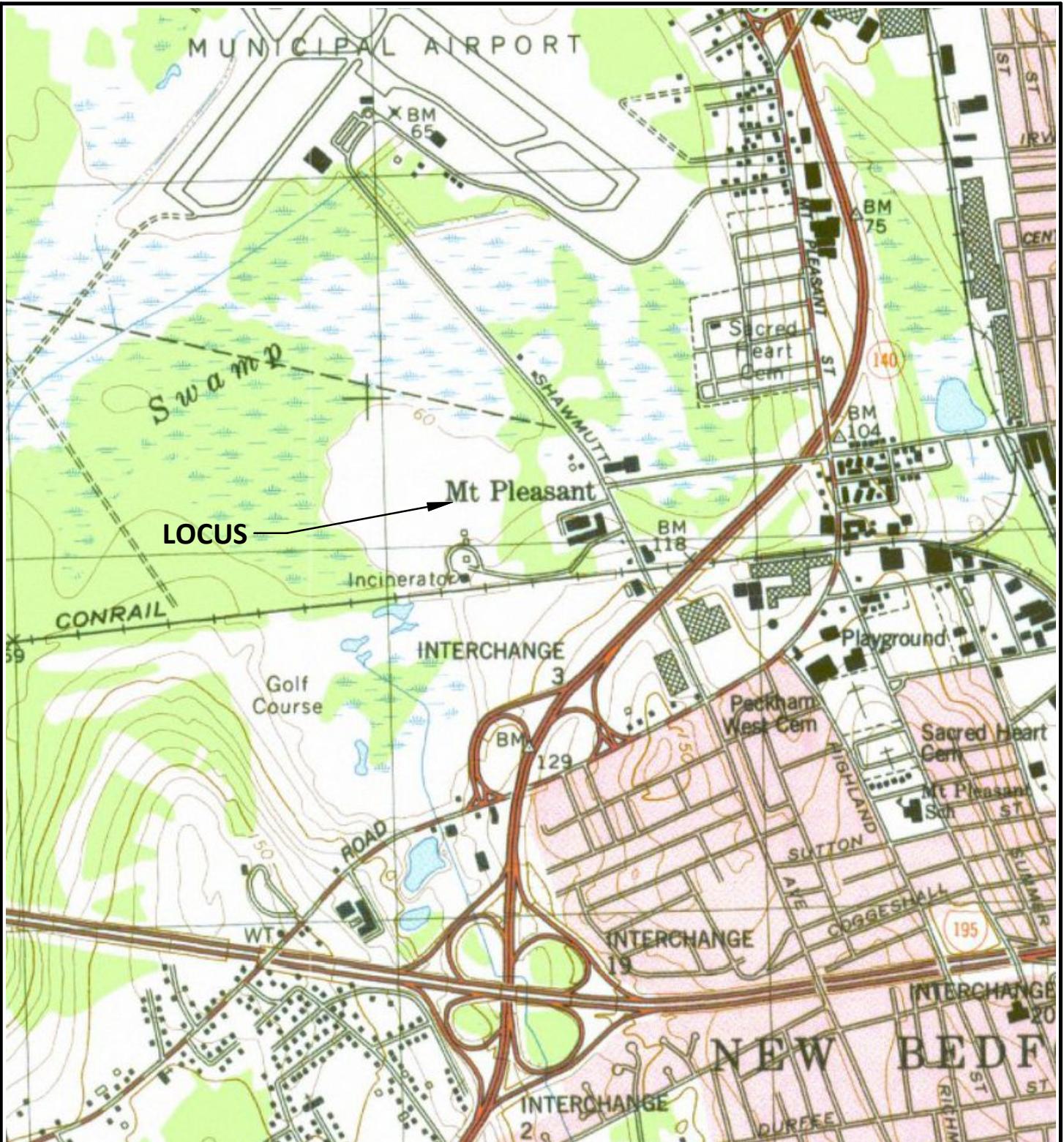
PCBs:

- No PCB analytes were detected at concentrations greater than the analytical method detection limit.

4.0 FUTURE COURSE OF ACTION

The next post-closure environmental monitoring event is scheduled for August 2021.

FIGURES

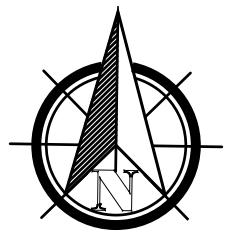


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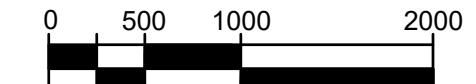
2183 OCEAN STREET
MARSHFIELD, MA 02050

TEL: 781-536-4639
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DRAWING TITLE		
FIGURE 1 - LOCUS PLAN		
PROJECT	SHAWMUT AVENUE LANDFILL NEW BEDFORD, MA	
CLIENT	CITY OF NEW BEDFORD NEW BEDFORD, MA	
APPROX. SCALE:	NTS	DATE: OCT. 19, 2016
		DRAWN BY: RSR
		CHECKED BY: WPK



APPROX SCALE 1" = 1000'



LEGEND

- CDM-1S - GROUNDWATER MONITORING WELL
- LGW-1 - LANDFILL GAS MONITORING WELL
- ▲ SW-1 - SURFACE WATER SAMPLE LOCATION
- ▲ SED-1 - SEDIMENT SAMPLE LOCATION
- ◎ CB-2 - CATCH BASIN
- ❖ MP-1 - TEMPORARY GAS MONITORING POINT/VENT
- TGP-1 - TEMPORARY GAS PROBE

DRAWING TITLE		
SITE PLAN		
PROJECT	SHAWMUT AVENUE LANDFILL NEW BEDFORD, MA	
CLIENT	CITY OF NEW BEDFORD NEW BEDFORD, MA	
APPROX. SCALE:	1" = 1000'	DRAWN BY: PJK
	DATE: FEB 28, 2017	CHECKED BY: WPK



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TABLES

TABLE 1
Landfill Gas Monitoring Results
May 7, 2021

Shawmut Avenue Landfill
New Bedford, Massachusetts

Monitoring Point Identification	Monitoring Location Type	Purge Time minutes	Total Organic Volatiles (TOV)		Methane (CH ₄)		Lower Explosive Lmt. (LEL)		Carbon Dioxide (CO ₂)		Oxygen (O ₂)		Hydrogen Sulfide (H ₂ S)	
			ppmv		% Initial Final		% Initial Final		% Initial Final		% Initial Final		ppm Initial Final	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
LGW-1	Gas Well	10+	0.0	0.2	0.0	49.4	0	988	0.1	22.8	20.1	0.2	0	2
LGW-2	Gas Well	10+	0.2	0.0	0.1	55.5	2	1110	0.2	23.7	19.8	0.5	0	1
LGW-3	Gas Well	10+	0.0	0.1	0.7	62.7	14	1254	0.6	25.1	18.4	3.4	0	0
LGW-4	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.3	0.1	20.8	20.3	0	0
LGW-5	Gas Well	10+	0.0	0.0	0.0	14.1	0	282	0.1	7.1	18.5	15.4	0	0
LGW-6	Gas Well	10+	0.2	0.1	0.0	65.3	0	1306	0.1	26.7	20.1	0.1	0	1
LGW-7	Gas Well	10+	Damaged											
LGW-8	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.0	0.1	21.4	21.5	0	0
LGW-9	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.5	21.5	21.7	0	0
LGW-10	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.0	0.0	21.5	21.5	0	0
LGW-11	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.4	21.5	0	0
LGW-12	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.6	21.4	0	0
LGW-13	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.5	21.6	0	0
LGW-14	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.0	0.0	21.5	21.5	0	0
TGP-1	Temp. Gas Probe	1-5	0.0	0.0	0.0	0.0	0	0	0.1	0.3	21.1	20.9	0	0
TGP-2	Temp. Gas Probe	1-5	0.0	0.0	0.0	0.0	0	0	0.2	0.0	20.9	20.9	0	0
TGP-3	Temp. Gas Probe	1-5	0.0	0.0	0.0	1.1	0	22	0.1	4.0	21.2	9.5	0	0
TGP-4	Temp. Gas Probe	1-5	0.0	0.0	0.0	0.0	0	0	0.2	0.1	21.2	21.2	0	0
TGP-5	Temp. Gas Probe	1-5	0.0	0.0	0.0	0.0	0	0	0.3	0.1	19.5	19.8	0	0
TGP-6	Temp. Gas Probe	1-5	0.0	0.0	0.0	0.0	0	0	0.1	0.2	21.1	21.0	0	0
CB-1	Catch Basin	<1	0.0	0.0	0.0	0.0	0	0	0.0	0.0	20.7	20.8	0	0
CB-2	Catch Basin	<1	0.0	0.0	0.0	0.0	0	0	0.1	0.0	20.8	21.2	0	0
CB-3	Catch Basin	<1	0.0	0.0	0.0	0.0	0	0	0.4	0.0	20.7	21.5	0	0
MP-5	Monitoring Point	10+	0.0	0.0	0.0	3.3	0	66	0.0	1.0	21.2	19.8	0	0
MP-6	Monitoring Point	10+	0.0	0.0	0.0	0.0	0	0	0.2	0.0	21.0	21.2	0	0
Hydrant 1	Fire Hydrant	<1	Removed											
Hydrant 2	Fire Hydrant	<1	0.0	0.0	0.0	0.0	0	0	0.0	0.0	21.2	21.2	0	0
Scale House	Indoor Air	<1	0.0	0.1	0.0	0.0	0	0	0.1	0.0	21.4	21.5	0	0
Warehouse Building	Indoor Air	<1	0.0	0.0	0.0	0.0	0	0	0.1	0.0	21.0	21.1	0	0

Notes: 1.) Monitoring points were purged for approximately 10 minutes before final measurements were recorded.

2.) Total Organic Volatiles were measured using a RAE Lite Organic Volatile Meter.

3.) Methane, LEL, Carbon Dioxide, Oxygen, and Hydrogen Sulfide were measured using a Landtec GEM 5000 Plus Landfill Gas Monitor.

TABLE 2
Groundwater Monitoring Summary
May 7, 2021

Shawmut Avenue Landfill
New Bedford, Massachusetts

ANALYTES	UNITS	MCP GROUNDWATER STANDARDS		DRINKING WATER STANDARDS		GROUNDWATER SAMPLE IDENTIFICATION																					
		GW-2	GW-3	US EPA		MassDEP		CDM-1S	Q	CDM-1D	Q	DUP-1 (CDM-1D)	Q	CDM-3S	Q	CDM-3D	Q	CDM-4S	Q	CDM-4D	Q	CDM-5S	Q	CDM-5D	Q	CDM-6D	Q
				MCLs	SMCLs	MCLs	SMCLs	ORSG																			
VOLATILE ORGANIC COMPOUNDS (US EPA METHOD 8260B)																											
1,1,1,2-Tetrachloroethane	µg/L	10	50,000	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,1,1-Trichloroethane	µg/L	4,000	20,000	200	NS	200	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,1,2,2-Tetrachloroethane	µg/L	9	50,000	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,1,2-Trichlorotrifluoroethane	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,1,2-Trichloroethane	µg/L	900	50,000	5	NS	5	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,1-Dichloroethane	µg/L	2,000	20,000	NS	NS	NS	NS	70	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	3.16	6.00	1.00	U	1.00	U	1.00	U	
1,1-Dichloroethene	µg/L	80	30,000	7	NS	7	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	2.49	1.00	U	1.00	U	1.00	U	1.00	U
1,1-Dichloropropene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2,2,3-Trichlorobenzene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2,3-Trichloropropane	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2,4-Trichlorobenzene	µg/L	200	50,000	70	NS	70	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2,4-Trimethylbenzene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2-Dibromo-3-chloropropane	µg/L	NS	NS	0.2	NS	0.2	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2-Dibromoethane (EDB)	µg/L	2	50,000	0.02	NS	0.02	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2-Dichlorobenzene	µg/L	8,000	2,000	NS	NS	600	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.22	1.00	U	1.00	U	1.00	U	1.00	U
1,2-Dichloroethane	µg/L	5	20,000	5	NS	5	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,2-Dichloropropane	µg/L	3	50,000	5	NS	5	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,3,5-Trimethylbenzene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,3-Dichlorobenzene	µg/L	6,000	50,000	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,3-Dichloropropane	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,4-Dichlorobenzene	µg/L	60	8,000	NS	NS	5	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
1,4-Dioxane	µg/L	6,000	50,000	NS	NS	NS	NS	NS	0.3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	173	183	151	87.3	20.0	U	20.0	U	
2,2-Dichloropropane	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	4.33	1.00	U	1.00	U	1.00	U	1.00	U
2-Butanone (MEK)	µg/L	50,000	50,000	NS	NS	NS	NS	NS	4,000	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	U	
2-Chlorotoluene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
2-Hexanone	µg/L	NS	NS	NS	NS	NS	NS	NS	5.00	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00	U	5.00	U	
4-Chlorotoluene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	
4-Isopropyltoluene	µg/L	NS	NS	NS	NS	NS	NS	NS	1.00	U	1.00	U	1.00</														

TABLE 3
Surface Water Analytical Summary
May 7, 2021

Shawmut Avenue Landfill
New Bedford, Massachusetts

ANALYTES	UNITS	NRWQC	SURFACE WATER SAMPLE IDENTIFICATION				
			SW-1	Q	SW-2	Q	SW-3
VOLATILE ORGANIC COMPOUNDS (US EPA METHOD 8260C)							
1,1,1,2-Tetrachloroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,1,1-Trichloroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,1,2,2-Tetrachloroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,1,2-Trichlorotrifluoroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,1,2-Trichloroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,1-Dichloroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,1-Dichloroethene	µg/L	NS	1.00	U	1.00	U	1.00
1,1-Dichloropropene	µg/L	NS	1.00	U	1.00	U	1.00
1,2,3-Trichlorobenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,2,3-Trichloropropane	µg/L	NS	1.00	U	1.00	U	1.00
1,2,4-Trichlorobenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,2,4-Trimethylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,2-Dibromo-3-chloropropane	µg/L	NS	1.00	U	1.00	U	1.00
1,2-Dibromoethane (EDB)	µg/L	NS	1.00	U	1.00	U	1.00
1,2-Dichlorobenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,2-Dichloroethane	µg/L	NS	1.00	U	1.00	U	1.00
1,2-Dichloropropane	µg/L	NS	1.00	U	1.00	U	1.00
1,3,5-Trimethylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,3-Dichlorobenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,3-Dichloropropane	µg/L	NS	1.00	U	1.00	U	1.00
1,4-Dichlorobenzene	µg/L	NS	1.00	U	1.00	U	1.00
1,4-Dioxane	µg/L	NS	20.0	U	22.5	U	20.0
2,2-Dichloropropane	µg/L	NS	1.00	U	1.00	U	1.00
2-Butanone (MEK)	µg/L	NS	10.0	U	10.0	U	10.0
2-Chlorotoluene	µg/L	NS	1.00	U	1.00	U	1.00
2-Hexanone	µg/L	NS	5.00	U	5.00	U	5.00
4-Chlorotoluene	µg/L	NS	1.00	U	1.00	U	1.00
4-Isopropyltoluene	µg/L	NS	1.00	U	1.00	U	1.00
4-Methyl-2-Pentanone (MIBK)	µg/L	NS	5.00	U	5.00	U	5.00
Acetone	µg/L	NS	10.0	U	10.0	U	10.0
Acrylonitrile	µg/L	NS	5.00	U	5.00	U	5.00
Benzene	µg/L	NS	1.00	U	1.00	U	1.00
Bromobenzene	µg/L	NS	1.00	U	1.00	U	1.00
Bromochloromethane	µg/L	NS	1.00	U	1.00	U	1.00
Bromodichloromethane	µg/L	NS	1.00	U	1.00	U	1.00
Bromoform	µg/L	NS	1.00	U	1.00	U	1.00
Bromomethane	µg/L	NS	5.00	U	5.00	U	5.00
Carbon Disulfide	µg/L	NS	1.00	U	1.00	U	1.00
Carbon Tetrachloride	µg/L	NS	1.00	U	1.00	U	1.00
Chlorobenzene	µg/L	NS	1.00	U	1.00	U	1.00
Chloroethane	µg/L	NS	5.00	U	5.00	U	5.00
Chloroform	µg/L	NS	1.00	U	1.00	U	1.00
Chloromethane	µg/L	NS	5.00	U	5.00	U	5.00
cis-1,2-Dichloroethene	µg/L	NS	1.00	U	1.00	U	1.00
cis-1,3-Dichloropropene	µg/L	NS	1.00	U	1.00	U	1.00
Dibromochloromethane	µg/L	NS	1.00	U	1.00	U	1.00
Dibromomethane	µg/L	NS	1.00	U	1.00	U	1.00
Dichlorodifluoromethane	µg/L	NS	1.00	U	1.00	U	1.00
Diethyl Ether	µg/L	NS	1.00	U	1.14	U	1.00
Ethylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
Hexachlorobutadiene	µg/L	NS	1.00	U	1.00	U	1.00
Isopropylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
Methyl tert-butyl Ether (MTBE)	µg/L	NS	1.00	U	1.00	U	1.00
Methylene Chloride	µg/L	NS	1.00	U	1.00	U	1.00
Naphthalene	µg/L	NS	1.00	U	1.00	U	1.00
n-Butylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
n-Propylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
sec-Butylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
Styrene	µg/L	NS	1.00	U	1.02	U	1.00
tert-Butylbenzene	µg/L	NS	1.00	U	1.00	U	1.00
Tetrachloroethene (PCE)	µg/L	NS	1.00	U	1.00	U	1.00
Tetrahydrofuran (THF)	µg/L	NS	1.94		3.66		1.00
Toluene	µg/L	NS	1.00	U	1.00	U	1.00
trans-1,2-Dichloroethene	µg/L	NS	1.00	U	1.00	U	1.00
trans-1,3-Dichloropropene	µg/L	NS	1.00	U	1.00	U	1.00
trans-1,4-Dichloro-2-butene	µg/L	NS	1.00	U	1.00	U	1.00
Trichloroethene (TCE)	µg/L	NS	1.00	U	1.00	U	1.00
Trichlorofluoromethane	µg/L	NS	1.00	U	1.00	U	1.00
Vinyl Chloride	µg/L	NS	1.00	U	1.00	U	1.00
meta-Xylene and para-Xylene	µg/L	NS	1.00	U	1.00	U	1.00
ortho-Xylene	µg/L	NS	1.00	U	1.00	U	1.00

TABLE 3
Surface Water Analytical Summary
May 7, 2021

Shawmut Avenue Landfill
New Bedford, Massachusetts

ANALYTES	UNITS	NRWQC	SURFACE WATER SAMPLE IDENTIFICATION					
			SW-1	Q	SW-2	Q	SW-3	Q
DISSOLVED METALS (US EPA 6000/7000 Series Methods)								
Arsenic	µg/L	150	5	U	5	U	5	U
Barium	µg/L	NS	493		160		18.3	
Cadmium	µg/L	see below	2	U	2	U	2	U
Calcium	µg/L	NS	0.0591		0.0722		0.0156	
Chromium	µg/L	74	2	U	2	U	2	U
Copper	µg/L	see below	7		2	U	6.7	
Iron	µg/L	1,000	327		27		577	
Lead	µg/L	see below	3	U	3	U	3	U
Manganese	µg/L	NS	537		3,750		159	
Mercury	µg/L	0.77	0.2	U	0.2	U	0.2	U
Selenium	µg/L	5.0	12.5		5	U	5	U
Silver	µg/L	see below	2	U	2	U	2	U
Sodium	µg/L	NS	85,900		26,200		4,100	
Zinc	µg/L	see below	17		16.8		8.6	
GENERAL WATER QUALITY PARAMETERS (US EPA or MassDEP-Approved Methods)								
Alkalinity, Total (as CaCO ₃)	mg/L	20	308		238		92.5	
Chloride	mg/L	230	85.0		42.0		2.53	
Chemical Oxygen Demand (COD)	mg/L	NS	87.4		484		42.2	
Cyanide (total)	mg/L	0.0052	0.0100	U	0.0100	U	0.0100	U
Nitrate (as Nitrogen)	mg/L	NS	10.3		0.0500	U	0.121	
Sulfate	mg/L	NS	5.00	U	5.00	U	5.00	U
Total Dissolved Solids (TDS)	mg/L	NS	538		340		91.0	
Hardness	mg/L	NS	235		298		45.7	
POLYCHLORINATED BIPHENYLS (US EPA Method 8082)								
Aroclor 1016	µg/L	0.014	----		----		0.100	U
Aroclor 1221	µg/L	0.014	----		----		0.100	U
Aroclor 1232	µg/L	0.014	----		----		0.100	U
Aroclor 1242	µg/L	0.014	----		----		0.100	U
Aroclor 1248	µg/L	0.014	----		----		0.100	U
Aroclor 1254	µg/L	0.014	----		----		0.100	U
Aroclor 1260	µg/L	0.014	----		----		0.100	U
FIELD PARAMETERS (YSI 556)								
Temperature	°C	NS	12.70		10.40		11.10	
pH	SU	6.5-9.0	7.63		6.56		7.47	
Specific Conductance	umhos/cm	NS	974		812		94	
Dissolved Oxygen (DO)	mg/L	NS	5.58		1.39		716	

CALCULATED NRWQC FOR HARDNESS DEPENDENT METALS											
Surface Water Sampling Location	Measured Hardness (mg/L)	Cadmium (µg/L)	Calculated Criteria	Copper (µg/L)	Calculated Criteria	Lead (µg/L)	Calculated Criteria	Silver (µg/L)	Calculated Criteria	Zinc (µg/L)	Calculated Criteria
SW-1	235	ND	0.45	7	18.6	ND	6.3	ND	13.985	17	244
SW-2	298	ND	0.5	ND	22.8	ND	8.1	ND	21.041	16.8	298
SW-3	45.7	ND	0.1	ND	4.6	ND	1.1	ND	0.837	8.6	61

1. Highlighted cells indicate that the NRWQC is exceeded.
2. NRWQC: National Recommended Water Quality Criteria for Freshwater Based Surface Water (2009)
3. Criterion continuous concentrations (CCC) criteria values are compared to. If CCC values are not present, Criterion Maximum Concentration (CMC) values have been used.
4. The NRWQC Standards for select metals analytes are dependent on hardness concentrations. Criteria have been calculated based on equations and factors presented in Appendix B of the NRWQC Guidance (2009).
5. Total Chromium results are compared to the NRWQC for Chromium III.
6. NS: No Standard.
7. U: Analyte was not detected at a concentration greater than the analytical method detection limit.

TABLE 4
Sediment Sample Analytical Summary
May 7, 2021

Shawmut Avenue Landfill
New Bedford, Massachusetts

ANALTYES	UNITS	MCP S-1/GW-3 Concentration	SEDIMENT SAMPLE IDENTIFICATION
			SED-1
POLYCHLORINATED BIPHENYLS (US EPA Method 8082)			
Aroclor 1016	mg/Kg	2	<0.00467
Aroclor 1221	mg/Kg	2	<0.00467
Aroclor 1232	mg/Kg	2	<0.00467
Aroclor 1242	mg/Kg	2	<0.00467
Aroclor 1248	mg/Kg	2	<0.00467
Aroclor 1254	mg/Kg	2	<0.00467
Aroclor 1260	mg/Kg	2	<0.00467
Total PCBs	mg/Kg	2	<0.00467

1. Highlighted cells indicate that the MCP Method 1 S-1/GW-3 Soil Concentration is exceeded.

APPENDIX A

Laboratory Analytical Results & Field Logs



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Project Description

Shawmut Landfill

For:

Bill Kenney

River Hawk Environmental, LLC

2183 Ocean Street, Suite 2

Marshfield, MA 02050

A handwritten signature in black ink that reads "Melisa L. Montgomery".

Quality Assurance Officer

Melisa L. Montgomery

Tuesday, June 8, 2021

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. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. 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

D1E0858

River Hawk Environmental, LLC

Bill Kenney
2183 Ocean Street, Suite 2
Marshfield, MA 02050

Project Name: Shawmut Landfill

Project / PO Number: Shawmut Landfill
Received: 05/07/2021
Reported: 06/08/2021

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>
CDM-1S	D1E0858-01	Aqueous	Grab		05/07/21 09:15	05/07/21 15:00
CDM-1D	D1E0858-02	Aqueous	Grab		05/07/21 08:45	05/07/21 15:00
CDM-3S	D1E0858-03	Aqueous	Grab		05/07/21 07:15	05/07/21 15:00
CDM-3D	D1E0858-04	Aqueous	Grab		05/07/21 07:30	05/07/21 15:00
CDM-4S	D1E0858-05	Aqueous	Grab		05/07/21 07:45	05/07/21 15:00
CDM-4D	D1E0858-06	Aqueous	Grab		05/07/21 08:00	05/07/21 15:00
CDM-5S	D1E0858-07	Aqueous	Grab		05/07/21 08:15	05/07/21 15:00
CDM-5D	D1E0858-08	Aqueous	Grab		05/07/21 08:10	05/07/21 15:00
CDM-6D	D1E0858-09	Aqueous	Grab		05/07/21 10:00	05/07/21 15:00
DUP-1	D1E0858-10	Aqueous	Grab		05/07/21 08:50	05/07/21 15:00
FIELD BLANK	D1E0858-11	Aqueous	Grab		05/07/21 08:25	05/07/21 15:00



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Analytical Testing Parameters

Client Sample ID:	CDM-1S	Collected By:	Customer
Sample Matrix:	Aqueous	Collection Date:	05/07/2021 9:15
Lab Sample ID:	D1E0858-01		

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0500	0.0500	mg/L	1	Y1	05/18/21 1938	05/19/21 1418	DCH
Hach 8000								
Chemical Oxygen Demand (COD)	66.0	5.00	mg/L	1		05/10/21 1921	05/10/21 1928	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	605	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	663	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-CI E-2011								
Chloride	112	4.00	mg/L	2	A21		05/11/21 1250	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1849	DJM
SM 4500-SO₄²⁻ E-2011								
Sulfate as SO ₄	15.0	5.00	mg/L	1	A21		05/07/21 1655	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1410	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Barium	0.150	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Calcium	100	1.00	mg/L	20	Y1	05/12/21 1114	05/17/21 1946	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Iron	4.11	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Manganese	0.427	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1908	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Sodium	82.4	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Zinc	0.0070	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 1951	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1414	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1414	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-1S	Collected By:		Customer					
Sample Matrix:	Aqueous	Collection Date:							
Lab Sample ID:	D1E0858-01			05/07/2021 9:15					
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst	
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1414	RSD	
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1414	RSD	
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1414	RSD	
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1414	RSD	
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,1-Dichloroethene	cis-1,2-Dichloroethene	1.55	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1414	RSD	
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1414	RSD	
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD	

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-1S	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-01			05/07/2021 9:15				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1414	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Tetrahydrofuran (THF)	1.83	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1414	RSD
Surrogate: 1,2-Dichloroethane-d4	84.7	Limit: 70-130	% Rec	1			05/12/21 1414	RSD
Surrogate: Toluene-d8	96.8	Limit: 70-130	% Rec	1			05/12/21 1414	RSD
Surrogate: Pentafluorobenzene	111	Limit: 70-130	% Rec	1			05/12/21 1414	RSD



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-1D	Collected By:	Customer					
Sample Matrix:	Aqueous	Collection Date:	05/07/2021 8:45					
Lab Sample ID:	D1E0858-02							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1605	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	23.8	5.00	mg/L	1		05/10/21 1921	05/10/21 1928	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	335	1.00	mg CaCO ₃ /L	1	A27		05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	562	50.0	mg/L	20		05/12/21 2035	05/14/21 1830	TJT
SM 4500-CI E-2011								
Chloride	127	4.00	mg/L	2	A21		05/11/21 1252	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1904	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	24.7	5.00	mg/L	1	A21		05/07/21 1657	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1334	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Barium	0.272	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Calcium	74.1	0.0500	mg/L	1	M6,Y1	05/12/21 1114	05/13/21 1941	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Iron	11.5	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Manganese	0.901	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1858	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Sodium	67.8	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Zinc	0.0120	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 1941	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1439	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1439	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-1D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-02			05/07/2021 8:45				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1439	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1439	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1439	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1439	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Diethyl ether	3.62	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,4-Dioxane	21.2	20.0	ug/L	1	Y1		05/12/21 1439	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1439	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-1D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-02			05/07/2021 8:45				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1439	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Tetrahydrofuran (THF)	23.4	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1439	RSD
Surrogate: 1,2-Dichloroethane-d4	84.8	Limit: 70-130	% Rec	1			05/12/21 1439	RSD
Surrogate: Toluene-d8	97.6	Limit: 70-130	% Rec	1			05/12/21 1439	RSD
Surrogate: Pentafluorobenzene	109	Limit: 70-130	% Rec	1			05/12/21 1439	RSD



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-3S	Collected By:				Customer		
Sample Matrix:	Aqueous	Collection Date:				05/07/2021 7:15		
Lab Sample ID:	D1E0858-03							
Inorganics Total								
EPA 9012A						Method Notes: A28		
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1606	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	20.1	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	55.0	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	83.0	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-Cl E-2011								
Chloride	6.77	2.00	mg/L	1	A21		05/11/21 1253	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	0.165	0.0500	mg/L	1	A5		05/07/21 1905	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	5.02	5.00	mg/L	1	A21		05/07/21 1658	CLW
Metals Dissolved by CVAA								
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1416	MMC
Metals Dissolved by ICP								
EPA 3010A/EPA 6010C								
Arsenic	0.0108	0.0050	mg/L	1	Q10,Y1	05/12/21 1114	05/17/21 1911	DLO
Barium	<0.0100	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Calcium	15.3	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Iron	1.44	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Manganese	0.127	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1911	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Sodium	9.21	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Zinc	0.0097	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 1954	DLO
Volatile Organic Compounds by GCMS								
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1504	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1504	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-3S	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-03			05/07/2021 7:15				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1504	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1504	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1504	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1504	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1504	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1504	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-3S	Collected By:	
Sample Matrix:	Aqueous	Collection Date:	
Lab Sample ID:	D1E0858-03		Customer 05/07/2021 7:15

Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1504	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1504	RSD
Surrogate: 1,2-Dichloroethane-d4	83.3	Limit: 70-130	% Rec	1			05/12/21 1504	RSD
Surrogate: Toluene-d8	98.0	Limit: 70-130	% Rec	1			05/12/21 1504	RSD
Surrogate: Pentafluorobenzene	109	Limit: 70-130	% Rec	1			05/12/21 1504	RSD

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1247	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	51.3	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1247	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	58.2	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1247	MRB



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-3D	Collected By:				Customer		
Sample Matrix:	Aqueous	Collection Date:				05/07/2021 7:30		
Lab Sample ID:	D1E0858-04							
Inorganics Total								
EPA 9012A						Method Notes: A28		
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1607	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	22.9	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	328	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	494	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-CI E-2011								
Chloride	84.9	2.00	mg/L	1	A21		05/11/21 1219	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1906	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	20.8	5.00	mg/L	1	A21		05/07/21 1659	CLW
Metals Dissolved by CVAA								
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1418	MMC
Metals Dissolved by ICP								
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Barium	<0.0100	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Calcium	97.6	1.00	mg/L	20	Y1	05/12/21 1114	05/17/21 1950	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Iron	<0.0500	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Manganese	0.0785	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1914	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Sodium	38.2	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Zinc	0.0082	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2007	DLO
Volatile Organic Compounds by GCMS								
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1529	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1529	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-3D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-04			05/07/2021 7:30				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1529	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1529	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Chlorobenzene	1.55	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1529	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1529	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
trans-1,2-Dichloroethene	35.6	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1-Dichloroethene	2.49	1.00	ug/L	1	Y1		05/12/21 1529	RSD
cis-1,2-Dichloroethene	151	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Diethyl ether	1.52	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1529	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1529	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-3D	Collected By:	
Sample Matrix:	Aqueous	Collection Date:	
Lab Sample ID:	D1E0858-04		Customer 05/07/2021 7:30

Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	1.77	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1529	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Trichloroethene	161	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1529	RSD
Surrogate: 1,2-Dichloroethane-d4	83.8	Limit: 70-130	% Rec	1			05/12/21 1529	RSD
Surrogate: Toluene-d8	95.7	Limit: 70-130	% Rec	1			05/12/21 1529	RSD
Surrogate: Pentafluorobenzene	110	Limit: 70-130	% Rec	1			05/12/21 1529	RSD

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1258	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	73.6	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1258	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	72.0	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1258	MRB



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-4S	Collected By:				Customer		
Sample Matrix:	Aqueous	Collection Date:				05/07/2021 7:45		
Lab Sample ID:	D1E0858-05							
Inorganics Total								
EPA 9012A						Method Notes: A28		
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1608	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	93.1	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	535	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	934	50.0	mg/L	20		05/12/21 2035	05/14/21 1640	TJT
SM 4500-Cl E-2011								
Chloride	285	10.0	mg/L	5	A21		05/11/21 1254	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1907	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	17.5	5.00	mg/L	1	A21		05/07/21 1700	CLW
Metals Dissolved by CVAA								
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1420	MMC
Metals Dissolved by ICP								
EPA 3010A/EPA 6010C								
Arsenic	<0.0051	0.0051	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Barium	0.308	0.0102	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Calcium	145	1.02	mg/L	20	Y1	05/12/21 1114	05/17/21 1953	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Iron	35.8	0.0510	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Lead	0.0041	0.0031	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Manganese	0.895	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Selenium	<0.0051	0.0051	mg/L	1	Y1	05/12/21 1114	05/17/21 1918	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Sodium	182	1.02	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Zinc	<0.0051	0.0051	mg/L	1	Y1	05/12/21 1114	05/13/21 2010	DLO
Volatile Organic Compounds by GCMS								
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1555	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1555	RSD
Benzene	1.74	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-4S	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-05			05/07/2021 7:45				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1555	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1555	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Chlorobenzene	6.51	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1555	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1555	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1-Dichloroethane	3.16	1.00	ug/L	1	Y1		05/12/21 1555	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Diethyl ether	6.47	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,4-Dioxane	173	20.0	ug/L	1	Y1		05/12/21 1555	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1555	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-4S				Collected By:	Customer		
Sample Matrix:	Aqueous				Collection Date:	05/07/2021 7:45		
Lab Sample ID:	D1E0858-05							
Volatile Organic Compounds by GCMS								
Methyl tert-butyl ether (MTBE)	2.41	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1555	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Tetrahydrofuran (THF)	10.4	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1555	RSD
Surrogate: 1,2-Dichloroethane-d4	83.7	Limit: 70-130	% Rec	1			05/12/21 1555	RSD
Surrogate: Toluene-d8	96.3	Limit: 70-130	% Rec	1			05/12/21 1555	RSD
Surrogate: Pentafluorobenzene	110	Limit: 70-130	% Rec	1			05/12/21 1555	RSD



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-4D	Collected By:	Customer					
Sample Matrix:	Aqueous	Collection Date:	05/07/2021 8:00					
Lab Sample ID:	D1E0858-06							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1609	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	105	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	645	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	1200	50.0	mg/L	20		05/12/21 2035	05/14/21 1830	TJT
SM 4500-Cl E-2011								
Chloride	355	10.0	mg/L	5	A21		05/11/21 1255	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1912	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	8.12	5.00	mg/L	1	A21		05/07/21 1701	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1423	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Barium	0.0836	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Calcium	219	2.50	mg/L	50	Y1	05/12/21 1114	05/17/21 1956	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Iron	21.9	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Lead	0.0049	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Manganese	5.02	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1921	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Sodium	176	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Zinc	0.0055	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2013	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1620	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1620	RSD
Benzene	1.66	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-4D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-06			05/07/2021 8:00				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1620	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1620	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Chlorobenzene	75.6	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1620	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1620	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2-Dichlorobenzene	1.22	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1-Dichloroethane	6.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
cis-1,2-Dichloroethene	4.47	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
2,2-Dichloropropane	4.33	1.00	ug/L	1	Y1		05/12/21 1620	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Diethyl ether	6.69	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,4-Dioxane	183	20.0	ug/L	1	Y1		05/12/21 1620	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1620	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-4D					Collected By:	Customer	
Sample Matrix:	Aqueous					Collection Date:	05/07/2021 8:00	
Lab Sample ID:	D1E0858-06							
Volatile Organic Compounds by GCMS								
Methyl tert-butyl ether (MTBE)	2.69	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
4-Methyl-2-pantanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1620	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Tetrahydrofuran (THF)	9.93	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Vinyl chloride	5.56	1.00	ug/L	1	Y1		05/12/21 1620	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1620	RSD
Surrogate: 1,2-Dichloroethane-d4	84.1	Limit: 70-130	% Rec	1			05/12/21 1620	RSD
Surrogate: Toluene-d8	94.2	Limit: 70-130	% Rec	1			05/12/21 1620	RSD
Surrogate: Pentafluorobenzene	110	Limit: 70-130	% Rec	1			05/12/21 1620	RSD



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-5S	Collected By:	Customer					
Sample Matrix:	Aqueous	Collection Date:	05/07/2021 8:15					
Lab Sample ID:	D1E0858-07							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1611	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	79.0	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	483	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	740	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-Cl E-2011								
Chloride	141	4.00	mg/L	2	A21		05/11/21 1256	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1913	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	<5.00	5.00	mg/L	1	A21		05/07/21 1701	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1425	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Barium	0.112	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Calcium	111	1.00	mg/L	20	Y1	05/12/21 1114	05/17/21 1959	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Copper	0.0103	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Iron	2.35	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Lead	0.0035	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Manganese	7.52	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Selenium	0.0127	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1934	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Sodium	73.3	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Zinc	0.0131	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2016	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1645	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1645	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-5S	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-07			05/07/2021 8:15				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1645	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1645	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Chlorobenzene	7.08	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1645	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1645	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Diethyl ether	2.81	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,4-Dioxane	151	20.0	ug/L	1	Y1		05/12/21 1645	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1645	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-5S	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:		05/07/2021 8:15				
Lab Sample ID:	D1E0858-07							
<hr/>								
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1645	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Tetrahydrofuran (THF)	27.2	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1645	RSD
Surrogate: 1,2-Dichloroethane-d4	85.2	Limit: 70-130	% Rec	1			05/12/21 1645	RSD
Surrogate: Toluene-d8	95.6	Limit: 70-130	% Rec	1			05/12/21 1645	RSD
Surrogate: Pentafluorobenzene	110	Limit: 70-130	% Rec	1			05/12/21 1645	RSD
Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016) [2C]	2.14	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Aroclor-1221 (PCB-1221) [2C]	<0.400	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Aroclor-1232 (PCB-1232) [2C]	<0.400	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Aroclor-1242 (PCB-1242) [2C]	<0.400	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Aroclor-1248 (PCB-1248) [2C]	<0.400	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Aroclor-1254 (PCB-1254) [2C]	<0.400	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Aroclor-1260 (PCB-1260) [2C]	<0.400	0.400	ug/L	4	M8,Y1	05/10/21 1000	05/24/21 1408	MRB
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	46.0	Limit: 30-150	% Rec	4	M8	05/10/21 1000	05/24/21 1408	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	47.0	Limit: 30-150	% Rec	4	M8	05/10/21 1000	05/24/21 1408	MRB

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-5D	Collected By:				Customer		
Sample Matrix:	Aqueous	Collection Date:				05/07/2021 8:10		
Lab Sample ID:	D1E0858-08							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A			Method Notes: A28					
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1612	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	61.0	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	453	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	635	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-CI E-2011								
Chloride	104	4.00	mg/L	2	A21		05/11/21 1257	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5		05/07/21 1915	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	<5.00	5.00	mg/L	1	A21		05/07/21 1703	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1427	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Barium	0.181	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Calcium	100	1.00	mg/L	20	Y1	05/12/21 1114	05/17/21 2012	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Copper	0.0070	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Iron	1.88	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Lead	0.0039	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Manganese	8.68	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Selenium	0.0117	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1937	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Sodium	48.6	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Zinc	0.0161	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2020	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1710	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1710	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-5D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-08			05/07/2021 8:10				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1710	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1710	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Chlorobenzene	1.87	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1710	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1710	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Diethyl ether	2.44	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,4-Dioxane	87.3	20.0	ug/L	1	Y1		05/12/21 1710	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1710	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-5D	Collected By:	
Sample Matrix:	Aqueous	Collection Date:	
Lab Sample ID:	D1E0858-08		Customer 05/07/2021 8:10

Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1710	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Tetrahydrofuran (THF)	12.0	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1710	RSD
Surrogate: 1,2-Dichloroethane-d4	83.8	Limit: 70-130	% Rec	1			05/12/21 1710	RSD
Surrogate: Toluene-d8	97.6	Limit: 70-130	% Rec	1			05/12/21 1710	RSD
Surrogate: Pentafluorobenzene	111	Limit: 70-130	% Rec	1			05/12/21 1710	RSD

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	0.946	0.100	ug/L	1	AC, M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1357	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	57.4	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1357	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	66.3	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1357	MRB



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-6D	Collected By:				Customer		
Sample Matrix:	Aqueous	Collection Date:				05/07/2021 10:00		
Lab Sample ID:	D1E0858-09							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1613	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	24.0	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	105	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	156	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-Cl E-2011								
Chloride	16.5	2.00	mg/L	1	A21		05/11/21 1204	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	0.952	0.0500	mg/L	1	A5		05/07/21 1916	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	15.2	5.00	mg/L	1	A21		05/07/21 1703	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1340	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Q10,Y1	05/12/21 1114	05/17/21 1940	DLO
Barium	0.0828	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Calcium	21.2	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Copper	0.0050	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Iron	0.0769	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Manganese	0.0129	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/17/21 1940	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Sodium	32.8	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Zinc	0.0076	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2023	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1735	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1735	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-6D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-09			05/07/2021 10:00				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1735	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1735	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1735	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1735	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1735	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1735	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	CDM-6D	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-09			05/07/2021 10:00				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1735	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1735	RSD
Surrogate: 1,2-Dichloroethane-d4	83.7	Limit: 70-130	% Rec	1			05/12/21 1735	RSD
Surrogate: Toluene-d8	95.4	Limit: 70-130	% Rec	1			05/12/21 1735	RSD
Surrogate: Pentafluorobenzene	108	Limit: 70-130	% Rec	1			05/12/21 1735	RSD



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	DUP-1		Collected By:	Customer				
Sample Matrix:	Aqueous		Collection Date:	05/07/2021 8:50				
Lab Sample ID:	D1E0858-10							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1614	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	24.2	5.00	mg/L	1		05/10/21 1700	05/10/21 1900	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	310	1.00	mg CaCO ₃ /L	1		05/09/21 1900	SRF	
SM 2540 C-2011								
Total Dissolved Solids (TDS)	548	25.0	mg/L	10		05/12/21 2035	05/14/21 1640	TJT
SM 4500-Cl E-2011								
Chloride	128	4.00	mg/L	2	A21	05/11/21 1259	CLW	
SM 4500-NO₃⁻ F-2011								
Nitrate as N	<0.0500	0.0500	mg/L	1	A5	05/07/21 1847	DJM	
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	25.7	5.00	mg/L	1	A21	05/07/21 1707	CLW	
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1429	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3010A/EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Barium	0.271	0.0100	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Calcium	73.6	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Copper	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Iron	11.1	0.0500	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Manganese	0.893	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Sodium	67.6	1.00	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Zinc	0.0079	0.0050	mg/L	1	Y1	05/12/21 1114	05/13/21 2026	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1800	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1800	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	DUP-1	Sample Matrix:	Aqueous	Collected By:		Customer		
Lab Sample ID:	D1E0858-10			Collection Date:		05/07/2021	8:50	
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1800	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1800	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1800	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1800	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
cis-1,2-Dichloroethene	1.51	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1800	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1800	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	DUP-1	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-10			05/07/2021 8:50				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1800	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1800	RSD
Surrogate: 1,2-Dichloroethane-d4	84.5	Limit: 70-130	% Rec	1			05/12/21 1800	RSD
Surrogate: Toluene-d8	95.1	Limit: 70-130	% Rec	1			05/12/21 1800	RSD
Surrogate: Pentafluorobenzene	112	Limit: 70-130	% Rec	1			05/12/21 1800	RSD



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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	FIELD BLANK	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-11			05/07/2021 8:25				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1234	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1234	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1234	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1234	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1234	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1234	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD

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CERTIFICATE OF ANALYSIS

D1E0858

Client Sample ID:	FIELD BLANK	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0858-11			05/07/2021 8:25				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1234	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1234	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1234	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1234	RSD
Surrogate: 1,2-Dichloroethane-d4	85.1	Limit: 70-130	% Rec	1			05/12/21 1234	RSD
Surrogate: Toluene-d8	97.1	Limit: 70-130	% Rec	1			05/12/21 1234	RSD
Surrogate: Pentafluorobenzene	111	Limit: 70-130	% Rec	1			05/12/21 1234	RSD



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CERTIFICATE OF ANALYSIS

D1E0858

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
SM 4500-SO ₄ ⁻ E-2011	DE10413	DE10413-BS1 DE10413-BLK1 DE10413-DUP1 DE10413-MS1 DE10413-MSD1 D1E0858-01 D1E0858-02 D1E0858-03 D1E0858-04 D1E0858-05 D1E0858-06 D1E0858-07 D1E0858-08 D1E0858-09 D1E0858-10	D1E0522-02 D1E0522-02 D1E0522-02 CDM-1S CDM-1D CDM-3S CDM-3D CDM-4S CDM-4D CDM-5S CDM-5D CDM-6D DUP-1
SM 4500-NO ₃ ⁻ F-2011	DE10460	D1E0858-10 D1E0858-01 DE10460-DUP1 DE10460-MS1 DE10460-MSD1 DE10460-BS1 DE10460-BLK1 D1E0858-02 D1E0858-03 D1E0858-04 D1E0858-05 D1E0858-06 D1E0858-07 D1E0858-08 D1E0858-09	DUP-1 CDM-1S D1E0858-01 D1E0858-01 D1E0858-01 CDM-1D CDM-3S CDM-3D CDM-4S CDM-4D CDM-5S CDM-5D CDM-6D
SM 2540 C-2011	DE10486	DE10486-BLK1 D1E0858-10 D1E0858-09 D1E0858-07 DE10486-BS1 D1E0858-04	DUP-1 CDM-6D CDM-5S CDM-3D

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CERTIFICATE OF ANALYSIS

D1E0858

SM 2540 C-2011	DE10486	D1E0858-05 D1E0858-01 D1E0858-03 D1E0858-08 D1E0858-02 D1E0858-06 DE10486-DUP1	CDM-4S CDM-1S CDM-3S CDM-5D CDM-1D CDM-4D D1E0858-04
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Method	Batch	Laboratory ID	Client / Source ID
SM 2320 B-2011	DE10490	D1E0858-07 D1E0858-10 DE10490-BLK1 D1E0858-09 D1E0858-08 D1E0858-05 DE10490-BS1 D1E0858-06 D1E0858-03 D1E0858-04 D1E0858-01 D1E0858-02 DE10490-DUP1	CDM-5S DUP-1 CDM-6D CDM-5D CDM-4S CDM-4D CDM-3S CDM-3D CDM-1S CDM-1D D1E0789-01
EPA 8082A	DE10522	DE10522-BLK1 DE10522-BS1 DE10522-MS1 D1E0858-03 D1E0858-04 D1E0858-08RE1 D1E0858-07RE1	D1E0858-04 CDM-3S CDM-3D CDM-5D CDM-5S
SM 4500-CI E-2011	DE10560	DE10560-BLK1 D1E0858-09 DE10560-DUP1 DE10560-MS1 DE10560-MSD1 D1E0858-04 DE10560-BS1 D1E0858-01 D1E0858-02 D1E0858-03 D1E0858-05	CDM-6D D1E0858-09 D1E0858-09 D1E0858-09 CDM-3D CDM-1S CDM-1D CDM-3S CDM-4S

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CERTIFICATE OF ANALYSIS

D1E0858

SM 4500-CI E-2011

DE10560	D1E0858-06	CDM-4D
	D1E0858-07	CDM-5S
	D1E0858-08	CDM-5D
	D1E0858-10	DUP-1

Method	Batch	Laboratory ID	Client / Source ID
Hach 8000	DE10563	DE10563-MS1	D1E0240-04
		DE10563-BS1	
		D1E0858-02	CDM-1D
		DE10563-DUP1	D1E0240-04
		DE10563-BLK1	
		D1E0858-01	CDM-1S
Method	Batch	Laboratory ID	Client / Source ID
Hach 8000	DE10564	DE10564-DUP1	D1E0858-03
		DE10564-BLK1	
		DE10564-BS1	
		D1E0858-10	DUP-1
		D1E0858-09	CDM-6D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-03	CDM-3S
		D1E0858-04	CDM-3D
		DE10564-MS1	D1E0858-03
Method	Batch	Laboratory ID	Client / Source ID
EPA 6010C	DE10727	DE10727-BLK1	
		DE10727-BS1	
		DE10727-BS2	
		D1E0858-02	CDM-1D
		DE10727-DUP1	D1E0858-02
		D1E0858-01	CDM-1S
		D1E0858-03	CDM-3S
		D1E0858-04	CDM-3D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D
		D1E0858-09	CDM-6D
		D1E0858-10	DUP-1
		D1E0858-02	CDM-1D
		DE10727-DUP2	D1E0858-02

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EPA 6010C	DE10727	DE10727-MS1	D1E0858-02
		D1E0858-01	CDM-1S
		D1E0858-03	CDM-3S
		D1E0858-04	CDM-3D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D
		D1E0858-09	CDM-6D
		D1E0858-01	CDM-1S
		D1E0858-04	CDM-3D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	DE10729	DE10729-BLK1	
		DE10729-BS1	
		D1E0858-02	CDM-1D
		DE10729-MS1	D1E0858-02
		DE10729-MSD1	D1E0858-02
		D1E0858-09	CDM-6D
		DE10729-MS2	D1E0858-09
		D1E0858-01	CDM-1S
		D1E0858-03	CDM-3S
		D1E0858-04	CDM-3D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D
		D1E0858-10	DUP-1

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260C	DE11024	D1E0858-11	FIELD BLANK
		D1E0858-01	CDM-1S
		D1E0858-02	CDM-1D
		D1E0858-03	CDM-3S
		D1E0858-04	CDM-3D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D

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EPA 8260C	DE11024	D1E0858-09	CDM-6D
		D1E0858-10	DUP-1
		DE11024-MS1	D1E0789-03
		DE11024-MSD1	D1E0789-03

Method	Batch	Laboratory ID	Client / Source ID
EPA 9012A	DE11084	DE11084-BS1	
		DE11084-MRL1	
		DE11084-BLK1	
		DE11084-DUP1	D1E0593-02
		DE11084-MS1	D1E0593-02
		DE11084-MS2	D1E0789-03
		D1E0858-02	CDM-1D
		D1E0858-03	CDM-3S
		D1E0858-04	CDM-3D
		D1E0858-05	CDM-4S
		D1E0858-06	CDM-4D
		D1E0858-07	CDM-5S
		D1E0858-08	CDM-5D
		D1E0858-09	CDM-6D
		D1E0858-10	DUP-1

Method	Batch	Laboratory ID	Client / Source ID
EPA 9012A	DE11230	DE11230-MRL1	
		DE11230-BS1	
		DE11230-BLK1	
		DE11230-DUP1	D1E0593-06
		DE11230-MS1	D1E0593-06
		D1E0858-01	CDM-1S
		DE11230-BLK2	
		DE11230-DUP2	D1E1291-01RE1

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

Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit Notes
Batch DE10413 - Wet Chem - W - SM 4500-SO4⁻ E-2011									
Blank (DE10413-BLK1)									
Sulfate as SO4	<5.00	5.00	mg/L		Prepared & Analyzed: 05/07/2021				
LCS (DE10413-BS1)									
Sulfate as SO4	20.9	5.00	mg/L	20.0		105	80-120		
Duplicate (DE10413-DUP1)									
Sulfate as SO4	<25.0	25.0	mg/L		ND			20	
Matrix Spike (DE10413-MS1)									
	Source: D1E0522-02				Prepared & Analyzed: 05/07/2021				

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Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10413 - Wet Chem - W - SM 4500-SO4⁻ E-2011										
Matrix Spike (DE10413-MS1) Source: D1E0522-02 Prepared & Analyzed: 05/07/2021										
Sulfate as SO4	27.0		mg/L	20.0	1.75	126	75-125			M1
Matrix Spike Dup (DE10413-MSD1) Source: D1E0522-02 Prepared & Analyzed: 05/07/2021										
Sulfate as SO4	26.5		mg/L	20.0	1.75	124	75-125	1.53		20
Batch DE10460 - Wet Chem - W - SM 4500-NO3⁻ F-2011										
Blank (DE10460-BLK1) Prepared & Analyzed: 05/07/2021										
Nitrate as N	<0.0500	0.0500	mg/L							
LCS (DE10460-BS1) Prepared & Analyzed: 05/07/2021										
Nitrate as N	5.11	0.0500	mg/L	5.00		102	90-110			
Duplicate (DE10460-DUP1) Source: D1E0858-01 Prepared & Analyzed: 05/07/2021										
Nitrate as N	<0.0500	0.0500	mg/L		ND			20	A5	
Matrix Spike (DE10460-MS1) Source: D1E0858-01 Prepared & Analyzed: 05/07/2021										
Nitrate as N	5.08	0.0500	mg/L	5.00	ND	102	75-125			A5
Matrix Spike Dup (DE10460-MSD1) Source: D1E0858-01 Prepared & Analyzed: 05/07/2021										
Nitrate as N	5.09	0.0500	mg/L	5.00	ND	102	75-125	0.173	20	A5
Batch DE10486 - Wet-Solids-W - SM 2540 C-2011										
Blank (DE10486-BLK1) Prepared: 05/12/2021 Analyzed: 05/14/2021										
Total Dissolved Solids (TDS)	<10.0	10.0	mg/L							
LCS (DE10486-BS1) Prepared: 05/12/2021 Analyzed: 05/14/2021										
Total Dissolved Solids (TDS)	93.0	25.0	mg/L	100		93.0	80-120			
Duplicate (DE10486-DUP1) Source: D1E0858-04 Prepared: 05/12/2021 Analyzed: 05/14/2021										
Total Dissolved Solids (TDS)	518	25.0	mg/L		494			4.74		10
Batch DE10490 - Wet Chem - W - SM 2320 B-2011										
Blank (DE10490-BLK1) Prepared & Analyzed: 05/09/2021										
Alkalinity to pH 4.5	<1.00	1.00	mg CaCO3/L							
LCS (DE10490-BS1) Prepared & Analyzed: 05/09/2021										
Alkalinity to pH 4.5	50.0	1.00	mg CaCO3/L	50.0		100	90-110			
Duplicate (DE10490-DUP1) Source: D1E0789-01 Prepared & Analyzed: 05/09/2021										
Alkalinity to pH 4.5	308	1.00	mg CaCO3/L		308			0.00		20
Batch DE10560 - Wet Chem - W - SM 4500-CI E-2011										
Blank (DE10560-BLK1) Prepared & Analyzed: 05/11/2021										
Chloride	<2.00	2.00	mg/L							

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Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10560 - Wet Chem - W - SM 4500-CI E-2011										
LCS (DE10560-BS1) Prepared & Analyzed: 05/11/2021										
Chloride	19.7	2.00	mg/L	20.0		98.7	90-110			
Duplicate (DE10560-DUP1) Source: D1E0858-09 Prepared & Analyzed: 05/11/2021										
Chloride	16.5	2.00	mg/L		16.5			0.248	20	
Matrix Spike (DE10560-MS1) Source: D1E0858-09 Prepared & Analyzed: 05/11/2021										
Chloride	37.1	2.00	mg/L	20.0	16.5	103	75-125			
Matrix Spike Dup (DE10560-MSD1) Source: D1E0858-09 Prepared & Analyzed: 05/11/2021										
Chloride	37.7	2.00	mg/L	20.0	16.5	106	75-125	1.66	20	
Batch DE10563 - Wet Chem - W - Hach 8000										
Blank (DE10563-BLK1) Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	<5.00	5.00	mg/L							
LCS (DE10563-BS1) Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	108	5.00	mg/L	100		108	80-120			
Duplicate (DE10563-DUP1) Source: D1E0240-04 Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	197	5.00	mg/L		194			1.63	20	
Matrix Spike (DE10563-MS1) Source: D1E0240-04 Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	288	5.00	mg/L	100	194	94.2	80-120			
Batch DE10564 - Wet Chem - W - Hach 8000										
Blank (DE10564-BLK1) Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	<5.00	5.00	mg/L							
LCS (DE10564-BS1) Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	94.0	5.00	mg/L	100		94.0	80-120			
Duplicate (DE10564-DUP1) Source: D1E0858-03 Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	20.3	5.00	mg/L		20.1			1.44	20	
Matrix Spike (DE10564-MS1) Source: D1E0858-03 Prepared & Analyzed: 05/10/2021										
Chemical Oxygen Demand (COD)	125	5.00	mg/L	100	20.1	105	80-120			
Batch DE11084 - Wet-Distillation-W - EPA 9012A										
Blank (DE11084-BLK1) Prepared: 05/17/2021 Analyzed: 05/18/2021										
Cyanide - Total	<0.0100	0.0100	mg/L							
LCS (DE11084-BS1) Prepared: 05/17/2021 Analyzed: 05/18/2021										
Cyanide - Total	0.188	0.0100	mg/L	0.200		94.0	90-110			
Duplicate (DE11084-DUP1) Source: D1E0593-02 Prepared: 05/17/2021 Analyzed: 05/18/2021										
Cyanide - Total	<0.0100	0.0100	mg/L		ND			20		
Matrix Spike (DE11084-MS1) Source: D1E0593-02 Prepared: 05/17/2021 Analyzed: 05/18/2021										
Cyanide - Total	0.0904	0.0100	mg/L	0.100	ND	90.4	75-125			
Matrix Spike (DE11084-MS2) Source: D1E0789-03 Prepared: 05/17/2021 Analyzed: 05/18/2021										
Cyanide - Total	0.0969	0.0100	mg/L	0.100	ND	96.9	75-125			



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Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE11230 - Wet-Distillation-W - EPA 9012A										
Blank (DE11230-BLK1)										
Cyanide - Total	<0.0100	0.0100	mg/L		Prepared: 05/18/2021 Analyzed: 05/19/2021					
Blank (DE11230-BLK2)										
Cyanide - Total	<0.0100	0.0100	mg/L		Prepared: 05/18/2021 Analyzed: 05/19/2021					
LCS (DE11230-BS1)										
Cyanide - Total	0.192	0.0100	mg/L	0.200		95.9	90-110			
Duplicate (DE11230-DUP1)										
Cyanide - Total	<0.0100	0.0100	mg/L		Source: D1E0593-06	Prepared: 05/18/2021 Analyzed: 05/19/2021				
										20
Duplicate (DE11230-DUP2)										
Cyanide - Total	0.0387	0.0100	mg/L		Source: D1E1291-01RE1	Prepared: 05/18/2021 Analyzed: 05/19/2021				
										4.49
Matrix Spike (DE11230-MS1)										
Cyanide - Total	0.0827	0.0100	mg/L	0.100	Source: D1E0593-06	Prepared: 05/18/2021 Analyzed: 05/19/2021				
Metals Dissolved by CVAA										
Metals Dissolved by CVAA	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10729 - 7470 - EPA 7470A										
Blank (DE10729-BLK1)										
Mercury	<0.00020	0.00020	mg/L		Prepared & Analyzed: 05/12/2021					
LCS (DE10729-BS1)										
Mercury	0.00509	0.00020	mg/L	0.00500		102	80-120			
Matrix Spike (DE10729-MS1)										
Mercury	0.00464	0.00020	mg/L	0.00500	Source: D1E0858-02	Prepared & Analyzed: 05/12/2021				
Matrix Spike (DE10729-MS2)										
Mercury	0.00499	0.00020	mg/L	0.00500	Source: D1E0858-09	Prepared & Analyzed: 05/12/2021				
Matrix Spike Dup (DE10729-MSD1)										
Mercury	0.00454	0.00020	mg/L	0.00500	Source: D1E0858-02	Prepared & Analyzed: 05/12/2021				
Metals Dissolved by ICP										
Metals Dissolved by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10727 - 3010A - EPA 6010C										
Blank (DE10727-BLK1)										
Silver	<0.0020	0.0020	mg/L		Prepared: 05/12/2021 Analyzed: 05/13/2021					
Arsenic	<0.0050	0.0050	mg/L							
Barium	<0.0100	0.0100	mg/L							
Calcium	<0.0500	0.0500	mg/L							
Cadmium	<0.0020	0.0020	mg/L							
Chromium	<0.0020	0.0020	mg/L							
Copper	<0.0020	0.0020	mg/L							
Iron	<0.0500	0.0500	mg/L							
Manganese	<0.0020	0.0020	mg/L							
Sodium	<1.00	1.00	mg/L							
Lead	<0.0030	0.0030	mg/L							

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Metals Dissolved by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10727 - 3010A - EPA 6010C										
Blank (DE10727-BLK1)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Selenium	<0.0050	0.0050	mg/L							
Zinc	<0.0050	0.0050	mg/L							
LCS (DE10727-BS1)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Arsenic	0.496	0.0050	mg/L	0.500	99.3	80-120				
Barium	0.488	0.0100	mg/L	0.500	97.5	80-120				
Calcium	10.3	0.0500	mg/L	10.5	97.9	80-120				
Cadmium	0.499	0.0020	mg/L	0.500	99.8	80-120				
Chromium	0.477	0.0020	mg/L	0.500	95.4	80-120				
Copper	0.480	0.0020	mg/L	0.500	96.0	80-120				
Iron	2.48	0.0500	mg/L	2.50	99.1	80-120				
Manganese	0.500	0.0020	mg/L	0.500	99.9	80-120				
Sodium	9.94	1.00	mg/L	10.5	94.7	80-120				
Lead	0.488	0.0030	mg/L	0.500	97.5	80-120				
Selenium	0.496	0.0050	mg/L	0.500	99.2	80-120				
Zinc	0.489	0.0050	mg/L	0.500	97.8	80-120				
LCS (DE10727-BS2)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	0.254	0.0020	mg/L	0.250	101	80-120				
Duplicate (DE10727-DUP1)										
Source: D1E0858-02 Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	<0.0020	0.0020	mg/L	ND						20
Arsenic	<0.0050	0.0050	mg/L	ND						20
Barium	0.271	0.0100	mg/L	0.272						0.0939 20
Calcium	73.9	0.0500	mg/L	74.1						0.245 20
Cadmium	<0.0020	0.0020	mg/L	ND						20
Chromium	<0.0020	0.0020	mg/L	ND						20
Copper	<0.0020	0.0020	mg/L	ND						20
Iron	11.5	0.0500	mg/L	11.5						0.224 20
Manganese	0.898	0.0020	mg/L	0.901						0.294 20
Sodium	67.2	1.00	mg/L	67.8						0.825 20
Lead	<0.0030	0.0030	mg/L	ND						20
Zinc	0.0120	0.0050	mg/L	0.0120						0.292 20
Duplicate (DE10727-DUP2)										
Source: D1E0858-02 Prepared: 05/12/2021 Analyzed: 05/17/2021										
Selenium	<0.0050	0.0050	mg/L	ND						20
Matrix Spike (DE10727-MS1)										
Source: D1E0858-02 Prepared: 05/12/2021 Analyzed: 05/17/2021										
Silver	0.468	0.0020	mg/L	0.500	ND	93.6	75-125			
Arsenic	0.508	0.0050	mg/L	0.500	ND	102	75-125			
Barium	0.754	0.0100	mg/L	0.500	0.272	96.5	75-125			
Calcium	81.4	0.0500	mg/L	10.5	74.1	69.4	75-125			M6
Cadmium	0.488	0.0020	mg/L	0.500	ND	97.5	75-125			
Chromium	0.482	0.0020	mg/L	0.500	ND	96.4	75-125			
Copper	0.509	0.0020	mg/L	0.500	ND	102	75-125			
Iron	13.7	0.0500	mg/L	2.50	11.5	85.9	75-125			
Manganese	1.36	0.0020	mg/L	0.500	0.901	92.7	75-125			
Sodium	77.0	1.00	mg/L	10.5	67.8	87.9	75-125			

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Metals Dissolved by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10727 - 3010A - EPA 6010C										
Matrix Spike (DE10727-MS1)										
Source: D1E0858-02 Prepared: 05/12/2021 Analyzed: 05/17/2021										
Lead	0.481	0.0030	mg/L	0.500	ND	96.1	75-125			
Selenium	0.509	0.0050	mg/L	0.500	ND	102	75-125			
Zinc	0.491	0.0050	mg/L	0.500	0.0120	95.7	75-125			
Volatile Organic Compounds by GCMS										
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike (DE11024-MS1)										
Source: D1E0789-03 Prepared & Analyzed: 05/12/2021										
Acetone	35.9	10.0	ug/L	50.0	ND	71.7	70-130			
Acrylonitrile	47.5	5.00	ug/L	50.0	ND	95.0	70-130			
Benzene	51.7	1.00	ug/L	50.0	ND	103	70-130			
Bromobenzene	50.6	1.00	ug/L	50.0	ND	101	70-130			
Bromochloromethane	52.2	1.00	ug/L	50.0	ND	104	70-130			
Bromodichloromethane	47.5	1.00	ug/L	50.0	ND	94.9	70-130			
Bromoform	53.4	1.00	ug/L	50.0	ND	107	70-130			
Bromomethane	51.2	5.00	ug/L	50.0	ND	102	70-130			
2-Butanone (MEK)	40.5	10.0	ug/L	50.0	ND	81.1	70-130			
sec-Butylbenzene	50.9	1.00	ug/L	50.0	ND	102	70-130			
tert-Butylbenzene	53.1	1.00	ug/L	50.0	ND	106	70-130			
n-Butylbenzene	56.2	1.00	ug/L	50.0	ND	112	70-130			
Carbon disulfide	46.4	1.00	ug/L	50.0	ND	92.8	70-130			
Carbon tetrachloride	55.8	1.00	ug/L	50.0	ND	112	70-130			
Chlorobenzene	50.3	1.00	ug/L	50.0	ND	101	70-130			
Chloroethane (Ethyl chloride)	40.7	5.00	ug/L	50.0	ND	81.3	70-130			
Chloroform	47.7	1.00	ug/L	50.0	ND	95.5	70-130			
Chloromethane	51.5	5.00	ug/L	50.0	ND	103	70-130			
2-Chlorotoluene	46.3	1.00	ug/L	50.0	ND	92.5	70-130			
4-Chlorotoluene	47.9	1.00	ug/L	50.0	ND	95.9	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	40.5	1.00	ug/L	50.0	ND	81.0	70-130			
Dibromochloromethane	50.8	1.00	ug/L	50.0	ND	102	70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	50.9	1.00	ug/L	50.0	ND	102	70-130			
Dibromomethane (Methylene bromide)	46.5	1.00	ug/L	50.0	ND	92.9	70-130			
trans-1,4-Dichloro-2-butene	36.5	1.00	ug/L	50.0	ND	73.1	70-130			
1,4-Dichlorobenzene	49.9	1.00	ug/L	50.0	ND	99.8	70-130			
1,3-Dichlorobenzene	51.4	1.00	ug/L	50.0	ND	103	70-130			
1,2-Dichlorobenzene	50.9	1.00	ug/L	50.0	ND	102	70-130			
Dichlorodifluoromethane (Freon-12)	50.8	1.00	ug/L	50.0	ND	102	70-130			
1,2-Dichloroethane	44.8	1.00	ug/L	50.0	ND	89.6	70-130			
1,1-Dichloroethane	50.4	1.00	ug/L	50.0	ND	101	70-130			
trans-1,2-Dichloroethene	57.0	1.00	ug/L	50.0	ND	114	70-130			

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CERTIFICATE OF ANALYSIS

D1E0858

Volatile Organic Compounds by GCMS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike (DE11024-MS1)										
					Source: D1E0789-03	Prepared & Analyzed: 05/12/2021				
1,1-Dichloroethene	60.6	1.00	ug/L	50.0	ND	121	70-130			
cis-1,2-Dichloroethene	52.8	1.00	ug/L	50.0	ND	106	70-130			
1,3-Dichloropropane	48.4	1.00	ug/L	50.0	ND	96.8	70-130			
1,2-Dichloropropane	49.5	1.00	ug/L	50.0	ND	98.9	70-130			
2,2-Dichloropropane	45.5	1.00	ug/L	50.0	ND	91.1	70-130			
trans-1,3-Dichloropropene	46.2	1.00	ug/L	50.0	ND	92.4	70-130			
cis-1,3-Dichloropropene	49.5	1.00	ug/L	50.0	ND	98.9	70-130			
1,1-Dichloropropene	53.9	1.00	ug/L	50.0	ND	108	70-130			
Diethyl ether	46.3	1.00	ug/L	50.0	ND	92.6	70-130			
1,4-Dioxane	45.9	20.0	ug/L	50.0	ND	91.9	70-130			
Ethylbenzene	49.9	1.00	ug/L	50.0	ND	99.7	70-130			
Hexachlorobutadiene	54.6	1.00	ug/L	50.0	ND	109	70-130			
2-Hexanone (MBK)	44.5	5.00	ug/L	50.0	ND	89.1	70-130			
Isopropylbenzene (Cumene)	49.9	1.00	ug/L	50.0	ND	99.8	70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	52.9	1.00	ug/L	50.0	ND	106	70-130			
Methyl tert-butyl ether (MTBE)	43.6	1.00	ug/L	50.0	ND	87.2	70-130			
Methylene chloride (Dichloromethane)	52.4	1.00	ug/L	50.0	ND	105	70-130			
4-Methyl-2-pentanone (MIBK)	44.8	5.00	ug/L	50.0	ND	89.6	70-130			
Naphthalene	50.0	1.00	ug/L	50.0	ND	100	70-130			
n-Propylbenzene	49.4	1.00	ug/L	50.0	ND	98.8	70-130			
Styrene	48.8	1.00	ug/L	50.0	ND	97.6	70-130			
1,1,1,2-Tetrachloroethane	51.7	1.00	ug/L	50.0	ND	103	70-130			
1,1,2,2-Tetrachloroethane	44.2	1.00	ug/L	50.0	ND	88.3	70-130			
Tetrachloroethene	55.1	1.00	ug/L	50.0	ND	110	70-130			
Tetrahydrofuran (THF)	45.4	1.00	ug/L	50.0	ND	90.7	70-130			
Toluene	50.9	1.00	ug/L	50.0	ND	102	70-130			
1,2,4-Trichlorobenzene	54.8	1.00	ug/L	50.0	ND	110	70-130			
1,2,3-Trichlorobenzene	53.4	1.00	ug/L	50.0	ND	107	70-130			
1,1,1-Trichloroethane	51.5	1.00	ug/L	50.0	ND	103	70-130			
1,1,2-Trichloroethane	50.6	1.00	ug/L	50.0	ND	101	70-130			
Trichloroethene	56.9	1.00	ug/L	50.0	ND	114	70-130			
Trichlorofluoromethane (Freon 11)	57.0	1.00	ug/L	50.0	ND	114	70-130			
1,2,3-Trichloropropane	46.6	1.00	ug/L	50.0	ND	93.2	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	54.6	1.00	ug/L	50.0	ND	109	70-130			
1,3,5-Trimethylbenzene	50.7	1.00	ug/L	50.0	ND	101	70-130			
1,2,4-Trimethylbenzene	50.7	1.00	ug/L	50.0	ND	101	70-130			
Vinyl chloride	59.9	1.00	ug/L	50.0	ND	120	70-130			
m,p-Xylene	51.3	1.00	ug/L	50.0	ND	103	70-130			
o-Xylene	50.6	1.00	ug/L	50.0	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	40.6		ug/L	50.0		81.3	70-130			
Surrogate: Toluene-d8	47.0		ug/L	50.0		94.1	70-130			

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CERTIFICATE OF ANALYSIS

D1E0858

Volatile Organic Compounds by GCMS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike (DE11024-MS1)	Source: D1E0789-03		Prepared & Analyzed: 05/12/2021							
Surrogate: Pentafluorobenzene	56.5		ug/L	50.0	113		70-130			
Matrix Spike Dup (DE11024-MSD1)	Source: D1E0789-03		Prepared & Analyzed: 05/12/2021							
Acetone	35.9	10.0	ug/L	50.0	ND	71.7	70-130	0.00	20	
Acrylonitrile	48.4	5.00	ug/L	50.0	ND	96.8	70-130	1.88	20	
Benzene	51.3	1.00	ug/L	50.0	ND	103	70-130	0.699	20	
Bromobenzene	50.8	1.00	ug/L	50.0	ND	102	70-130	0.375	20	
Bromochloromethane	52.4	1.00	ug/L	50.0	ND	105	70-130	0.306	20	
Bromodichloromethane	48.5	1.00	ug/L	50.0	ND	97.0	70-130	2.21	20	
Bromoform	52.6	1.00	ug/L	50.0	ND	105	70-130	1.34	20	
Bromomethane	52.0	5.00	ug/L	50.0	ND	104	70-130	1.65	20	
2-Butanone (MEK)	43.2	10.0	ug/L	50.0	ND	86.4	70-130	6.31	20	
sec-Butylbenzene	49.1	1.00	ug/L	50.0	ND	98.2	70-130	3.58	20	
tert-Butylbenzene	52.5	1.00	ug/L	50.0	ND	105	70-130	1.17	20	
n-Butylbenzene	54.9	1.00	ug/L	50.0	ND	110	70-130	2.25	20	
Carbon disulfide	45.7	1.00	ug/L	50.0	ND	91.4	70-130	1.56	20	
Carbon tetrachloride	56.2	1.00	ug/L	50.0	ND	112	70-130	0.572	20	
Chlorobenzene	48.8	1.00	ug/L	50.0	ND	97.7	70-130	2.85	20	
Chloroethane (Ethyl chloride)	31.4	5.00	ug/L	50.0	ND	62.8	70-130	25.7	20	M2
Chloroform	48.0	1.00	ug/L	50.0	ND	96.1	70-130	0.606	20	
Chloromethane	51.2	5.00	ug/L	50.0	ND	102	70-130	0.662	20	
2-Chlorotoluene	44.7	1.00	ug/L	50.0	ND	89.3	70-130	3.52	20	
4-Chlorotoluene	47.1	1.00	ug/L	50.0	ND	94.2	70-130	1.77	20	
1,2-Dibromo-3-chloropropane (DBCP)	41.5	1.00	ug/L	50.0	ND	83.0	70-130	2.51	20	
Dibromochloromethane	51.3	1.00	ug/L	50.0	ND	103	70-130	1.06	20	
1,2-Dibromoethane (Ethylene dibromide, EDB)	49.4	1.00	ug/L	50.0	ND	98.9	70-130	2.91	20	
Dibromomethane (Methylene bromide)	46.8	1.00	ug/L	50.0	ND	93.6	70-130	0.708	20	
trans-1,4-Dichloro-2-butene	34.4	1.00	ug/L	50.0	ND	68.8	70-130	6.03	20	M2
1,4-Dichlorobenzene	48.9	1.00	ug/L	50.0	ND	97.8	70-130	2.00	20	
1,3-Dichlorobenzene	51.3	1.00	ug/L	50.0	ND	103	70-130	0.234	20	
1,2-Dichlorobenzene	50.4	1.00	ug/L	50.0	ND	101	70-130	0.908	20	
Dichlorodifluoromethane (Freon-12)	49.6	1.00	ug/L	50.0	ND	99.3	70-130	2.37	20	
1,2-Dichloroethane	45.4	1.00	ug/L	50.0	ND	90.9	70-130	1.40	20	
1,1-Dichloroethane	50.2	1.00	ug/L	50.0	ND	100	70-130	0.278	20	
trans-1,2-Dichloroethene	56.6	1.00	ug/L	50.0	ND	113	70-130	0.634	20	
1,1-Dichloroethene	60.3	1.00	ug/L	50.0	ND	121	70-130	0.496	20	
cis-1,2-Dichloroethene	52.9	1.00	ug/L	50.0	ND	106	70-130	0.189	20	
1,3-Dichloropropane	47.5	1.00	ug/L	50.0	ND	95.0	70-130	1.92	20	
1,2-Dichloropropane	49.3	1.00	ug/L	50.0	ND	98.6	70-130	0.263	20	
2,2-Dichloropropane	43.7	1.00	ug/L	50.0	ND	87.4	70-130	4.15	20	
trans-1,3-Dichloropropene	46.0	1.00	ug/L	50.0	ND	91.9	70-130	0.521	20	

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CERTIFICATE OF ANALYSIS

D1E0858

Volatile Organic Compounds by GCMS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DE11024-MSD1)										
					Source: D1E0789-03	Prepared & Analyzed: 05/12/2021				
cis-1,3-Dichloropropene	48.7	1.00	ug/L	50.0	ND	97.4	70-130	1.57	20	
1,1-Dichloropropene	51.7	1.00	ug/L	50.0	ND	103	70-130	4.13	20	
Diethyl ether	47.3	1.00	ug/L	50.0	ND	94.6	70-130	2.05	20	
1,4-Dioxane	39.3	20.0	ug/L	50.0	ND	78.6	70-130	15.5	20	
Ethylbenzene	47.9	1.00	ug/L	50.0	ND	95.8	70-130	4.01	20	
Hexachlorobutadiene	56.4	1.00	ug/L	50.0	ND	113	70-130	3.35	20	
2-Hexanone (MBK)	45.1	5.00	ug/L	50.0	ND	90.1	70-130	1.14	20	
Isopropylbenzene (Cumene)	49.0	1.00	ug/L	50.0	ND	98.0	70-130	1.78	20	
4-Isopropyltoluene (p-Isopropyltoluene)	50.6	1.00	ug/L	50.0	ND	101	70-130	4.29	20	
Methyl tert-butyl ether (MTBE)	44.6	1.00	ug/L	50.0	ND	89.2	70-130	2.25	20	
Methylene chloride (Dichloromethane)	52.5	1.00	ug/L	50.0	ND	105	70-130	0.305	20	
4-Methyl-2-pentanone (MIBK)	45.6	5.00	ug/L	50.0	ND	91.3	70-130	1.79	20	
Naphthalene	53.8	1.00	ug/L	50.0	ND	108	70-130	7.32	20	
n-Propylbenzene	47.5	1.00	ug/L	50.0	ND	95.0	70-130	3.90	20	
Styrene	46.7	1.00	ug/L	50.0	ND	93.3	70-130	4.50	20	
1,1,1,2-Tetrachloroethane	51.0	1.00	ug/L	50.0	ND	102	70-130	1.34	20	
1,1,2,2-Tetrachloroethane	44.7	1.00	ug/L	50.0	ND	89.4	70-130	1.19	20	
Tetrachloroethene	54.4	1.00	ug/L	50.0	ND	109	70-130	1.33	20	
Tetrahydrofuran (THF)	47.5	1.00	ug/L	50.0	ND	95.0	70-130	4.63	20	
Toluene	49.6	1.00	ug/L	50.0	ND	99.2	70-130	2.59	20	
1,2,4-Trichlorobenzene	55.2	1.00	ug/L	50.0	ND	110	70-130	0.836	20	
1,2,3-Trichlorobenzene	56.7	1.00	ug/L	50.0	ND	113	70-130	5.92	20	
1,1,1-Trichloroethane	52.2	1.00	ug/L	50.0	ND	104	70-130	1.31	20	
1,1,2-Trichloroethane	50.4	1.00	ug/L	50.0	ND	101	70-130	0.376	20	
Trichloroethene	56.0	1.00	ug/L	50.0	ND	112	70-130	1.63	20	
Trichlorofluoromethane (Freon 11)	59.8	1.00	ug/L	50.0	ND	120	70-130	4.73	20	
1,2,3-Trichloropropane	44.8	1.00	ug/L	50.0	ND	89.6	70-130	3.94	20	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	55.8	1.00	ug/L	50.0	ND	112	70-130	2.23	20	
1,3,5-Trimethylbenzene	48.3	1.00	ug/L	50.0	ND	96.7	70-130	4.73	20	
1,2,4-Trimethylbenzene	48.2	1.00	ug/L	50.0	ND	96.5	70-130	4.95	20	
Vinyl chloride	59.6	1.00	ug/L	50.0	ND	119	70-130	0.553	20	
m,p-Xylene	49.0	1.00	ug/L	50.0	ND	98.1	70-130	4.50	20	
o-Xylene	49.3	1.00	ug/L	50.0	ND	98.6	70-130	2.64	20	
Surrogate: 1,2-Dichloroethane-d4	40.8		ug/L	50.0		81.6	70-130			
Surrogate: Toluene-d8	46.3		ug/L	50.0		92.7	70-130			
Surrogate: Pentafluorobenzene	58.0		ug/L	50.0		116	70-130			

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch DE10522 - 3510C W Sep Funnel - EPA 8082A

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CERTIFICATE OF ANALYSIS

D1E0858

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10522 - 3510C W Sep Funnel - EPA 8082A										
Blank (DE10522-BLK1)										
Prepared: 05/10/2021 Analyzed: 05/24/2021										
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L							
Aroclor-1016 (PCB-1016) [2C]	<0.100	0.100	ug/L							
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L							
Aroclor-1221 (PCB-1221) [2C]	<0.100	0.100	ug/L							
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L							
Aroclor-1232 (PCB-1232) [2C]	<0.100	0.100	ug/L							
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L							
Aroclor-1242 (PCB-1242) [2C]	<0.100	0.100	ug/L							
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L							
Aroclor-1248 (PCB-1248) [2C]	<0.100	0.100	ug/L							
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L							
Aroclor-1254 (PCB-1254) [2C]	<0.100	0.100	ug/L							
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L							
Aroclor-1260 (PCB-1260) [2C]	<0.100	0.100	ug/L							
Surrogate: Decachlorobiphenyl (BZ-209)	0.0501		ug/L	0.100		50.1	30-150			
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	0.0571		ug/L	0.100		57.1	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0580		ug/L	0.100		58.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	0.0605		ug/L	0.100		60.5	30-150			
LCS (DE10522-BS1)										
Prepared: 05/10/2021 Analyzed: 05/24/2021										
Aroclor-1016 (PCB-1016)	0.587	0.100	ug/L	1.00		58.7	40-140			
Aroclor-1016 (PCB-1016) [2C]	0.612	0.100	ug/L	1.00		61.2	40-140			
Aroclor-1260 (PCB-1260)	0.697	0.100	ug/L	1.00		69.7	40-140			
Aroclor-1260 (PCB-1260) [2C]	0.726	0.100	ug/L	1.00		72.6	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	0.0677		ug/L	0.100		67.7	30-150			
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	0.0753		ug/L	0.100		75.3	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0608		ug/L	0.100		60.8	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	0.0615		ug/L	0.100		61.5	30-150			
Matrix Spike (DE10522-MS1)										
Source: D1E0858-04 Prepared: 05/10/2021 Analyzed: 05/24/2021										
Aroclor-1016 (PCB-1016)	0.709	0.118	ug/L	1.18	0.0508	55.9	40-140			M8
Aroclor-1016 (PCB-1016) [2C]	0.735	0.118	ug/L	1.18	0.0591	57.5	40-140			M8
Aroclor-1260 (PCB-1260)	0.787	0.118	ug/L	1.18	ND	66.9	40-140			M8
Aroclor-1260 (PCB-1260) [2C]	0.813	0.118	ug/L	1.18	ND	69.1	40-140			M8
Surrogate: Decachlorobiphenyl (BZ-209)	0.0814		ug/L	0.118		69.2	30-150			M8
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	0.0914		ug/L	0.118		77.7	30-150			M8
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0729		ug/L	0.118		61.9	30-150			M8
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	0.0723		ug/L	0.118		61.4	30-150			M8



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CERTIFICATE OF ANALYSIS

D1E0858

Definitions

- A21:** Sample was filtered in the laboratory before analysis.
A27: Headspace was present in the bottle used for the alkalinity analysis.
A28: Sample was treated for the presence of chlorine.
A5: Sample was filtered (0.45 um) before analysis.
AC: Concentration is elevated by matrix interference.
D1: The sample was diluted during sample preparation (extraction, distillation or digestion) due to matrix interference.
M1: Matrix spike recovery is above acceptance limits.
M2: Matrix spike recovery is below acceptance limits.
M6: Matrix spike recovery is outside of acceptance limits. The analyte concentration is greater than 4X the spiking level.
M8: Matrix spike/matrix spike duplicate not analyzed as required by the method.
mg CaCO₃/L Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
Q10: The recovery for the closing low level check standard was outside of the established quality control range. The initial low level check standard was within range.
RL: Reporting Limit
RPD: Relative Percent Difference
ug/L: Micrograms per Liter
Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler

Temp: 4.6°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville

M-CT008

Massachusetts Department of Environmental Protection

Report Comments

Reviewed and Approved By:

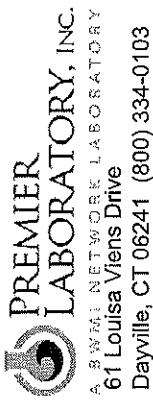
Melisa L. Montgomery
Quality Assurance Officer
Reported: 06/08/2021 16:51

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

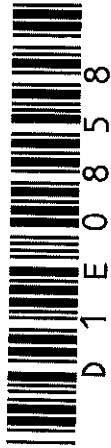
The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

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River Hawk Environmental

Copy of Report To

CUSTOMER: River Hawk Environmental, LLC
 ADDRESS: 2183 Ocean Street, Suite 2
 Marshfield, MA 02050
 ATTENTION: William Kenney
 E-MAIL: bkenney@riverhawkllc.com
 PHONE: 508-789-8920 Fax: NA

Billing Information

BILL TO: City of New Bedford
 ADDRESS: 133 William Street, Room 304
 New Bedford, MA 02740
 ATTENTION: Bruce Hebbel
 TELEPHONE: 508-991-6188
 PURCHASE ORDER #: _____

Project Information

Project: Shawmut Avenue Landfill
 Project Location: Shawmut Avenue, New Bedford, MA
 Project Manager: Bruce Hebbel
 IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:
 EMAIL: hebbel@newbedford-ma.gov
 TELEPHONE: 508-991-6188
 Fax: _____

Sample Identification	Date Collected	Time Collected	Sample Type	Sample Matrix	Number of Bottles	Composite	GRAB	Alkalinity	Chloride	Sulfate	Metals**	Dissolved &	Cyanide	Analysis	Preservatives			
															H2SO4	NaOH	HCl	Non-pres
CDM - 1S	5/7/21	9:15	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 1D	5/7/21	8:45	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 3S	5/7/21	7:15	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 3D	5/7/21	7:30	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 4S	5/7/21	7:45	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 4D	5/7/21	8:00	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 5S	5/7/21	8:15	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 5D	5/7/21	8:30	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CDM - 6D	5/7/21	10:00	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DUP - 1	5/7/21	8:50	X	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Field Blank	5/7/21	8:25	X	GW	X													

TURNAROUND (INDICATE IN CALENDAR DAYS):

HARD COPY

E-MAIL

COMMENTS:

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

**As, Ba, Ca, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Se, Ag, Na, Zn

Please Bill the New Bedford Dept. of Env. Stewardship.

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED

AMBIENT

Upon Receipt at Lab

SAMPLER: Jason Cooley	DATE	TIME
RECEIVED: <i>John Brown</i>	5/7/21	12:54
RELINQUISHED: <i>John Brown</i>	5/7/21	12:54
RECEIVED: <i>Tom Donner</i>	5/7/21	15:00
RELINQUISHED: <i>Tom Donner</i>	5/7/21	15:00



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0789

Project Description

Shawmut Landfill

For:

Bill Kenney

River Hawk Environmental, LLC

2183 Ocean Street, Suite 2

Marshfield, MA 02050

A handwritten signature in black ink that reads "Melisa L. Montgomery".

Quality Assurance Officer

Melisa L. Montgomery

Tuesday, June 8, 2021

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. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. 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

D1E0789

River Hawk Environmental, LLC

Bill Kenney
2183 Ocean Street, Suite 2
Marshfield, MA 02050

Project Name: Shawmut Landfill

Project / PO Number: Shawmut Landfill
Received: 05/07/2021
Reported: 06/08/2021

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>
SW-1	D1E0789-01	Aqueous	Grab		05/07/21 09:30	05/07/21 15:00
SW-2	D1E0789-02	Aqueous	Grab		05/07/21 08:20	05/07/21 15:00
SW-3	D1E0789-03	Aqueous	Grab		05/07/21 08:30	05/07/21 15:00
SW-1	D1E0789-04	Aqueous	Grab		05/07/21 09:30	05/07/21 15:00
SW-2	D1E0789-05	Aqueous	Grab		05/07/21 08:20	05/07/21 15:00
SW-3	D1E0789-06	Aqueous	Grab		05/07/21 08:30	05/07/21 15:00



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CERTIFICATE OF ANALYSIS

D1E0789

Analytical Testing Parameters

Client Sample ID:	SW-1	Collected By:	
Sample Matrix:	Aqueous	Customer	
Lab Sample ID:	D1E0789-01	Collection Date:	05/07/2021 9:30

Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	A28,Y1	05/17/21 1653	05/18/21 1604	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	87.4	5.00	mg/L	1		05/10/21 1921	05/10/21 1928	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	308	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	538	50.0	mg/L	20		05/11/21 2309	05/13/21 1650	TJT
SM 4500-CI E-2011								
Chloride	85.0	2.00	mg/L	1	A21		05/11/21 1211	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	10.3	0.200	mg/L	4	A5		05/07/21 2035	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	<5.00	5.00	mg/L	1	A21		05/07/21 1650	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1403	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Barium	0.493	0.0100	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Calcium	57.7	0.0500	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Copper	0.0070	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Iron	0.327	0.0500	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1359	05/18/21 1356	DLO
Manganese	0.537	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Selenium	0.0125	0.0050	mg/L	1	Q10,Y1	05/12/21 1359	05/20/21 1254	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Sodium	85.9	1.00	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Zinc	0.0170	0.0050	mg/L	1	Y1	05/12/21 1359	05/13/21 2108	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1259	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1259	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD

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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-1	Collected By:	
Sample Matrix:	Aqueous	Collection Date:	
Lab Sample ID:	D1E0789-01	Customer	05/07/2021 9:30

Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1259	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1259	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1259	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1259	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1259	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1259	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD

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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-1	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0789-01			05/07/2021 9:30				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1259	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Tetrahydrofuran (THF)	1.94	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1259	RSD
Surrogate: 1,2-Dichloroethane-d4	82.8	Limit: 70-130	% Rec	1			05/12/21 1259	RSD
Surrogate: Toluene-d8	97.0	Limit: 70-130	% Rec	1			05/12/21 1259	RSD
Surrogate: Pentafluorobenzene	111	Limit: 70-130	% Rec	1			05/12/21 1259	RSD



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-2	Sample Matrix:	Aqueous	Collected By:		Customer			
Lab Sample ID:	D1E0789-02 <th></th> <th></th> <th>Collection Date:</th> <td></td> <td>05/07/2021</td> <td>8:20</td>			Collection Date:		05/07/2021	8:20		
Inorganics Total		Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A						Method Notes: A28			
Cyanide - Total		<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1605	CLW
Hach 8000									
Chemical Oxygen Demand (COD)	484		5.00	mg/L	1		05/10/21 1921	05/10/21 1928	DJM
SM 2320 B-2011									
Alkalinity to pH 4.5	238		1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011									
Total Dissolved Solids (TDS)	340		50.0	mg/L	20		05/11/21 2309	05/13/21 1650	TJT
SM 4500-CI E-2011									
Chloride	42.0		2.00	mg/L	1	A21		05/11/21 1213	CLW
SM 4500-NO₃⁻ F-2011									
Nitrate as N		<0.0500	0.0500	mg/L	1	A5		05/07/21 2036	DJM
SM 4500-SO₄⁻ E-2011									
Sulfate as SO ₄		<5.00	5.00	mg/L	1	A21		05/07/21 1651	CLW
Metals Dissolved by CVAA		Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A									
Mercury		<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1405	MMC
Metals Dissolved by ICP		Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 6010C									
Arsenic		<0.0050	0.0050	mg/L	1	Y1	05/12/21 1359	05/18/21 1359	DLO
Barium	0.160		0.0100	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Cadmium		<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Calcium	63.0		0.0500	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Chromium		<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Copper		<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Iron	27.0		0.0500	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Lead		<0.0030	0.0030	mg/L	1	Y1	05/12/21 1359	05/18/21 1359	DLO
Manganese	3.75		0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Selenium		<0.0050	0.0050	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Silver		<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Sodium	26.2		1.00	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Zinc	0.0168		0.0050	mg/L	1	Y1	05/12/21 1359	05/13/21 2111	DLO
Volatile Organic Compounds by GCMS		Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C									
Acetone		<10.0	10.0	ug/L	1	Y1		05/12/21 1324	RSD
Acrylonitrile		<5.00	5.00	ug/L	1	Y1		05/12/21 1324	RSD
Benzene		<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Bromobenzene		<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Bromoform		<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-2	Sample Matrix:	Aqueous	Collected By:		Customer		
Lab Sample ID:	D1E0789-02			Collection Date:		05/07/2021	8:20	
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1324	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1324	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	Y1		05/12/21 1324	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1324	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Diethyl ether	1.14	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,4-Dioxane	22.5	20.0	ug/L	1	Y1		05/12/21 1324	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1324	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD

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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-2	Sample Matrix:	Aqueous	Collected By:		Customer		
Lab Sample ID:	D1E0789-02			Collection Date:		05/07/2021	8:20	
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1324	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Styrene	1.02	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Tetrahydrofuran (THF)	3.66	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1324	RSD
Surrogate: 1,2-Dichloroethane-d4	84.1	Limit: 70-130	% Rec	1			05/12/21 1324	RSD
Surrogate: Toluene-d8	95.3	Limit: 70-130	% Rec	1			05/12/21 1324	RSD
Surrogate: Pentafluorobenzene	109	Limit: 70-130	% Rec	1			05/12/21 1324	RSD



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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-3	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0789-03			05/07/2021 8:30				
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 9012A								
Cyanide - Total	<0.0100	0.0100	mg/L	1	Y1	05/17/21 1653	05/18/21 1557	CLW
Hach 8000								
Chemical Oxygen Demand (COD)	42.2	5.00	mg/L	1		05/10/21 1921	05/10/21 1928	DJM
SM 2320 B-2011								
Alkalinity to pH 4.5	92.5	1.00	mg CaCO ₃ /L	1			05/09/21 1900	SRF
SM 2540 C-2011								
Total Dissolved Solids (TDS)	91.0	25.0	mg/L	10		05/11/21 2309	05/13/21 1650	TJT
SM 4500-Cl E-2011								
Chloride	2.53	2.00	mg/L	1	A21		05/11/21 1214	CLW
SM 4500-NO₃⁻ F-2011								
Nitrate as N	0.121	0.0500	mg/L	1	A5		05/07/21 1833	DJM
SM 4500-SO₄⁻ E-2011								
Sulfate as SO ₄	<5.00	5.00	mg/L	1	A21		05/07/21 1654	CLW
Metals Dissolved by CVAA	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 7470A								
Mercury	<0.00020	0.00020	mg/L	1	Y1	05/12/21 1243	05/12/21 1408	MMC
Metals Dissolved by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 6010C								
Arsenic	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Barium	0.0183	0.0100	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Cadmium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Calcium	15.4	0.0500	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Chromium	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Copper	0.0067	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Iron	0.577	0.0500	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Lead	<0.0030	0.0030	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Manganese	0.159	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Selenium	<0.0050	0.0050	mg/L	1	Y1	05/12/21 1359	05/20/21 1257	DLO
Silver	<0.0020	0.0020	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Sodium	4.10	1.00	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Zinc	0.0086	0.0050	mg/L	1	Y1	05/12/21 1359	05/13/21 2114	DLO
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030C/EPA 8260C								
Acetone	<10.0	10.0	ug/L	1	Y1		05/12/21 1349	RSD
Acrylonitrile	<5.00	5.00	ug/L	1	Y1		05/12/21 1349	RSD
Benzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Bromobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD

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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-3	Collected By:		Customer				
Sample Matrix:	Aqueous	Collection Date:						
Lab Sample ID:	D1E0789-03			05/07/2021 8:30				
Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromodichloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Bromoform	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Bromomethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1349	RSD
2-Butanone (MEK)	<10.0	10.0	ug/L	1	Y1		05/12/21 1349	RSD
sec-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
tert-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
n-Butylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Carbon disulfide	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Carbon tetrachloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Chlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Chloroethane (Ethyl chloride)	<5.00	5.00	ug/L	1	M2,Y1		05/12/21 1349	RSD
Chloroform	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Chloromethane	<5.00	5.00	ug/L	1	Y1		05/12/21 1349	RSD
2-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
4-Chlorotoluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2-Dibromo-3-chloropropane (DBCP)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Dibromochloromethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2-Dibromoethane (Ethylene dibromide, EDB)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Dibromomethane (Methylene bromide)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
trans-1,4-Dichloro-2-butene	<1.00	1.00	ug/L	1	M2,Y1		05/12/21 1349	RSD
1,4-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,3-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2-Dichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Dichlorodifluoromethane (Freon-12)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1-Dichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
trans-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
cis-1,2-Dichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,3-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
2,2-Dichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
trans-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
cis-1,3-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1-Dichloropropene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Diethyl ether	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,4-Dioxane	<20.0	20.0	ug/L	1	Y1		05/12/21 1349	RSD
Ethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Hexachlorobutadiene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
2-Hexanone (MBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1349	RSD
Isopropylbenzene (Cumene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
4-Isopropyltoluene (p-Isopropyltoluene)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD

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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-3	Collected By:	
Sample Matrix:	Aqueous	Collection Date:	
Lab Sample ID:	D1E0789-03		Customer 05/07/2021 8:30

Volatile Organic Compounds by GCMS	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Methyl tert-butyl ether (MTBE)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Methylene chloride (Dichloromethane)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
4-Methyl-2-pentanone (MIBK)	<5.00	5.00	ug/L	1	Y1		05/12/21 1349	RSD
Naphthalene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
n-Propylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Styrene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1,1,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1,2,2-Tetrachloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Tetrachloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Tetrahydrofuran (THF)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Toluene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2,4-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2,3-Trichlorobenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1,1-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1,2-Trichloroethane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Trichloroethene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Trichlorofluoromethane (Freon 11)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2,3-Trichloropropane	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,3,5-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
1,2,4-Trimethylbenzene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Vinyl chloride	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
m,p-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
o-Xylene	<1.00	1.00	ug/L	1	Y1		05/12/21 1349	RSD
Surrogate: 1,2-Dichloroethane-d4	83.2	Limit: 70-130	% Rec	1			05/12/21 1349	RSD
Surrogate: Toluene-d8	96.0	Limit: 70-130	% Rec	1			05/12/21 1349	RSD
Surrogate: Pentafluorobenzene	112	Limit: 70-130	% Rec	1			05/12/21 1349	RSD

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8082A								
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L	1	M8,Y1	05/10/21 1000	05/24/21 1237	MRB
Surrogate: Decachlorobiphenyl (BZ-209)	63.3	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1237	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	61.1	Limit: 30-150	% Rec	1	M8	05/10/21 1000	05/24/21 1237	MRB



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CERTIFICATE OF ANALYSIS

D1E0789

Client Sample ID:	SW-1				Collected By:	Customer		
Sample Matrix:	Aqueous				Collection Date:	05/07/2021 9:30		
Lab Sample ID:	D1E0789-04							

Metals Total by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Hardness - Total as CaCO ₃ (Calc)	235	0.331	mg CaCO ₃ /L	1		05/12/21 1359	05/13/21 2117	DLO
Calcium	59.1	0.0500	mg/L	1		05/12/21 1359	05/13/21 2117	DLO
Magnesium	21.2	0.0500	mg/L	1		05/12/21 1359	05/13/21 2117	DLO

Client Sample ID:	SW-2				Collected By:	Customer		
Sample Matrix:	Aqueous				Collection Date:	05/07/2021 8:20		
Lab Sample ID:	D1E0789-05							

Metals Total by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Hardness - Total as CaCO ₃ (Calc)	298	0.331	mg CaCO ₃ /L	1		05/12/21 1359	05/13/21 2130	DLO
Calcium	72.2	0.0500	mg/L	1		05/12/21 1359	05/13/21 2130	DLO
Magnesium	28.6	0.0500	mg/L	1		05/12/21 1359	05/13/21 2130	DLO

Client Sample ID:	SW-3				Collected By:	Customer		
Sample Matrix:	Aqueous				Collection Date:	05/07/2021 8:30		
Lab Sample ID:	D1E0789-06							

Metals Total by ICP	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 200.7, Rv. 4.4 (1994)								
Hardness - Total as CaCO ₃ (Calc)	45.7	0.331	mg CaCO ₃ /L	1		05/12/21 1359	05/13/21 2133	DLO
Calcium	15.6	0.0500	mg/L	1		05/12/21 1359	05/13/21 2133	DLO
Magnesium	1.64	0.0500	mg/L	1		05/12/21 1359	05/13/21 2133	DLO



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CERTIFICATE OF ANALYSIS

D1E0789

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
SM 4500-SO4 ⁻ E-2011	DE10413	DE10413-BLK1 DE10413-BS1 DE10413-MS1 DE10413-DUP1 DE10413-MSD1 D1E0789-01 D1E0789-02 D1E0789-03	D1E0522-02 D1E0522-02 D1E0522-02 SW-1 SW-2 SW-3
SM 4500-NO3 ⁻ F-2011	DE10446	DE10446-BLK1 DE10446-DUP1 DE10446-MS1 DE10446-MSD1 D1E0789-03 DE10446-BS1 D1E0789-01 D1E0789-02	D1E0743-03 D1E0743-03 D1E0743-03 SW-3 SW-1 SW-2
SM 2540 C-2011	DE10485	DE10485-BLK1 D1E0789-03 D1E0789-02 D1E0789-01 DE10485-BS1 DE10485-DUP1	SW-3 SW-2 SW-1 D1E0831-04
SM 2320 B-2011	DE10490	DE10490-BLK1 DE10490-DUP1 DE10490-BS1 D1E0789-01 D1E0789-02 D1E0789-03	D1E0789-01 SW-1 SW-2 SW-3
EPA 8082A	DE10522	DE10522-BLK1 DE10522-BS1 DE10522-MS1 D1E0789-03	D1E0858-04 SW-3

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Method	Batch	Laboratory ID	Client / Source ID
SM 4500-CI E-2011	DE10560	DE10560-BLK1	
		DE10560-DUP1	D1E0858-09
		DE10560-MS1	D1E0858-09
		DE10560-MSD1	D1E0858-09
		D1E0789-01	SW-1
		D1E0789-02	SW-2
		D1E0789-03	SW-3
		DE10560-BS1	
Method	Batch	Laboratory ID	Client / Source ID
Hach 8000	DE10563	DE10563-BS1	
		DE10563-DUP1	D1E0240-04
		DE10563-MS1	D1E0240-04
		D1E0789-01	SW-1
		D1E0789-02	SW-2
		D1E0789-03	SW-3
		DE10563-BLK1	
Method	Batch	Laboratory ID	Client / Source ID
EPA 6010C	DE10722	DE10722-BLK1	
EPA 200.7, Rev. 4.4 (1994)		DE10722-BLK1	
		DE10722-BS1	
		DE10722-BS1	
EPA 6010C		DE10722-BS2	
		DE10722-DUP1	D1E0914-03
		DE10722-DUP1	D1E0914-03
EPA 200.7, Rev. 4.4 (1994)		DE10722-MS1	D1E0914-03
EPA 6010C		DE10722-MS1	D1E0914-03
		D1E0789-01	SW-1
		D1E0789-02	SW-2
EPA 200.7, Rev. 4.4 (1994)		D1E0789-03	SW-3
		D1E0789-04	SW-1
		D1E0789-05	SW-2
EPA 6010C		D1E0789-06	SW-3
		DE10722-MS2	D1E0974-05
		DE10722-MS2	D1E0974-05
EPA 6010C		DE10722-BLK2	
		D1E0789-01	SW-1
		D1E0789-02	SW-2
		D1E0789-01	SW-1
		D1E0789-03	SW-3

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Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	DE10729	DE10729-BLK1	
		DE10729-BS1	
		DE10729-MS1	D1E0858-02
		DE10729-MSD1	D1E0858-02
		DE10729-MS2	D1E0858-09
		D1E0789-01	SW-1
		D1E0789-02	SW-2
		D1E0789-03	SW-3
Method	Batch	Laboratory ID	Client / Source ID
EPA 8260C	DE11024	D1E0789-01	SW-1
		D1E0789-02	SW-2
		D1E0789-03	SW-3
		DE11024-MS1	D1E0789-03
		DE11024-MSD1	D1E0789-03
Method	Batch	Laboratory ID	Client / Source ID
EPA 9012A	DE11084	DE11084-BS1	
		DE11084-BLK1	
		DE11084-MRL1	
		DE11084-DUP1	D1E0593-02
		DE11084-MS1	D1E0593-02
		D1E0789-03	SW-3
		DE11084-MS2	D1E0789-03
		D1E0789-01	SW-1
		D1E0789-02	SW-2

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

Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Notes
Batch DE10413 - Wet Chem - W - SM 4500-SO₄⁻ E-2011									
Blank (DE10413-BLK1) Prepared & Analyzed: 05/07/2021									
Sulfate as SO ₄ <5.00 5.00 mg/L									
LCS (DE10413-BS1) Prepared & Analyzed: 05/07/2021									
Sulfate as SO ₄ 20.9 5.00 mg/L 20.0 105 80-120									
Duplicate (DE10413-DUP1) Source: D1E0522-02 Prepared & Analyzed: 05/07/2021									
Sulfate as SO ₄ <25.0 25.0 mg/L ND 20									
Matrix Spike (DE10413-MS1) Source: D1E0522-02 Prepared & Analyzed: 05/07/2021									
Sulfate as SO ₄ 27.0 mg/L 20.0 1.75 126 75-125 M1									
Matrix Spike Dup (DE10413-MSD1) Source: D1E0522-02 Prepared & Analyzed: 05/07/2021									
Sulfate as SO ₄ 26.5 mg/L 20.0 1.75 124 75-125 1.53 20									

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CERTIFICATE OF ANALYSIS

D1E0789

Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10446 - Wet Chem - W - SM 4500-NO3 F-2011										
Blank (DE10446-BLK1)										
Nitrate as N	<0.0500	0.0500	mg/L		Prepared & Analyzed: 05/07/2021					
LCS (DE10446-BS1)										
Nitrate as N	5.02	0.0500	mg/L	5.00		100	90-110			
Duplicate (DE10446-DUP1)		Source: D1E0743-03			Prepared & Analyzed: 05/07/2021					
Nitrate as N	1.06	0.0500	mg/L		1.07			0.655	20	A5
Matrix Spike (DE10446-MS1)		Source: D1E0743-03			Prepared & Analyzed: 05/07/2021					
Nitrate as N	5.99	0.0500	mg/L	5.00	1.07	98.3	75-125			A5
Matrix Spike Dup (DE10446-MSD1)		Source: D1E0743-03			Prepared & Analyzed: 05/07/2021					
Nitrate as N	5.97	0.0500	mg/L	5.00	1.07	97.9	75-125	0.415	20	A5
Batch DE10485 - Wet-Solids-W - SM 2540 C-2011										
Blank (DE10485-BLK1)										
Total Dissolved Solids (TDS)	<10.0	10.0	mg/L		Prepared: 05/11/2021 Analyzed: 05/13/2021					
LCS (DE10485-BS1)										
Total Dissolved Solids (TDS)	102	25.0	mg/L	100		102	80-120			
Duplicate (DE10485-DUP1)		Source: D1E0831-04			Prepared: 05/11/2021 Analyzed: 05/13/2021					
Total Dissolved Solids (TDS)	72.0	25.0	mg/L		67.0			7.19	10	
Batch DE10490 - Wet Chem - W - SM 2320 B-2011										
Blank (DE10490-BLK1)										
Alkalinity to pH 4.5	<1.00	1.00	mg CaCO ₃ /L		Prepared & Analyzed: 05/09/2021					
LCS (DE10490-BS1)										
Alkalinity to pH 4.5	50.0	1.00	mg CaCO ₃ /L	50.0		100	90-110			
Duplicate (DE10490-DUP1)		Source: D1E0789-01			Prepared & Analyzed: 05/09/2021					
Alkalinity to pH 4.5	308	1.00	mg CaCO ₃ /L		308			0.00	20	
Batch DE10560 - Wet Chem - W - SM 4500-Cl E-2011										
Blank (DE10560-BLK1)										
Chloride	<2.00	2.00	mg/L		Prepared & Analyzed: 05/11/2021					
LCS (DE10560-BS1)										
Chloride	19.7	2.00	mg/L	20.0		98.7	90-110			
Duplicate (DE10560-DUP1)		Source: D1E0858-09			Prepared & Analyzed: 05/11/2021					
Chloride	16.5	2.00	mg/L		16.5			0.248	20	
Matrix Spike (DE10560-MS1)		Source: D1E0858-09			Prepared & Analyzed: 05/11/2021					
Chloride	37.1	2.00	mg/L	20.0	16.5	103	75-125			

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Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10560 - Wet Chem - W - SM 4500-CI E-2011										
Matrix Spike Dup (DE10560-MSD1)	Source: D1E0858-09	Prepared & Analyzed: 05/11/2021								
Chloride	37.7	2.00	mg/L	20.0	16.5	106	75-125	1.66	20	
Batch DE10563 - Wet Chem - W - Hach 8000										
Blank (DE10563-BLK1)		Prepared & Analyzed: 05/10/2021								
Chemical Oxygen Demand (COD)	<5.00	5.00	mg/L							
LCS (DE10563-BS1)		Prepared & Analyzed: 05/10/2021								
Chemical Oxygen Demand (COD)	108	5.00	mg/L	100		108	80-120			
Duplicate (DE10563-DUP1)	Source: D1E0240-04	Prepared & Analyzed: 05/10/2021								
Chemical Oxygen Demand (COD)	197	5.00	mg/L		194			1.63	20	
Matrix Spike (DE10563-MS1)	Source: D1E0240-04	Prepared & Analyzed: 05/10/2021								
Chemical Oxygen Demand (COD)	288	5.00	mg/L	100	194	94.2	80-120			
Batch DE11084 - Wet-Distillation-W - EPA 9012A										
Blank (DE11084-BLK1)		Prepared: 05/17/2021 Analyzed: 05/18/2021								
Cyanide - Total	<0.0100	0.0100	mg/L							
LCS (DE11084-BS1)		Prepared: 05/17/2021 Analyzed: 05/18/2021								
Cyanide - Total	0.188	0.0100	mg/L	0.200		94.0	90-110			
Duplicate (DE11084-DUP1)	Source: D1E0593-02	Prepared: 05/17/2021 Analyzed: 05/18/2021								
Cyanide - Total	<0.0100	0.0100	mg/L		ND			20		
Matrix Spike (DE11084-MS1)	Source: D1E0593-02	Prepared: 05/17/2021 Analyzed: 05/18/2021								
Cyanide - Total	0.0904	0.0100	mg/L	0.100	ND	90.4	75-125			
Matrix Spike (DE11084-MS2)	Source: D1E0789-03	Prepared: 05/17/2021 Analyzed: 05/18/2021								
Cyanide - Total	0.0969	0.0100	mg/L	0.100	ND	96.9	75-125			
Metals Total by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10722 - 200.7 - W - EPA 200.7, Rev. 4.4 (1994)										
Blank (DE10722-BLK1)		Prepared: 05/12/2021 Analyzed: 05/13/2021								
Calcium	<0.0500	0.0500	mg/L							
Magnesium	<0.0500	0.0500	mg/L							
LCS (DE10722-BS1)		Prepared: 05/12/2021 Analyzed: 05/13/2021								
Calcium	11.0	0.0500	mg/L	10.5		105	85-115			
Magnesium	11.6	0.0500	mg/L	10.5		111	85-115			
Duplicate (DE10722-DUP1)	Source: D1E0914-03	Prepared: 05/12/2021 Analyzed: 05/13/2021								
Calcium	38.7	0.0500	mg/L		38.8			0.272	20	
Magnesium	9.20	0.0500	mg/L		9.23			0.318	20	
Matrix Spike (DE10722-MS1)	Source: D1E0914-03	Prepared: 05/12/2021 Analyzed: 05/13/2021								
Calcium	49.9	0.0500	mg/L	10.5	38.8	105	70-130			
Magnesium	21.4	0.0500	mg/L	10.5	9.23	116	70-130			
Matrix Spike (DE10722-MS2)	Source: D1E0974-05	Prepared: 05/12/2021 Analyzed: 05/13/2021								

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CERTIFICATE OF ANALYSIS

D1E0789

Metals Total by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10722 - 200.7 - W - EPA 200.7, Rv. 4.4 (1994)										
Matrix Spike (DE10722-MS2)										
Source: D1E0974-05 Prepared: 05/12/2021 Analyzed: 05/13/2021										
Calcium	53.6	0.0500	mg/L	10.5	43.0	101	70-130			
Magnesium	14.2	0.0500	mg/L	10.5	2.69	109	70-130			
Metals Dissolved by CVAA										
Batch DE10729 - 7470 - EPA 7470A										
Blank (DE10729-BLK1)										
Prepared & Analyzed: 05/12/2021										
Mercury	<0.00020	0.00020	mg/L							
LCS (DE10729-BS1)										
Prepared & Analyzed: 05/12/2021										
Mercury	0.00509	0.00020	mg/L	0.00500		102	80-120			
Matrix Spike (DE10729-MS1)										
Source: D1E0858-02 Prepared & Analyzed: 05/12/2021										
Mercury	0.00464	0.00020	mg/L	0.00500	ND	92.8	75-125			
Matrix Spike (DE10729-MS2)										
Source: D1E0858-09 Prepared & Analyzed: 05/12/2021										
Mercury	0.00499	0.00020	mg/L	0.00500	ND	99.7	75-125			
Matrix Spike Dup (DE10729-MSD1)										
Source: D1E0858-02 Prepared & Analyzed: 05/12/2021										
Mercury	0.00454	0.00020	mg/L	0.00500	ND	90.8	75-125	2.14	20	
Metals Dissolved by ICP										
Batch DE10722 - 200.7 - W - EPA 6010C										
Blank (DE10722-BLK1)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	<0.0020	0.0020	mg/L							
Arsenic	<0.0050	0.0050	mg/L							
Barium	<0.0100	0.0100	mg/L							
Calcium	<0.0500	0.0500	mg/L							
Cadmium	<0.0020	0.0020	mg/L							
Chromium	<0.0020	0.0020	mg/L							
Copper	<0.0020	0.0020	mg/L							
Iron	<0.0500	0.0500	mg/L							
Manganese	<0.0020	0.0020	mg/L							
Sodium	<1.00	1.00	mg/L							
Lead	<0.0030	0.0030	mg/L							
Zinc	<0.0050	0.0050	mg/L							
Blank (DE10722-BLK2)										
Prepared: 05/12/2021 Analyzed: 05/18/2021										
Selenium	<0.0050	0.0050	mg/L							
LCS (DE10722-BS1)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Arsenic	0.532	0.0050	mg/L	0.500		106	80-120			
Barium	0.525	0.0100	mg/L	0.500		105	80-120			
Calcium	11.0	0.0500	mg/L	10.5		105	80-120			
Cadmium	0.536	0.0020	mg/L	0.500		107	80-120			
Chromium	0.514	0.0020	mg/L	0.500		103	80-120			
Copper	0.517	0.0020	mg/L	0.500		103	80-120			

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CERTIFICATE OF ANALYSIS

D1E0789

Metals Dissolved by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DE10722 - 200.7 - W - EPA 6010C										
LCS (DE10722-BS1)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Iron	2.67	0.0500	mg/L	2.50	107	80-120				
Manganese	0.537	0.0020	mg/L	0.500	107	80-120				
Sodium	10.9	1.00	mg/L	10.5	103	80-120				
Lead	0.527	0.0030	mg/L	0.500	105	80-120				
Selenium	0.536	0.0050	mg/L	0.500	107	80-120				
Zinc	0.525	0.0050	mg/L	0.500	105	80-120				
LCS (DE10722-BS2)										
Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	0.278	0.0020	mg/L	0.250	111	80-120				
Duplicate (DE10722-DUP1)										
Source: D1E0914-03 Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	<0.0020	0.0020	mg/L	ND				20		
Arsenic	0.0053	0.0050	mg/L	ND			200	20	R3	
Barium	0.0264	0.0100	mg/L	0.0267			1.28	20		
Calcium	38.7	0.0500	mg/L	38.8			0.272	20		
Cadmium	<0.0020	0.0020	mg/L	ND			20			
Chromium	<0.0020	0.0020	mg/L	ND			20			
Copper	0.0022	0.0020	mg/L	0.0027			18.5	20		
Iron	<0.0500	0.0500	mg/L	0.0409			2.53	20		
Manganese	0.556	0.0020	mg/L	0.561			0.863	20		
Sodium	175	1.00	mg/L	176			0.519	20		
Lead	<0.0030	0.0030	mg/L	ND			20			
Zinc	0.0148	0.0050	mg/L	0.0152			2.54	20		
Matrix Spike (DE10722-MS1)										
Source: D1E0914-03 Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	0.560	0.0020	mg/L	0.500	ND	112	75-125			
Arsenic	0.560	0.0050	mg/L	0.500	ND	112	75-125			
Barium	0.575	0.0100	mg/L	0.500	0.0267	110	75-125			
Calcium	49.9	0.0500	mg/L	10.5	38.8	105	75-125			
Cadmium	0.561	0.0020	mg/L	0.500	ND	112	75-125			
Chromium	0.539	0.0020	mg/L	0.500	ND	108	75-125			
Copper	0.549	0.0020	mg/L	0.500	0.0027	109	75-125			
Iron	2.83	0.0500	mg/L	2.50	0.0409	112	75-125			
Manganese	1.12	0.0020	mg/L	0.500	0.561	111	75-125			
Sodium	188	1.00	mg/L	10.5	176	113	75-125			
Lead	0.549	0.0030	mg/L	0.500	ND	110	75-125			
Selenium	0.555	0.0050	mg/L	0.500	0.0033	110	75-125			
Zinc	0.563	0.0050	mg/L	0.500	0.0152	110	75-125			
Matrix Spike (DE10722-MS2)										
Source: D1E0974-05 Prepared: 05/12/2021 Analyzed: 05/13/2021										
Silver	0.525	0.0020	mg/L	0.500	ND	105	75-125			
Arsenic	0.527	0.0050	mg/L	0.500	ND	105	75-125			
Barium	0.523	0.0100	mg/L	0.500	0.0066	103	75-125			
Calcium	53.6	0.0500	mg/L	10.5	43.0	101	75-125			
Cadmium	0.530	0.0020	mg/L	0.500	ND	106	75-125			
Chromium	0.508	0.0020	mg/L	0.500	0.0009	101	75-125			
Copper	0.517	0.0020	mg/L	0.500	0.0043	103	75-125			

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CERTIFICATE OF ANALYSIS

D1E0789

Metals Dissolved by ICP	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10722 - 200.7 - W - EPA 6010C										
Matrix Spike (DE10722-MS2)										
Source: D1E0974-05 Prepared: 05/12/2021 Analyzed: 05/13/2021										
Iron	2.72	0.0500	mg/L	2.50	0.0901	105	75-125			
Manganese	0.570	0.0020	mg/L	0.500	0.0391	106	75-125			
Sodium	113	1.00	mg/L	10.5	101	115	75-125			
Lead	0.518	0.0030	mg/L	0.500	0.0014	103	75-125			
Selenium	0.519	0.0050	mg/L	0.500	0.0040	103	75-125			
Zinc	0.564	0.0050	mg/L	0.500	0.0457	104	75-125			
Volatile Organic Compounds by GCMS										
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike (DE11024-MS1)										
Source: D1E0789-03 Prepared & Analyzed: 05/12/2021										
Acetone	35.9	10.0	ug/L	50.0	ND	71.7	70-130			
Acrylonitrile	47.5	5.00	ug/L	50.0	ND	95.0	70-130			
Benzene	51.7	1.00	ug/L	50.0	ND	103	70-130			
Bromobenzene	50.6	1.00	ug/L	50.0	ND	101	70-130			
Bromochloromethane	52.2	1.00	ug/L	50.0	ND	104	70-130			
Bromodichloromethane	47.5	1.00	ug/L	50.0	ND	94.9	70-130			
Bromoform	53.4	1.00	ug/L	50.0	ND	107	70-130			
Bromomethane	51.2	5.00	ug/L	50.0	ND	102	70-130			
2-Butanone (MEK)	40.5	10.0	ug/L	50.0	ND	81.1	70-130			
sec-Butylbenzene	50.9	1.00	ug/L	50.0	ND	102	70-130			
tert-Butylbenzene	53.1	1.00	ug/L	50.0	ND	106	70-130			
n-Butylbenzene	56.2	1.00	ug/L	50.0	ND	112	70-130			
Carbon disulfide	46.4	1.00	ug/L	50.0	ND	92.8	70-130			
Carbon tetrachloride	55.8	1.00	ug/L	50.0	ND	112	70-130			
Chlorobenzene	50.3	1.00	ug/L	50.0	ND	101	70-130			
Chloroethane (Ethyl chloride)	40.7	5.00	ug/L	50.0	ND	81.3	70-130			
Chloroform	47.7	1.00	ug/L	50.0	ND	95.5	70-130			
Chloromethane	51.5	5.00	ug/L	50.0	ND	103	70-130			
2-Chlorotoluene	46.3	1.00	ug/L	50.0	ND	92.5	70-130			
4-Chlorotoluene	47.9	1.00	ug/L	50.0	ND	95.9	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	40.5	1.00	ug/L	50.0	ND	81.0	70-130			
Dibromochloromethane	50.8	1.00	ug/L	50.0	ND	102	70-130			
1,2-Dibromoethane (Ethylene dibromide, EDB)	50.9	1.00	ug/L	50.0	ND	102	70-130			
Dibromomethane (Methylene bromide)	46.5	1.00	ug/L	50.0	ND	92.9	70-130			
trans-1,4-Dichloro-2-butene	36.5	1.00	ug/L	50.0	ND	73.1	70-130			
1,4-Dichlorobenzene	49.9	1.00	ug/L	50.0	ND	99.8	70-130			
1,3-Dichlorobenzene	51.4	1.00	ug/L	50.0	ND	103	70-130			
1,2-Dichlorobenzene	50.9	1.00	ug/L	50.0	ND	102	70-130			
Dichlorodifluoromethane (Freon-12)	50.8	1.00	ug/L	50.0	ND	102	70-130			

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CERTIFICATE OF ANALYSIS

D1E0789

Volatile Organic Compounds by GCMS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike (DE11024-MS1)										
					Source: D1E0789-03	Prepared & Analyzed: 05/12/2021				
1,2-Dichloroethane	44.8	1.00	ug/L	50.0	ND	89.6	70-130			
1,1-Dichloroethane	50.4	1.00	ug/L	50.0	ND	101	70-130			
trans-1,2-Dichloroethene	57.0	1.00	ug/L	50.0	ND	114	70-130			
1,1-Dichloroethene	60.6	1.00	ug/L	50.0	ND	121	70-130			
cis-1,2-Dichloroethene	52.8	1.00	ug/L	50.0	ND	106	70-130			
1,3-Dichloropropane	48.4	1.00	ug/L	50.0	ND	96.8	70-130			
1,2-Dichloropropane	49.5	1.00	ug/L	50.0	ND	98.9	70-130			
2,2-Dichloropropane	45.5	1.00	ug/L	50.0	ND	91.1	70-130			
trans-1,3-Dichloropropene	46.2	1.00	ug/L	50.0	ND	92.4	70-130			
cis-1,3-Dichloropropene	49.5	1.00	ug/L	50.0	ND	98.9	70-130			
1,1-Dichloropropene	53.9	1.00	ug/L	50.0	ND	108	70-130			
Diethyl ether	46.3	1.00	ug/L	50.0	ND	92.6	70-130			
1,4-Dioxane	45.9	20.0	ug/L	50.0	ND	91.9	70-130			
Ethylbenzene	49.9	1.00	ug/L	50.0	ND	99.7	70-130			
Hexachlorobutadiene	54.6	1.00	ug/L	50.0	ND	109	70-130			
2-Hexanone (MBK)	44.5	5.00	ug/L	50.0	ND	89.1	70-130			
Isopropylbenzene (Cumene)	49.9	1.00	ug/L	50.0	ND	99.8	70-130			
4-Isopropyltoluene (p-Isopropyltoluene)	52.9	1.00	ug/L	50.0	ND	106	70-130			
Methyl tert-butyl ether (MTBE)	43.6	1.00	ug/L	50.0	ND	87.2	70-130			
Methylene chloride (Dichloromethane)	52.4	1.00	ug/L	50.0	ND	105	70-130			
4-Methyl-2-pentanone (MIBK)	44.8	5.00	ug/L	50.0	ND	89.6	70-130			
Naphthalene	50.0	1.00	ug/L	50.0	ND	100	70-130			
n-Propylbenzene	49.4	1.00	ug/L	50.0	ND	98.8	70-130			
Styrene	48.8	1.00	ug/L	50.0	ND	97.6	70-130			
1,1,1,2-Tetrachloroethane	51.7	1.00	ug/L	50.0	ND	103	70-130			
1,1,2,2-Tetrachloroethane	44.2	1.00	ug/L	50.0	ND	88.3	70-130			
Tetrachloroethene	55.1	1.00	ug/L	50.0	ND	110	70-130			
Tetrahydrofuran (THF)	45.4	1.00	ug/L	50.0	ND	90.7	70-130			
Toluene	50.9	1.00	ug/L	50.0	ND	102	70-130			
1,2,4-Trichlorobenzene	54.8	1.00	ug/L	50.0	ND	110	70-130			
1,2,3-Trichlorobenzene	53.4	1.00	ug/L	50.0	ND	107	70-130			
1,1,1-Trichloroethane	51.5	1.00	ug/L	50.0	ND	103	70-130			
1,1,2-Trichloroethane	50.6	1.00	ug/L	50.0	ND	101	70-130			
Trichloroethene	56.9	1.00	ug/L	50.0	ND	114	70-130			
Trichlorofluoromethane (Freon 11)	57.0	1.00	ug/L	50.0	ND	114	70-130			
1,2,3-Trichloropropane	46.6	1.00	ug/L	50.0	ND	93.2	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	54.6	1.00	ug/L	50.0	ND	109	70-130			
1,3,5-Trimethylbenzene	50.7	1.00	ug/L	50.0	ND	101	70-130			
1,2,4-Trimethylbenzene	50.7	1.00	ug/L	50.0	ND	101	70-130			
Vinyl chloride	59.9	1.00	ug/L	50.0	ND	120	70-130			
m,p-Xylene	51.3	1.00	ug/L	50.0	ND	103	70-130			

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CERTIFICATE OF ANALYSIS

D1E0789

Volatile Organic Compounds by GCMS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike (DE11024-MS1)										
Source: D1E0789-03 Prepared & Analyzed: 05/12/2021										
o-Xylene	50.6	1.00	ug/L	50.0	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	40.6		ug/L	50.0		81.3	70-130			
Surrogate: Toluene-d8	47.0		ug/L	50.0		94.1	70-130			
Surrogate: Pentafluorobenzene	56.5		ug/L	50.0		113	70-130			
Matrix Spike Dup (DE11024-MSD1)										
Source: D1E0789-03 Prepared & Analyzed: 05/12/2021										
Acetone	35.9	10.0	ug/L	50.0	ND	71.7	70-130	0.00	20	
Acrylonitrile	48.4	5.00	ug/L	50.0	ND	96.8	70-130	1.88	20	
Benzene	51.3	1.00	ug/L	50.0	ND	103	70-130	0.699	20	
Bromobenzene	50.8	1.00	ug/L	50.0	ND	102	70-130	0.375	20	
Bromochloromethane	52.4	1.00	ug/L	50.0	ND	105	70-130	0.306	20	
Bromodichloromethane	48.5	1.00	ug/L	50.0	ND	97.0	70-130	2.21	20	
Bromoform	52.6	1.00	ug/L	50.0	ND	105	70-130	1.34	20	
Bromomethane	52.0	5.00	ug/L	50.0	ND	104	70-130	1.65	20	
2-Butanone (MEK)	43.2	10.0	ug/L	50.0	ND	86.4	70-130	6.31	20	
sec-Butylbenzene	49.1	1.00	ug/L	50.0	ND	98.2	70-130	3.58	20	
tert-Butylbenzene	52.5	1.00	ug/L	50.0	ND	105	70-130	1.17	20	
n-Butylbenzene	54.9	1.00	ug/L	50.0	ND	110	70-130	2.25	20	
Carbon disulfide	45.7	1.00	ug/L	50.0	ND	91.4	70-130	1.56	20	
Carbon tetrachloride	56.2	1.00	ug/L	50.0	ND	112	70-130	0.572	20	
Chlorobenzene	48.8	1.00	ug/L	50.0	ND	97.7	70-130	2.85	20	
Chloroethane (Ethyl chloride)	31.4	5.00	ug/L	50.0	ND	62.8	70-130	25.7	20	M2
Chloroform	48.0	1.00	ug/L	50.0	ND	96.1	70-130	0.606	20	
Chloromethane	51.2	5.00	ug/L	50.0	ND	102	70-130	0.662	20	
2-Chlorotoluene	44.7	1.00	ug/L	50.0	ND	89.3	70-130	3.52	20	
4-Chlorotoluene	47.1	1.00	ug/L	50.0	ND	94.2	70-130	1.77	20	
1,2-Dibromo-3-chloropropane (DBCP)	41.5	1.00	ug/L	50.0	ND	83.0	70-130	2.51	20	
Dibromochloromethane	51.3	1.00	ug/L	50.0	ND	103	70-130	1.06	20	
1,2-Dibromoethane (Ethylene dibromide, EDB)	49.4	1.00	ug/L	50.0	ND	98.9	70-130	2.91	20	
Dibromomethane (Methylene bromide)	46.8	1.00	ug/L	50.0	ND	93.6	70-130	0.708	20	
trans-1,4-Dichloro-2-butene	34.4	1.00	ug/L	50.0	ND	68.8	70-130	6.03	20	M2
1,4-Dichlorobenzene	48.9	1.00	ug/L	50.0	ND	97.8	70-130	2.00	20	
1,3-Dichlorobenzene	51.3	1.00	ug/L	50.0	ND	103	70-130	0.234	20	
1,2-Dichlorobenzene	50.4	1.00	ug/L	50.0	ND	101	70-130	0.908	20	
Dichlorodifluoromethane (Freon-12)	49.6	1.00	ug/L	50.0	ND	99.3	70-130	2.37	20	
1,2-Dichloroethane	45.4	1.00	ug/L	50.0	ND	90.9	70-130	1.40	20	
1,1-Dichloroethane	50.2	1.00	ug/L	50.0	ND	100	70-130	0.278	20	
trans-1,2-Dichloroethene	56.6	1.00	ug/L	50.0	ND	113	70-130	0.634	20	
1,1-Dichloroethene	60.3	1.00	ug/L	50.0	ND	121	70-130	0.496	20	
cis-1,2-Dichloroethene	52.9	1.00	ug/L	50.0	ND	106	70-130	0.189	20	
1,3-Dichloropropane	47.5	1.00	ug/L	50.0	ND	95.0	70-130	1.92	20	
1,2-Dichloropropane	49.3	1.00	ug/L	50.0	ND	98.6	70-130	0.263	20	

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CERTIFICATE OF ANALYSIS

D1E0789

Volatile Organic Compounds by GCMS	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DE11024 - 5030C VOA W - EPA 8260C										
Matrix Spike Dup (DE11024-MSD1)										
					Source: D1E0789-03	Prepared & Analyzed: 05/12/2021				
2,2-Dichloropropane	43.7	1.00	ug/L	50.0	ND	87.4	70-130	4.15	20	
trans-1,3-Dichloropropene	46.0	1.00	ug/L	50.0	ND	91.9	70-130	0.521	20	
cis-1,3-Dichloropropene	48.7	1.00	ug/L	50.0	ND	97.4	70-130	1.57	20	
1,1-Dichloropropene	51.7	1.00	ug/L	50.0	ND	103	70-130	4.13	20	
Diethyl ether	47.3	1.00	ug/L	50.0	ND	94.6	70-130	2.05	20	
1,4-Dioxane	39.3	20.0	ug/L	50.0	ND	78.6	70-130	15.5	20	
Ethylbenzene	47.9	1.00	ug/L	50.0	ND	95.8	70-130	4.01	20	
Hexachlorobutadiene	56.4	1.00	ug/L	50.0	ND	113	70-130	3.35	20	
2-Hexanone (MBK)	45.1	5.00	ug/L	50.0	ND	90.1	70-130	1.14	20	
Isopropylbenzene (Cumene)	49.0	1.00	ug/L	50.0	ND	98.0	70-130	1.78	20	
4-Isopropyltoluene (p-Isopropyltoluene)	50.6	1.00	ug/L	50.0	ND	101	70-130	4.29	20	
Methyl tert-butyl ether (MTBE)	44.6	1.00	ug/L	50.0	ND	89.2	70-130	2.25	20	
Methylene chloride (Dichloromethane)	52.5	1.00	ug/L	50.0	ND	105	70-130	0.305	20	
4-Methyl-2-pentanone (MIBK)	45.6	5.00	ug/L	50.0	ND	91.3	70-130	1.79	20	
Naphthalene	53.8	1.00	ug/L	50.0	ND	108	70-130	7.32	20	
n-Propylbenzene	47.5	1.00	ug/L	50.0	ND	95.0	70-130	3.90	20	
Styrene	46.7	1.00	ug/L	50.0	ND	93.3	70-130	4.50	20	
1,1,1,2-Tetrachloroethane	51.0	1.00	ug/L	50.0	ND	102	70-130	1.34	20	
1,1,2,2-Tetrachloroethane	44.7	1.00	ug/L	50.0	ND	89.4	70-130	1.19	20	
Tetrachloroethene	54.4	1.00	ug/L	50.0	ND	109	70-130	1.33	20	
Tetrahydrofuran (THF)	47.5	1.00	ug/L	50.0	ND	95.0	70-130	4.63	20	
Toluene	49.6	1.00	ug/L	50.0	ND	99.2	70-130	2.59	20	
1,2,4-Trichlorobenzene	55.2	1.00	ug/L	50.0	ND	110	70-130	0.836	20	
1,2,3-Trichlorobenzene	56.7	1.00	ug/L	50.0	ND	113	70-130	5.92	20	
1,1,1-Trichloroethane	52.2	1.00	ug/L	50.0	ND	104	70-130	1.31	20	
1,1,2-Trichloroethane	50.4	1.00	ug/L	50.0	ND	101	70-130	0.376	20	
Trichloroethene	56.0	1.00	ug/L	50.0	ND	112	70-130	1.63	20	
Trichlorofluoromethane (Freon 11)	59.8	1.00	ug/L	50.0	ND	120	70-130	4.73	20	
1,2,3-Trichloropropane	44.8	1.00	ug/L	50.0	ND	89.6	70-130	3.94	20	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	55.8	1.00	ug/L	50.0	ND	112	70-130	2.23	20	
1,3,5-Trimethylbenzene	48.3	1.00	ug/L	50.0	ND	96.7	70-130	4.73	20	
1,2,4-Trimethylbenzene	48.2	1.00	ug/L	50.0	ND	96.5	70-130	4.95	20	
Vinyl chloride	59.6	1.00	ug/L	50.0	ND	119	70-130	0.553	20	
m,p-Xylene	49.0	1.00	ug/L	50.0	ND	98.1	70-130	4.50	20	
o-Xylene	49.3	1.00	ug/L	50.0	ND	98.6	70-130	2.64	20	
Surrogate: 1,2-Dichloroethane-d4	40.8		ug/L	50.0		81.6	70-130			
Surrogate: Toluene-d8	46.3		ug/L	50.0		92.7	70-130			
Surrogate: Pentafluorobenzene	58.0		ug/L	50.0		116	70-130			



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CERTIFICATE OF ANALYSIS

D1E0789

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE10522 - 3510C W Sep Funnel - EPA 8082A										
Blank (DE10522-BLK1)										
Prepared: 05/10/2021 Analyzed: 05/24/2021										
Aroclor-1016 (PCB-1016)	<0.100	0.100	ug/L							
Aroclor-1016 (PCB-1016) [2C]	<0.100	0.100	ug/L							
Aroclor-1221 (PCB-1221)	<0.100	0.100	ug/L							
Aroclor-1221 (PCB-1221) [2C]	<0.100	0.100	ug/L							
Aroclor-1232 (PCB-1232)	<0.100	0.100	ug/L							
Aroclor-1232 (PCB-1232) [2C]	<0.100	0.100	ug/L							
Aroclor-1242 (PCB-1242)	<0.100	0.100	ug/L							
Aroclor-1242 (PCB-1242) [2C]	<0.100	0.100	ug/L							
Aroclor-1248 (PCB-1248)	<0.100	0.100	ug/L							
Aroclor-1248 (PCB-1248) [2C]	<0.100	0.100	ug/L							
Aroclor-1254 (PCB-1254)	<0.100	0.100	ug/L							
Aroclor-1254 (PCB-1254) [2C]	<0.100	0.100	ug/L							
Aroclor-1260 (PCB-1260)	<0.100	0.100	ug/L							
Aroclor-1260 (PCB-1260) [2C]	<0.100	0.100	ug/L							
Surrogate: Decachlorobiphenyl (BZ-209)	0.0501		ug/L	0.100		50.1	30-150			
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	0.0571		ug/L	0.100		57.1	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0580		ug/L	0.100		58.0	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	0.0605		ug/L	0.100		60.5	30-150			
LCS (DE10522-BS1)										
Prepared: 05/10/2021 Analyzed: 05/24/2021										
Aroclor-1016 (PCB-1016)	0.587	0.100	ug/L	1.00		58.7	40-140			
Aroclor-1016 (PCB-1016) [2C]	0.612	0.100	ug/L	1.00		61.2	40-140			
Aroclor-1260 (PCB-1260)	0.697	0.100	ug/L	1.00		69.7	40-140			
Aroclor-1260 (PCB-1260) [2C]	0.726	0.100	ug/L	1.00		72.6	40-140			
Surrogate: Decachlorobiphenyl (BZ-209)	0.0677		ug/L	0.100		67.7	30-150			
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	0.0753		ug/L	0.100		75.3	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0608		ug/L	0.100		60.8	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	0.0615		ug/L	0.100		61.5	30-150			
Matrix Spike (DE10522-MS1)										
Source: D1E0858-04 Prepared: 05/10/2021 Analyzed: 05/24/2021										
Aroclor-1016 (PCB-1016)	0.709	0.118	ug/L	1.18	0.0508	55.9	40-140			M8
Aroclor-1016 (PCB-1016) [2C]	0.735	0.118	ug/L	1.18	0.0591	57.5	40-140			M8
Aroclor-1260 (PCB-1260)	0.787	0.118	ug/L	1.18	ND	66.9	40-140			M8
Aroclor-1260 (PCB-1260) [2C]	0.813	0.118	ug/L	1.18	ND	69.1	40-140			M8
Surrogate: Decachlorobiphenyl (BZ-209)	0.0814		ug/L	0.118		69.2	30-150			M8
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	0.0914		ug/L	0.118		77.7	30-150			M8
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	0.0729		ug/L	0.118		61.9	30-150			M8
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	0.0723		ug/L	0.118		61.4	30-150			M8



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CERTIFICATE OF ANALYSIS

D1E0789

Definitions

- A21:** Sample was filtered in the laboratory before analysis.
A28: Sample was treated for the presence of chlorine.
A5: Sample was filtered (0.45 um) before analysis.
M1: Matrix spike recovery is above acceptance limits.
M2: Matrix spike recovery is below acceptance limits.
M8: Matrix spike/matrix spike duplicate not analyzed as required by the method.
mg CaCO₃/L Milligrams Calcium Carbonate per Liter
mg/L: Milligrams per Liter
Q10: The recovery for the closing low level check standard was outside of the established quality control range. The initial low level check standard was within range.
R3: Duplicate RPD is outside of acceptance criteria. The difference between the results is less than 2x Method Reporting Limit.
RL: Reporting Limit
RPD: Relative Percent Difference
ug/L: Micrograms per Liter
Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler

Temp: 4.6°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville

M-CT008

Massachusetts Department of Environmental Protection

Report Comments

Reviewed and Approved By:

Melisa L. Montgomery
Quality Assurance Officer
Reported: 06/08/2021 16:56

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. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.

Microbac Laboratories, Inc.

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PREMIER
LABORATORY, INC.
A NEW YORK LABORATORY

61 Louisa Viens Drive
Dayville, CT 06241 (800) 334-0103

Copy of Report To

CUSTOMER: River Hawk Environmental, LLC
ADDRESS: 2183 Ocean Street, Suite 2
Marshfield, MA 02050

ATTENTION: William Kenney
E-MAIL: bkenney@riverhawkllc.com
PHONE: 508-789-8920 Fax: NA

BILL TO: City of New Bedford

ADDRESS: 133 William Street, Room 304
New Bedford, MA 02740

ATTENTION: Bruce Hebbel
TELEPHONE: 508-991-6188
PURCHASE ORDER #: :

Sampling Information

Sample Identification	Date Collected	Time Collected	Sample Type	Composite	GRAB	Sample Matrix	Number of Bottles	8260B	Alkalinity	COD	Metals **	Dissolved Solids	Sulfate, & TDS	Chloride, & TDS	PCBs	Nitrile	Cyanide	Hardness	Non-pres	HCl	HN03	NaOH	Na2S2O3
SW - 1	5/7/21	9:30			SW	X	X	X	X	X	X				X	X	X	X	X	X	X	X	
SW - 2	5/7/21	8:20			SW	X	X	X	X	X	X				X	X	X	X	X	X	X	X	
SW - 3	5/7/21	8:30			SW	X	X	X	X	X	X				X	X	X	X	X	X	X	X	

Project Information

Shawmut Avenue Landfill	
Project:	Shawmut Avenue, New Bedford, MA
Project Location:	
Project Manager:	Bruce Hebbel
IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:	
EMAIL:	bhebbel@newbedford-ma.gov
TELEPHONE:	508-991-6188
Fax:	

TURNAROUND (INDICATE IN CALENDAR DAYS):

CUSTODY TRANSFER	DATE	TIME			
SAMPLER: <i>As & Cont</i>					
RECEIVED: <i>10:00</i>	5/7/21	12:54			
RELINQUISHED: <i>John Benne</i>	5/7/21	12:54			
RECEIVED: <i>John Johnson</i>	5/7/21	15:00			
RELINQUISHED: <i>John Johnson</i>	5/7/21	15:00			
RECEIVED: <i>A</i>					

PROJECT INFORMATION

PRESERVATIVE
VERIFIED *JK*

Initials *JK*

Preservatives

Lab WO#:

Project Manager:

Shawmut Avenue, New Bedford, MA

Bruce Hebbel

bhebbel@newbedford-ma.gov

508-991-6188

HARD COPY

E-MAIL

EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE

Please Bill the New Bedford Dept. of Env. Stewardship.

CONDITIONS UPON RECEIPT: (CHECK ONE)

COOLED

AMBIENT

Upon Receipt at LA



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0793

Project Description

Shawmut Landfill

For:

Bill Kenney

River Hawk Environmental, LLC

2183 Ocean Street, Suite 2

Marshfield, MA 02050

A handwritten signature in black ink that reads "Melisa L. Montgomery".

Quality Assurance Officer

Melisa L. Montgomery

Friday, May 28, 2021

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. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. 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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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0793

River Hawk Environmental, LLC

Bill Kenney
2183 Ocean Street, Suite 2
Marshfield, MA 02050

Project Name: Shawmut Landfill

Project / PO Number: Shawmut Landfill
Received: 05/07/2021
Reported: 05/28/2021

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>
SED-1	D1E0793-01	Solid	Grab		05/07/21 08:35	05/07/21 15:00



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0793

Analytical Testing Parameters

Client Sample ID:	SED-1	Collected By:	Customer					
Sample Matrix:	Solid	Collection Date:	05/07/2021 8:35					
Lab Sample ID:	D1E0793-01							
Inorganics Total	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
SM 2540 G-1997								
Percent Solids	71.1		% (by wt.)	1	Y1	05/10/21 1653	05/11/21 1305	SRF
Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3550C/EPA 8082A								
Aroclor-1016 (PCB-1016) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Aroclor-1221 (PCB-1221) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Aroclor-1232 (PCB-1232) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Aroclor-1242 (PCB-1242) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Aroclor-1248 (PCB-1248) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Aroclor-1254 (PCB-1254) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Aroclor-1260 (PCB-1260) [2C]	<4.67	4.67	ug/kg dry	1	H,Y1	05/27/21 1000	05/27/21 1757	MRB
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	41.8	Limit: 30-150	% Rec	1	H	05/27/21 1000	05/27/21 1757	MRB
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	44.0	Limit: 30-150	% Rec	1	H	05/27/21 1000	05/27/21 1757	MRB



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0793

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
SM 2540 G-1997	DE10555	D1E0793-01	SED-1
		DE10555-DUP1	D1E0793-01
		DE10555-BLK1	
Method	Batch	Laboratory ID	Client / Source ID
EPA 8082A	DE11856	DE11856-BLK1	
		DE11856-BS1	
		DE11856-MS1	D1E0793-01
		DE11856-MSD1	D1E0793-01
		D1E0793-01	SED-1

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

Inorganics Total	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch DE10555 - Wet-Solids-S - SM 2540 G-1997										
Blank (DE10555-BLK1) Prepared: 05/10/2021 Analyzed: 05/11/2021										
Percent Solids	0.00			% (by wt.)						
Duplicate (DE10555-DUP1)	Source: D1E0793-01	Prepared: 05/10/2021 Analyzed: 05/11/2021								
Percent Solids	70.9			% (by wt.)	71.1			0.282	10	
Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch DE11856 - 3550C Ultrasonic - EPA 8082A

Blank (DE11856-BLK1)	Prepared & Analyzed: 05/27/2021									
Aroclor-1016 (PCB-1016) [2C]	<3.33	3.33	ug/kg wet							
Aroclor-1221 (PCB-1221) [2C]	<3.33	3.33	ug/kg wet							
Aroclor-1232 (PCB-1232) [2C]	<3.33	3.33	ug/kg wet							
Aroclor-1242 (PCB-1242) [2C]	<3.33	3.33	ug/kg wet							
Aroclor-1248 (PCB-1248) [2C]	<3.33	3.33	ug/kg wet							
Aroclor-1254 (PCB-1254) [2C]	<3.33	3.33	ug/kg wet							
Aroclor-1260 (PCB-1260) [2C]	<3.33	3.33	ug/kg wet							
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	2.99		ug/kg wet	3.33		89.7	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	2.25		ug/kg wet	3.33		67.4	30-150			
LCS (DE11856-BS1) Prepared & Analyzed: 05/27/2021										

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Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0793

Polychlorinated Biphenyls (PCBs) by GC/ECD	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Batch DE11856 - 3550C Ultrasonic - EPA 8082A										
LCS (DE11856-BS1)										
Prepared & Analyzed: 05/27/2021										
Aroclor-1016 (PCB-1016) [2C]	21.4	3.33	ug/kg wet	33.3		64.1	40-140			
Aroclor-1260 (PCB-1260) [2C]	24.6	3.33	ug/kg wet	33.3		73.8	40-140			
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	2.77		ug/kg wet	3.33		83.1	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	2.24		ug/kg wet	3.33		67.2	30-150			
Matrix Spike (DE11856-MS1)										
Source: D1E0793-01										
Prepared & Analyzed: 05/27/2021										
Aroclor-1016 (PCB-1016) [2C]	22.6	4.68	ug/kg dry	46.8	ND	48.3	40-140			
Aroclor-1260 (PCB-1260) [2C]	26.8	4.68	ug/kg dry	46.8	ND	57.2	40-140			
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	2.39		ug/kg dry	4.68		51.1	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	2.48		ug/kg dry	4.68		52.9	30-150			
Matrix Spike Dup (DE11856-MSD1)										
Source: D1E0793-01										
Prepared & Analyzed: 05/27/2021										
Aroclor-1016 (PCB-1016) [2C]	19.7	4.68	ug/kg dry	46.8	ND	42.2	40-140	13.6	35	
Aroclor-1260 (PCB-1260) [2C]	22.7	4.68	ug/kg dry	46.8	ND	48.6	40-140	16.3	35	
Surrogate: Decachlorobiphenyl (BZ-209) [2C]	1.99		ug/kg dry	4.68		42.6	30-150			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene [2C]	2.09		ug/kg dry	4.68		44.6	30-150			

Definitions

- % (by wt.): Percent by Weight
- H: Sample was analyzed past holding time.
- RL: Reporting Limit
- RPD: Relative Percent Difference
- Y1: Accreditation is not offered by the accrediting body for this analyte.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 4.6°C

Cooler Inspection Checklist

Ice Present or not required?	Yes	Shipping containers sealed or not required?	Yes
Custody seals intact or not required?	Yes	Chain of Custody (COC) Present?	Yes
COC includes customer information?	Yes	Relinquished and received signature on COC?	Yes
Sample collector identified on COC?	Yes	Sample type identified on COC?	Yes
Correct type of Containers Received	Yes	Correct number of containers listed on COC?	Yes
Containers Intact?	Yes	COC includes requested analyses?	Yes
Enough sample volume for indicated tests received?	Yes	Sample labels match COC (Name, Date & Time?)	Yes
Samples arrived within hold time?	Yes	Correct preservatives on COC or not required?	Yes
Chemical preservations checked or not required?	Yes	Preservation checks meet method requirements?	Yes
VOA vials have zero headspace, or not recd.?	Yes		



Microbac Laboratories, Inc. - Dayville

CERTIFICATE OF ANALYSIS

D1E0793

Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville

M-CT008

Massachusetts Department of Environmental Protection

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. **The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.**

Reviewed and Approved By:

A handwritten signature in black ink that appears to read "Montgomery".

Melisa L. Montgomery
Quality Assurance Officer
Reported: 05/28/2021 15:23

Microbac Laboratories, Inc.

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PREMIER LABORATORY, INC.
A BWN NETWORK LABORATORY

61 Louisa Viens Drive
Dayville, CT 06241 (800) 334-0103

Copy of Report To

CUSTOMER: River Hawk Environmental, LLC

ADDRESS: 2183 Ocean Street, Suite 2

Marshfield, MA 02050

ATTENTION: William Kenney

E-MAIL: bkenney@riverhawkllc.com

PHONE: 508-789-8920 Fax: 508-647-2004

Sampling Information

BILL TO: City of New Bedford
ADDRESS: 133 William Street, Room 304
New Bedford, MA 02740
ATTENTION: Bruce Hebbel
TELEPHONE: 508-991-6188
PURCHASE ORDER #:

Sample Identification	Date Collected	Time Collected	Sample Type	Sample Matrix	Number of Bottles	PCBs	GRAB	COMPOSITE	Time Collected	Project:	Project Location:	Project Manager:	IN CASE WE HAVE ANY QUESTIONS WHEN SAMPLES ARRIVE WE SHOULD CALL:	Project Information
SED - 1	5/7/21	8:35	X	Solid	2	X								

Turnaround (Indicate in Calendar Days):

CUSTODY TRANSFER	DATE	TIME	TIME	HARD COPY	E-MAIL
SAMPLER: <u>Jacqueline Conroy</u>					EXPEDITED SERVICE MAY BE SUBJECT TO SURCHARGE
RECEIVED:	<u>5/7/21</u>	<u>12:54</u>			COMMENTS:
RELINQUISHED:	<u>5/7/21</u>	<u>10:54</u>			Please Bill the New Bedford Dept. of Env. Stewardship.
RECEIVED:	<u>5/7/21</u>	<u>10:54</u>			CONDITIONS UPON RECEIPT: (CHECK ONE)
RELINQUISHED:	<u>5/7/21</u>	<u>10:00</u>			<input type="checkbox"/> COOLED <input type="checkbox"/> AMBIENT
RECEIVED:	<u>5/7/21</u>	<u>10:00</u>			<u>Upon Receipt at Lab</u>

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-15
 Date: 5/7/21
 Time: 9:15
 Weather: 50°, Sunny

Job #: 1360101
 Project Description: Shawmut Avenue Landfill
 Project Location: Shawmut Ave, New Bedford, MA
 Staff: JRC

Equipment:

Gauging: EIP Screening: NA Purgung: Geopoump Data Collection: YSI

WELL STATUS

	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remarks:

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC
 Reference Elevation: NR
 Well Volume: NR

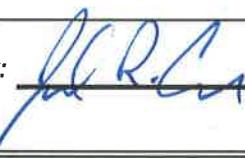
Depth to Product: —
 Depth to Groundwater: 6.39
 Total Depth: NR
 Water Column: NR

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>9:15</u>	<u>10.8/10.8</u>	<u>7.0/7.5</u>	<u>1491/138</u>	<u>7.10/5.3</u>	<u>11.3/201</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

OBSERVATIONS

Odor: —
 Color: —

Turbidity: XH H M L
 Sheen: Y N

Observations: 9:15Signature of Sampler: 

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-1D
 Date: 5/7/21
 Time: 8:45
 Weather: Sunny

Job #: 1360101
 Project Description: Shawmut Avenue Landfill
 Project Location: Shawmut Ave, New Bedford, MA
 Staff: JRC

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remarks: _____

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC
 Reference Elevation: NR
 Well Volume: NR

Depth to Product: —
 Depth to Groundwater: 5.77
 Total Depth: NR
 Water Column: NR

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>8:45</u>	<u>10.8</u>	<u>10.5</u>	<u>6.72</u>	<u>20</u>	<u>1030</u>	<u>4.36</u>	<u>19.37</u>	<u>0.28</u>	<u>63.2</u>
			<u>1144</u>						

OBSERVATIONS

Odor: -
 Color: -

Turbidity: XH H M L
 Sheen: Y N

Observations: 8:45

Signature of Sampler: Jul R. Cud

GROUNDWATER SAMPLING LOG SHEET**GENERAL INFORMATION**

Well I.D.: CDM-3S
 Date: 5/7/21
 Time: 7:15
 Weather: SOS, Sunny

Job #: 1360101
 Project Description: Shawmut Avenue Landfill
 Project Location: Shawmut Ave, New Bedford, MA
 Staff: JRC

Equipment:

Gauging: EIP Screening: NA Purgung: Geopoump Data Collection: YSI

WELL STATUS

	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remarks: _____

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: <u>PVC TOC</u>	Depth to Product: <u>-</u>
Reference Elevation: <u>NR</u>	Depth to Groundwater: <u>3.39</u>
Well Volume: <u>NR</u>	Total Depth: <u>NR</u>
	Water Column: <u>NR</u>

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>7:15</u>	<u>10.1/0.7</u>	<u>8.69/8.1</u>	<u>150.9/</u> <u>123</u>	<u>5.29/</u> <u>0.23</u>	<u>58.9/</u> <u>15.6</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

OBSERVATIONS

Odor: - Turbidity: XH H M L
 Color: - Sheen: Y N

Observations: 7:15

Signature of Sampler: Julie Q. Cox

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-3D
 Date: 5/7/21
 Time: 7:30
 Weather: Sunny

Job #: 1360101
 Project Description: Shawmut Avenue Landfill
 Project Location: Shawmut Ave, New Bedford, MA
 Staff: JRC

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS							
	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Standing Water
Visible Heaving
Visible Subsidence
Damage
Other: _____

Remarks: _____

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC
 Reference Elevation: NR
 Well Volume: NR

Depth to Product: -
 Depth to Groundwater: 265
 Total Depth: NR
 Water Column: NR

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>7:30</u>	<u>10.9/11.1</u>	<u>7.14/</u> <u>7.92</u>	<u>866/</u> <u>651.5</u>	<u>3.87</u> <u>0.16</u>	<u>138.1</u> <u>98.4</u>	-	-	-	-

OBSERVATIONS

Odor: -
 Color: -

Turbidity: XH H M L
 Sheen: Y N

Observations: 7:30

Signature of Sampler: J.R.L.

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-4S
 Date: 5/21/21
 Time: 7:45
 Weather: SOG, Sunny

Job #: 1360101
 Project Description: Shawmut Avenue Landfill
 Project Location: Shawmut Ave, New Bedford, MA
 Staff: JRC

Equipment:

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

WELL STATUS

	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remarks:

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC
 Reference Elevation: NR
 Well Volume: NR

Depth to Product: -
 Depth to Groundwater: 4.01
 Total Depth: NR
 Water Column: NR

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>7:45</u>	<u>10.4</u>	<u>6.88</u>	<u>2075</u>	<u>4.38</u>	<u>-37.4</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
	<u>11.39</u>	<u>6.07</u>	<u>1518.5</u>	<u>0.4</u>	<u>-25.8</u>				

OBSERVATIONS

Odor: -
 Color: -

Turbidity: XH H M L
 Sheen: Y N

Observations: 7:45

Signature of Sampler: J.R. Corr

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-4D
 Date: 5/7/21
 Time: 8:00
 Weather: SOS, Sunny

Job #: 1360101
 Project Description: Shawmut Avenue Landfill
 Project Location: Shawmut Ave, New Bedford, MA
 Staff: JRC

Equipment:

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

WELL STATUS

	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remarks:

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Reference Elevation: NR

Depth to Product: -

Depth to Groundwater: 265

Total Depth: NR

Water Column: NR

Well Volume: NR

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>8:00</u>	<u>10.31</u>	<u>7.04</u>	<u>2177</u>	<u>16.7</u>	<u>-17.1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
	<u>11.15</u>	<u>6.97</u>	<u>1887</u>	<u>100.3</u>	<u>-16.55</u>				

OBSERVATIONS

Odor: -
 Color: -

Turbidity: XH H M L
 Sheen: Y N

Observations: 8:00

Signature of Sampler: J.R. G

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-55
Date: 5/7/21
Time: 8:15
Weather: 30s, sunny

Job #: 1360101
Project Description: Shawmut Avenue Landfill
Project Location: Shawmut Ave, New Bedford, MA
Staff: TRE

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

WELL STATUS								
	Good	Poor	Missing	N/A		YES	NO	
Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standing Water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Heaving	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Riser Cap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Subsidence	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conc. Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Remarks:

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Depth to Product:

Reference Elevation: NR

Depth to Groundwater: 3.76

Well Volume: NR

Total Depth: NR

Total Depth: NR

Water Column: NR

OBSERVATIONS

Odor:

Turbidity: XH H M L

Color:

Sheen: Y N

Observations: 8:15

Signature of Sampler:

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-5D
Date: 5/7/21
Time: 8:10
Weather: SOS, Sunny

Job #: 1360101
Project Description: Shawmut Avenue Landfill
Project Location: Shawmut Ave, New Bedford, MA
Staff:

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

	Good	Poor	Missing	N/A	YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Lock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Riser Cap	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Condition	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Conc. Pad	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

Remarks:

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Depth to Product: -

Reference Elevation: NR

Depth to Groundwater: 3.06

Well Volume: NR

Total Depth: NR

Water Column: NR

Time	Temp °C	pH s.u.	S.C. umhos/cm	D.O. mg/L	ORP mV	Turbidity NTU	Water Lev. Feet	Purge Gallons	Stabilized
<u>8:10</u>	<u>10.0 / 10.8</u>	<u>6.49 / 6.04</u>	<u>1059 / 994</u>	<u>1.26 / 0.23</u>	<u>12.6 / 33.2</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

OBSERVATIONS

Odor: -
Color: -

Turbidity: XH H M L
Sheen: Y N

Observations: 8:10

Signature of Sampler: JL R. Cn

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: CDM-6D
Date: 5/7/21
Time: 10:00
Weather: 50s, sunny

Job #: 1360101
Project Description: Shawmut Avenue Landfill
Project Location: Shawmut Ave, New Bedford, MA
Staff: TPC

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

	Good	Poor	Missing	N/A		YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standing Water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Heaving	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Riser Cap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Subsidence	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conc. Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Remarks:

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Depth to Product:

Reference Elevation: NR

Depth to Groundwater:

Well Volume: NR

Water Column: NR

OBSERVATIONS

Odor: Color:

Turbidity: XH H M L
Sheen: Y N

Observations: 10:00

Signature of Sampler:

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: SW-1
Date: 5/7/21
Time: 9:30
Weather: 50°, Sunny

Job #: 1360101
Project Description: Shawmut Avenue Landfill
Project Location: Shawmut Ave, New Bedford, MA
Staff: TPC

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

	Good	Poor	Missing	N/A		YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standing Water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Heaving	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Riser Cap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Subsidence	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conc. Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Remarks: Surface water sample

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Depth to Product: _____

Reference Elevation: NR

Depth to Groundwater:

Well Volume: NR

Total Depth: NR

Water Column: NR

OBSERVATIONS

Odor: -

Turbidity: XH H M L

Color:

Sheen: Y N

Observations: 9:30

Signature of Sampler:

J.D.R.C.

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: SW-2
Date: 5/7/21
Time: 8:20
Weather: 50°, sunny

Job #: 1360101
Project Description: Shawmut Avenue Landfill
Project Location: Shawmut Ave, New Bedford, MA
Staff: JRC

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

	WELL SURVEY							
	Good	Poor	Missing	N/A		YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standing Water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Heaving	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Riser Cap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Subsidence	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conc. Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Remarks: Surface water sample

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Depth to Product:

Reference Elevation: NR

Depth to Groundwater: -

Total Depth: NR

Well Volume: NR

Water Column: NR

OBSERVATIONS

Odor: -

Turbidity: XH H M L

Color: Blue

Sheen: Y N

Observations: 8:20

Signature of Sampler:

P.D.C.

GROUNDWATER SAMPLING LOG SHEET

GENERAL INFORMATION

Well I.D.: SW-3
Date: 5/7/21
Time: 8:30
Weather: 50°, Sunny

Job #: 1360101
Project Description: Shawmut Avenue Landfill
Project Location: Shawmut Ave, New Bedford, MA
Staff: JRC

Gauging: EIP

Screening: NA

Purging: Geopoump

Data Collection: YSI

Equipment:

WELL STATUS

	WELL STATUS							
	Good	Poor	Missing	N/A		YES	NO	N/A
Casing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standing Water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Heaving	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Riser Cap	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Visible Subsidence	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conc. Pad	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Remarks: Surface water sample

PURGING AND SAMPLE COLLECTION DATA

Measurement Reference: PVC TOC

Depth to Product:

Reference Elevation: NR

Depth to Groundwater:

Well Volume: NR

Total Depth: NR

Water Column: NR

OBSERVATIONS

Odor: -

Turbidity: XH H M L

Color:

Sheen: Y N

Observations: 8:30

Signature of Sampler:

J.D.H.C.