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Date: June 23, 2022
Our Ref: 30112892
Subject: Plant 6 Vapor Intrusion Investigation Summary
RACER Trust Industrial Land, Plant 6, Lansing, Michigan

Dear Ms. Matlock,

Arcadis of Michigan, LLC (Arcadis) on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, has prepared this report to summarize continued vapor intrusion (VI) investigation efforts for RACER Lansing Plant 6 located in Lansing, Michigan (Site). As summarized in the *Plant 2, 3, and 6 Vapor Intrusion Investigation Summary Report,* submitted to the Michigan Department of Environment, Great Lakes and Energy (EGLE) in February 2021, additional sampling was recommended based on detections of vinyl chloride in monitoring wells off-site near Plant 6. This report summarizes the results of the additional sampling conducted in this area at Plant 6.

Plant 6 Vapor Intrusion Investigation Activities

The following activities were summarized in detail in the February 2021 *Plant 2, 3, and 6 Vapor Intrusion Investigation Summary Report.* Below is a summary of the activities/results collected to further evaluate the vapor intrusion pathway at and near the Plant 6 entrance at Osborne and Stanley (Plant 6 entrance). Refer to **Figure 1** for locations and groundwater results:

- During the 2012 remedial investigation activities vinyl chloride was detected at a concentration of 13 micrograms per liter (µg/L) at a depth of 7-8 ft below ground surface (bgs) at boring VAP-A5.7-MB257 located near the Plant 6 entrance at Osborn and Stanley. This result is above the EGLE Residential Site-Specific Volatilization to Indoor Air Criteria (SSVIAC), issued for the Site on August 15, 2018, for groundwater of 0.96 µg/L, for a structure with a basement, sandy soil, and groundwater (not in contact) at a depth greater than 10 ft bgs, which prompted additional vapor intrusion investigation.
- On February 17, 2020, soil boring VAP-A5.7-MB257_02172020 was completed adjacent to VAP-A5.7-MB257, which was advanced in 2012. The result of the re-sample event indicated a vinyl chloride concentration of 3 µg/L, which, although lower than the 2012 result, was still above the EGLE Residential SSVIAC.
- On July 20-24, 2020 in accordance with the May 6, 2020 *Vapor Intrusion Follow-Up Work Plan* (Arcadis, 2020), five direct push vertical aquifer profile (VAP) borings were advanced in the right-of-way (ROW) along Stanley Street located to the east of Plant 6 and VAP-A5.7-MB257. Vinyl chloride was not detected in SB-OS-

LV263, SB-OS-MB263, or SB-OS-MC268, providing delineation to the north, southeast, and east, respectively. SB-OS-MA266 is located approximately 100 feet from the nearest building (a garage associated with a residence with a basement) and contained vinyl chloride at a concentration of 1 µg/L. SB-OS-LY263 is located further than 100 feet from the nearest building and contained vinyl chloride at a concentration of 2 µg/L.

- Based on the VAP groundwater results near the Plant 6 entrance, additional investigation activities included installation of two (2) permanent monitoring wells and installation of an off-site soil vapor monitoring point (SVMP). Monitoring wells MW-20-131 (5 to 10 ft bgs) near the original boring VAP-A5.7-MB257, MW-20-132 (6 to 11 ft bgs) along the Stanley ROW, and soil vapor monitoring point SVMP-20-01 (4.5 to 5 ft bgs) were installed on November 23, 2020 (**Figure 1**).

As summarized in the February 2021 *Plant 2, 3, and 6 Vapor Intrusion Investigation Summary Report* submitted to EGLE, the following recommendations were provided in the report to complete evaluation of the vapor intrusion pathway for Plant 6:

- SVMP-20-01 will be sampled quarterly for three additional quarters to complete four consecutive quarters of sampling to establish seasonal variation.
- Based on the detection of vinyl chloride in the monitoring wells MW-20-131 and MW-20-132 above SSVIAC, these wells will be sampled on a quarterly basis during routine groundwater monitoring for a minimum of three additional quarters and analyzed for VOCs.

Additional Vapor Intrusion Sampling and Evaluation Near the Plant 6 Entrance at Osborn and Stanley Streets

The above recommendations were implemented at the Site to complete evaluation of the vapor intrusion pathway for Plant 6. Four additional quarters of groundwater samples were collected at two (2) monitoring wells - MW-20-131, near the original boring VAP-A5.7-MB257, and MW-20-132, along the Stanley ROW. Four additional quarters of soil gas samples were attempted and three quarters were able to be collected from the off-site soil vapor monitoring point (SVMP-20-01, screened from 4.5 to 5 ft bgs) (**Figure 1**).

Soil Gas

Soil vapor monitoring point SVMP-20-01 was sampled on June 10, September 7, and December 17, 2021 for USEPA Method TO-15 analysis. Soil gas sampling logs are provided in **Attachment 1**. The SVMP sampling was attempted on February 26, 2021, but a soil gas sample was not able to be collected due to water within the vapor point screen.

A helium leak test was performed prior to each sampling event and the soil gas samples were collected in a laboratory-provided Bottle Vac and submitted to Fibertec Analytical Laboratory in Holt, Michigan for analysis. The results of the soil gas samples showed trichloroethene (TCE) at a concentration of 9.5 micrograms per meters cubed (µg/m^3) in December 2020, below the EGLE SSVIAC criterion of 67 µg/m^3. The remaining three samples from 2021 were non-detect for TCE (< 1.6 µg/m^3). Chloroform was detected at 13 µg/m^3 in June and September, below the EGLE SSVIAC criterion of 37 µg/m^3, but was non-detect in December 2021(< 5.9 µg/m^3). Vinyl chloride has not been detected in any of the four soil vapor samples. SVMP analytical results are summarized on **Table 1**.

Groundwater

Groundwater samples were collected from the two new monitoring wells (MW-20-131, located near the Plant 6 entrance and screened from 5 to 10 ft bgs, and MW-20-132, located along the Stanley ROW and screened from 6 to 11 ft bgs, during each quarterly event (February 26, June 2, September 1, and November 30, 2021) and submitted to Merit for analysis of VOCs by USEPA Method 8260. Groundwater sampling logs are provided in **Attachment 1.** Vinyl chloride results ranged from 3 to 5 µg/L at MW-20-131 and from 1 to 3 µg/L at MW-20-132. These results are consistent with previous sampling in this area and are above the residential SSVIAC of 0.96 µg/L for a residential house with a basement, depth to groundwater of 10 feet and USDA soil type of sand. Cis-1,2-dichloroethene (cis-1,2-DCE) was the only other compound detected at these locations and concentrations were consistently below its SSVIAC criterion. Groundwater results are summarized on **Table 2**.

Conclusions

As previously discussed in a report submitted to EGLE, the hydrogeologic conditions in this area are expected to limit the off-site risk of vapor intrusion (Arcadis 2020). Vinyl chloride impacts exceeding SSVIAC in groundwater are encountered between ground surface and 15 ft bgs, consistent with the perched zone at the Site. The geology of the area is dominated by clay with discontinuous layers of sand, silt and some fill material that can be saturated in the upper 15 feet. SSVIAC exceedances in groundwater at soil boring location VAP-A5.7-MB257 were encountered in a sand seam from 7 to 8 feet bgs. The sand seam is present in soil boring SB-OS-MA266 located on the east side of Stanley Street at a depth of 8-9.5 feet bgs. A previous VAP boring, SB-A5.7-LX268, which is located between the residence to the northeast and the detection at SB-OS-MA266, encountered only clay with no groundwater present. The location of the off-site borings and vinyl chloride concentrations in groundwater are summarized on **Figure 1**.

Also, note that the presumed source of vinyl chloride was excavated in 2016 during the Area 5-7 excavation of trichlorethylene (TCE) impacted soil (PM Environmental 2016). Based on the clay dominant geology, limited migration of groundwater to the northeast, mitigated source, and additional investigation activities conducted in this area to evaluate vapor intrusion, the vapor intrusion pathway for Plant 6 has been thoroughly evaluated and no additional monitoring of the SVMP is recommended. Based on the detections of vinyl chloride in monitoring wells MW-20-131 and MW-20-132 above SSVIAC, continued routine groundwater monitoring for VOCs will be completed at a semi-annual frequency (to be included in the next revision to the IGMP) in order to verify concentrations do not trend higher.

Sincerely,
Arcadis of Michigan, LLC

Tiffany A. Linder
Certified Project Manager

Patrick Curry, PG, CPG
Technical Expert

CC. Mr. Dave Favero – RACER

References:

Arcadis. 2020. Email transmittal: To: Joe Rogers, et.al. From: Patrick Curry. RE: RACER Lansing – Vapor Intrusion Follow-up Work Plan. May 6.

PM Environmental. 2016. Draft Excavation Summary Report for the Targeted Excavation for Areas 5-7, 7, and 9 at the RACER Industrial Property Lasing Plant 6. September.

Enclosures:

Tables

Table 1 - Summary of Soil Gas Analytical Results from SVMP

Table 2 - Summary of Groundwater Sample Analytical Results – VI Evaluation

Figures

Figure 1 - Summary of Groundwater and SVMP Analytical Results Near Plant 6 Entrance

Attachments

Attachment 1 - SVMP and GWS Field Sampling Logs/Notes

Attachment 2 - SVMP Laboratory Data Reports

Attachment 3 - Groundwater Laboratory Data Reports

Tables

Table 1
Summary of Soil Gas Analytical Results from SVMP
RACER Trust
Lansing, Michigan

Location ID	Residential SSVIAC (µg/m3)	EGLE DRAFT 2020 Nonresidential VI Criteria (µg/m3)	SVMP-20-01	SVMP-20-01	SVMP-20-01	SVMP-20-01
Date Collected			12/9/2020	6/10/2021	9/7/2021	12/17/2021
VOC via USEPA Method TO-15 (µg/m^3)						
Acetone	1,000,000 st	1,000,000	<57 [<57]	<57 [<57]	<57 [<57]	<57 [<57]
Benzene	110 ca	110 ca	<19 [<19]	<19 [<19]	<19 [<19]	<19 [<19]
Benzyl Chloride	--	17 ca	<6.2 [<6.2]	<6.2 [<6.2]	<6.2 [<6.2]	<6.2 [<6.2]
Bromodichloromethane	--	48 ca	<8.0 [<8.0]	<8.0 [<8.0]	<8.0 [<8.0]	<8.0 [<8.0]
Bromoform	--	770 ca	<62 [<62]	<62 [<62]	<62 [<62]	<62 [<62]
Bromomethane	--	350 nc	<23 [<23]	<23 [<23]	<23 [<23]	<23 [<23]
1,3-Butadiene	--	--	<0.66 [<0.66]	<0.66 [<0.66]	<0.66 [<0.66]	<0.66 [<0.66]
2-Butanone (MEK)	170,000 (SE) dev	170,000	<35 [<35]	<35 [<35]	<35 [<35]	<35 [<35]
Carbon Disulfide	24,000 nc	24,000 nc	<37 [<37]	<37 [<37]	<37 [<37]	<37 [<37]
Carbon Tetrachloride	--	150 ca	<7.5 [<7.5]	<7.5 [<7.5]	<7.5 [<7.5]	<7.5 [<7.5]
Chlorobenzene	--	1,700 nc	<28 [<28]	<28 [<28]	<28 [<28]	<28 [<28]
Chloroethane	--	140,000 nc	<16 [<16]	<16 [<16]	<16 [<16]	<16 [<16]
Chloroform	37 ca	37 ca	<5.9 [<5.9]	**13 [13]**	**13 [13]**	<5.9 [<5.9]
Chloromethane	--	3,100 nc	<12 [<12]	<12 [<12]	<12 [<12]	<12 [<12]
Cyclohexane	210,000 nc	210,000 nc	<41 [<41]	<41 [<41]	<41 [<41]	<41 [<41]
Dibromochloromethane	--	14 mut	<4.1 [<4.1]	<4.1 [<4.1]	<4.1 [<4.1]	<4.1 [<4.1]
1,2-Dichlorobenzene	--	10,000 nc	<36 [<36]	<36 [<36]	<36 [<36]	<36 [<36]
1,3-Dichlorobenzene	--	100 nc	<36 [<36]	<36 [<36]	<36 [<36]	<36 [<36]
1,4-Dichlorobenzene	--	220 ca	<36 [<36]	<36 [<36]	<36 [<36]	<36 [<36]
Dichlorodifluoromethane (Freon 12)	--	11,000 nc	<30 [<30]	<30 [<30]	<30 [<30]	<30 [<30]
1,1-Dichloroethane	530 ca	530 ca	<24 [<24]	<24 [<24]	<24 [<24]	<24 [<24]
1,2-Dichloroethane	33 ca	33 ca	<4.9 [<4.9]	<4.9 [<4.9]	<4.9 [<4.9]	<4.9 [<4.9]
1,1-Dichloroethene	7,000 nc	7,000 nc	<24 [<24]	<24 [<24]	<24 [<24]	<24 [<24]
cis-1,2-Dichloroethene	280 nc	280 nc	<24 [<24]	<24 [<24]	<24 [<24]	<24 [<24]
trans-1,2-Dichloroethene	2,800 nc	2,800 nc	<24 [<24]	<24 [<24]	<24 [<24]	<24 [<24]
1,2-Dichloropropane	--	140 nc	<28 [<28]	<28 [<28]	<28 [<28]	<28 [<28]
cis-1,3-Dichloropropene	--	--	<27 [<27]	<27 [<27]	<27 [<27]	<27 [<27]
trans-1,3-Dichloropropene	--	--	<27 [<27]	<27 [<27]	<27 [<27]	<27 [<27]
1,4-Dioxane	170 ca	170 ca	<22 [<22]	<22 [<22]	<22 [<22]	<22 [<22]
Ethyl Acetate	--	2,400 nc	<43 [<43]	<43 [<43]	<43 [<43]	<43 [<43]
Ethylbenzene	340 ca	340 ca	<52 [<52]	<52 [<52]	<52 [<52]	<52 [<52]
Ethylene Dibromide	1.4 ca	1.4 ca	<0.92 [<1.92]	<0.92 [<1.92]	<0.92 [<1.92]	<0.92 [<1.92]
n-Heptane	--	120,000 nc	<49 [<49]	<49 [<49]	<49 [<49]	<49 [<49]
Hexachlorobutadiene	--	39 ca	<5.1 [<5.1]	<5.1 [<5.1]	<5.1 [<5.1]	<5.1 [<5.1]
n-Hexane	24,000 nc	24,000 nc	<42 [<42]	<42 [<42]	<42 [<42]	<42 [<42]
2-Hexanone	--	1,000 nc	<49 [<49]	<49 [<49]	<49 [<49]	<49 [<49]
2-Propanol (Isopropanol alcohol)	--	--	<29 [<29]	<29 [<29]	<29 [<29]	<29 [<29]
4-Methyl-2-pentanone	--	27,000 st	<49 [<49]	<49 [<49]	<49 [<49]	<49 [<49]
Methylene Chloride	--	21,000 nc	<42 [<42]	<42 [<42]	<42 [<42]	<42 [<42]
2-methylnaphthalene	350 nc	350 nc	<140 [<140]	<140 [<140]	<140 [<140]	<140 [<140]
Methyl tert-butyl ether (MTBE)	3,300 ca	3,300 ca	<22 [<22]	<22 [<22]	<22 [<22]	<22 [<22]
Naphthalene	25 ca	25 ca	<28 [<28]	<28 [<28]	<28 [<28]	<28 [<28]
Styrene	--	1,500 ca	<51 [<51]	<51 [<51]	<51 [<51]	<51 [<51]
1,1,2,2-Tetrachloroethane	--	15 ca	<3.3 [<3.3]	<3.3 [<3.3]	<3.3 [<3.3]	<3.3 [<3.3]
Tetrachloroethene	1,400 (SE) st	1,400 st	<41 [<41]	<41 [<41]	<41 [<41]	<41 [<41]
Tetrahydrofuran	--	70,000 nc	<3.5 [<3.5]	<3.5 [<3.5]	<3.5 [<3.5]	<3.5 [<3.5]
Toluene	170,000 (SE) st	170,000 nc	<23 [<23]	<23 [<23]	<23 [<23]	<23 [<23]
1,2,4-Trichlorobenzene	--	70 nc	<89 [<89]	<89 [<89]	<89 [<89]	<89 [<89]
1,1,1-Trichloroethane	--	170,000 st	<33 [<33]	<33 [<33]	<33 [<33]	<33 [<33]
1,1,2-Trichloroethane	--	7.0 nc	<6.5 [<6.5]	<6.5 [<6.5]	<6.5 [<6.5]	<6.5 [<6.5]
Trichloroethene	67 (SE) dev	67 dev	**9.5** [<1.6]	<1.6 [<1.6]	<1.6 [<1.6]	<1.6 [<1.6]
Trichlorofluoromethane (Freon 11)	--	15,000 nc	<34 [<34]	<34 [<34]	<34 [<34]	<34 [<34]
1,1,2-Trichloro-trifluoroethane (Freon 113)	--	660,000 nc	<46 [<46]	<46 [<46]	<46 [<46]	<46 [<46]
1,2,4-Trimethylbenzene	2,100 nc	2,100 nc	<29 [<29]	<29 [<29]	<29 [<29]	<29 [<29]
1,3,5-Trimethylbenzene	2,100 nc	2,100 nc	<29 [<29]	<29 [<29]	<29 [<29]	<29 [<29]

Table 1
Summary of Soil Gas Analytical Results from SVMP
RACER Trust
Lansing, Michigan

Location ID	Residential SSVIAC (µg/m3)	EGLE DRAFT 2020 Nonresidential VI Criteria (µg/m3)	SVMP-20-01	SVMP-20-01	SVMP-20-01	SVMP-20-01
Date Collected			12/9/2020	6/10/2021	9/7/2021	12/17/2021
Vinyl Acetate	--	7,000 nc	<42 [<42]	<42 [<42]	<42 [<42]	<42 [<42]
Vinyl Chloride	54 ca	54 mut	<15 [<15]	<15 [<15]	<15 [<15]	<15 [<15]
m,p Xylenes	--	--	<52 [<52]	<52 [<52]	<52 [<52]	<52 [<52]
o- Xylenes	--	--	<52 [<52]	<52 [<52]	<52 [<52]	<52 [<52]
Total Xylenes	7,600 nc	7,600 nc	<100 [<100]	<100 [<100]	<100 [<100]	<100 [<100]

NOTES:
All results compared to Michigan Department of Environment, Great Lakes and Energy (EGLE) site-specific volatilization to indoor air criteria (SSVIAC), August 15, 2018.
Residential SSVIAC - Applies to a residential house with a basement, the depth to groundwater of 10 feet at the Site and soil type of sand.
Bolded values were detected above laboratory detection limits
Data shown in [ ] represent duplicate sample analytical results.
All analytical results are presented in micrograms per cubic meter (µg/m^3)
-- = No criteria requested for SSVIAC
< = Not Detected above laboratory detection limit
SVMP = Soil vapor monitoring point
SSVIAC = Site-specific volatilization to indoor air criteria (provided by EGLE)
Sampling was attempted in first quarter of 2021 but was not successful due to water encountered in soil vapor monitoring point.

EGLE Footnotes:
(SE) = Site-specific criteria based on single event exposure; therefore, sampling methods should reflect shorter exposure scenarios.
ca = the criterion is based on carcinogenic health effects
dev = the criterion is based on developmental health effects
nc = the criterion is based on non-carcinogenic health effects
mut = the criterion is based on mutagenic cancer health effects
st = the criterion is based on short-term toxicity

Table 2
Summary of Groundwater Analytical Results
RACER Trust
Lansing, Michigan

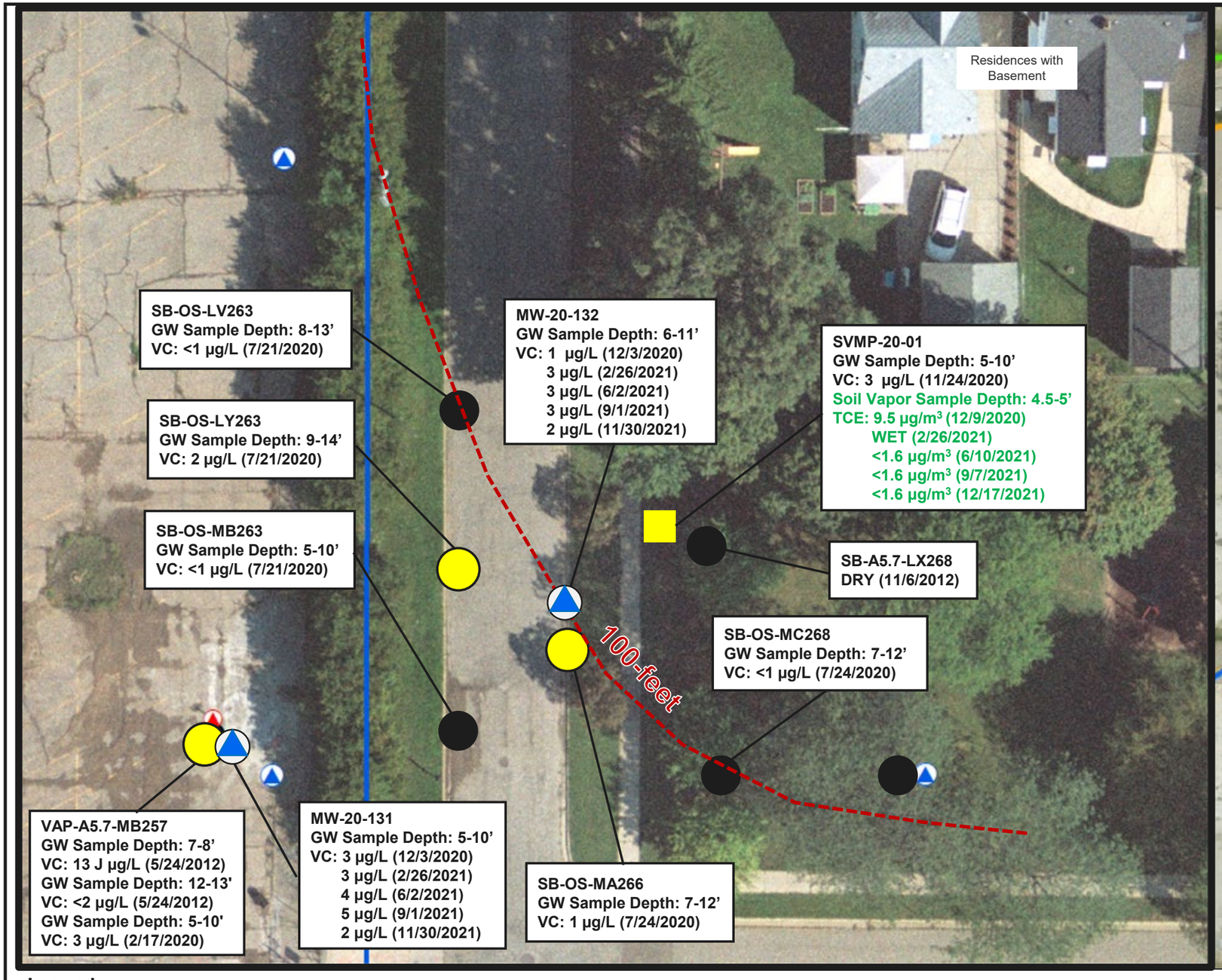
Location ID: Sample Depth: Date Collected: Sample Name:	RES SSVIAC GWNIC (EGLE2018)	RES GW Not in Contact EGLE 2020 DRAFT VI Criteria	Units	MW-20-131 5 - 10 12/03/20 MW-20-131_120320	MW-20-131 5 - 10 02/26/21 MW-20-131_022621	MW-20-131 5 - 10 06/02/21 MW-20-131_060221	MW-20-131 5 - 10 09/01/21 MW-20-131_090121	MW-20-131 5 - 10 11/30/21 MW-20-131_113021	MW-20-132 6 - 11 12/03/20 MW-20-132_120320	MW-20-132 6 - 11 02/26/21 MW-20-132_022621	MW-20-132 6 - 11 06/02/21 MW-20-132_060221	MW-20-132 6 - 11 09/01/21 MW-20-132_090121	MW-20-132 6 - 11 11/30/21 MW-20-132_113021
Volatile Organics													
1,1-Dichloroethane	67	130	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,1-Dichloroethene	170	330	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,1,1-Trichloroethane	8,700	14,000	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,1,1,2-Tetrachloroethane	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,1,2-Trichloroethane	8.1	14.0	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,1,2,2-Tetrachloroethane	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2,3-Trichlorobenzene	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
1,2,3-Trichloropropane	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2,3-Trimethylbenzene	800	1200	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2,4-Trichlorobenzene	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
1,2,4-Trimethylbenzene	440	670	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2-Dibromo-3-chloropropane (DBCP)	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
1,2-Dibromoethane (Ethylene dibromide)	2.9	3.8	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2-Dichlorobenzene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2-Dichloroethane	21	41	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,2-Dichloropropane	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,3-Dichlorobenzene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,3,5-Trimethylbenzene	310	470	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
1,4-Dichlorobenzene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
2-Butanone (Methyl ethyl ketone) (MEK)	1,500,000	4,300,000	µg/L	<25	<25 [<25]	<25	<25	<25	<25	<25	<25 [<25]	<25 [<25]	<25 [<25]
2-Hexanone	--	--	µg/L	<50	<50 [<50]	<50	<50	<50	<50	<50	<50 [<50]	<50 [<50]	<50 [<50]
2-Methylnaphthalene	1,300	2,000	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
2-Phenylbutane (sec-Butylbenzene)	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	--	--	µg/L	<50	<50 [<50]	<50	<50	<50	<50	<50	<50 [<50]	<50 [<50]	<50 [<50]
Acetone	1.20E+07	4.00E+07	µg/L	<50	<50 [<50]	<50	<50	<50	<50	<50	<50 [<50]	<50 [<50]	<50 [<50]
Acrylonitrile	--	--	µg/L	<2	<2 [<2]	<2	<2	<2	<2	<2	<2 [<2]	<2 [<2]	<2 [<2]
Benzene	14	28	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Bromobenzene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Bromodichloromethane	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Bromoform	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Bromomethane (Methyl bromide)	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Carbon disulfide	970	2,100	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Carbon tetrachloride	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Chlorobenzene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Chlorobromomethane			µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Chloroethane	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Chloroform (Trichloromethane)	7.6	14	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Chloromethane (Methyl chloride)	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
cis-1,2-Dichloroethene	48	95	µg/L	**3**	3 [3]	**4**	**6**	**3**	**9**	**8**	10 [10]	11 [12]	7 [7]
cis-1,3-Dichloropropene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Cymene (p-Isopropyltoluene)	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Cyclohexane	1,100	2,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Dibromomethane	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Dichlorodifluoromethane (CFC-12)	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Ethyl ether (diethyl ether)	--	--	µg/L	<10	<10 [<10]	<10	<10	<10	<10	<10	<10 [<10]	<10 [<10]	<10 [<10]
Ethylbenzene	45	74	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Hexachloroethane	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Iodomethane	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Isopropyl benzene	10	15	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
m&p-Xylene	1,200	2,000	µg/L	<2	<2 [<2]	<2	<2	<2	<2	<2	<2 [<2]	<2 [<2]	<2 [<2]
Methyl tert butyl ether (MTBE)	4,000	7,400	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Methylene chloride	--	--	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
Naphthalene	73	130	µg/L	<5	<5 [<5]	<5	<5	<5	<5	<5	<5 [<5]	<5 [<5]	<5 [<5]
N-Butylbenzene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
N-Propylbenzene	4,100	6,100	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
o-Xylene	1,200	2,000	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Styrene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]

Table 2
Summary of Groundwater Analytical Results
RACER Trust
Lansing, Michigan

Location ID: Sample Depth: Date Collected: Sample Name:	RES SSVIAC GWNIC (EGLE2018)	RES GW Not in Contact EGLE 2020 DRAFT VI Criteria	Units	MW-20-131 5 - 10 12/03/20 MW-20-131_120320	MW-20-131 5 - 10 02/26/21 MW-20-131_022621	MW-20-131 5 - 10 06/02/21 MW-20-131_060221	MW-20-131 5 - 10 09/01/21 MW-20-131_090121	MW-20-131 5 - 10 11/30/21 MW-20-131_113021	MW-20-132 6 - 11 12/03/20 MW-20-132_120320	MW-20-132 6 - 11 02/26/21 MW-20-132_022621	MW-20-132 6 - 11 06/02/21 MW-20-132_060221	MW-20-132 6 - 11 09/01/21 MW-20-132_090121	MW-20-132 6 - 11 11/30/21 MW-20-132_113021
tert-Butylbenzene (t-Butylbenzene)	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Tetrachloroethene	97	130	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Tetrahydrofuran	--	--	µg/L	<90	<90 [<90]	<90	<90	<90	<90	<90	<90 [<90]	<90 [<90]	<90 [<90]
Toluene	23,000	41,000	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
trans-1,2-Dichloroethene	200	390	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	1 [1]	1 [1]	<1 [<1]
trans-1,3-Dichloropropene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
trans-1,4-Dichloro-2-butene	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Trichloroethene	6.2	10	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Trichlorofluoromethane (CFC-11)	--	--	µg/L	<1	<1 [<1]	<1	<1	<1	<1	<1	<1 [<1]	<1 [<1]	<1 [<1]
Vinyl chloride	0.96	2.1	µg/L	**3**	**3 [3]**	**4**	**5**	**2**	**1**	**3**	**3 [3]**	**3 [3]**	**2 [2]**
Xylene (total)	1200	2000	µg/L	<2	<2 [<2]	<2	<2	<2	<2	<2	<2	<2	<2

Table Notes:
Gray shading indicates a result exceeding Michigan Department of Environment, Great Lakes and Energy (EGLE) Residential Site-specific Volatilization to Indoor Air Criteria (SSVIAC) for Groundwater Not In Contact (GWNIC), dated July 11, 2018.
This scenario for the SSVIAC applies to a residential house with a basement, depth to groundwater of 10 feet submitted for this Site and USDA soil type of sand.
Bold fonts represent data where detections were noted above the laboratory method detection limit.
Data shown in [ ] represent duplicate sample analytical results.
All analytical results are presented in micrograms per liter (µg/L)
-- = Not listed in the EGLE Criteria Tables or no criteria requested for SSVIAC
J = reported value is estimated
NA = constituent not analyzed for
ND = not detected above the Reporting Limit
RES = Residential
SSVIAC = Site Specific Volatilization to Indoor Air Criteria

Figures



Legend

VAP Groundwater (GW) Analytical Results

- VC < SSVIAC criterion
- VC > SSVIAC criterion

Monitoring Wells (MW)

- Perched Monitoring Well
- Bedrock Monitoring Well

Soil Vapor Monitoring Point (SVMP)

- VC > SSVIAC in GW, VC < SSVIAC in soil vapor

0 ft — 50 ft

Notes

1. Groundwater results shown in **black** text and SVMP results shown in **green** text.
2. The 5 most recent sample results are shown at locations sampled on a recurring basis.

bgs – below ground surface
J – laboratory-reported value is estimated
SSVIAC – Residential Site-Specific Volatilization to Indoor Air Criteria
TCE - trichloroethene
µg/l – micrograms per liter
µg/m^3 – micrograms per cubic meter
VC – Vinyl Chloride

RACER TRUST PLANT 6
LANSING, MICHIGAN

SUMMARY OF GROUNDWATER AND SVMP ANALYTICAL RESULTS NEAR PLANT 6 ENTRANCE

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

6/1/2022 1:41:32 PM

Attachment 1

SVMP and GWS Field Sampling Logs/Notes

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-131			**Date**	02/26/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	30.9 degrees F and Clear. The wind is blowing S at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.52	**Total Depth (ft-bmp)**	13.68	**Water Column(ft)**	5.16	**Gallons in Well**	0.84
MP Elevation		**Pump Intake (ft-bmp)**	11.18	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	11:10	**Volumes Purged**	2.52	**Sample ID**	MW-20-131_022621	**Sampled by**	Austin Westhuis
Purge Start	10:35	**Gallons Purged**	2.11	**Replicate/ Code No.**	Dup-01	**Sample Tye**	Grab
Purge End	11:15						

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:40	0	0	200	8.83	0.26	6.95	4.1	2.81	1.86	6.7	60.9	--	--
10:45	5	5	200	8.92	0.53	7.03	3.9	2.02	1.51	6.7	49.4	--	--
10:50	5	10	200	8.92	0.79	7.08	3.8	1.74	1.46	6.7	43.9	--	--
10:55	5	15	200	8.92	1.06	7.1	3.69	1.41	1.46	6.6	41.2	--	--
11:00	5	20	200	8.92	1.32	7.11	3.59	1.34	1.39	6.6	39	--	--
11:05	5	25	200	8.92	1.59	7.12	3.52	1.3	1.36	6.6	37.1	--	--
11:10	5	30	200	8.92	1.85	7.12	3.52	1.21	1.35	6.6	36.9	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-132			**Date**	02/26/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	34.0 degrees F and Clear. The wind is blowing S/SE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.38	**Total Depth (ft-bmp)**	10.81	**Water Column(ft)**	6.43	**Gallons in Well**	1.04
MP Elevation		**Pump Intake (ft-bmp)**	8.31	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	12:30	**Volumes Purged**	1.78	**Sample ID**	MW-20-132_022621	**Sampled by**	Austin Westhuis
Purge Start	12:00	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Tye**	Grab
Purge End	12:35						

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:05	0	0	200	4.63	0.26	7.35	1.38	4.11	1.72	6.9	-3.7	--	--
12:10	5	5	200	4.64	0.53	7.36	1.39	2.09	1.19	7	0.7	--	--
12:15	5	10	200	4.64	0.79	7.35	1.39	1.81	0.28	7.1	3.4	--	--
12:20	5	15	200	4.64	1.06	7.36	1.39	1.66	0.26	7.1	3.6	--	--
12:25	5	20	200	4.64	1.32	7.37	1.4	1.6	0.25	7.1	3.7	--	--
12:30	5	25	200	4.64	1.59	7.37	1.4	1.36	0.24	7.1	3.6	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: See figure.

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-131			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing S/SE at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.25	**Total Depth (ft-bmp)**	13.68	**Water Column(ft)**	4.43	**Gallons in Well**	0.72
MP Elevation		**Pump Intake (ft-bmp)**	11.18	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:55	**Volumes Purged**	6.42	**Sample ID**	MW-20-131_060221	**Sampled by**	Austin Westhuis
Purge Start	11:30	**Gallons Purged**	4.62	**Replicate/ Code No.**			
Purge End	00:00						

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:35	0	0	500	9.45	0.66	7.15	3.47	3.61	0.44	14.7	82.1	Clear	None
11:40	5	5	500	9.45	1.32	7.18	3.42	1.91	0.27	14.7	74.5	Clear	None
11:45	5	10	500	9.45	1.98	7.21	3.27	1.46	0.26	14.6	66.8	Clear	None
11:50	5	15	500	9.45	2.64	7.21	3.25	1.4	0.26	14.6	61.6	Clear	None
11:55	5	20	500	9.45	3.30	7.21	3.25	1.25	0.25	14.6	61	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: See figure

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-132			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	It is Clear. The wind is blowing E/SE at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.85	**Total Depth (ft-bmp)**	10.8	**Water Column(ft)**	4.95	**Gallons in Well**	0.8
MP Elevation		**Pump Intake (ft-bmp)**	8.3	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:20	**Volumes Purged**	7.43	**Sample ID**	MW-20-132_060221	**Sampled by**	Austin Westhuis
Purge Start	09:50	**Gallons Purged**	5.94	**Replicate/ Code No.**	Dup-10		
Purge End	10:25						

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
09:55	0	0	500	5.85	0.66	7.33	1.88	4.62	0.55	11.7	17.6	Clear	None
10:00	5	5	500	5.85	1.32	7.39	1.74	1.81	0.29	11.7	6.5	Clear	None
10:05	5	10	500	5.85	1.98	7.41	1.64	1.61	0.27	11.7	-1.9	Clear	None
10:10	5	15	500	5.85	2.64	7.43	1.61	1.42	0.26	11.7	-2.3	Clear	None
10:15	5	20	500	5.85	3.30	7.44	1.59	1.28	0.25	11.6	-3.3	Clear	None
10:20	5	25	500	5.85	3.96	7.44	1.59	1.11	0.25	11.6	-3.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: See figure

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Lansing 300 S. Washington Square, Suite 315, Lansing, MI 49426									Project Name: RACER Lansing				
Field Manager: Tiffany Linder									Project Number: 30075941				
Phone: 810-225-1928	Special Instructions: TO-15								Site Address: Lansing MI				
Email Address for Result Reporting: Tiffany.Linder@arcadis.com									Sampler Name: Austin Westhuis				Phone Number:517-719-0214
									Email:Tiffany.Linder@arcadis.com				
Helium Detector Used: Fibertec Environmental Services quantitative helium shroud kit			Helium Leak Method: Helium Tracer Test						Summa Canister Size (1L, 2.7 L, 6L): 1 L				Lab: Merit Laboratories
Sample ID	Sample Location Description	Date	Leak/Tracer Test completed prior to sample collection						Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Notes
			Shut in Test Pass/Fail?	Purge Reading (ppm)	Shroud Helium Concentration (%)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SVMP-20-01	Plant 6 entrance near off-site park	06/10/2021	N/A	0	67.2	Pass	200	100	SVMP-20-01(061021)	10002403	11:07	-26.5	11:19	-5	Bottle Vac #3508 (SVMP-20-01) and Bottle Vac #1094 (Dup-01). Splitter #10003815 used for simultaneous sample collection.

Meteorological Data							**General Notes or Observations**
Date	Time	Temp		Relative Humidity (%)	Barometric Pressure (in.Hg)	Weather source	
		Indoor	Outdoor				
06/10/2021	09:53		79	72	30	79.0 degrees F and Clear. The wind is blowing E/SE at 3.4 mph.	None

Air Parameters (completed after sample collection)					
Location ID	CH4 %	CH4 LEL %	O2 %	PID (ppm)	Differential Pressure (in. Water Column)
SVMP-20-01	0	0	16.5	0	NM

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-131			**Date**	09/01/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing N at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.38	**Total Depth (ft-bmp)**	13.68	**Water Column(ft)**	4.3	**Gallons in Well**	0.7
MP Elevation		**Pump Intake (ft-bmp)**	11.18	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:50	**Volumes Purged**	2.64	**Sample ID**	MW-20-131_090121	**Sampled by**	Austin Westhuis
Purge Start	11:20	**Gallons Purged**	1.85	**Replicate/ Code No.**			
Purge End	11:55						

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:25	0	0	200	9.38	0.26	7.28	3.37	5.75	1.8	20.1	-54.2	Clear	None
11:30	5	5	200	9.67	0.53	7.29	3.29	4.11	1.8	20.1	-82.1	Clear	None
11:35	5	10	200	9.67	0.79	7.28	3.32	3.53	2	20.4	-84	Clear	None
11:40	5	15	200	9.67	1.06	7.28	3.34	2.81	2	20.4	-81.5	Clear	None
11:45	5	20	200	9.67	1.32	7.28	3.34	2.51	1.9	20.3	-83.9	Clear	None
11:50	5	25	200	9.67	1.59	7.28	3.32	2.14	1.9	20.4	-85.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: See figure

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-132			**Date**	09/01/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	71.1 degrees F and Mostly Cloudy. The wind is blowing NE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.82	**Total Depth (ft-bmp)**	10.8	**Water Column(ft)**	4.98	**Gallons in Well**	0.81
MP Elevation		**Pump Intake (ft-bmp)**	8.3	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**	2.28	**Sample ID**	MW-20-132_090121	**Sampled by**	Austin Westhuis
Purge Start	12:20	**Gallons Purged**	1.85	**Replicate/ Code No.**	Dup-05_090121		
Purge End	12:55						

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:25	0	0	200	6.01	0.26	7.5	2.11	20.5	4	17.7	-119.1	Clear	None
12:30	5	5	200	6.01	0.53	7.52	1.92	11.3	4.1	17.6	-116.4	Clear	None
12:35	5	10	200	6.01	0.79	7.51	1.88	3.73	4.4	17.9	-116.9	Clear	None
12:40	5	15	200	6.01	1.06	7.49	1.83	2.88	4.4	18	-117.1	Clear	None
12:45	5	20	200	6.01	1.32	7.49	1.83	2.47	4.4	18	-118.2	Clear	None
12:50	5	25	200	6.01	1.59	7.47	1.83	2.22	4.4	18.1	-117.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: See figure

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Lansing 300 S. Washington Square, Suite 315, Lansing, MI 49426		Project Name: RACER Lansing	
Field Manager: Tiffany Linder		Project Number: 30075941	
Phone: 810-225-1928	Special Instructions: TO-15	Site Address: Lansing MI	
Email Address for Result Reporting: Tiffany.Linder@arcadis.com		Sampler Name: Austin Westhuis	Phone Number:517-719-0214
		Email:Tiffany.Linder@arcadis.com	
Helium Detector Used: Fibertec Environmental Services quantitative helium shroud kit	Helium Leak Method: Helium Tracer Test	Summa Canister Size (1L, 2.7 L, 6L): 1 L	Lab: Merit Laboratories

Sample ID	Sample Location Description	Date	Leak/Tracer Test completed prior to sample collection						Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Notes
			Shut in Test Pass/Fail?	Purge Reading (ppm)	Shroud Helium Concentration (%)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)							
SVMP-20-01	Plant 6 entrance near off-site park	09/07/2021	N/A	0	63.9	Pass	--	100	SVMP-20-01(090721)	10002996	10:25	-27.5	10:37	-5	Bottle Vac #2707 (SVMP-20-01) and Bottle Vac #3219 (Dup-01). Splitter #10003817 used for simultaneous sample collection.

Meteorological Data

Date	Time	Temp		Relative Humidity (%)	Barometric Pressure (in.Hg)	Weather source
		Indoor	Outdoor			
09/07/2021	10:00		65	63	30	64.9 degrees F and Clear. The

General Notes or Observations

None

Air Parameters (completed after sample collection)

Location ID	CH4 %	CH4 LEL %	O2 %	PID (ppm)	Differential Pressure (in. Water Column)
SVMP-20-01	0	0	16.1	0	NM

Soil Vapor Collection Log Sheet

Office Name & Address (Reporting Information): Novi 28550 Cabot Dr suite 500			Project Name: RACER Lansing 2021
Field Manager: Billy J Cobern			Project Number: 30075941
Phone: 810-588-3642	Special Instructions: TO-15		Site Address: 2800 Saginaw Lansing Michigan 12345
Email Address for Result Reporting: Tiffany.Linder@arcadis.com			Sampler Name: Billy Cobern / Phone Number:810-588-3642 / Email:Tiffany.Linder@arcadis.com
Helium Detector Used: Restek	Helium Leak Method: Helium Tracer Test		Summa Canister Size (1L, 2.7 L, 6L): 1 L / Lab: FiberTec

Sample ID	Sample Location Description	Date	Leak/Tracer Test completed prior to sample collection: Shut in Test Pass/Fail?	Purge Reading (ppm)	Shroud Helium Concentration (%)	Helium Test Pass/Fail?	Purge Volume (mL)	Purge Rate (mL/min)	Canister Number	Flow Controller Number	Sample Collection Start Time	Beginning Canister Pressure (in. Hg)	Sample Collection End Time	Ending Canister Pressure (in. Hg)	Notes
SVMP-20-1	Osborn Park east of Plant 6	12/17/2021	Pass	0	50	Pass	1.14001	200	SVMP-20-1	331	17:00	-28	17:05	-5	Duplicate collected
DUP-1	Osborn Park east of plant 6 (duplicate of SVMP-20-1)	12/17/2021	Pass	0	50	Pass	1.14001	200	DUP-01_121721	331	17:10	-27	17:15	-5	This is a duplicate of SVMP-20-1. No duplicate "T" was provided

Meteorological Data

Date	Time	Temp: Indoor	Temp: Outdoor	Relative Humidity (%)	Barometric Pressure (in.Hg)	Weather source
12/17/2021	16:53		36	56	30.3	2.8 wmoUnit:degC and Clear. The wind is blowing undefined at 5.4 wmoUnit:km_h-1.

General Notes or Observations

SVMP-20-1 duplicated

Air Parameters (completed after sample collection)

Location ID	CH4 %	CH4 LEL %	O2 %	PID (ppm)	Differential Pressure (in. Water Column)
SVMP-20-1	NM	0	17.8	0.2	NM
DUP-1	NM	0	17.8	0	NM

Groundwater Sampling Form

ARCADIS

Project Number	30075941	**Well ID**	MW-20-131			**Date**	11/30/2021
Project Name/Location	RACER Lansing GWS		**Weather(°F)**	39.0 degrees F and Cloudy. The wind is blowing W/NW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	8.95	**Total Depth (ft-bmp)**	13.68	**Water Column (ft)**	4.73	**Gallons in Well**	0.77
Purge Start	15:30	**Pump Intake (ft-bmp)**	11.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	16:15	**Volumes Purged**	1.54	**Sample ID**	MW-20-131_113021	**Sampled by**	Billy Cobern
Sample Time	16:15	**Gallons Purged**	1.19	**Replicate/ Code No.**	NA	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:35	0	0	100	9.19	0.13	7.22	3.84	17.3	0.74	11.4	22.4	--	--
15:40	5	5	100	9.22	0.26	7.22	3.85	14.6	0.63	11	22.9	--	--
15:45	5	10	100	9.25	0.40	7.18	3.85	12.7	0.54	11.2	24.3	--	--
15:50	5	15	100	9.26	0.53	7.18	3.83	11.3	0.48	11.3	24.4	--	--
15:55	5	20	100	9.26	0.66	7.19	3.83	10.2	0.34	11.4	23.4	--	--
16:00	5	25	100	9.26	0.79	7.2	3.82	9.52	0.33	11.5	23.1	--	--
16:05	5	30	100	9.26	0.92	7.2	3.81	9.02	0.29	11.5	23.3	--	--
16:10	5	35	100	9.26	1.06	7.19	3.81	8.41	0.27	11.6	23.3	--	--
16:15	5	40	100	9.26	1.19	7.19	3.81	8.32	0.29	11.6	23.3	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS

Project Number	30075941	**Well ID**	MW-20-132			**Date**	11/30/2021
Project Name/Location	RACER Lansing GWS		**Weather(°F)**	37.9 degrees F and Haze. The wind is blowing W at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**MP Elevation**		**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.17	**Total Depth (ft-bmp)**	10.8	**Water Column (ft)**	5.63	**Gallons in Well**	0.91
Purge Start	14:20	**Pump Intake (ft-bmp)**	8.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Purge End	15:00	**Volumes Purged**	1.16	**Sample ID**	MW-20-132_113021	**Sampled by**	Billy Cobern
Sample Time	15:00	**Gallons Purged**	1.06	**Replicate/ Code No.**	DUP-10_113021	**Sample Type**	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:25	0	0	100	5.3	0.13	7.53	2.52	14.4	2.32	11.7	12.7	--	--
14:30	5	5	100	5.33	0.26	7.45	2.53	11.7	0.74	12.1	0.3	--	--
14:35	5	10	100	5.35	0.40	7.37	2.53	10.1	0.49	11.6	0	--	--
14:40	5	15	100	5.35	0.53	7.34	2.54	9.75	0.49	11.6	0.4	--	--
14:45	5	20	100	5.35	0.66	7.34	2.54	8.83	0.38	11.5	-0.3	--	--
14:50	5	25	100	5.35	0.79	7.33	2.53	7.59	0.39	11.6	-0.1	--	--
14:55	5	30	100	5.35	0.92	7.33	2.53	7.21	0.37	11.7	0.1	--	--
15:00	5	35	100	5.35	1.06	7.32	2.54	7.06	0.38	11.7	0	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	6	HCL
PFAS	250 mL Plastic	4	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot

1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47
1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

Well Information

Well Location: Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Attachment 2

SVMP Laboratory Data Reports

Fibertec
environmental
services

Thursday, December 17, 2020

Fibertec Project Number:	99382
Project Identification:	RACER Lansing (30042872.00102) /30042872.00102
Submittal Date:	12/09/2020

Ms. Tiffany Linder
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Ms. Linder,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sharon Rakow at 11:47 AM, Dec 17, 2020

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-01 (120920)**	Chain of Custody:	**192767**
Client Project Name:	**RACER Lansing (30042872.00102)**	Sample No:	**1**	Collect Date:	**12/09/20**
Client Project No:	**30042872.00102**	Sample Matrix:	**Air**	Collect Time:	**14:41**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: 99382-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-01 (120920)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
2. Benzene	U		µg/m3	19	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
3. Benzyl Chloride	U		µg/m3	6.2	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
5. Bromoform	U		µg/m3	62	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
6. Bromomethane	U		µg/m3	23	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
7. 1,3-Butadiene	U		µg/m3	0.66	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
8. 2-Butanone	U		µg/m3	35	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
11. Chlorobenzene	U		µg/m3	28	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
12. Chloroethane	U		µg/m3	16	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
13. Chloroform	U		µg/m3	5.9	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
14. Chloromethane	U		µg/m3	12	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
15. Cyclohexane	U		µg/m3	41	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
29. 1,4-Dioxane	U		µg/m3	22	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
31. Ethylbenzene	U		µg/m3	52	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
33. n-Heptane	U		µg/m3	49	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
35. n-Hexane	U		µg/m3	42	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 37. Isopropanol	U		µg/m3	29	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-01 (120920)**	Chain of Custody:	**192767**
Client Project Name:	**RACER Lansing (30042872.00102)**	Sample No:	**1**	Collect Date:	**12/09/20**
Client Project No:	**30042872.00102**	Sample Matrix:	**Air**	Collect Time:	**14:41**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: 99382-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-01 (120920)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
39. Methylene Chloride	U		µg/m3	42	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
41. MTBE	U		µg/m3	22	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 42. Naphthalene	U		µg/m3	28	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
43. Styrene	U		µg/m3	51	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
45. Tetrachloroethene	U		µg/m3	41	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
47. Toluene	U		µg/m3	23	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
51. Trichloroethene	**9.5**		µg/m3	1.6	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
56. Vinyl Acetate	U		µg/m3	42	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
57. Vinyl Chloride	U		µg/m3	15	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
58. m&p-Xylene	U		µg/m3	52	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
59. o-Xylene	U		µg/m3	52	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 60. Xylenes	U		µg/m3	100	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM

Surrogate Summary			Control Limits	Batch
4-Bromofluorobenzene(S)	**102**	%	80-120	VK20L11A

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**DUP-01 (120920)**	Chain of Custody:	**192767**
Client Project Name:	**RACER Lansing (30042872.00102)**	Sample No:	**2**	Collect Date:	**12/09/20**
Client Project No:	**30042872.00102**	Sample Matrix:	**Air**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: 99382-002** **Matrix: Air**
Method: EPA TO-15 **Description: DUP-01 (120920)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
2. Benzene	U		µg/m3	19	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
3. Benzyl Chloride	U		µg/m3	6.2	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
5. Bromoform	U		µg/m3	62	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
6. Bromomethane	U		µg/m3	23	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
7. 1,3-Butadiene	U		µg/m3	0.66	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
8. 2-Butanone	U		µg/m3	35	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
11. Chlorobenzene	U		µg/m3	28	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
12. Chloroethane	U		µg/m3	16	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
13. Chloroform	U		µg/m3	5.9	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
14. Chloromethane	U		µg/m3	12	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
15. Cyclohexane	U		µg/m3	41	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
29. 1,4-Dioxane	U		µg/m3	22	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
31. Ethylbenzene	U		µg/m3	52	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
33. n-Heptane	U		µg/m3	49	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
35. n-Hexane	U		µg/m3	42	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 37. Isopropanol	U		µg/m3	29	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**DUP-01 (120920)**	Chain of Custody:	**192767**
Client Project Name:	**RACER Lansing (30042872.00102)**	Sample No:	**2**	Collect Date:	**12/09/20**
Client Project No:	**30042872.00102**	Sample Matrix:	**Air**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: 99382-002** **Matrix: Air**
Method: EPA TO-15 **Description: DUP-01 (120920)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
39. Methylene Chloride	U		µg/m3	42	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
41. MTBE	U		µg/m3	22	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 42. Naphthalene	U		µg/m3	28	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
43. Styrene	U		µg/m3	51	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
45. Tetrachloroethene	U		µg/m3	41	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
47. Toluene	U		µg/m3	23	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
51. Trichloroethene	U		µg/m3	1.6	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
56. Vinyl Acetate	U		µg/m3	42	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
57. Vinyl Chloride	U		µg/m3	15	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
58. m&p-Xylene	U		µg/m3	52	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
59. o-Xylene	U		µg/m3	52	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM
‡ 60. Xylenes	U		µg/m3	100	4.0	12/11/20	VK20L11A	12/11/20	VK20L11A	JLM

Surrogate Summary			Control Limits	Batch
4-Bromofluorobenzene(S)	**103**	%	80-120	VK20L11A

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits
D: The sample or extract was analyzed at a DF greater than 1.

Exception Summary:

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

VK20L11A: Method Blank (MB)

EPA TO-15

Run Time: VK20L11A.MB 12/11/2020 13:41 [VK20L11A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Acetone	U		57
Benzene	U		19
Benzyl Chloride	U		6.2
Bromodichloromethane	U		8.0
Bromoform	U		62
Bromomethane	U		23
1,3-Butadiene	U		0.66
2-Butanone	U		35
Carbon Disulfide	U		37
Carbon Tetrachloride	U		7.5
Chlorobenzene	U		28
Chloroethane	U		16
Chloroform	U		5.9
Chloromethane	U		12
Cyclohexane	U		41
Dibromochloromethane	U		4.1
1,2-Dichlorobenzene	U		36
1,3-Dichlorobenzene	U		36
1,4-Dichlorobenzene	U		36
Dichlorodifluoromethane	U		30
1,1-Dichloroethane	U		24
1,2-Dichloroethane	U		4.9
1,1-Dichloroethene	U		24
cis-1,2-Dichloroethene	U		24
trans-1,2-Dichloroethene	U		24
1,2-Dichloropropane	U		28
cis-1,3-Dichloropropene	U		27
trans-1,3-Dichloropropene	U		27
1,4-Dioxane	U		22
Ethyl Acetate	U		43
Ethylbenzene	U		52
Ethylene Dibromide	U		0.92
n-Heptane	U		49

VK20L11A: Method Blank (MB)

EPA TO-15

Run Time: VK20L11A.MB 12/11/2020 13:41 [VK20L11A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Hexachlorobutadiene	U		5.1
n-Hexane	U		42
2-Hexanone	U		49
Isopropanol	U		29
4-Methyl-2-pentanone	U		49
Methylene Chloride	U		42
2-Methylnaphthalene	U		140
MTBE	U		22
Naphthalene	U		28
Styrene	U		51
1,1,2,2-Tetrachloroethane	U		3.3
Tetrachloroethene	U		41
Tetrahydrofuran	U		3.5
Toluene	U		23
1,2,4-Trichlorobenzene	U		89
1,1,1-Trichloroethane	U		33
1,1,2-Trichloroethane	U		6.5
Trichloroethene	U		1.6
Trichlorofluoromethane	U		34
1,1,2-Trichlorotrifluoroethane	U		46
1,2,4-Trimethylbenzene	U		29
1,3,5-Trimethylbenzene	U		29
Vinyl Acetate	U		42
Vinyl Chloride	U		15
m&p-Xylene	U		52
o-Xylene	U		52
4-Bromofluorobenzene(S)	*101*		*80-120*

VK20L11A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK20L11A.LCS: 12/11/2020 10:53 [VK20L11A] VK20L11A.LCSD: 12/11/2020 11:48 [VK20L11A]

Analyte	LCS Spike Amount µg/m3	LCS Result µg/m3	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/m3	LCSD Result µg/m3	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Acetone	31.1	30.3	97	70-130		31.1	30.6	99		2	20	
Benzene	41.2	37.6	91	70-130		41.2	38.2	93		2	20	
Benzyl Chloride	65.7	74.0	113	70-150		65.7	74.5	113		0	20	
Bromodichloromethane	84.7	95.1	112	70-130		84.7	95.6	113		1	20	
Bromoform	134	141	106	70-138		134	142	106		0	20	
Bromomethane	51.7	50.0	97	70-133		51.7	49.1	95		2	20	
1,3-Butadiene	28.6	29.3	102	70-134		28.6	29.3	102		0	20	
2-Butanone	37.8	36.1	95	70-130		37.8	36.5	96		1	20	
Carbon Disulfide	38.8	37.7	97	70-130		38.8	37.9	98		1	20	
Carbon Tetrachloride	81.7	97.3	119	70-131		81.7	97.2	119		0	20	
Chlorobenzene	59.5	52.9	89	70-130		59.5	53.5	90		1	20	
Chloroethane	35.2	34.1	97	70-130		35.2	34.9	99		2	20	
Chloroform	64.0	68.0	106	70-130		64.0	67.7	106		0	20	
Chloromethane	26.9	26.2	97	70-130		26.9	26.7	99		2	20	
Cyclohexane	43.9	41.1	94	70-130		43.9	41.3	94		0	20	
Dibromochloromethane	112	115	102	70-135		112	116	104		2	20	
1,2-Dichlorobenzene	75.3	71.2	95	70-130		75.3	72.4	96		1	20	
1,3-Dichlorobenzene	76.0	72.2	95	70-131		76.0	72.6	96		1	20	
1,4-Dichlorobenzene	75.6	74.6	99	70-134		75.6	75.0	99		0	20	
Dichlorodifluoromethane	64.7	74.4	115	70-132		64.7	74.7	115		0	20	
1,1-Dichloroethane	51.4	49.6	96	70-130		51.4	49.9	97		1	20	
1,2-Dichloroethane	50.8	62.0	122	70-130		50.8	62.1	122		0	20	
1,1-Dichloroethene	51.0	54.9	108	70-133		51.0	54.8	107		1	20	
cis-1,2-Dichloroethene	50.4	52.1	103	70-130		50.4	52.5	104		1	20	
trans-1,2-Dichloroethene	50.8	53.1	105	70-130		50.8	53.3	105		0	20	
1,2-Dichloropropane	60.3	58.0	96	70-130		60.3	58.4	97		1	20	
cis-1,3-Dichloropropene	58.8	63.2	108	70-131		58.8	64.0	109		1	20	
trans-1,3-Dichloropropene	57.7	66.1	115	70-134		57.7	66.4	115		0	20	
1,4-Dioxane	46.6	47.8	103	70-130		46.6	48.5	104		1	20	
Ethyl Acetate	45.7	43.2	95	70-130		45.7	43.7	96		1	20	
Ethylbenzene	54.1	51.9	96	70-130		54.1	52.2	96		0	20	
Ethylene Dibromide	101	94.4	94	70-130		101	94.4	94		0	20	
n-Heptane	52.7	50.8	96	70-132		52.7	51.4	97		1	20	

VK20L11A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK20L11A.LCS: 12/11/2020 10:53 [VK20L11A] VK20L11A.LCSD: 12/11/2020 11:48 [VK20L11A]

Analyte	LCS Spike Amount µg/m3	LCS Result µg/m3	LCS Rec. %	Rec. Limits %	LCS Qualifier	LCSD Spike Amount µg/m3	LCSD Result µg/m3	LCSD Rec. %	LCSD Qualifier	RPD %	RPD Limits %	RPD Qualifier
Hexachlorobutadiene	135	130	97	70-134		135	132	98		1	20	
n-Hexane	44.6	42.7	96	70-130		44.6	42.2	95		1	20	
2-Hexanone	52.2	51.6	99	70-139		52.2	52.3	100		1	20	
Isopropanol	32.0	28.9	90	54-144		32.0	28.6	90		0	20	
4-Methyl-2-pentanone	52.3	55.2	106	70-130		52.3	55.8	107		1	20	
Methylene Chloride	43.8	41.3	94	70-132		43.8	41.7	95		1	20	
2-Methylnaphthalene	73.7	78.8	107	70-146		73.7	79.4	108		1	20	
MTBE	46.7	51.0	109	70-130		46.7	51.0	109		0	20	
Naphthalene	65.2	72.1	111	70-148		65.2	73.3	112		1	20	
Styrene	54.4	53.7	99	70-130		54.4	54.5	100		1	20	
1,1,2,2-Tetrachloroethane	88.3	80.1	91	70-130		88.3	81.8	93		2	20	
Tetrachloroethene	86.7	79.2	91	70-130		86.7	80.2	93		2	20	
Tetrahydrofuran	38.3	35.3	92	70-138		38.3	36.1	94		2	20	
Toluene	48.1	43.3	90	70-130		48.1	43.9	91		1	20	
1,2,4-Trichlorobenzene	93.0	105	112	70-140		93.0	106	114		2	20	
1,1,1-Trichloroethane	69.9	77.2	111	70-130		69.9	77.7	111		0	20	
1,1,2-Trichloroethane	72.7	65.0	89	70-130		72.7	65.9	91		2	20	
Trichloroethene	68.4	70.1	103	70-130		68.4	71.3	104		1	20	
Trichlorofluoromethane	71.3	73.5	103	70-132		71.3	73.0	102		1	20	
1,1,2-Trichlorotrifluoroethane	95.2	96.4	101	70-130		95.2	95.6	100		1	20	
1,2,4-Trimethylbenzene	61.2	61.7	101	70-132		61.2	62.5	102		1	20	
1,3,5-Trimethylbenzene	62.7	62.6	100	70-131		62.7	63.6	101		1	20	
Vinyl Acetate	46.4	46.9	101	70-131		46.4	47.7	103		2	20	
Vinyl Chloride	32.0	31.7	99	70-131		32.0	32.1	100		1	20	
m&p-Xylene	110	100	91	70-130		110	101	92		1	20	
o-Xylene	55.2	53.4	97	70-130		55.2	54.0	98		1	20	
4-Bromofluorobenzene(S)			*96*	*80-120*				*95*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
***:** Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

By Sharon Rakow at 11:58 AM, Dec 17, 2020

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
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8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Industrial Hygiene Services, Inc.
3125 Sovereign Drive
Suite 9B
Lansing, MI 48911
Phone: 517 999 6020
email: asbestos@fibertecihs.com

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 192767
PAGE 1 of 1

Plant 6

Client Name: Arcadis
Contact Person: Tiffany Linder
Project Name/ Number: RACER Lansing / 30042872.00102
Email distribution list: Tiffany.Linder@arcadis.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: TO-15	HOLD SAMPLE
12/9/20	1441	1	SVMP-20-01 (120920)	A	1	X	
12/9/20	—	2	Dup-01 (120920)	A	1	X	

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks:

Received By Lab
DEC 09 2020
Initials: CI

Comments:

Sampled/Relinquished By: Austin Westhuis / Austin Westhuis / Arcadis	Date/ Time 12/9/20	Received By: Donald Richmond / Donald Richmond / Arcadis
Relinquished By: Donald Richmond / Donald Richmond / Arcadis	Date/ Time 12/9/20 15:42	Received By: Carr
Relinquished By:	Date/ Time	Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

X 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: 94382

Temperature upon receipt at Lab: Room Temp

Please see back for terms and conditions

Fibertec
environmental
services

Monday, June 14, 2021

Fibertec Project Number:	A02246
Project Identification:	RACER Lansing (30075941.00102) /30075941.00102
Submittal Date:	06/10/2021

Ms. Tiffany Linder
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Ms. Linder,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sue Ricketts at 11:51 AM, Jun 14, 2021

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-01 (061021)**	Chain of Custody:	**198119**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**1**	Collect Date:	**06/10/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**11:07**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A02246-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-01 (061021)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
2. Benzene	U		µg/m3	19	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
3. Benzyl Chloride	U		µg/m3	6.2	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
5. Bromoform	U		µg/m3	62	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
6. Bromomethane	U		µg/m3	23	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
7. 1,3-Butadiene	U		µg/m3	0.66	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
8. 2-Butanone	U		µg/m3	35	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
11. Chlorobenzene	U		µg/m3	28	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
12. Chloroethane	U		µg/m3	16	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
13. Chloroform	**13**		µg/m3	5.9	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
14. Chloromethane	U		µg/m3	12	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
15. Cyclohexane	U		µg/m3	41	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
29. 1,4-Dioxane	U		µg/m3	22	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
31. Ethylbenzene	U		µg/m3	52	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
33. n-Heptane	U		µg/m3	49	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
35. n-Hexane	U		µg/m3	42	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 37. Isopropanol	U		µg/m3	29	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-01 (061021)**	Chain of Custody:	**198119**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**1**	Collect Date:	**06/10/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**11:07**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A02246-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-01 (061021)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
39. Methylene Chloride	U		µg/m3	42	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
41. MTBE	U		µg/m3	22	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 42. Naphthalene	U		µg/m3	28	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
43. Styrene	U		µg/m3	51	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
45. Tetrachloroethene	U		µg/m3	41	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
47. Toluene	U		µg/m3	23	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
51. Trichloroethene	U		µg/m3	1.6	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
56. Vinyl Acetate	U		µg/m3	42	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
57. Vinyl Chloride	U		µg/m3	15	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
58. m&p-Xylene	U		µg/m3	52	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
59. o-Xylene	U		µg/m3	52	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 60. Xylenes	U		µg/m3	100	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**DUP-01 (061021)**	Chain of Custody:	**198119**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**2**	Collect Date:	**06/10/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**11:07**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A02246-002** **Matrix: Air**
Method: EPA TO-15 **Description: DUP-01 (061021)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
2. Benzene	U		µg/m3	19	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
3. Benzyl Chloride	U		µg/m3	6.2	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
5. Bromoform	U		µg/m3	62	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
6. Bromomethane	U		µg/m3	23	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
7. 1,3-Butadiene	U		µg/m3	0.66	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
8. 2-Butanone	U		µg/m3	35	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
11. Chlorobenzene	U		µg/m3	28	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
12. Chloroethane	U		µg/m3	16	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
13. Chloroform	**13**		µg/m3	5.9	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
14. Chloromethane	U		µg/m3	12	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
15. Cyclohexane	U		µg/m3	41	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
29. 1,4-Dioxane	U		µg/m3	22	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
31. Ethylbenzene	U		µg/m3	52	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
33. n-Heptane	U		µg/m3	49	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
35. n-Hexane	U		µg/m3	42	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 37. Isopropanol	U		µg/m3	29	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**DUP-01 (061021)**	Chain of Custody:	**198119**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**2**	Collect Date:	**06/10/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**11:07**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A02246-002** **Matrix: Air**
Method: EPA TO-15 **Description: DUP-01 (061021)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
39. Methylene Chloride	U		µg/m3	42	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
41. MTBE	U		µg/m3	22	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 42. Naphthalene	U		µg/m3	28	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
43. Styrene	U		µg/m3	51	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
45. Tetrachloroethene	U		µg/m3	41	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
47. Toluene	U		µg/m3	23	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
51. Trichloroethene	U		µg/m3	1.6	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
56. Vinyl Acetate	U		µg/m3	42	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
57. Vinyl Chloride	U		µg/m3	15	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
58. m&p-Xylene	U		µg/m3	52	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
59. o-Xylene	U		µg/m3	52	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM
‡ 60. Xylenes	U		µg/m3	100	4.0	06/11/21	VK21F11A	06/11/21	VK21F11A	KCM

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits
D: The sample or extract was analyzed at a DF greater than 1.

Exception Summary:

Analysis Locations:

All analyses performed in Holt.

NELAP ACCREDITED TNI LABORATORY

Accreditation Number(s):

T104704518-19-8 (TX)

VK21F11A: Method Blank (MB)

EPA TO-15

Run Time: VK21F11A.MB 06/11/2021 12:24 [VK21F11A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Acetone	U		57
Benzene	U		19
Benzyl Chloride	U		6.2
Bromodichloromethane	U		8.0
Bromoform	U		62
Bromomethane	U		23
1,3-Butadiene	U		0.66
2-Butanone	U		35
Carbon Disulfide	U		37
Carbon Tetrachloride	U		7.5
Chlorobenzene	U		28
Chloroethane	U		16
Chloroform	U		5.9
Chloromethane	U		12
Cyclohexane	U		41
Dibromochloromethane	U		4.1
1,2-Dichlorobenzene	U		36
1,3-Dichlorobenzene	U		36
1,4-Dichlorobenzene	U		36
Dichlorodifluoromethane	U		30
1,1-Dichloroethane	U		24
1,2-Dichloroethane	U		4.9
1,1-Dichloroethene	U		24
cis-1,2-Dichloroethene	U		24
trans-1,2-Dichloroethene	U		24
1,2-Dichloropropane	U		28
cis-1,3-Dichloropropene	U		27
trans-1,3-Dichloropropene	U		27
1,4-Dioxane	U		22
Ethyl Acetate	U		43
Ethylbenzene	U		52
Ethylene Dibromide	U		0.92
n-Heptane	U		49

VK21F11A: Method Blank (MB)

EPA TO-15

Run Time: VK21F11A.MB 06/11/2021 12:24 [VK21F11A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Hexachlorobutadiene	U		5.1
n-Hexane	U		42
2-Hexanone	U		49
Isopropanol	U		29
4-Methyl-2-pentanone	U		49
Methylene Chloride	U		42
2-Methylnaphthalene	U		140
MTBE	U		22
Naphthalene	U		28
Styrene	U		51
1,1,2,2-Tetrachloroethane	U		3.3
Tetrachloroethene	U		41
Tetrahydrofuran	U		3.5
Toluene	U		23
1,2,4-Trichlorobenzene	U		89
1,1,1-Trichloroethane	U		33
1,1,2-Trichloroethane	U		6.5
Trichloroethene	U		1.6
Trichlorofluoromethane	U		34
1,1,2-Trichlorotrifluoroethane	U		46
1,2,4-Trimethylbenzene	U		29
1,3,5-Trimethylbenzene	U		29
Vinyl Acetate	U		42
Vinyl Chloride	U		15
m&p-Xylene	U		52
o-Xylene	U		52
4-Bromofluorobenzene(S)	*84*		*80-120*

VK21F11A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK21F11A.LCS: 06/11/2021 09:45 [VK21F11A] VK21F11A.LCSD: 06/11/2021 10:37 [VK21F11A]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	LCSD Qualifier	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%	%	
Acetone	31.1	31.9	103	70-130		31.1	32.4	104		1	20	
Benzene	41.2	41.8	101	70-130		41.2	42.1	102		1	20	
Benzyl Chloride	65.7	64.4	98	70-150		65.7	64.6	98		0	20	
Bromodichloromethane	84.7	91.7	108	70-130		84.7	92.1	109		1	20	
Bromoform	134	117	87	70-138		134	117	88		1	20	
Bromomethane	51.7	50.8	98	70-133		51.7	51.4	99		1	20	
1,3-Butadiene	28.6	30.5	106	70-134		28.6	30.2	106		0	20	
2-Butanone	37.8	43.3	115	70-130		37.8	43.8	116		1	20	
Carbon Disulfide	38.8	40.9	106	70-130		38.8	41.5	107		1	20	
Carbon Tetrachloride	81.7	85.4	105	70-131		81.7	85.6	105		0	20	
Chlorobenzene	59.5	49.2	83	70-130		59.5	49.0	82		1	20	
Chloroethane	35.2	37.3	106	70-130		35.2	37.5	107		1	20	
Chloroform	64.0	67.4	105	70-130		64.0	67.6	106		1	20	
Chloromethane	26.9	29.2	109	70-130		26.9	29.5	110		1	20	
Cyclohexane	43.9	50.5	115	70-130		43.9	51.2	117		2	20	
Dibromochloromethane	112	103	93	70-135		112	103	92		1	20	
1,2-Dichlorobenzene	75.3	62.1	82	70-130		75.3	61.8	82		0	20	
1,3-Dichlorobenzene	76.0	62.2	82	70-131		76.0	62.2	82		0	20	
1,4-Dichlorobenzene	75.6	63.4	84	70-134		75.6	63.4	84		0	20	
Dichlorodifluoromethane	64.7	71.2	110	70-132		64.7	71.0	110		0	20	
1,1-Dichloroethane	51.4	55.4	108	70-130		51.4	56.1	109		1	20	
1,2-Dichloroethane	50.8	58.1	114	70-130		50.8	58.7	116		2	20	
1,1-Dichloroethene	51.0	57.7	113	70-133		51.0	57.4	112		1	20	
cis-1,2-Dichloroethene	50.4	56.7	112	70-130		50.4	57.0	113		1	20	
trans-1,2-Dichloroethene	50.8	58.2	115	70-130		50.8	58.3	115		0	20	
1,2-Dichloropropane	60.3	65.6	109	70-130		60.3	65.7	109		0	20	
cis-1,3-Dichloropropene	58.8	67.5	115	70-131		58.8	67.8	115		0	20	
trans-1,3-Dichloropropene	57.7	67.8	118	70-134		57.7	68.1	118		0	20	
1,4-Dioxane	46.6	51.4	110	70-130		46.6	51.1	110		0	20	
Ethyl Acetate	45.7	50.7	111	70-130		45.7	50.7	111		0	20	
Ethylbenzene	54.1	49.5	91	70-130		54.1	49.4	91		0	20	
Ethylene Dibromide	101	91.2	90	70-130		101	91.1	90		0	20	
n-Heptane	52.7	62.9	119	70-132		52.7	63.5	120		1	20	

VK21F11A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) — EPA TO-15

Run Time: VK21F11A.LCS: 06/11/2021 09:45 [VK21F11A] VK21F11A.LCSD: 06/11/2021 10:37 [VK21F11A]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	LCSD Qualifier	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%	%	
Hexachlorobutadiene	135	106	79	70-134		135	105	78		1	20	
n-Hexane	44.6	50.5	113	70-130		44.6	50.8	114		1	20	
2-Hexanone	52.2	54.7	105	70-139		52.2	54.6	105		0	20	
Isopropanol	32.0	36.7	115	54-144		32.0	37.0	116		1	20	
4-Methyl-2-pentanone	52.3	61.1	117	70-130		52.3	62.2	119		2	20	
Methylene Chloride	43.8	47.9	109	70-132		43.8	48.5	111		2	20	
2-Methylnaphthalene	73.7	57.7	78	70-146		73.7	58.3	79		1	20	
MTBE	46.7	52.4	112	70-130		46.7	52.8	113		1	20	
Naphthalene	65.2	57.6	88	70-148		65.2	57.8	89		1	20	
Styrene	54.4	51.9	95	70-130		54.4	52.1	96		1	20	
1,1,2,2-Tetrachloroethane	88.3	79.2	90	70-130		88.3	79.1	90		0	20	
Tetrachloroethene	86.7	71.9	83	70-130		86.7	71.7	83		0	20	
Tetrahydrofuran	38.3	45.5	119	70-138		38.3	46.5	121		2	20	
Toluene	48.1	44.2	92	70-130		48.1	43.7	91		1	20	
1,2,4-Trichlorobenzene	93.0	77.6	83	70-140		93.0	77.3	83		0	20	
1,1,1-Trichloroethane	69.9	73.5	105	70-130		69.9	73.5	105		0	20	
1,1,2-Trichloroethane	72.7	61.7	85	70-130		72.7	61.0	84		1	20	
Trichloroethene	68.4	74.9	110	70-130		68.4	75.5	110		0	20	
Trichlorofluoromethane	71.3	74.0	104	70-132		71.3	74.4	104		0	20	
1,1,2-Trichlorotrifluoroethane	95.2	95.1	100	70-130		95.2	96.6	101		1	20	
1,2,4-Trimethylbenzene	61.2	55.0	90	70-132		61.2	55.1	90		0	20	
1,3,5-Trimethylbenzene	62.7	57.3	91	70-131		62.7	57.3	91		0	20	
Vinyl Acetate	46.4	49.3	106	70-131		46.4	50.4	109		3	20	
Vinyl Chloride	32.0	34.2	107	70-131		32.0	34.0	106		1	20	
m&p-Xylene	110	97.4	89	70-130		110	97.4	89		0	20	
o-Xylene	55.2	50.5	91	70-130		55.2	50.3	91		0	20	
4-Bromofluorobenzene(S)			*85*	*80-120*				*85*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
***:** Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

By Sue Ricketts at 11:53 AM, Jun 14, 2021

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe

11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # **198119**

PAGE 1 of 1

Plant 6

Client Name: Arcadis

Contact Person: Tiffany Linder

Project Name/ Number: RACER Lansing / 30075941.00102

Email distribution list: Tiffany.Linder@arcadis.com

Quote#

Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: TO-15	HOLD SAMPLE
6/10/21	1107	1	SVMP-20-01(061021)	A	1	X	
6/10/21	1107	2	Dup-01(061021)	A	1	X	

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks:

Received By Lab
JUN 10 2021
Initials: BP

Comments:

Sampled/Relinquished By: Austin Westhuis / Arcadis — Date/ Time 6/10/21 12:10 — Received By: Brandy Powers

Relinquished By: — Date/ Time — Received By:

Relinquished By: — Date/ Time — Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

X 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: A02246

Temperature upon receipt at Lab: Room Temp

Please see back for terms and conditions

Fibertec
environmental
services

Monday, September 13, 2021

Fibertec Project Number:	A03844
Project Identification:	RACER Lansing (30075941.00102) /30075941.00102
Submittal Date:	09/07/2021

Ms. Tiffany Linder
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Ms. Linder,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sue Ricketts at 4:02 PM, Sep 13, 2021

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-01 (090721)**	Chain of Custody:	**196225**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**1**	Collect Date:	**09/07/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**10:25**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A03844-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-01 (090721)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
2. Benzene	U		µg/m3	19	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
3. Benzyl Chloride	U		µg/m3	6.2	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
5. Bromoform	U		µg/m3	62	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
6. Bromomethane	U		µg/m3	23	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
7. 1,3-Butadiene	U		µg/m3	0.66	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
8. 2-Butanone	U		µg/m3	35	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
11. Chlorobenzene	U		µg/m3	28	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
12. Chloroethane	U		µg/m3	16	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
13. Chloroform	**10**		µg/m3	5.9	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
14. Chloromethane	U		µg/m3	12	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
15. Cyclohexane	U		µg/m3	41	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
16. Dibromochloromethane	U	*	µg/m3	4.1	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
29. 1,4-Dioxane	U		µg/m3	22	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
31. Ethylbenzene	U		µg/m3	52	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
33. n-Heptane	U		µg/m3	49	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
35. n-Hexane	U		µg/m3	42	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 37. Isopropanol	U	*	µg/m3	29	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-01 (090721)**	Chain of Custody:	**196225**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**1**	Collect Date:	**09/07/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**10:25**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A03844-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-01 (090721)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
39. Methylene Chloride	U		µg/m3	42	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
41. MTBE	U		µg/m3	22	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 42. Naphthalene	U	*	µg/m3	19	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
43. Styrene	U		µg/m3	51	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
45. Tetrachloroethene	U		µg/m3	41	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
47. Toluene	U		µg/m3	23	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
51. Trichloroethene	U		µg/m3	1.6	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 53. 1,1,2-Trichlorotrifluoroethane	U	*	µg/m3	46	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
56. Vinyl Acetate	U		µg/m3	42	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
57. Vinyl Chloride	U		µg/m3	15	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
58. m&p-Xylene	U		µg/m3	52	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
59. o-Xylene	U		µg/m3	52	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM
‡ 60. Xylenes	U		µg/m3	100	4.0	09/10/21	VN21I10A	09/10/21 13:53	VN21I10A	CM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Dup-01 (090721)**	Chain of Custody:	**196225**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**2**	Collect Date:	**09/07/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**10:25**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A03844-002** **Matrix: Air**
Method: EPA TO-15 **Description: Dup-01 (090721)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
2. Benzene	U		µg/m3	19	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
3. Benzyl Chloride	U		µg/m3	6.2	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
5. Bromoform	U		µg/m3	62	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
6. Bromomethane	U		µg/m3	23	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
7. 1,3-Butadiene	U		µg/m3	0.66	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
8. 2-Butanone	U		µg/m3	35	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
11. Chlorobenzene	U		µg/m3	28	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
12. Chloroethane	U		µg/m3	16	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
13. Chloroform	**10**		µg/m3	5.9	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
14. Chloromethane	U		µg/m3	12	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
15. Cyclohexane	U		µg/m3	41	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
29. 1,4-Dioxane	U		µg/m3	22	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
31. Ethylbenzene	U		µg/m3	52	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
33. n-Heptane	U		µg/m3	49	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
35. n-Hexane	U		µg/m3	42	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 37. Isopropanol	U		µg/m3	29	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**Dup-01 (090721)**	Chain of Custody:	**196225**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**2**	Collect Date:	**09/07/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**10:25**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A03844-002** **Matrix: Air**
Method: EPA TO-15 **Description: Dup-01 (090721)**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
39. Methylene Chloride	U		µg/m3	42	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
41. MTBE	U		µg/m3	22	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 42. Naphthalene	U		µg/m3	19	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
43. Styrene	U		µg/m3	51	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
45. Tetrachloroethene	U		µg/m3	41	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
47. Toluene	U		µg/m3	23	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
51. Trichloroethene	U		µg/m3	1.6	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
56. Vinyl Acetate	U		µg/m3	42	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
57. Vinyl Chloride	U		µg/m3	15	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
58. m&p-Xylene	U		µg/m3	52	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
59. o-Xylene	U		µg/m3	52	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM
‡ 60. Xylenes	U		µg/m3	100	4.0	09/10/21	VN21I10A	09/10/21 14:40	VN21I10A	CM

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits
D: The sample or extract was analyzed at a DF greater than 1.

Exception Summary:

* : Duplicate analysis not within control limits.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

VN21I10A: Method Blank (MB)

EPA TO-15

Run Time: VN21I10A.MB 09/10/2021 12:19 [VN21I10A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Acetone	U		57
Benzene	U		19
Benzyl Chloride	U		6.2
Bromodichloromethane	U		8.0
Bromoform	U		62
Bromomethane	U		23
1,3-Butadiene	U		0.66
2-Butanone	U		35
Carbon Disulfide	U		37
Carbon Tetrachloride	U		7.5
Chlorobenzene	U		28
Chloroethane	U		16
Chloroform	U		5.9
Chloromethane	U		12
Cyclohexane	U		41
Dibromochloromethane	U		4.1
1,2-Dichlorobenzene	U		36
1,3-Dichlorobenzene	U		36
1,4-Dichlorobenzene	U		36
Dichlorodifluoromethane	U		30
1,1-Dichloroethane	U		24
1,2-Dichloroethane	U		4.9
1,1-Dichloroethene	U		24
cis-1,2-Dichloroethene	U		24
trans-1,2-Dichloroethene	U		24
1,2-Dichloropropane	U		28
cis-1,3-Dichloropropene	U		27
trans-1,3-Dichloropropene	U		27
1,4-Dioxane	U		22
Ethyl Acetate	U		43
Ethylbenzene	U		52
Ethylene Dibromide	U		0.92
n-Heptane	U		49

VN21I10A: Method Blank (MB)

EPA TO-15

Run Time: VN21I10A.MB 09/10/2021 12:19 [VN21I10A]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Hexachlorobutadiene	U		5.1
n-Hexane	U		42
2-Hexanone	U		49
Isopropanol	U		29
4-Methyl-2-pentanone	U		49
Methylene Chloride	U		42
2-Methylnaphthalene	U		140
MTBE	U		22
Naphthalene	U		19
Styrene	U		51
1,1,2,2-Tetrachloroethane	U		3.3
Tetrachloroethene	U		41
Tetrahydrofuran	U		3.5
Toluene	U		23
1,2,4-Trichlorobenzene	U		89
1,1,1-Trichloroethane	U		33
1,1,2-Trichloroethane	U		6.5
Trichloroethene	U		1.6
Trichlorofluoromethane	U		34
1,1,2-Trichlorotrifluoroethane	U		46
1,2,4-Trimethylbenzene	U		29
1,3,5-Trimethylbenzene	U		29
Vinyl Acetate	U		42
Vinyl Chloride	U		15
m&p-Xylene	U		52
o-Xylene	U		52
4-Bromofluorobenzene(S)	*92*		*80-120*

VN21I10A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VN21I10A.LCS: 09/10/2021 09:54 [VN21I10A] VN21I10A.LCSD: 09/10/2021 10:41 [VN21I10A]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	LCSD Qualifier	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%	%	
Acetone	18.8	14.6	77	70-130		18.8	14.3	76		1	20	
Benzene	41.2	37.5	91	70-130		41.2	37.3	91		0	20	
Benzyl Chloride	75.7	73.0	97	70-150		75.7	72.0	95		2	20	
Bromodichloromethane	84.7	80.3	95	70-130		84.7	80.5	95		0	20	
Bromoform	134	129	97	70-138		134	127	95		2	20	
Bromomethane	51.7	39.4	76	70-133		51.7	39.3	76		0	20	
1,3-Butadiene	24.2	18.1	75	70-134		24.2	18.0	74		1	20	
2-Butanone	30.7	29.0	94	70-130		30.7	29.9	97		3	20	
Carbon Disulfide	38.8	33.8	87	70-130		38.8	33.3	86		1	20	
Carbon Tetrachloride	81.7	78.7	96	70-131		81.7	79.4	97		1	20	
Chlorobenzene	59.5	50.9	86	70-130		59.5	50.2	84		2	20	
Chloroethane	35.2	25.8	73	70-130		35.2	25.9	73		0	20	
Chloroform	64.0	61.5	96	70-130		64.0	61.7	96		0	20	
Chloromethane	26.9	19.4	72	70-130		26.9	19.3	72		0	20	
Cyclohexane	43.9	43.7	100	70-130		43.9	43.8	100		0	20	
Dibromochloromethane	99.3	88.6	89	70-135		99.3	89.5	90		1	20	
1,2-Dichlorobenzene	83.4	67.4	81	70-130		83.4	67.0	80		1	20	
1,3-Dichlorobenzene	91.7	81.1	88	70-131		91.7	80.3	88		0	20	
1,4-Dichlorobenzene	86.4	75.5	87	70-134		86.4	74.0	86		1	20	
Dichlorodifluoromethane	64.7	60.7	94	70-132		64.7	61.2	95		1	20	
1,1-Dichloroethane	51.4	47.2	92	70-130		51.4	47.2	92		0	20	
1,2-Dichloroethane	50.8	49.3	97	70-130		50.8	49.4	97		0	20	
1,1-Dichloroethene	51.0	54.1	106	70-133		51.0	53.7	105		1	20	
cis-1,2-Dichloroethene	50.4	48.0	95	70-130		50.4	48.9	97		2	20	
trans-1,2-Dichloroethene	45.5	46.9	103	70-130		45.5	46.4	102		1	20	
1,2-Dichloropropane	60.3	54.0	89	70-130		60.3	54.7	91		2	20	
cis-1,3-Dichloropropene	58.8	57.6	98	70-131		58.8	57.9	98		0	20	
trans-1,3-Dichloropropene	57.7	55.5	96	70-134		57.7	55.7	97		1	20	
1,4-Dioxane	46.6	43.1	92	70-130		46.6	43.0	92		0	20	
Ethyl Acetate	45.7	41.2	90	70-130		45.7	41.8	91		1	20	
Ethylbenzene	54.1	53.0	98	70-130		54.1	52.7	97		1	20	
Ethylene Dibromide	101	85.9	85	70-130		101	85.2	84		1	20	
n-Heptane	52.7	45.5	86	70-132		52.7	45.8	87		1	20	

VN21I10A: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VN21I10A.LCS: 09/10/2021 09:54 [VN21I10A] VN21I10A.LCSD: 09/10/2021 10:41 [VN21I10A]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	LCSD Qualifier	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%	%	
Hexachlorobutadiene	112	101	90	70-134		112	99.1	89		1	20	
n-Hexane	38.8	36.7	95	70-130		38.8	37.2	96		1	20	
2-Hexanone	43.0	40.8	95	70-139		43.0	40.7	95		0	20	
Isopropanol	32.0	23.9	75	54-144		32.0	23.5	74		1	20	
4-Methyl-2-pentanone	45.8	44.9	98	70-130		45.8	44.6	97		1	20	
Methylene Chloride	43.8	42.5	97	70-132		43.8	41.8	96		1	20	
2-Methylnaphthalene	73.7	72.0	98	70-146		73.7	67.8	92		6	20	
MTBE	46.7	46.6	100	70-130		46.7	46.5	100		0	20	
Naphthalene	65.2	62.2	95	70-148		65.2	60.6	93		2	20	
Styrene	54.4	57.2	105	70-130		54.4	56.8	104		1	20	
1,1,2,2-Tetrachloroethane	88.3	79.9	91	70-130		88.3	78.5	89		2	20	
Tetrachloroethene	86.7	73.5	85	70-130		86.7	73.1	84		1	20	
Tetrahydrofuran	49.0	48.2	98	70-138		49.0	49.1	100		2	20	
Toluene	48.1	43.0	89	70-130		48.1	43.4	90		1	20	
1,2,4-Trichlorobenzene	93.0	82.8	89	70-140		93.0	80.8	87		2	20	
1,1,1-Trichloroethane	69.9	65.5	94	70-130		69.9	66.0	94		0	20	
1,1,2-Trichloroethane	72.7	63.0	87	70-130		72.7	62.8	86		1	20	
Trichloroethene	68.4	63.4	93	70-130		68.4	63.1	92		1	20	
Trichlorofluoromethane	71.3	65.2	91	70-132		71.3	64.7	91		0	20	
1,1,2-Trichlorotrifluoroethane	95.2	93.8	99	70-130		95.2	93.5	98		1	20	
1,2,4-Trimethylbenzene	61.2	63.9	104	70-132		61.2	63.5	104		0	20	
1,3,5-Trimethylbenzene	62.7	64.4	103	70-131		62.7	63.7	102		1	20	
Vinyl Acetate	55.4	51.2	92	70-131		55.4	51.8	93		1	20	
Vinyl Chloride	32.0	23.8	74	70-131		32.0	23.5	74		0	20	
m&p-Xylene	110	107	97	70-130		110	106	96		1	20	
o-Xylene	55.2	55.0	100	70-130		55.2	54.2	98		2	20	
4-Bromofluorobenzene(S)			*95*	*80-120*				*95*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
***:** Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

By Sue Ricketts at 4:10 PM, Sep 13, 2021

Fibertec environmental services

Analytical Laboratory

1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
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8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
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Geoprobe

11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 196225
PAGE 1 of 1

Client Name: Arcadis
Contact Person: Tiffany Linder
Project Name/ Number: RACER Lansing / 30075941.00102
Email distribution list: Tiffany.Linder@arcadis.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: TO-15	HOLD SAMPLE
9/7/21	1025	1	SVMP-20-01(090721)	A	1	X	
9/7/21	1025	2	Dup-01(090721)	A	1	X	

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks: Received By Lab
SEP 07 2021
Initials: BP

Comments:

Sampled/Relinquished By: Austin Westhuis (Arcadis) | Date/ Time: 9/7/21 1115 | Received By: Brandyn Powers 9/7/21 11:15
Relinquished By: | Date/ Time: | Received By:
Relinquished By: | Date/ Time: | Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days
X 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: A03844
Temperature upon receipt at Lab: Room Temp

Please see back for terms and conditions

Fibertec
environmental
services

Tuesday, January 04, 2022

Fibertec Project Number:	A05974
Project Identification:	RACER Lansing (30075941.00102) /30075941.00102
Submittal Date:	12/17/2021

Ms. Tiffany Linder
Arcadis U.S., Inc. - Novi
28550 Cabot Drive
Suite 500
Novi, MI 48377

Dear Ms. Linder,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sue Ricketts at 11:49 AM, Jan 04, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-1_121721**	Chain of Custody:	**208081**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**1**	Collect Date:	**12/17/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**17:00**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A05974-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-1_121721**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
2. Benzene	U		µg/m3	19	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
3. Benzyl Chloride	U	V+	µg/m3	6.2	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
5. Bromoform	U		µg/m3	62	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
6. Bromomethane	U		µg/m3	23	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
7. 1,3-Butadiene	U		µg/m3	2.7	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
8. 2-Butanone	U		µg/m3	35	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
11. Chlorobenzene	U		µg/m3	28	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
12. Chloroethane	U		µg/m3	16	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
13. Chloroform	U		µg/m3	5.9	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
14. Chloromethane	U		µg/m3	12	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
15. Cyclohexane	U		µg/m3	41	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
29. 1,4-Dioxane	U		µg/m3	22	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
31. Ethylbenzene	U		µg/m3	52	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
33. n-Heptane	U		µg/m3	49	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
35. n-Hexane	U		µg/m3	42	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 37. Isopropanol	U		µg/m3	29	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**SVMP-20-1_121721**	Chain of Custody:	**208081**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**1**	Collect Date:	**12/17/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**17:00**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A05974-001** **Matrix: Air**
Method: EPA TO-15 **Description: SVMP-20-1_121721**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
39. Methylene Chloride	U		µg/m3	42	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
41. MTBE	U		µg/m3	22	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 42. Naphthalene	U		µg/m3	19	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
43. Styrene	U		µg/m3	51	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
45. Tetrachloroethene	U		µg/m3	41	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
47. Toluene	U		µg/m3	23	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
51. Trichloroethene	U		µg/m3	1.6	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
56. Vinyl Acetate	U		µg/m3	42	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
57. Vinyl Chloride	U		µg/m3	15	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
58. m&p-Xylene	U		µg/m3	52	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
59. o-Xylene	U		µg/m3	52	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM
‡ 60. Xylenes	U		µg/m3	100	4.0	12/29/21	VK21L29G	12/30/21 09:32	VK21L29G	CM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**DUP-01_121721**	Chain of Custody:	**208081**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**2**	Collect Date:	**12/17/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A05974-002** **Matrix: Air**
Method: EPA TO-15 **Description: DUP-01_121721**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acetone	U		µg/m3	57	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
2. Benzene	U		µg/m3	19	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
3. Benzyl Chloride	U	V+	µg/m3	6.2	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
4. Bromodichloromethane	U		µg/m3	8.0	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
5. Bromoform	U		µg/m3	62	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
6. Bromomethane	U		µg/m3	23	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
7. 1,3-Butadiene	U		µg/m3	2.7	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
8. 2-Butanone	U		µg/m3	35	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 9. Carbon Disulfide	U		µg/m3	37	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
10. Carbon Tetrachloride	U		µg/m3	7.5	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
11. Chlorobenzene	U		µg/m3	28	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
12. Chloroethane	U		µg/m3	16	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
13. Chloroform	U		µg/m3	5.9	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
14. Chloromethane	U		µg/m3	12	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
15. Cyclohexane	U		µg/m3	41	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
16. Dibromochloromethane	U		µg/m3	4.1	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
17. 1,2-Dichlorobenzene	U		µg/m3	36	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
18. 1,3-Dichlorobenzene	U		µg/m3	36	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
19. 1,4-Dichlorobenzene	U		µg/m3	36	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
20. Dichlorodifluoromethane	U		µg/m3	30	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
21. 1,1-Dichloroethane	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
22. 1,2-Dichloroethane	U		µg/m3	4.9	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
23. 1,1-Dichloroethene	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
24. cis-1,2-Dichloroethene	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
25. trans-1,2-Dichloroethene	U		µg/m3	24	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
26. 1,2-Dichloropropane	U		µg/m3	28	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
27. cis-1,3-Dichloropropene	U		µg/m3	27	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
28. trans-1,3-Dichloropropene	U		µg/m3	27	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
29. 1,4-Dioxane	U		µg/m3	22	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 30. Ethyl Acetate	U		µg/m3	43	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
31. Ethylbenzene	U		µg/m3	52	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
32. Ethylene Dibromide	U		µg/m3	0.92	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
33. n-Heptane	U		µg/m3	49	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
34. Hexachlorobutadiene	U		µg/m3	5.1	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
35. n-Hexane	U		µg/m3	42	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 36. 2-Hexanone	U		µg/m3	49	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 37. Isopropanol	U		µg/m3	29	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM

Client Identification:	**Arcadis U.S., Inc. - Novi**	Sample Description:	**DUP-01_121721**	Chain of Custody:	**208081**
Client Project Name:	**RACER Lansing (30075941.00102)**	Sample No:	**2**	Collect Date:	**12/17/21**
Client Project No:	**30075941.00102**	Sample Matrix:	**Air**	Collect Time:	**NA**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

TO-15 (Bottle-Vac) **Aliquot ID: A05974-002** **Matrix: Air**
Method: EPA TO-15 **Description: DUP-01_121721**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
38. 4-Methyl-2-pentanone	U		µg/m3	49	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
39. Methylene Chloride	U		µg/m3	42	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 40. 2-Methylnaphthalene	U		µg/m3	140	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
41. MTBE	U		µg/m3	22	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 42. Naphthalene	U		µg/m3	19	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
43. Styrene	U		µg/m3	51	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
44. 1,1,2,2-Tetrachloroethane	U		µg/m3	3.3	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
45. Tetrachloroethene	U		µg/m3	41	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 46. Tetrahydrofuran	U		µg/m3	3.5	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
47. Toluene	U		µg/m3	23	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
48. 1,2,4-Trichlorobenzene	U		µg/m3	89	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
49. 1,1,1-Trichloroethane	U		µg/m3	33	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
50. 1,1,2-Trichloroethane	U		µg/m3	6.5	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
51. Trichloroethene	U		µg/m3	1.6	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
52. Trichlorofluoromethane	U		µg/m3	34	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 53. 1,1,2-Trichlorotrifluoroethane	U		µg/m3	46	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
54. 1,2,4-Trimethylbenzene	U		µg/m3	29	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
55. 1,3,5-Trimethylbenzene	U		µg/m3	29	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
56. Vinyl Acetate	U		µg/m3	42	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
57. Vinyl Chloride	U		µg/m3	15	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
58. m&p-Xylene	U		µg/m3	52	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
59. o-Xylene	U		µg/m3	52	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM
‡ 60. Xylenes	U		µg/m3	100	4.0	12/29/21	VK21L29G	12/30/21 10:25	VK21L29G	CM

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits
D: The sample or extract was analyzed at a DF greater than 1.

Exception Summary:

V+ : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

VK21L29G: Method Blank (MB)

EPA TO-15

Run Time: VK21L29G.MB 12/29/2021 19:31 [VK21L29G]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Acetone	U		57
Benzene	U		19
Benzyl Chloride	U		6.2
Bromodichloromethane	U		8.0
Bromoform	U		62
Bromomethane	U		23
1,3-Butadiene	U		2.7
2-Butanone	U		35
Carbon Disulfide	U		37
Carbon Tetrachloride	U		7.5
Chlorobenzene	U		28
Chloroethane	U		16
Chloroform	U		5.9
Chloromethane	U		12
Cyclohexane	U		41
Dibromochloromethane	U		4.1
1,2-Dichlorobenzene	U		36
1,3-Dichlorobenzene	U		36
1,4-Dichlorobenzene	U		36
Dichlorodifluoromethane	U		30
1,1-Dichloroethane	U		24
1,2-Dichloroethane	U		4.9
1,1-Dichloroethene	U		24
cis-1,2-Dichloroethene	U		24
trans-1,2-Dichloroethene	U		24
1,2-Dichloropropane	U		28
cis-1,3-Dichloropropene	U		27
trans-1,3-Dichloropropene	U		27
1,4-Dioxane	U		22
Ethyl Acetate	U		43
Ethylbenzene	U		52
Ethylene Dibromide	U		0.92
n-Heptane	U		49

VK21L29G: Method Blank (MB)

EPA TO-15

Run Time: VK21L29G.MB 12/29/2021 19:31 [VK21L29G]

Analyte	MB Result	MB Qualifier	MB RDL
	µg/m3		µg/m3
Hexachlorobutadiene	U		5.1
n-Hexane	U		42
2-Hexanone	U		49
Isopropanol	U		29
4-Methyl-2-pentanone	U		49
Methylene Chloride	U		42
2-Methylnaphthalene	U		140
MTBE	U		22
Naphthalene	U		19
Styrene	U		51
1,1,2,2-Tetrachloroethane	U		3.3
Tetrachloroethene	U		41
Tetrahydrofuran	U		3.5
Toluene	U		23
1,2,4-Trichlorobenzene	U		89
1,1,1-Trichloroethane	U		33
1,1,2-Trichloroethane	U		6.5
Trichloroethene	U		1.6
Trichlorofluoromethane	U		34
1,1,2-Trichlorotrifluoroethane	U		46
1,2,4-Trimethylbenzene	U		29
1,3,5-Trimethylbenzene	U		29
Vinyl Acetate	U		42
Vinyl Chloride	U		15
m&p-Xylene	U		52
o-Xylene	U		52
4-Bromofluorobenzene(S)	*96*		*80-120*

VK21L29G: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK21L29G.LCS: 12/29/2021 16:54 [VK21L29G] VK21L29G.LCSD: 12/29/2021 17:46 [VK21L29G]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	LCSD Qualifier	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%	%	
Acetone	18.8	20.1	107	70-130		18.8	20.5	109		2	20	
Benzene	41.2	39.9	97	70-130		41.2	40.4	98		1	20	
Benzyl Chloride	75.7	98.1	130	70-150		75.7	98.6	130		0	20	
Bromodichloromethane	84.7	84.8	100	70-130		84.7	84.3	99		1	20	
Bromoform	134	144	108	70-138		134	147	110		2	20	
Bromomethane	51.7	53.4	103	70-133		51.7	52.9	102		1	20	
1,3-Butadiene	24.2	25.7	106	70-134		24.2	25.6	105		1	20	
2-Butanone	30.7	31.9	104	70-130		30.7	31.8	104		0	20	
Carbon Disulfide	38.8	38.5	99	70-130		38.8	38.2	98		1	20	
Carbon Tetrachloride	81.7	78.7	96	70-131		81.7	79.1	97		1	20	
Chlorobenzene	59.5	60.8	102	70-130		59.5	62.4	105		3	20	
Chloroethane	35.2	36.7	104	70-130		35.2	36.6	104		0	20	
Chloroform	64.0	59.2	92	70-130		64.0	59.5	93		1	20	
Chloromethane	26.9	30.5	113	70-130		26.9	30.0	112		1	20	
Cyclohexane	43.9	46.0	105	70-130		43.9	46.3	106		1	20	
Dibromochloromethane	99.3	108	109	70-135		99.3	110	110		1	20	
1,2-Dichlorobenzene	83.4	82.6	99	70-130		83.4	83.8	100		1	20	
1,3-Dichlorobenzene	91.7	98.6	108	70-131		91.7	100	109		1	20	
1,4-Dichlorobenzene	86.4	95.8	111	70-134		86.4	96.7	112		1	20	
Dichlorodifluoromethane	64.7	56.3	87	70-132		64.7	55.4	86		1	20	
1,1-Dichloroethane	51.4	50.6	98	70-130		51.4	50.8	99		1	20	
1,2-Dichloroethane	50.8	45.8	90	70-130		50.8	46.0	91		1	20	
1,1-Dichloroethene	51.0	49.8	98	70-133		51.0	49.6	97		1	20	
cis-1,2-Dichloroethene	50.4	48.3	96	70-130		50.4	48.7	97		1	20	
trans-1,2-Dichloroethene	45.5	47.9	105	70-130		45.5	47.9	105		0	20	
1,2-Dichloropropane	60.3	62.5	104	70-130		60.3	62.5	104		0	20	
cis-1,3-Dichloropropene	58.8	61.5	105	70-131		58.8	60.8	103		2	20	
trans-1,3-Dichloropropene	57.7	59.0	102	70-134		57.7	57.9	100		2	20	
1,4-Dioxane	46.6	53.0	114	70-130		46.6	52.4	112		2	20	
Ethyl Acetate	45.7	47.6	104	70-130		45.7	47.9	105		1	20	
Ethylbenzene	54.1	56.8	105	70-130		54.1	58.1	107		2	20	
Ethylene Dibromide	101	104	103	70-130		101	105	104		1	20	
n-Heptane	52.7	49.6	94	70-132		52.7	49.9	95		1	20	

VK21L29G: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

EPA TO-15

Run Time: VK21L29G.LCS: 12/29/2021 16:54 [VK21L29G] VK21L29G.LCSD: 12/29/2021 17:46 [VK21L29G]

Analyte	LCS Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	LCSD Spike Amount	LCSD Result	LCSD Rec.	LCSD Qualifier	RPD	RPD Limits	RPD Qualifier
	µg/m3	µg/m3	%	%		µg/m3	µg/m3	%		%	%	
Hexachlorobutadiene	112	106	95	70-134		112	107	96		1	20	
n-Hexane	38.8	39.1	101	70-130		38.8	39.3	101		0	20	
2-Hexanone	43.0	50.4	117	70-139		43.0	49.7	116		1	20	
Isopropanol	32.0	33.3	104	54-144		32.0	32.9	103		1	20	
4-Methyl-2-pentanone	45.8	49.4	108	70-130		45.8	49.2	108		0	20	
Methylene Chloride	43.8	44.1	101	70-132		43.8	43.9	100		1	20	
2-Methylnaphthalene	73.7	82.8	112	70-146		73.7	75.0	102		9	20	
MTBE	46.7	44.9	96	70-130		46.7	45.4	97		1	20	
Naphthalene	65.2	82.5	126	70-148		65.2	80.5	123		2	20	
Styrene	54.4	59.6	110	70-130		54.4	60.8	112		2	20	
1,1,2,2-Tetrachloroethane	88.3	93.0	105	70-130		88.3	95.5	108		3	20	
Tetrachloroethene	86.7	89.7	103	70-130		86.7	90.8	105		2	20	
Tetrahydrofuran	49.0	50.3	103	70-138		49.0	50.1	102		1	20	
Toluene	48.1	49.8	104	70-130		48.1	50.5	105		1	20	
1,2,4-Trichlorobenzene	93.0	108	116	70-140		93.0	106	114		2	20	
1,1,1-Trichloroethane	69.9	62.2	89	70-130		69.9	63.1	90		1	20	
1,1,2-Trichloroethane	72.7	76.8	106	70-130		72.7	77.7	107		1	20	
Trichloroethene	68.4	70.5	103	70-130		68.4	71.0	104		1	20	
Trichlorofluoromethane	71.3	64.0	90	70-132		71.3	63.4	89		1	20	
1,1,2-Trichlorotrifluoroethane	95.2	90.0	95	70-130		95.2	89.7	94		1	20	
1,2,4-Trimethylbenzene	61.2	66.3	108	70-132		61.2	67.5	110		2	20	
1,3,5-Trimethylbenzene	62.7	65.8	105	70-131		62.7	67.5	108		3	20	
Vinyl Acetate	55.4	56.2	101	70-131		55.4	56.6	102		1	20	
Vinyl Chloride	32.0	34.3	107	70-131		32.0	34.0	106		1	20	
m&p-Xylene	110	118	107	70-130		110	121	110		3	20	
o-Xylene	55.2	56.1	102	70-130		55.2	57.6	104		2	20	
4-Bromofluorobenzene(S)			*100*	*80-120*				*104*				

Definitions/ Qualifiers:

U: The analyte was not detected at or above the Reporting Limit (RL).
***:** Value reported is outside QC limits

Exception Summary:

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

Report Generated By:

By Sue Ricketts at 12:06 PM, Jan 04, 2022

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # **208081**
PAGE 1 of 1

Client Name: ARCADIS
Contact Person: TIFFANY.LINDER@ARCADIS.COM
Project Name/ Number: RACER LANSING PLANT-6
Email distribution list:
Quote#
Purchase Order# 30075941.00102

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: TO-15	HOLD SAMPLE	Remarks
12/17/21	17:00	1	SVMP-20-1_121721	A	1	X		BV# 3048 FC# 331
12/17/21	—	2	AVP-01-121721	A	1	X		BV# 3023 FC# ~~3359~~ 331

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Received By Lab
DEC 17 2021
Initials: CI

Comments:

	Date/ Time	
Sampled/Relinquished By:	12-17-21 17:50	Received By:
Relinquished By:	Date/ Time	Received By:
Relinquished By:	Date/ Time	Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days _____3 bus. days _____4 bus. days

X 5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: A05974
Temperature upon receipt at Lab: Room Temp

Please see back for terms and conditions

Attachment 3

Groundwater Laboratory Data Reports

Analytical Laboratory Report

Report ID: S19673.01(01)+QC01
Generated on 12/11/2020

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Addtional Contacts: Alex Villhauer, Marina Samp, Kaitlyn Voet

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S19673.01-S19673.03
Project: 30042872.04700 / Racer Lansing
Collected Date(s): 12/03/2020
Submitted Date/Time: 12/03/2020 16:20
Sampled by: Austin Westhuis
P.O. #: 30042872.04700

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S19673.01	MW-20-131_120220	Groundwater	12/03/20 10:05
S19673.02	MW-20-132_120220	Groundwater	12/03/20 10:50
S19673.03	Trip Blank_120220	Water	12/03/20 00:01

Lab Sample ID: S19673.01
Sample Tag: MW-20-131_120220
Collected Date/Time: 12/03/2020 10:05
Matrix: Groundwater
COC Reference: 132266

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	12/11/20 11:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/20 20:18, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	3	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S19673.01 (continued)
Sample Tag: MW-20-131_120220

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/20 20:18, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S19673.02
Sample Tag: MW-20-132_120220
Collected Date/Time: 12/03/2020 10:50
Matrix: Groundwater
COC Reference: 132266

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	12/11/20 11:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/20 20:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	1	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	9	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S19673.02 (continued)
Sample Tag: MW-20-132_120220

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/20 20:41, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Lab Sample ID: S19673.03
Sample Tag: Trip Blank_120220
Collected Date/Time: 12/03/2020 00:01
Matrix: Water
COC Reference: 132266

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	3.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	12/11/20 11:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/20 15:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	

Lab Sample ID: S19673.03 (continued)
Sample Tag: Trip Blank_120220

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/10/20 15:41, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Quality Control Report

Report ID: S19673.01(01)+QC01
Generated on 12/11/2020

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S19673.01-S19673.03
Project: 30042872.04700 / Racer Lansing
Submitted Date/Time: 12/03/2020 16:20
Sampled by: Austin Westhuis
P.O. #: 30042872.04700

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S19673.01
Sample Tag: MW-20-131_120220
Collected Date/Time: 12/03/2020 10:05
Matrix: Groundwater
COC Reference: 132266

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/10/20 20:18	201210A7	VF201210W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S19673.02
Sample Tag: MW-20-132_120220
Collected Date/Time: 12/03/2020 10:50
Matrix: Groundwater
COC Reference: 132266

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/10/20 20:41	201210A7	VF201210W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S19673.03

Sample Tag: Trip Blank_120220

Collected Date/Time: 12/03/2020 00:01

Matrix: Water

COC Reference: 132266

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/10/20 15:41	201210A7	VF201210W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF201210W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19673.01	Volatile Organics - DEQ List	SW5030C/8260C	12/10/20 20:18	201210A7
S19673.02	Volatile Organics - DEQ List	SW5030C/8260C	12/10/20 20:41	201210A7
S19673.03	Volatile Organics - DEQ List	SW5030C/8260C	12/10/20 15:41	201210A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S19673.01

Sample Tag: MW-20-131_120220

Collected Date/Time: 12/03/2020 10:05

Matrix: Groundwater

COC Reference: 132266

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 201210A7, Run Date: 12/10/2020 20:18, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**95.3**	80.0	124.0
1,2-Dichloroethane-D4		**97.0**	72.0	125.0
Toluene-D8		**92.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S19673.02

Sample Tag: MW-20-132_120220

Collected Date/Time: 12/03/2020 10:50

Matrix: Groundwater

COC Reference: 132266

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 201210A7, Run Date: 12/10/2020 20:41, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**94.8**	80.0	124.0
1,2-Dichloroethane-D4		**92.7**	72.0	125.0
Toluene-D8		**92.1**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S19673.03

Sample Tag: Trip Blank_120220

Collected Date/Time: 12/03/2020 00:01

Matrix: Water

COC Reference: 132266

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 201210A7, Run Date: 12/10/2020 15:41, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**96.1**	80.0	124.0
1,2-Dichloroethane-D4		**91.5**	72.0	125.0
Toluene-D8		**91.1**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF201210W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 201210A7.BLKW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 14:07, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**94.2**	80.0	124.0
1,2-Dichloroethane-D4		**87.4**	72.0	125.0
Toluene-D8		**91.4**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 12:32, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**94.3**	80.0	124.0
1,2-Dichloroethane-D4		**87.9**	72.0	125.0
Toluene-D8		**92.2**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 201210A7.LCSDW10B, Parent Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 13:21, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**93.8**	80.0	124.0
1,2-Dichloroethane-D4		**85.3**	72.0	125.0
Toluene-D8		**92.5**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S19673.01

Sample Tag: MW-20-131_120220

Collected Date/Time: 12/03/2020 10:05

Matrix: Groundwater

COC Reference: 132266

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 201210A7, Run Date: 12/10/2020 20:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**88.1**	50.0	200.0
1,4-Difluorobenzene		**89.7**	50.0	200.0
Chlorobenzene-D5		**92.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S19673.02

Sample Tag: MW-20-132_120220

Collected Date/Time: 12/03/2020 10:50

Matrix: Groundwater

COC Reference: 132266

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 201210A7, Run Date: 12/10/2020 20:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**89.6**	50.0	200.0
1,4-Difluorobenzene		**90.8**	50.0	200.0
Chlorobenzene-D5		**92.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S19673.03

Sample Tag: Trip Blank_120220

Collected Date/Time: 12/03/2020 00:01

Matrix: Water

COC Reference: 132266

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 201210A7, Run Date: 12/10/2020 15:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**93.9**	50.0	200.0
1,4-Difluorobenzene		**94.2**	50.0	200.0
Chlorobenzene-D5		**94.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF201210W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 201210A7.BLKW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 14:07, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**94.0**	50.0	200.0
1,4-Difluorobenzene		**94.4**	50.0	200.0
Chlorobenzene-D5		**94.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 12:32, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.4**	50.0	200.0
1,4-Difluorobenzene		**100.5**	50.0	200.0
Chlorobenzene-D5		**101.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.5**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 201210A7.LCSDW10B, Parent Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 13:21, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**95.5**	50.0	200.0
1,4-Difluorobenzene		**95.6**	50.0	200.0
Chlorobenzene-D5		**95.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**94.3**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF201210W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 201210A7.BLKW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 14:07, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF201210W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 201210A7.BLKW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 14:07, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 12:32, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		98.9	67.4	121.2
Acetone		116.8	29.9	161.5
Methyl iodide		94.3	68.8	116.4
Carbon disulfide		92.8	63.8	137.4
tert-Methyl butyl ether (MTBE)		96.5	73.2	122.4
Acrylonitrile		108.8	69.9	128.9
2-Butanone (MEK)		106.8	44.0	134.4
Dichlorodifluoromethane		92.7	10.0	222.8
Chloromethane		88.5	23.8	166.5
Vinyl chloride		88.4	43.5	149.1
Bromomethane		88.1	56.8	151.3
Chloroethane		87.1	53.4	149.4
Trichlorofluoromethane		89.8	59.7	151.8
1,1-Dichloroethene		94.1	69.6	139.4
Methylene chloride		92.5	73.3	121.1
trans-1,2-Dichloroethene		91.2	73.6	129.3
1,1-Dichloroethane		90.9	71.5	126.2
cis-1,2-Dichloroethene		87.7	76.6	122.1
Tetrahydrofuran		104.5	59.0	117.9
Chloroform		90.7	78.4	124.0

Organics - Volatiles, Prep Batch ID: VF201210W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 12:32, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		90.6	78.2	120.8
1,1,1-Trichloroethane		90.5	79.4	130.9
4-Methyl-2-pentanone (MIBK)		103.1	71.6	125.2
2-Hexanone		103.4	55.4	136.9
Carbon tetrachloride		88.7	72.6	133.0
Benzene		88.6	79.9	124.9
1,2-Dichloroethane		88.7	76.0	126.3
Trichloroethene		88.6	79.7	124.2
1,2-Dichloropropane		94.2	78.6	126.4
Bromodichloromethane		92.8	80.4	128.2
Dibromomethane		91.7	76.9	122.1
cis-1,3-Dichloropropene		93.9	79.8	129.9
Toluene		89.4	79.8	124.5
trans-1,3-Dichloropropene		95.0	74.0	131.3
1,1,2-Trichloroethane		92.1	78.7	123.1
Tetrachloroethene		87.0	74.5	124.5
trans-1,4-Dichloro-2-butene		108.3	68.6	135.4
Dibromochloromethane		94.4	74.6	127.2
1,2-Dibromoethane		90.2	70.3	133.7
Chlorobenzene		88.5	79.2	122.7
1,1,1,2-Tetrachloroethane		92.7	80.3	128.2
Ethylbenzene		88.1	79.5	129.1
p,m-Xylene		89.1	79.4	132.2
o-Xylene		90.3	80.2	131.0
Styrene		89.1	69.5	126.7
Isopropylbenzene		89.6	74.4	121.5
Bromoform		96.4	69.4	128.0
1,1,2,2-Tetrachloroethane		94.4	79.8	126.3
1,2,3-Trichloropropane		95.3	78.3	138.8
n-Propylbenzene		89.0	82.0	130.7
Bromobenzene		89.2	78.7	124.6
1,3,5-Trimethylbenzene		91.0	81.3	128.9
tert-Butylbenzene		90.0	80.7	128.9
1,2,4-Trimethylbenzene		90.7	81.4	130.8
sec-Butylbenzene		90.6	77.4	129.8
p-Isopropyltoluene		92.5	79.8	137.5
1,3-Dichlorobenzene		89.7	77.0	131.3
1,4-Dichlorobenzene		87.5	20.7	137.7
1,2-Dichlorobenzene		90.8	10.0	166.2
1,2,3-Trimethylbenzene		94.2	76.3	124.2
n-Butylbenzene		90.5	80.0	133.3
Hexachloroethane		96.4	23.8	138.1
1,2-Dibromo-3-chloropropane		104.5	21.2	189.4
1,2,4-Trichlorobenzene		97.6	27.4	143.4
1,2,3-Trichlorobenzene		98.5	75.4	131.4
Naphthalene		98.2	32.9	135.8

Organics - Volatiles, Prep Batch ID: VF201210W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 12:32, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		105.0	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 201210A7.LCSDW10B, Parent Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 13:21, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		98.7	67.4	121.2	0.2	30.0
Acetone		123.0	29.9	161.5	5.2	30.0
Methyl iodide		98.0	68.8	116.4	3.8	30.0
Carbon disulfide		100.2	63.8	137.4	7.6	30.0
tert-Methyl butyl ether (MTBE)		93.5	73.2	122.4	3.1	30.0
Acrylonitrile		109.6	69.9	128.9	0.7	30.0
2-Butanone (MEK)		108.0	44.0	134.4	1.1	30.0
Dichlorodifluoromethane		81.0	10.0	222.8	13.4	30.0
Chloromethane		85.7	23.8	166.5	3.2	30.0
Vinyl chloride		90.0	43.5	149.1	1.7	30.0
Bromomethane		87.4	56.8	151.3	0.8	30.0
Chloroethane		89.4	53.4	149.4	2.6	30.0
Trichlorofluoromethane		95.5	59.7	151.8	6.2	30.0
1,1-Dichloroethene		102.5	69.6	139.4	8.6	30.0
Methylene chloride		95.3	73.3	121.1	2.9	30.0
trans-1,2-Dichloroethene		98.0	73.6	129.3	7.2	30.0
1,1-Dichloroethane		96.2	71.5	126.2	5.7	30.0
cis-1,2-Dichloroethene		91.6	76.6	122.1	4.4	30.0
Tetrahydrofuran		104.3	59.0	117.9	0.2	30.0
Chloroform		94.6	78.4	124.0	4.3	30.0
Bromochloromethane		92.3	78.2	120.8	1.8	30.0
1,1,1-Trichloroethane		98.1	79.4	130.9	8.1	30.0
4-Methyl-2-pentanone (MIBK)		99.3	71.6	125.2	3.7	30.0
2-Hexanone		100.9	55.4	136.9	2.4	30.0
Carbon tetrachloride		97.5	72.6	133.0	9.5	30.0
Benzene		92.7	79.9	124.9	4.6	30.0
1,2-Dichloroethane		90.6	76.0	126.3	2.1	30.0
Trichloroethene		95.2	79.7	124.2	7.2	30.0
1,2-Dichloropropane		98.5	78.6	126.4	4.5	30.0
Bromodichloromethane		95.8	80.4	128.2	3.2	30.0
Dibromomethane		93.5	76.9	122.1	2.0	30.0
cis-1,3-Dichloropropene		97.6	79.8	129.9	3.9	30.0
Toluene		95.1	79.8	124.5	6.2	30.0
trans-1,3-Dichloropropene		99.5	74.0	131.3	4.6	30.0
1,1,2-Trichloroethane		94.1	78.7	123.1	2.1	30.0
Tetrachloroethene		93.5	74.5	124.5	7.2	30.0
trans-1,4-Dichloro-2-butene		107.6	68.6	135.4	0.7	30.0
Dibromochloromethane		96.8	74.6	127.2	2.6	30.0
1,2-Dibromoethane		94.0	70.3	133.7	4.1	30.0
Chlorobenzene		93.1	79.2	122.7	5.1	30.0

Organics - Volatiles, Prep Batch ID: VF201210W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 201210A7.LCSDW10B, Parent Sample ID: 201210A7.LCSW10A

Run in Batch: 201210A7, Run Date: 12/10/2020 13:21, Prep Date: 12/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		96.1	80.3	128.2	3.6	30.0
Ethylbenzene		94.3	79.5	129.1	6.7	30.0
p,m-Xylene		95.0	79.4	132.2	6.4	30.0
o-Xylene		94.3	80.2	131.0	4.3	30.0
Styrene		92.8	69.5	126.7	4.1	30.0
Isopropylbenzene		96.5	74.4	121.5	7.4	30.0
Bromoform		98.8	69.4	128.0	2.5	30.0
1,1,2,2-Tetrachloroethane		97.6	79.8	126.3	3.3	30.0
1,2,3-Trichloropropane		95.5	78.3	138.8	0.2	30.0
n-Propylbenzene		96.3	82.0	130.7	7.8	30.0
Bromobenzene		92.9	78.7	124.6	4.1	30.0
1,3,5-Trimethylbenzene		97.1	81.3	128.9	6.5	30.0
tert-Butylbenzene		97.0	80.7	128.9	7.4	30.0
1,2,4-Trimethylbenzene		96.4	81.4	130.8	6.1	30.0
sec-Butylbenzene		98.5	77.4	129.8	8.3	30.0
p-Isopropyltoluene		100.1	79.8	137.5	7.9	30.0
1,3-Dichlorobenzene		94.3	77.0	131.3	4.9	30.0
1,4-Dichlorobenzene		91.9	20.7	137.7	4.9	30.0
1,2-Dichlorobenzene		94.9	10.0	166.2	4.4	30.0
1,2,3-Trimethylbenzene		94.8	76.3	124.2	0.6	30.0
n-Butylbenzene		99.7	80.0	133.3	9.7	30.0
Hexachloroethane		99.5	23.8	138.1	3.1	30.0
1,2-Dibromo-3-chloropropane		105.7	21.2	189.4	1.2	30.0
1,2,4-Trichlorobenzene		101.9	27.4	143.4	4.3	30.0
1,2,3-Trichlorobenzene		102.1	75.4	131.4	3.6	30.0
Naphthalene		99.7	32.9	135.8	1.5	30.0
2-Methylnaphthalene		103.6	25.5	165.5	1.3	30.0

Merit Laboratories Login Checklist

Lab Set ID: S19673
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30042872.04700 / Racer Lansing
Submitted: 12/03/2020 16:20 Login User: REJ

Attention: Tiffany Linder
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 3.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

132266

CHAIN OF CUSTODY RECORD Plant 6

REPORT TO

CONTACT NAME: Tiffany Linder
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1928 FAX NO.: —
P.O. NO.: 30042872.04700
E-MAIL ADDRESS: Tiffany.Linder@arcadis.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30042872.04700 / RACER Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs 8260B SIMS
19673.01	12/3/20	1005	MW-20-131_120320	GW	3		3						X
-02	12/3/20	1050	MW-20-132_120320	GW	3		3						X
-03	12/3/20	—	Trip Blank	GW	1		1						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Arcadis	☒ Sampler	DATE 12/3/20 TIME 1620
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Storage		DATE 12-3-20 TIME 1620
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DROPOFF		DATE 12/3/20 TIME 1620
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE 12/3/20 TIME 1620

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 3.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S21811.01(01)+QC01
Generated on 03/04/2021

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Addtional Contacts: Alex Villhauer, Marina Samp, Kaitlyn Voet

Report produced by

Merit Laboratories, Inc.
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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S21811.01-S21811.04
Project: 30075941.00102 / RACER Lansing
Collected Date(s): 02/26/2021
Submitted Date/Time: 02/26/2021 15:00
Sampled by: Austin Westhuis
P.O. #: 30075941.00102

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S21811.01	MW-20-131_022621	Groundwater	02/26/21 11:10
S21811.02	MW-20-132_022621	Groundwater	02/26/21 12:30
S21811.03	Dup-01_022621	Groundwater	02/26/21 00:01
S21811.04	TripBlank_022621	Groundwater	02/26/21 00:01

Lab Sample ID: S21811.01
Sample Tag: MW-20-131_022621
Collected Date/Time: 02/26/2021 11:10
Matrix: Groundwater
COC Reference: 135680

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/03/21 09:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 18:04, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S21811.01 (continued)
Sample Tag: MW-20-131_022621

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 18:04, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S21811.02
Sample Tag: MW-20-132_022621
Collected Date/Time: 02/26/2021 12:30
Matrix: Groundwater
COC Reference: 135680

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/03/21 09:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 18:27, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	8	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S21811.02 (continued)
Sample Tag: MW-20-132_022621

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 18:27, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S21811.03
Sample Tag: Dup-01_022621
Collected Date/Time: 02/26/2021 00:01
Matrix: Groundwater
COC Reference: 135680

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/03/21 09:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 18:51, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S21811.03 (continued)
Sample Tag: Dup-01_022621

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 18:51, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S21811.04
Sample Tag: TripBlank_022621
Collected Date/Time: 02/26/2021 00:01
Matrix: Groundwater
COC Reference: 135680

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/03/21 09:15	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 15:00, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S21811.04 (continued)
Sample Tag: TripBlank_022621

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/02/21 15:00, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Quality Control Report

Report ID: S21811.01(01)+QC01
Generated on 03/04/2021

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S21811.01-S21811.04
Project: 30075941.00102 / RACER Lansing
Submitted Date/Time: 02/26/2021 15:00
Sampled by: Austin Westhuis
P.O. #: 30075941.00102

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S21811.01
Sample Tag: MW-20-131_022621
Collected Date/Time: 02/26/2021 11:10
Matrix: Groundwater
COC Reference: 135680

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 18:04	210302A7	VF210302W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S21811.02
Sample Tag: MW-20-132_022621
Collected Date/Time: 02/26/2021 12:30
Matrix: Groundwater
COC Reference: 135680

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 18:27	210302A7	VF210302W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S21811.03
Sample Tag: Dup-01_022621
Collected Date/Time: 02/26/2021 00:01
Matrix: Groundwater
COC Reference: 135680

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 18:51	210302A7	VF210302W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S21811.04

Sample Tag: TripBlank_022621

Collected Date/Time: 02/26/2021 00:01

Matrix: Groundwater

COC Reference: 135680

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 15:00	210302A7	VF210302W1	Yes	BLK/LCS/LCSD

Organics - Volatiles, Prep Batch ID: VF210302W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21811.01	Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 18:04	210302A7
S21811.02	Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 18:27	210302A7
S21811.03	Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 18:51	210302A7
S21811.04	Volatile Organics - DEQ List	SW5030C/8260C	03/02/21 15:00	210302A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S21811.01

Sample Tag: MW-20-131_022621

Collected Date/Time: 02/26/2021 11:10

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 18:04, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**98.1**	80.0	124.0
1,2-Dichloroethane-D4		**97.1**	72.0	125.0
Toluene-D8		**94.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S21811.02

Sample Tag: MW-20-132_022621

Collected Date/Time: 02/26/2021 12:30

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 18:27, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**99.0**	80.0	124.0
1,2-Dichloroethane-D4		**95.8**	72.0	125.0
Toluene-D8		**94.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S21811.03

Sample Tag: Dup-01_022621

Collected Date/Time: 02/26/2021 00:01

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 18:51, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**98.0**	80.0	124.0
1,2-Dichloroethane-D4		**95.7**	72.0	125.0
Toluene-D8		**94.3**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S21811.04

Sample Tag: TripBlank_022621

Collected Date/Time: 02/26/2021 00:01

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 15:00, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**97.0**	80.0	124.0
1,2-Dichloroethane-D4		**88.8**	72.0	125.0
Toluene-D8		**94.2**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF210302W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210302A7.BLKW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:50, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.9**	80.0	124.0
1,2-Dichloroethane-D4		**91.0**	72.0	125.0
Toluene-D8		**94.0**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 12:41, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**98.6**	80.0	124.0
1,2-Dichloroethane-D4		**99.9**	72.0	125.0
Toluene-D8		**95.3**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210302A7.LCSDW02A, Parent Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:04, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**97.8**	80.0	124.0
1,2-Dichloroethane-D4		**95.7**	72.0	125.0
Toluene-D8		**95.0**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S21811.01

Sample Tag: MW-20-131_022621

Collected Date/Time: 02/26/2021 11:10

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 18:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**87.0**	50.0	200.0
1,4-Difluorobenzene		**87.2**	50.0	200.0
Chlorobenzene-D5		**87.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**89.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S21811.02

Sample Tag: MW-20-132_022621

Collected Date/Time: 02/26/2021 12:30

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 18:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**85.6**	50.0	200.0
1,4-Difluorobenzene		**85.6**	50.0	200.0
Chlorobenzene-D5		**86.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**89.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S21811.03

Sample Tag: Dup-01_022621

Collected Date/Time: 02/26/2021 00:01

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 18:51, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**87.3**	50.0	200.0
1,4-Difluorobenzene		**88.1**	50.0	200.0
Chlorobenzene-D5		**88.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**90.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S21811.04

Sample Tag: TripBlank_022621

Collected Date/Time: 02/26/2021 00:01

Matrix: Groundwater

COC Reference: 135680

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210302A7, Run Date: 03/02/2021 15:00, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**92.2**	50.0	200.0
1,4-Difluorobenzene		**90.6**	50.0	200.0
Chlorobenzene-D5		**89.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**90.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF210302W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210302A7.BLKW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:50, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**92.9**	50.0	200.0
1,4-Difluorobenzene		**92.0**	50.0	200.0
Chlorobenzene-D5		**90.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.7**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 12:41, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.0**	50.0	200.0
1,4-Difluorobenzene		**101.0**	50.0	200.0
Chlorobenzene-D5		**101.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.9**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210302A7.LCSDW02A, Parent Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:04, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**94.3**	50.0	200.0
1,4-Difluorobenzene		**93.6**	50.0	200.0
Chlorobenzene-D5		**92.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.0**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF210302W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210302A7.BLKW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:50, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acetone		ND	10.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Benzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Bromoform		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Chloroform		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Diethyl ether		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
2-Hexanone		ND	10.00	ug/l
Hexachloroethane		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Methyl iodide		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF210302W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 210302A7.BLKW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:50, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Naphthalene		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Toluene		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 12:41, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acetone		114.5	29.9	161.5
Acrylonitrile		110.2	69.9	128.9
2-Butanone (MEK)		112.0	44.0	134.4
Benzene		101.3	79.9	124.9
n-Butylbenzene		87.6	80.0	133.3
Bromobenzene		101.0	78.7	124.6
Bromochloromethane		109.7	78.2	120.8
Bromodichloromethane		108.2	80.4	128.2
Bromoform		107.8	69.4	128.0
Bromomethane		90.3	56.8	151.3
sec-Butylbenzene		89.2	77.4	129.8
tert-Butylbenzene		92.5	80.7	128.9
Carbon disulfide		103.1	63.8	137.4
Carbon tetrachloride		99.2	72.6	133.0
Chlorobenzene		99.3	79.2	122.7
Chloroethane		88.6	53.4	149.4
Chloroform		106.0	78.4	124.0
Chloromethane		80.9	23.8	166.5
1,1-Dichloroethane		105.1	71.5	126.2
1,1-Dichloroethene		103.2	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF210302W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 12:41, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,2-Dibromo-3-chloropropane		100.9	21.2	189.4
1,2-Dibromoethane		102.6	70.3	133.7
1,2-Dichlorobenzene		98.3	10.0	166.2
1,2-Dichloroethane		100.3	76.0	126.3
1,2-Dichloropropane		108.0	78.6	126.4
1,3-Dichlorobenzene		93.9	77.0	131.3
1,4-Dichlorobenzene		93.8	20.7	137.7
cis-1,2-Dichloroethene		104.0	76.6	122.1
cis-1,3-Dichloropropene		109.6	79.8	129.9
Dibromochloromethane		107.0	74.6	127.2
Dibromomethane		109.2	76.9	122.1
Dichlorodifluoromethane		65.0	10.0	222.8
Diethyl ether		116.8	67.4	121.2
trans-1,2-Dichloroethene		100.6	73.6	129.3
trans-1,3-Dichloropropene		110.6	74.0	131.3
trans-1,4-Dichloro-2-butene		113.4	68.6	135.4
Ethylbenzene		95.8	79.5	129.1
2-Hexanone		107.5	55.4	136.9
Hexachloroethane		90.2	23.8	138.1
p-Isopropyltoluene		89.9	79.8	137.5
Isopropylbenzene		95.1	74.4	121.5
2-Methylnaphthalene		107.9	25.5	165.5
4-Methyl-2-pentanone (MIBK)		105.8	71.6	125.2
tert-Methyl butyl ether (MTBE)		110.6	73.2	122.4
Methyl iodide		106.3	68.8	116.4
Methylene chloride		108.5	73.3	121.1
Naphthalene		102.0	32.9	135.8
n-Propylbenzene		94.5	82.0	130.7
Styrene		100.9	69.5	126.7
1,1,1,2-Tetrachloroethane		102.3	80.3	128.2
1,1,1-Trichloroethane		100.4	79.4	130.9
1,1,2,2-Tetrachloroethane		104.8	79.8	126.3
1,1,2-Trichloroethane		113.4	78.7	123.1
1,2,3-Trichlorobenzene		103.2	75.4	131.4
1,2,3-Trichloropropane		102.1	78.3	138.8
1,2,3-Trimethylbenzene		94.4	76.3	124.2
1,2,4-Trichlorobenzene		99.7	27.4	143.4
1,2,4-Trimethylbenzene		96.1	81.4	130.8
1,3,5-Trimethylbenzene		96.6	81.3	128.9
Tetrachloroethene		101.0	74.5	124.5
Tetrahydrofuran		103.3	59.0	117.9
Toluene		103.0	79.8	124.5
Trichloroethene		99.8	79.7	124.2
Trichlorofluoromethane		100.6	59.7	151.8
Vinyl chloride		86.2	43.5	149.1
o-Xylene		97.3	80.2	131.0

Organics - Volatiles, Prep Batch ID: VF210302W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 12:41, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
p,m-Xylene		96.9	79.4	132.2

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210302A7.LCSDW02A, Parent Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:04, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acetone		114.5	29.9	161.5	0.0	30.0
Acrylonitrile		115.4	69.9	128.9	4.7	30.0
2-Butanone (MEK)		109.8	44.0	134.4	1.9	30.0
Benzene		102.3	79.9	124.9	1.0	30.0
n-Butylbenzene		92.8	80.0	133.3	5.7	30.0
Bromobenzene		104.4	78.7	124.6	3.3	30.0
Bromochloromethane		110.7	78.2	120.8	0.9	30.0
Bromodichloromethane		108.9	80.4	128.2	0.6	30.0
Bromoform		113.2	69.4	128.0	4.9	30.0
Bromomethane		90.7	56.8	151.3	0.5	30.0
sec-Butylbenzene		93.4	77.4	129.8	4.6	30.0
tert-Butylbenzene		97.2	80.7	128.9	5.0	30.0
Carbon disulfide		101.1	63.8	137.4	2.0	30.0
Carbon tetrachloride		98.4	72.6	133.0	0.8	30.0
Chlorobenzene		101.3	79.2	122.7	2.0	30.0
Chloroethane		88.5	53.4	149.4	0.2	30.0
Chloroform		106.4	78.4	124.0	0.3	30.0
Chloromethane		82.9	23.8	166.5	2.4	30.0
1,1-Dichloroethane		104.6	71.5	126.2	0.4	30.0
1,1-Dichloroethene		101.7	69.6	139.4	1.4	30.0
1,2-Dibromo-3-chloropropane		108.9	21.2	189.4	7.6	30.0
1,2-Dibromoethane		107.2	70.3	133.7	4.5	30.0
1,2-Dichlorobenzene		103.8	10.0	166.2	5.4	30.0
1,2-Dichloroethane		103.0	76.0	126.3	2.7	30.0
1,2-Dichloropropane		108.8	78.6	126.4	0.7	30.0
1,3-Dichlorobenzene		97.8	77.0	131.3	4.1	30.0
1,4-Dichlorobenzene		97.6	20.7	137.7	4.0	30.0
cis-1,2-Dichloroethene		104.4	76.6	122.1	0.4	30.0
cis-1,3-Dichloropropene		109.5	79.8	129.9	0.1	30.0
Dibromochloromethane		110.8	74.6	127.2	3.5	30.0
Dibromomethane		111.6	76.9	122.1	2.2	30.0
Dichlorodifluoromethane		66.5	10.0	222.8	2.3	30.0
Diethyl ether		118.1	67.4	121.2	1.1	30.0
trans-1,2-Dichloroethene		99.1	73.6	129.3	1.6	30.0
trans-1,3-Dichloropropene		110.3	74.0	131.3	0.2	30.0
trans-1,4-Dichloro-2-butene		114.6	68.6	135.4	1.1	30.0
Ethylbenzene		97.6	79.5	129.1	1.9	30.0
2-Hexanone		111.2	55.4	136.9	3.3	30.0
Hexachloroethane		94.9	23.8	138.1	5.0	30.0
p-Isopropyltoluene		93.9	79.8	137.5	4.4	30.0

Organics - Volatiles, Prep Batch ID: VF210302W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 210302A7.LCSDW02A, Parent Sample ID: 210302A7.LCSW02A

Run in Batch: 210302A7, Run Date: 03/02/2021 13:04, Prep Date: 03/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isopropylbenzene		98.4	74.4	121.5	3.4	30.0
2-Methylnaphthalene		122.4	25.5	165.5	12.5	30.0
4-Methyl-2-pentanone (MIBK)		109.7	71.6	125.2	3.6	30.0
tert-Methyl butyl ether (MTBE)		112.9	73.2	122.4	2.0	30.0
Methyl iodide		107.2	68.8	116.4	0.9	30.0
Methylene chloride		108.7	73.3	121.1	0.2	30.0
Naphthalene		112.6	32.9	135.8	9.9	30.0
n-Propylbenzene		97.3	82.0	130.7	3.0	30.0
Styrene		103.5	69.5	126.7	2.5	30.0
1,1,1,2-Tetrachloroethane		106.4	80.3	128.2	4.0	30.0
1,1,1-Trichloroethane		98.9	79.4	130.9	1.6	30.0
1,1,2,2-Tetrachloroethane		110.0	79.8	126.3	4.8	30.0
1,1,2-Trichloroethane		114.2	78.7	123.1	0.7	30.0
1,2,3-Trichlorobenzene		116.2	75.4	131.4	11.8	30.0
1,2,3-Trichloropropane		107.6	78.3	138.8	5.3	30.0
1,2,3-Trimethylbenzene		99.9	76.3	124.2	5.6	30.0
1,2,4-Trichlorobenzene		109.9	27.4	143.4	9.7	30.0
1,2,4-Trimethylbenzene		101.4	81.4	130.8	5.3	30.0
1,3,5-Trimethylbenzene		100.9	81.3	128.9	4.3	30.0
Tetrachloroethene	*	125.8	74.5	124.5	21.9	30.0
Tetrahydrofuran		105.2	59.0	117.9	1.8	30.0
Toluene		103.1	79.8	124.5	0.1	30.0
Trichloroethene		101.1	79.7	124.2	1.3	30.0
Trichlorofluoromethane		97.5	59.7	151.8	3.0	30.0
Vinyl chloride		84.5	43.5	149.1	2.0	30.0
o-Xylene		100.7	80.2	131.0	3.5	30.0
p,m-Xylene		99.8	79.4	132.2	2.9	30.0

Merit Laboratories Login Checklist

Lab Set ID:S21811
Client:ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30075941.00102 / RACER Lansing
Submitted:02/26/2021 15:00 Login User: REJ

Attention: Tiffany Linder
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

135680

CHAIN OF CUSTODY RECORD

Plant 6

REPORT TO

CONTACT NAME: Tiffany Linder
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 810-225-1928 FAX NO.: —
P.O. NO.: 30075941.00102
E-MAIL ADDRESS: Tiffany.Linder@arcadis.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30075941.00102 / RACER Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☒ Other MI
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs 8260
21811.01	2/26/21	1110	mw-20-131_022621	GW	3		3						X
.02	2/26/21	1230	mw-20-132_022621	GW	3		3						X
.03	2/26/21	—	Dup-01_022621	GW	3		3						X
.04	2/26/21	—	Trip Blank_022621	GW	1		1						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION [signature] / Arcadis ☒ Sampler DATE 2/26/21 TIME
RECEIVED BY: SIGNATURE/ORGANIZATION [signature] DATE 2/26/21 TIME 1500
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S24859.01(01)+QC01
Generated on 06/04/2021

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Addtional Contacts: Alex Villhauer, Marina Samp, Kaitlyn Voet

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S24859.01-S24859.04
Project: 30075941.04700 / Racer Lansing
Collected Date(s): 06/02/2021
Submitted Date/Time: 06/02/2021 17:00
Sampled by: Austin Westhuis
P.O. #: 30075941.04700

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S24859.01	MW-20-132_060221	Groundwater	06/02/21 10:20
S24859.02	Dup-10_060221	Groundwater	06/02/21 00:01
S24859.03	MW-20-131_060221	Groundwater	06/02/21 11:55
S24859.04	Trip Blank	Liquid	06/02/21 00:01

Lab Sample ID: S24859.01
Sample Tag: MW-20-132_060221
Collected Date/Time: 06/02/2021 10:20
Matrix: Groundwater
COC Reference: 146472

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	06/04/21 10:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 18:31, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	10	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	1	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24859.01 (continued)
Sample Tag: MW-20-132_060221

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 18:31, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24859.02
Sample Tag: Dup-10_060221
Collected Date/Time: 06/02/2021 00:01
Matrix: Groundwater
COC Reference: 146472

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	06/04/21 10:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 18:54, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	10	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	1	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24859.02 (continued)
Sample Tag: Dup-10_060221

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 18:54, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24859.03
Sample Tag: MW-20-131_060221
Collected Date/Time: 06/02/2021 11:55
Matrix: Groundwater
COC Reference: 146472

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	06/04/21 10:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 19:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	4	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24859.03 (continued)
Sample Tag: MW-20-131_060221

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 19:17, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	4	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S24859.04
Sample Tag: Trip Blank
Collected Date/Time: 06/02/2021 00:01
Matrix: Liquid
COC Reference: 146472

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	06/04/21 10:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 15:50, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S24859.04 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 06/03/21 15:50, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Quality Control Report

Report ID: S24859.01(01)+QC01
Generated on 06/04/2021

Report to

Attention: Tiffany Linder
Arcadis
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Report Produced by

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Report Summary

Lab Sample ID(s): S24859.01-S24859.04
Project: 30075941.04700 / Racer Lansing
Submitted Date/Time: 06/02/2021 17:00
Sampled by: Austin Westhuis
P.O. #: 30075941.04700

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S24859.01
Sample Tag: MW-20-132_060221
Collected Date/Time: 06/02/2021 10:20
Matrix: Groundwater
COC Reference: 146472

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 18:31	210603A7	VF210603W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24859.02
Sample Tag: Dup-10_060221
Collected Date/Time: 06/02/2021 00:01
Matrix: Groundwater
COC Reference: 146472

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 18:54	210603A7	VF210603W1	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S24859.03
Sample Tag: MW-20-131_060221
Collected Date/Time: 06/02/2021 11:55
Matrix: Groundwater
COC Reference: 146472

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 19:17	210603A7	VF210603W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S24859.04

Sample Tag: Trip Blank

Collected Date/Time: 06/02/2021 00:01

Matrix: Liquid

COC Reference: 146472

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 15:50	210603A7	VF210603W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF210603W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S24859.01	Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 18:31	210603A7
S24859.02	Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 18:54	210603A7
S24859.03	Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 19:17	210603A7
S24859.04	Volatile Organics - DEQ List	SW5030C/8260C	06/03/21 15:50	210603A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24859.01

Sample Tag: MW-20-132_060221

Collected Date/Time: 06/02/2021 10:20

Matrix: Groundwater

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 18:31, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.0**	80.0	124.0
1,2-Dichloroethane-D4		**110.8**	72.0	125.0
Toluene-D8		**102.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24859.02

Sample Tag: Dup-10_060221

Collected Date/Time: 06/02/2021 00:01

Matrix: Groundwater

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 18:54, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.9**	80.0	124.0
1,2-Dichloroethane-D4		**111.2**	72.0	125.0
Toluene-D8		**104.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24859.03

Sample Tag: MW-20-131_060221

Collected Date/Time: 06/02/2021 11:55

Matrix: Groundwater

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 19:17, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**103.7**	80.0	124.0
1,2-Dichloroethane-D4		**117.4**	72.0	125.0
Toluene-D8		**102.7**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S24859.04

Sample Tag: Trip Blank

Collected Date/Time: 06/02/2021 00:01

Matrix: Liquid

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 15:50, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.7**	80.0	124.0
1,2-Dichloroethane-D4		**111.7**	72.0	125.0
Toluene-D8		**102.6**	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF210603W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210603A7.BLKW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:54, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**102.0**	80.0	124.0
1,2-Dichloroethane-D4		**104.9**	72.0	125.0
Toluene-D8		**101.7**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 12:45, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.1**	80.0	124.0
1,2-Dichloroethane-D4		**102.8**	72.0	125.0
Toluene-D8		**104.2**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210603A7.LCSDW03A, Parent Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:08, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.4**	80.0	124.0
1,2-Dichloroethane-D4		**101.8**	72.0	125.0
Toluene-D8		**104.2**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S24859.01

Sample Tag: MW-20-132_060221

Collected Date/Time: 06/02/2021 10:20

Matrix: Groundwater

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 18:31, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**85.9**	50.0	200.0
1,4-Difluorobenzene		**89.5**	50.0	200.0
Chlorobenzene-D5		**88.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**92.0**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S24859.02

Sample Tag: Dup-10_060221

Collected Date/Time: 06/02/2021 00:01

Matrix: Groundwater

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 18:54, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**87.7**	50.0	200.0
1,4-Difluorobenzene		**91.3**	50.0	200.0
Chlorobenzene-D5		**93.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S24859.03

Sample Tag: MW-20-131_060221

Collected Date/Time: 06/02/2021 11:55

Matrix: Groundwater

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 19:17, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**82.0**	50.0	200.0
1,4-Difluorobenzene		**85.4**	50.0	200.0
Chlorobenzene-D5		**85.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**89.7**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S24859.04

Sample Tag: Trip Blank

Collected Date/Time: 06/02/2021 00:01

Matrix: Liquid

COC Reference: 146472

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210603A7, Run Date: 06/03/2021 15:50, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**92.5**	50.0	200.0
1,4-Difluorobenzene		**96.1**	50.0	200.0
Chlorobenzene-D5		**95.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.7**	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF210603W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210603A7.BLKW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:54, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**94.0**	50.0	200.0
1,4-Difluorobenzene		**95.9**	50.0	200.0
Chlorobenzene-D5		**93.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 12:45, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.9**	50.0	200.0
1,4-Difluorobenzene		**101.7**	50.0	200.0
Chlorobenzene-D5		**101.8**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.6**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210603A7.LCSDW03A, Parent Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:08, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.7**	50.0	200.0
1,4-Difluorobenzene		**97.8**	50.0	200.0
Chlorobenzene-D5		**97.4**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.5**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF210603W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210603A7.BLKW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:54, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acetone		ND	10.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Benzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Bromoform		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Chloroform		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Diethyl ether		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
2-Hexanone		ND	10.00	ug/l
Hexachloroethane		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Methyl iodide		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF210603W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 210603A7.BLKW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:54, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Naphthalene		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Toluene		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 12:45, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acetone		122.6	29.9	161.5
Acrylonitrile		123.3	69.9	128.9
2-Butanone (MEK)		120.2	44.0	134.4
Benzene		100.7	79.9	124.9
n-Butylbenzene		94.5	80.0	133.3
Bromobenzene		90.2	78.7	124.6
Bromochloromethane		107.8	78.2	120.8
Bromodichloromethane		103.0	80.4	128.2
Bromoform		96.8	69.4	128.0
Bromomethane		103.2	56.8	151.3
sec-Butylbenzene		92.6	77.4	129.8
tert-Butylbenzene		90.2	80.7	128.9
Carbon disulfide		99.4	63.8	137.4
Carbon tetrachloride		97.8	72.6	133.0
Chlorobenzene		93.9	79.2	122.7
Chloroethane		105.8	53.4	149.4
Chloroform		106.6	78.4	124.0
Chloromethane		100.5	23.8	166.5
1,1-Dichloroethane		108.6	71.5	126.2
1,1-Dichloroethene		102.2	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF210603W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 12:45, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,2-Dibromo-3-chloropropane		91.3	21.2	189.4
1,2-Dibromoethane		96.1	70.3	133.7
1,2-Dichlorobenzene		91.3	10.0	166.2
1,2-Dichloroethane		96.2	76.0	126.3
1,2-Dichloropropane		104.9	78.6	126.4
1,3-Dichlorobenzene		93.3	77.0	131.3
1,4-Dichlorobenzene		93.1	20.7	137.7
cis-1,2-Dichloroethene		106.9	76.6	122.1
cis-1,3-Dichloropropene		109.5	79.8	129.9
Dibromochloromethane		98.9	74.6	127.2
Dibromomethane		100.9	76.9	122.1
Dichlorodifluoromethane		66.0	10.0	222.8
Diethyl ether		110.5	67.4	121.2
trans-1,2-Dichloroethene		106.7	73.6	129.3
trans-1,3-Dichloropropene		110.7	74.0	131.3
trans-1,4-Dichloro-2-butene		97.6	68.6	135.4
Ethylbenzene		93.0	79.5	129.1
2-Hexanone		104.8	55.4	136.9
Hexachloroethane		99.9	23.8	138.1
p-Isopropyltoluene		92.8	79.8	137.5
Isopropylbenzene		90.7	74.4	121.5
2-Methylnaphthalene		100.1	25.5	165.5
4-Methyl-2-pentanone (MIBK)		102.8	71.6	125.2
tert-Methyl butyl ether (MTBE)		103.3	73.2	122.4
Methyl iodide		104.2	68.8	116.4
Methylene chloride		104.3	73.3	121.1
Naphthalene		88.0	32.9	135.8
n-Propylbenzene		93.6	82.0	130.7
Styrene		92.8	69.5	126.7
1,1,1,2-Tetrachloroethane		93.7	80.3	128.2
1,1,1-Trichloroethane		103.0	79.4	130.9
1,1,2,2-Tetrachloroethane		92.8	79.8	126.3
1,1,2-Trichloroethane		105.3	78.7	123.1
1,2,3-Trichlorobenzene		88.5	75.4	131.4
1,2,3-Trichloropropane		90.7	78.3	138.8
1,2,3-Trimethylbenzene		91.9	76.3	124.2
1,2,4-Trichlorobenzene		88.4	27.4	143.4
1,2,4-Trimethylbenzene		90.1	81.4	130.8
1,3,5-Trimethylbenzene		89.9	81.3	128.9
Tetrachloroethene		90.4	74.5	124.5
Tetrahydrofuran	*	122.1	59.0	117.9
Toluene		100.9	79.8	124.5
Trichloroethene		98.6	79.7	124.2
Trichlorofluoromethane		100.4	59.7	151.8
Vinyl chloride		99.7	43.5	149.1
o-Xylene		91.4	80.2	131.0

Organics - Volatiles, Prep Batch ID: VF210603W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 12:45, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
p,m-Xylene		91.8	79.4	132.2

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210603A7.LCSDW03A, Parent Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:08, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acetone		124.6	29.9	161.5	1.6	30.0
Acrylonitrile		128.1	69.9	128.9	3.8	30.0
2-Butanone (MEK)		125.2	44.0	134.4	4.1	30.0
Benzene		98.5	79.9	124.9	2.2	30.0
n-Butylbenzene		93.7	80.0	133.3	0.9	30.0
Bromobenzene		90.9	78.7	124.6	0.9	30.0
Bromochloromethane		105.5	78.2	120.8	2.2	30.0
Bromodichloromethane		102.3	80.4	128.2	0.7	30.0
Bromoform		100.5	69.4	128.0	3.7	30.0
Bromomethane		98.3	56.8	151.3	4.9	30.0
sec-Butylbenzene		92.0	77.4	129.8	0.7	30.0
tert-Butylbenzene		89.8	80.7	128.9	0.4	30.0
Carbon disulfide		92.9	63.8	137.4	6.8	30.0
Carbon tetrachloride		96.3	72.6	133.0	1.6	30.0
Chlorobenzene		92.8	79.2	122.7	1.2	30.0
Chloroethane		103.3	53.4	149.4	2.4	30.0
Chloroform		104.1	78.4	124.0	2.3	30.0
Chloromethane		96.6	23.8	166.5	4.0	30.0
1,1-Dichloroethane		105.7	71.5	126.2	2.7	30.0
1,1-Dichloroethene		100.7	69.6	139.4	1.5	30.0
1,2-Dibromo-3-chloropropane		98.2	21.2	189.4	7.3	30.0
1,2-Dibromoethane		97.5	70.3	133.7	1.4	30.0
1,2-Dichlorobenzene		90.9	10.0	166.2	0.4	30.0
1,2-Dichloroethane		95.7	76.0	126.3	0.6	30.0
1,2-Dichloropropane		102.7	78.6	126.4	2.1	30.0
1,3-Dichlorobenzene		91.2	77.0	131.3	2.3	30.0
1,4-Dichlorobenzene		91.6	20.7	137.7	1.6	30.0
cis-1,2-Dichloroethene		103.9	76.6	122.1	2.9	30.0
cis-1,3-Dichloropropene		109.1	79.8	129.9	0.4	30.0
Dibromochloromethane		99.5	74.6	127.2	0.6	30.0
Dibromomethane		100.4	76.9	122.1	0.5	30.0
Dichlorodifluoromethane		63.9	10.0	222.8	3.2	30.0
Diethyl ether		108.2	67.4	121.2	2.1	30.0
trans-1,2-Dichloroethene		102.9	73.6	129.3	3.6	30.0
trans-1,3-Dichloropropene		108.7	74.0	131.3	1.8	30.0
trans-1,4-Dichloro-2-butene		98.5	68.6	135.4	0.9	30.0
Ethylbenzene		92.1	79.5	129.1	1.0	30.0
2-Hexanone		111.8	55.4	136.9	6.5	30.0
Hexachloroethane		98.6	23.8	138.1	1.3	30.0
p-Isopropyltoluene		91.2	79.8	137.5	1.8	30.0

Organics - Volatiles, Prep Batch ID: VF210603W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 210603A7.LCSDW03A, Parent Sample ID: 210603A7.LCSW03A

Run in Batch: 210603A7, Run Date: 06/03/2021 13:08, Prep Date: 06/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isopropylbenzene		89.4	74.4	121.5	1.4	30.0
2-Methylnaphthalene		105.9	25.5	165.5	5.6	30.0
4-Methyl-2-pentanone (MIBK)		110.0	71.6	125.2	6.8	30.0
tert-Methyl butyl ether (MTBE)		102.9	73.2	122.4	0.3	30.0
Methyl iodide		101.9	68.8	116.4	2.3	30.0
Methylene chloride		101.4	73.3	121.1	2.8	30.0
Naphthalene		91.4	32.9	135.8	3.8	30.0
n-Propylbenzene		90.9	82.0	130.7	2.9	30.0
Styrene		92.3	69.5	126.7	0.6	30.0
1,1,1,2-Tetrachloroethane		92.3	80.3	128.2	1.5	30.0
1,1,1-Trichloroethane		100.8	79.4	130.9	2.2	30.0
1,1,2,2-Tetrachloroethane		96.0	79.8	126.3	3.3	30.0
1,1,2-Trichloroethane		106.6	78.7	123.1	1.3	30.0
1,2,3-Trichlorobenzene		90.9	75.4	131.4	2.7	30.0
1,2,3-Trichloropropane		94.3	78.3	138.8	3.9	30.0
1,2,3-Trimethylbenzene		91.3	76.3	124.2	0.7	30.0
1,2,4-Trichlorobenzene		87.8	27.4	143.4	0.6	30.0
1,2,4-Trimethylbenzene		89.6	81.4	130.8	0.5	30.0
1,3,5-Trimethylbenzene		89.1	81.3	128.9	0.9	30.0
Tetrachloroethene		87.9	74.5	124.5	2.8	30.0
Tetrahydrofuran	*	128.2	59.0	117.9	4.9	30.0
Toluene		99.4	79.8	124.5	1.6	30.0
Trichloroethene		96.5	79.7	124.2	2.1	30.0
Trichlorofluoromethane		96.9	59.7	151.8	3.6	30.0
Vinyl chloride		94.7	43.5	149.1	5.1	30.0
o-Xylene		90.0	80.2	131.0	1.6	30.0
p,m-Xylene		91.1	79.4	132.2	0.8	30.0

Merit Laboratories Login Checklist

Lab Set ID: S24859
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30075941.04700 / Racer Lansing
Submitted: 06/02/2021 17:00 Login User: REJ

Attention: Tiffany Linder
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

146472

CHAIN OF CUSTODY RECORD Plant 6

REPORT TO

CONTACT NAME: Tiffany Linder
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 248-994-2240 FAX NO.:
E-MAIL ADDRESS: Tiffany.Linder@arcadis.com
P.O. NO.: 30075941.04700
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30075941.04700 / RACER Lansing
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs 8260B SIMS										
24859.01	6/2/21	1020	MW-20-132_060221	GW	3		3						X										
.02	6/2/21	—	Dup-10_060221	GW	3		3						X										
.03	6/2/21	1155	MW-20-131_060221	GW	3		3						X										
.04	6/2/21	—	Trip Blank	L	1		1						X										

RELINQUISHED BY: SIGNATURE/ORGANIZATION [signature] / Arcadis ☒ Sampler DATE 6/2/21 TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION [signature] DATE 6/2/21 TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.6

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18

Analytical Laboratory Report

Report ID: S27813.01(01)+QC01
Generated on 09/07/2021

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Addtional Contacts: Alex Villhauer, Marina Samp, Kaitlyn Hunt

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S27813.01-S27813.04
Project: 30075941
Collected Date(s): 09/01/2021
Submitted Date/Time: 09/03/2021 08:15
Sampled by: Austin Westhuis
P.O. #: 30075941

Table of Contents

Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S27813.01	MW-20-131_090121	Groundwater	09/01/21 11:50
S27813.02	MW-20-132_090121	Groundwater	09/01/21 12:50
S27813.03	DUP-05_090121	Groundwater	09/01/21 00:01
S27813.04	Trip Blank	Water	09/01/21 00:01

Lab Sample ID: S27813.01
Sample Tag: MW-20-131_090121
Collected Date/Time: 09/01/2021 11:50
Matrix: Groundwater
COC Reference: 136905

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/07/21 12:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 20:01, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	6	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S27813.01 (continued)
Sample Tag: MW-20-131_090121

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 20:01, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	5	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S27813.02
Sample Tag: MW-20-132_090121
Collected Date/Time: 09/01/2021 12:50
Matrix: Groundwater
COC Reference: 136905

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/07/21 12:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 20:25, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	11	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	1	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S27813.02 (continued)
Sample Tag: MW-20-132_090121

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 20:25, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S27813.03
Sample Tag: DUP-05_090121
Collected Date/Time: 09/01/2021 00:01
Matrix: Groundwater
COC Reference: 136905

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/07/21 12:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 20:48, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	12	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	1	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S27813.03 (continued)
Sample Tag: DUP-05_090121

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 20:48, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	3	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S27813.04
Sample Tag: Trip Blank
Collected Date/Time: 09/01/2021 00:01
Matrix: Water
COC Reference: 136905

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	6.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/07/21 12:00	BML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 14:11, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S27813.04 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 09/03/21 14:11, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Quality Control Report

Report ID: S27813.01(01)+QC01
Generated on 09/07/2021

Report to

Attention: Tiffany Linder
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S27813.01-S27813.04
Project: 30075941
Submitted Date/Time: 09/03/2021 08:15
Sampled by: Austin Westhuis
P.O. #: 30075941

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S27813.01
Sample Tag: MW-20-131_090121
Collected Date/Time: 09/01/2021 11:50
Matrix: Groundwater
COC Reference: 136905

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 20:01	210903A7	VF210903W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S27813.02
Sample Tag: MW-20-132_090121
Collected Date/Time: 09/01/2021 12:50
Matrix: Groundwater
COC Reference: 136905

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 20:25	210903A7	VF210903W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S27813.03
Sample Tag: DUP-05_090121
Collected Date/Time: 09/01/2021 00:01
Matrix: Groundwater
COC Reference: 136905

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 20:48	210903A7	VF210903W1	Yes	BLK/LCS/LCSD

Lab Sample ID: S27813.04

Sample Tag: Trip Blank

Collected Date/Time: 09/01/2021 00:01

Matrix: Water

COC Reference: 136905

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 14:11	210903A7	VF210903W1	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF210903W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S27813.01	Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 20:01	210903A7
S27813.02	Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 20:25	210903A7
S27813.03	Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 20:48	210903A7
S27813.04	Volatile Organics - DEQ List	SW5030C/8260C	09/03/21 14:11	210903A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S27813.01

Sample Tag: MW-20-131_090121

Collected Date/Time: 09/01/2021 11:50

Matrix: Groundwater

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 20:01, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**106.8**	80.0	124.0
1,2-Dichloroethane-D4		**104.8**	72.0	125.0
Toluene-D8		**106.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S27813.02

Sample Tag: MW-20-132_090121

Collected Date/Time: 09/01/2021 12:50

Matrix: Groundwater

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 20:25, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**108.2**	80.0	124.0
1,2-Dichloroethane-D4		**96.8**	72.0	125.0
Toluene-D8		**106.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S27813.03

Sample Tag: DUP-05_090121

Collected Date/Time: 09/01/2021 00:01

Matrix: Groundwater

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 20:48, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**108.3**	80.0	124.0
1,2-Dichloroethane-D4		**99.7**	72.0	125.0
Toluene-D8		**107.6**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S27813.04

Sample Tag: Trip Blank

Collected Date/Time: 09/01/2021 00:01

Matrix: Water

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 14:11, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**107.5**	80.0	124.0
1,2-Dichloroethane-D4		**101.7**	72.0	125.0
Toluene-D8		**107.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF210903W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210903A7.BLKW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 13:48, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**105.8**	80.0	124.0
1,2-Dichloroethane-D4		**96.2**	72.0	125.0
Toluene-D8		**106.4**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:14, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**105.7**	80.0	124.0
1,2-Dichloroethane-D4		**93.9**	72.0	125.0
Toluene-D8		**105.5**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210903A7.LCSDW03A, Parent Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:38, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**106.0**	80.0	124.0
1,2-Dichloroethane-D4		**92.0**	72.0	125.0
Toluene-D8		**106.0**	89.0	112.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S27813.01

Sample Tag: MW-20-131_090121

Collected Date/Time: 09/01/2021 11:50

Matrix: Groundwater

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 20:01, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**62.3**	50.0	200.0
1,4-Difluorobenzene		**62.3**	50.0	200.0
Chlorobenzene-D5		**65.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**67.2**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S27813.02

Sample Tag: MW-20-132_090121

Collected Date/Time: 09/01/2021 12:50

Matrix: Groundwater

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 20:25, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**71.8**	50.0	200.0
1,4-Difluorobenzene		**70.5**	50.0	200.0
Chlorobenzene-D5		**71.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**72.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S27813.03

Sample Tag: DUP-05_090121

Collected Date/Time: 09/01/2021 00:01

Matrix: Groundwater

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 20:48, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**64.1**	50.0	200.0
1,4-Difluorobenzene		**63.0**	50.0	200.0
Chlorobenzene-D5		**65.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**66.8**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S27813.04

Sample Tag: Trip Blank

Collected Date/Time: 09/01/2021 00:01

Matrix: Water

COC Reference: 136905

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 210903A7, Run Date: 09/03/2021 14:11, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**78.4**	50.0	200.0
1,4-Difluorobenzene		**77.0**	50.0	200.0
Chlorobenzene-D5		**79.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**80.2**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF210903W1

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210903A7.BLKW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 13:48, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**80.4**	50.0	200.0
1,4-Difluorobenzene		**78.1**	50.0	200.0
Chlorobenzene-D5		**79.6**	50.0	200.0
1,4-Dichlorobenzene-D4		**79.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:14, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.3**	50.0	200.0
1,4-Difluorobenzene		**98.0**	50.0	200.0
Chlorobenzene-D5		**96.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**96.0**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210903A7.LCSDW03A, Parent Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:38, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**89.1**	50.0	200.0
1,4-Difluorobenzene		**87.0**	50.0	200.0
Chlorobenzene-D5		**87.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**86.8**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF210903W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 210903A7.BLKW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 13:48, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acetone		ND	10.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Benzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Bromoform		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Chloroform		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Diethyl ether		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
2-Hexanone		ND	10.00	ug/l
Hexachloroethane		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Methyl iodide		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF210903W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 210903A7.BLKW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 13:48, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Naphthalene		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Toluene		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:14, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acetone		87.1	29.9	161.5
Acrylonitrile		108.4	69.9	128.9
2-Butanone (MEK)		97.8	44.0	134.4
Benzene		105.2	79.9	124.9
n-Butylbenzene		91.7	80.0	133.3
Bromobenzene		98.7	78.7	124.6
Bromochloromethane		111.8	78.2	120.8
Bromodichloromethane		106.1	80.4	128.2
Bromoform		99.5	69.4	128.0
Bromomethane		106.4	56.8	151.3
sec-Butylbenzene		89.1	77.4	129.8
tert-Butylbenzene		95.0	80.7	128.9
Carbon disulfide		110.6	63.8	137.4
Carbon tetrachloride		101.3	72.6	133.0
Chlorobenzene		99.8	79.2	122.7
Chloroethane		105.3	53.4	149.4
Chloroform		112.4	78.4	124.0
Chloromethane		96.3	23.8	166.5
1,1-Dichloroethane		111.0	71.5	126.2
1,1-Dichloroethene		101.2	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF210903W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:14, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,2-Dibromo-3-chloropropane		89.6	21.2	189.4
1,2-Dibromoethane		95.1	70.3	133.7
1,2-Dichlorobenzene		93.8	10.0	166.2
1,2-Dichloroethane		100.7	76.0	126.3
1,2-Dichloropropane		107.2	78.6	126.4
1,3-Dichlorobenzene		93.5	77.0	131.3
1,4-Dichlorobenzene		93.1	20.7	137.7
cis-1,2-Dichloroethene		111.1	76.6	122.1
cis-1,3-Dichloropropene		109.1	79.8	129.9
Dibromochloromethane		99.1	74.6	127.2
Dibromomethane		103.5	76.9	122.1
Dichlorodifluoromethane		75.9	10.0	222.8
Diethyl ether		115.2	67.4	121.2
trans-1,2-Dichloroethene		107.8	73.6	129.3
trans-1,3-Dichloropropene		109.2	74.0	131.3
trans-1,4-Dichloro-2-butene		97.9	68.6	135.4
Ethylbenzene		99.3	79.5	129.1
2-Hexanone		99.7	55.4	136.9
Hexachloroethane		90.1	23.8	138.1
p-Isopropyltoluene		91.9	79.8	137.5
Isopropylbenzene		97.9	74.4	121.5
2-Methylnaphthalene		98.5	25.5	165.5
4-Methyl-2-pentanone (MIBK)		98.3	71.6	125.2
tert-Methyl butyl ether (MTBE)		109.9	73.2	122.4
Methyl iodide		110.0	68.8	116.4
Methylene chloride		108.8	73.3	121.1
Naphthalene		92.4	32.9	135.8
n-Propylbenzene		99.7	82.0	130.7
Styrene		102.7	69.5	126.7
1,1,1,2-Tetrachloroethane		99.8	80.3	128.2
1,1,1-Trichloroethane		106.9	79.4	130.9
1,1,2,2-Tetrachloroethane		97.2	79.8	126.3
1,1,2-Trichloroethane		110.2	78.7	123.1
1,2,3-Trichlorobenzene		92.2	75.4	131.4
1,2,3-Trichloropropane		99.6	78.3	138.8
1,2,3-Trimethylbenzene		91.7	76.3	124.2
1,2,4-Trichlorobenzene		93.2	27.4	143.4
1,2,4-Trimethylbenzene		100.4	81.4	130.8
1,3,5-Trimethylbenzene		99.6	81.3	128.9
Tetrachloroethene		106.6	74.5	124.5
Tetrahydrofuran		97.3	59.0	117.9
Toluene		108.9	79.8	124.5
Trichloroethene		102.6	79.7	124.2
Trichlorofluoromethane		95.3	59.7	151.8
Vinyl chloride		97.8	43.5	149.1
o-Xylene		99.4	80.2	131.0

Organics - Volatiles, Prep Batch ID: VF210903W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:14, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
p,m-Xylene		100.8	79.4	132.2

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 210903A7.LCSDW03A, Parent Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:38, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acetone		68.6	29.9	161.5	23.8	30.0
Acrylonitrile		101.9	69.9	128.9	6.2	30.0
2-Butanone (MEK)		96.0	44.0	134.4	1.9	30.0
Benzene		108.5	79.9	124.9	3.0	30.0
n-Butylbenzene		95.3	80.0	133.3	3.8	30.0
Bromobenzene		106.7	78.7	124.6	7.8	30.0
Bromochloromethane		118.3	78.2	120.8	5.7	30.0
Bromodichloromethane		111.7	80.4	128.2	5.1	30.0
Bromoform		107.5	69.4	128.0	7.7	30.0
Bromomethane		109.3	56.8	151.3	2.7	30.0
sec-Butylbenzene		92.7	77.4	129.8	4.0	30.0
tert-Butylbenzene		96.8	80.7	128.9	1.9	30.0
Carbon disulfide		110.4	63.8	137.4	0.2	30.0
Carbon tetrachloride		103.7	72.6	133.0	2.3	30.0
Chlorobenzene		102.9	79.2	122.7	3.1	30.0
Chloroethane		108.3	53.4	149.4	2.8	30.0
Chloroform		116.1	78.4	124.0	3.3	30.0
Chloromethane		99.0	23.8	166.5	2.8	30.0
1,1-Dichloroethane		114.1	71.5	126.2	2.8	30.0
1,1-Dichloroethene		103.8	69.6	139.4	2.5	30.0
1,2-Dibromo-3-chloropropane		94.0	21.2	189.4	4.8	30.0
1,2-Dibromoethane		102.7	70.3	133.7	7.6	30.0
1,2-Dichlorobenzene		100.1	10.0	166.2	6.5	30.0
1,2-Dichloroethane		108.0	76.0	126.3	6.9	30.0
1,2-Dichloropropane		112.6	78.6	126.4	4.9	30.0
1,3-Dichlorobenzene		100.3	77.0	131.3	6.9	30.0
1,4-Dichlorobenzene		98.6	20.7	137.7	5.8	30.0
cis-1,2-Dichloroethene		115.0	76.6	122.1	3.5	30.0
cis-1,3-Dichloropropene		116.3	79.8	129.9	6.4	30.0
Dibromochloromethane		104.6	74.6	127.2	5.4	30.0
Dibromomethane		110.9	76.9	122.1	6.9	30.0
Dichlorodifluoromethane		78.0	10.0	222.8	2.7	30.0
Diethyl ether	*	124.5	67.4	121.2	7.8	30.0
trans-1,2-Dichloroethene		109.1	73.6	129.3	1.1	30.0
trans-1,3-Dichloropropene		117.3	74.0	131.3	7.2	30.0
trans-1,4-Dichloro-2-butene		100.5	68.6	135.4	2.6	30.0
Ethylbenzene		102.1	79.5	129.1	2.8	30.0
2-Hexanone		108.1	55.4	136.9	8.0	30.0
Hexachloroethane		91.6	23.8	138.1	1.6	30.0
p-Isopropyltoluene		95.6	79.8	137.5	4.0	30.0

Organics - Volatiles, Prep Batch ID: VF210903W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 210903A7.LCSDW03A, Parent Sample ID: 210903A7.LCSW03A

Run in Batch: 210903A7, Run Date: 09/03/2021 12:38, Prep Date: 09/03/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isopropylbenzene		101.3	74.4	121.5	3.4	30.0
2-Methylnaphthalene		106.1	25.5	165.5	7.4	30.0
4-Methyl-2-pentanone (MIBK)		103.9	71.6	125.2	5.5	30.0
tert-Methyl butyl ether (MTBE)		117.3	73.2	122.4	6.5	30.0
Methyl iodide		115.6	68.8	116.4	5.0	30.0
Methylene chloride		112.6	73.3	121.1	3.4	30.0
Naphthalene		96.9	32.9	135.8	4.8	30.0
n-Propylbenzene		102.9	82.0	130.7	3.2	30.0
Styrene		107.8	69.5	126.7	4.8	30.0
1,1,1,2-Tetrachloroethane		105.1	80.3	128.2	5.2	30.0
1,1,1-Trichloroethane		109.9	79.4	130.9	2.7	30.0
1,1,2,2-Tetrachloroethane		102.7	79.8	126.3	5.5	30.0
1,1,2-Trichloroethane		117.1	78.7	123.1	6.1	30.0
1,2,3-Trichlorobenzene		99.0	75.4	131.4	7.1	30.0
1,2,3-Trichloropropane		104.3	78.3	138.8	4.6	30.0
1,2,3-Trimethylbenzene		97.1	76.3	124.2	5.8	30.0
1,2,4-Trichlorobenzene		98.2	27.4	143.4	5.3	30.0
1,2,4-Trimethylbenzene		104.4	81.4	130.8	3.9	30.0
1,3,5-Trimethylbenzene		102.7	81.3	128.9	3.1	30.0
Tetrachloroethene		109.2	74.5	124.5	2.4	30.0
Tetrahydrofuran		94.3	59.0	117.9	3.1	30.0
Toluene		112.7	79.8	124.5	3.4	30.0
Trichloroethene		105.4	79.7	124.2	2.7	30.0
Trichlorofluoromethane		98.6	59.7	151.8	3.4	30.0
Vinyl chloride		99.4	43.5	149.1	1.6	30.0
o-Xylene		102.7	80.2	131.0	3.2	30.0
p,m-Xylene		103.4	79.4	132.2	2.5	30.0

Merit Laboratories Login Checklist

Lab Set ID: S27813
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30075941
Submitted: 09/03/2021 08:15 Login User: MMC

Attention: Tiffany Linder
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: 248-994-2272 FAX:
Email: tiffany.linder@arcadis-us.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 6.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[X] Yes	[ ] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[X] Yes	[ ] No	[ ] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Plant 6

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

136905

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Kaitlyn Hunt
COMPANY: Arcadis
ADDRESS: 28550 Cabot Drive, Suite 500
CITY: Novi STATE: MI ZIP CODE: 48377
PHONE NO.: 947-777-5215 FAX NO.: —
P.O. NO.: 30075941
E-MAIL ADDRESS: Kaitlyn.Hunt@arcadis.com
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30075941
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Austin Westhuis / [signature]

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG. IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs 8260B-SIMS
27813.01	9/1/21	1150	MW-20-131_090121	GW	3		3						X
.02	9/1/21	1250	MW-20-132_090121	GW	3		3						X
.03	9/1/21	—	Dup-05_090121	GW	3		3						X
.04	9/1/21	—	Trip Blank	GW	1		1						X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [signature] / Arcadis ☒ Sampler DATE: 9/2/21 TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: TIME:
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: TIME:

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit Drop Box DATE: 9/3/21 TIME: 0815
RECEIVED BY: SIGNATURE/ORGANIZATION: M [illegible] DATE: 9/3/21 TIME: 0815

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL: 6.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Supplemental Report

Report ID: S30821.03(02)+QC01
Generated on 04/25/2022
Replaces report S30821.03(01)

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Addtional Contacts: Alex Villhauer, Marina Samp, Tiffany Linder

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S30821.03-S30821.04
Project: 30075941.04700 / RACER Lansing (Plant 6)
Collected Date(s): 11/30/2021
Submitted Date/Time: 12/02/2021 08:15
Sampled by: Billy Cobern
P.O. #: 30075941.04700

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein, acrylonitrile, and 2-chlorovinylethyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

Samples .03 and .04 only reported per client request

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S30821.03	MW-20-132_113021	Groundwater	11/30/21 15:00
S30821.04	MW-20-131_113021	Groundwater	11/30/21 16:15

Lab Sample ID: S30821.03
Sample Tag: MW-20-132_113021
Collected Date/Time: 11/30/2021 15:00
Matrix: Groundwater
COC Reference: 137966

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	12/03/21 08:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/02/21 18:07, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	7	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S30821.03 (continued)

Sample Tag: MW-20-132_113021

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/02/21 18:07, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	2	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Lab Sample ID: S30821.04
Sample Tag: MW-20-131_113021
Collected Date/Time: 11/30/2021 16:15
Matrix: Groundwater
COC Reference: 137966

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	12/03/21 08:15	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/02/21 18:26, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	Not detected	50		ug/L	1	67-64-1	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Benzene	Not detected	1		ug/L	1	71-43-2	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Bromoform	Not detected	1		ug/L	1	75-25-2	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
cis-1,2-Dichloroethene	3	1		ug/L	1	156-59-2	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	

Lab Sample ID: S30821.04 (continued)

Sample Tag: MW-20-131_113021

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 12/02/21 18:26, Analyst: KAG (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Styrene	Not detected	1		ug/L	1	100-42-5	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
Tetrahydrofuran*	Not detected	90		ug/L	1	109-99-9	
Toluene	Not detected	1		ug/L	1	108-88-3	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
Vinyl chloride	2	1		ug/L	1	75-01-4	
o-Xylene	Not detected	1		ug/L	1	95-47-6	
p,m-Xylene*	Not detected	2		ug/L	1		

Quality Control Report

Report ID: S30821.03(02)+QC01
Generated on 12/13/2021

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S30821.01-S30821.15
Project: 30075941.04700 / RACER Lansing (Plant 6)
Submitted Date/Time: 12/02/2021 08:15
Sampled by: Billy Cobern
P.O. #: 30075941.04700

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S30821.01

Sample Tag: MW-12-13_113021

Collected Date/Time: 11/30/2021 12:05

Matrix: Groundwater

COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	12/08/21 12:45	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Chromium	E200.8	12/08/21 12:45	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Copper	E200.8	12/08/21 12:45	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Lead	E200.8	12/08/21 12:45	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Nickel	E200.8	12/08/21 12:45	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Vanadium	E200.8	12/08/21 12:45	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD

Lab Sample ID: S30821.02

Sample Tag: MW-13-36R_113021

Collected Date/Time: 11/30/2021 13:05

Matrix: Groundwater

COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Metals						
Arsenic	E200.8	12/08/21 12:47	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Chromium	E200.8	12/08/21 12:47	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Copper	E200.8	12/08/21 12:47	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Lead	E200.8	12/08/21 12:47	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Nickel	E200.8	12/08/21 12:47	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD
Vanadium	E200.8	12/08/21 12:47	MT4-21-1208A	MTD-120821-2	No	BLK/LCS/MS/MSD

Lab Sample ID: S30821.03
Sample Tag: MW-20-132_113021
Collected Date/Time: 11/30/2021 15:00
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 18:07	211202A9	VF211202W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.04
Sample Tag: MW-20-131_113021
Collected Date/Time: 11/30/2021 16:15
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 18:26	211202A9	VF211202W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.05
Sample Tag: DUP-10_113021
Collected Date/Time: 11/30/2021 00:01
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 18:46	211202A9	VF211202W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.06
Sample Tag: MW-21-141_120121
Collected Date/Time: 12/01/2021 09:40
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/10/21 23:49	211210B9	VS211210W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.07
Sample Tag: DUP-12_120121
Collected Date/Time: 12/01/2021 00:01
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/11/21 00:09	211210B9	VS211210W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.08
Sample Tag: MW-03-06_120121
Collected Date/Time: 12/01/2021 10:50
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/11/21 00:29	211210B9	VS211210W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.09
Sample Tag: MW-03-05_120121
Collected Date/Time: 12/01/2021 12:00
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/11/21 00:49	211210B9	VS211210W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.10

Sample Tag: DUP-09_120121

Collected Date/Time: 12/01/2021 00:01

Matrix: Groundwater

COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/11/21 01:10	211210B9	VS211210W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.11
Sample Tag: MW-13-52_120121
Collected Date/Time: 12/01/2021 13:20
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/11/21 01:30	211210B9	VS211210W2	Yes	BLK/LCS/LCSD

Lab Sample ID: S30821.12
Sample Tag: MW-13-53_120121
Collected Date/Time: 12/01/2021 15:40
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/10/21 16:52	211210A9	VS211210W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S30821.13
Sample Tag: MW-13-53_120121 MS
Collected Date/Time: 12/01/2021 15:40
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/10/21 12:49	211210A9	VS211210W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S30821.14
Sample Tag: MW-13-53_120121 MSD
Collected Date/Time: 12/01/2021 15:40
Matrix: Groundwater
COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	12/10/21 13:10	211210A9	VS211210W1	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S30821.15

Sample Tag: Trip Blank

Collected Date/Time: 12/01/2021 00:01

Matrix: Liquid

COC Reference: 137966

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 15:35	211202A9	VF211202W2	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Metals, Prep Batch ID: MTD-120821-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S30821.01	Arsenic	E200.8	12/08/21 12:45	MT4-21-1208A
S30821.01	Chromium	E200.8	12/08/21 12:45	MT4-21-1208A
S30821.01	Copper	E200.8	12/08/21 12:45	MT4-21-1208A
S30821.01	Lead	E200.8	12/08/21 12:45	MT4-21-1208A
S30821.01	Nickel	E200.8	12/08/21 12:45	MT4-21-1208A
S30821.01	Vanadium	E200.8	12/08/21 12:45	MT4-21-1208A
S30821.02	Arsenic	E200.8	12/08/21 12:47	MT4-21-1208A
S30821.02	Chromium	E200.8	12/08/21 12:47	MT4-21-1208A
S30821.02	Copper	E200.8	12/08/21 12:47	MT4-21-1208A
S30821.02	Lead	E200.8	12/08/21 12:47	MT4-21-1208A
S30821.02	Nickel	E200.8	12/08/21 12:47	MT4-21-1208A
S30821.02	Vanadium	E200.8	12/08/21 12:47	MT4-21-1208A

Organics - Volatiles, Prep Batch ID: VF211202W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S30821.03	Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 18:07	211202A9
S30821.04	Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 18:26	211202A9
S30821.05	Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 18:46	211202A9
S30821.15	Volatile Organics - DEQ List	SW5030C/8260C	12/02/21 15:35	211202A9

Organics - Volatiles, Prep Batch ID: VS211210W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S30821.12	1,4-Dioxane	SW8260B - SIM	12/10/21 16:52	211210A9
S30821.13	1,4-Dioxane	SW8260B - SIM	12/10/21 12:49	211210A9
S30821.14	1,4-Dioxane	SW8260B - SIM	12/10/21 13:10	211210A9

Organics - Volatiles, Prep Batch ID: VS211210W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S30821.06	1,4-Dioxane	SW8260B - SIM	12/10/21 23:49	211210B9
S30821.07	1,4-Dioxane	SW8260B - SIM	12/11/21 00:09	211210B9
S30821.08	1,4-Dioxane	SW8260B - SIM	12/11/21 00:29	211210B9
S30821.09	1,4-Dioxane	SW8260B - SIM	12/11/21 00:49	211210B9
S30821.10	1,4-Dioxane	SW8260B - SIM	12/11/21 01:10	211210B9
S30821.11	1,4-Dioxane	SW8260B - SIM	12/11/21 01:30	211210B9

QC Report - Surrogates per Lab Sample

Lab Sample ID: S30821.03

Sample Tag: MW-20-132_113021

Collected Date/Time: 11/30/2021 15:00

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 18:07, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.8**	80.0	124.0
1,2-Dichloroethane-D4		**107.2**	72.0	125.0
Toluene-D8		**99.8**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S30821.04

Sample Tag: MW-20-131_113021

Collected Date/Time: 11/30/2021 16:15

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 18:26, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**101.3**	80.0	124.0
1,2-Dichloroethane-D4		**111.2**	72.0	125.0
Toluene-D8		**100.0**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S30821.05

Sample Tag: DUP-10_113021

Collected Date/Time: 11/30/2021 00:01

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 18:46, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**93.2**	80.0	124.0
1,2-Dichloroethane-D4		**109.7**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S30821.15

Sample Tag: Trip Blank

Collected Date/Time: 12/01/2021 00:01

Matrix: Liquid

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 15:35, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
4-Bromofluorobenzene		**91.7**	80.0	124.0
1,2-Dichloroethane-D4		**100.3**	72.0	125.0
Toluene-D8		**99.6**	89.0	112.0

Organics - Volatiles, Prep Batch ID: VF211202W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 211202A9.BLKW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 13:47, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**92.7**	80.0	124.0
1,2-Dichloroethane-D4		**105.7**	72.0	125.0
Toluene-D8		**100.2**	89.0	112.0

Blank (BLK)

Lab Sample ID: 211202B9.BLKW02A

Run in Batch: 211202B9, Run Date: 12/02/2021 13:47, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
Toluene-D8		**99.1**	86.0	118.0

Laboratory Control Sample (LCS)

Lab Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:31, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**95.3**	80.0	124.0
1,2-Dichloroethane-D4		**103.7**	72.0	125.0
Toluene-D8		**100.4**	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 211202B9.LCSG02A

Run in Batch: 211202B9, Run Date: 12/02/2021 13:09, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
Toluene-D8		**98.6**	86.0	118.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211202A9.LCSDW02A, Parent Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:50, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		**96.0**	80.0	124.0
1,2-Dichloroethane-D4		**103.4**	72.0	125.0
Toluene-D8		**100.5**	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211202B9.LCSDG02A, Parent Sample ID: 211202B9.LCSG02A

Run in Batch: 211202B9, Run Date: 12/02/2021 13:28, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
Toluene-D8		**99.9**	86.0	118.0

Organics - Volatiles, Prep Batch ID: VS211210W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 211210A9.BLKW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 16:31, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 211210A9.LCSW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 12:08, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211210A9.LCSDW10A, Parent Sample ID: 211210A9.LCSW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 12:29, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 211210A9.3082113M, Parent Sample ID: S30821.12

Run in Batch: 211210A9, Run Date: 12/10/2021 12:49, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 211210A9.3082404R, Parent Sample ID: S30824.03

Run in Batch: 211210A9, Run Date: 12/10/2021 15:31, Prep Date: 12/10/2021, Matrix: WW, Dilution: 10

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 211210A9.3102906M, Parent Sample ID: S31029.05

Run in Batch: 211210A9, Run Date: 12/10/2021 14:10, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 211210A9.3103104M, Parent Sample ID: S31031.03

Run in Batch: 211210A9, Run Date: 12/10/2021 14:51, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3082114N, Parent Sample ID: 211210A9.3082113M

Run in Batch: 211210A9, Run Date: 12/10/2021 13:10, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
No Surrogates				

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3082405R, Parent Sample ID: 211210A9.3082404R

Run in Batch: 211210A9, Run Date: 12/10/2021 15:51, Prep Date: 12/10/2021, Matrix: WW, Dilution: 10

Surrogate	Flags	**%Rec**	LCL	UCL
No Surrogates				

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3102907N, Parent Sample ID: 211210A9.3102906M

Run in Batch: 211210A9, Run Date: 12/10/2021 14:30, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
No Surrogates				

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3103105N, Parent Sample ID: 211210A9.3103104M

Run in Batch: 211210A9, Run Date: 12/10/2021 15:11, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	**%Rec**	LCL	UCL
No Surrogates				

Organics - Volatiles, Prep Batch ID: VS211210W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 211210B9.BLKW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 23:29, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 211210B9.LCSW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 22:28, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211210B9.LCSDW10B, Parent Sample ID: 211210B9.LCSW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 22:48, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S30821.03

Sample Tag: MW-20-132_113021

Collected Date/Time: 11/30/2021 15:00

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 18:07, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**99.8**	50.0	200.0
1,4-Difluorobenzene		**102.6**	50.0	200.0
Chlorobenzene-D5		**104.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**103.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S30821.04

Sample Tag: MW-20-131_113021

Collected Date/Time: 11/30/2021 16:15

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 18:26, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**100.2**	50.0	200.0
1,4-Difluorobenzene		**102.9**	50.0	200.0
Chlorobenzene-D5		**105.5**	50.0	200.0
1,4-Dichlorobenzene-D4		**106.5**	50.0	200.0

Lab Sample ID: S30821.05

Sample Tag: DUP-10_113021

Collected Date/Time: 11/30/2021 00:01

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 18:46, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**103.0**	50.0	200.0
1,4-Difluorobenzene		**103.7**	50.0	200.0
Chlorobenzene-D5		**107.7**	50.0	200.0
1,4-Dichlorobenzene-D4		**108.9**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S30821.06

Sample Tag: MW-21-141_120121

Collected Date/Time: 12/01/2021 09:40

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210B9, Run Date: 12/10/2021 23:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**96.9**	50.0	200.0
1,4-Dioxane-D8		**98.6**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**80.8**	50.0	200.0

Lab Sample ID: S30821.07

Sample Tag: DUP-12_120121

Collected Date/Time: 12/01/2021 00:01

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210B9, Run Date: 12/11/2021 00:09, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**96.5**	50.0	200.0
1,4-Dioxane-D8		**94.4**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**82.5**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S30821.08

Sample Tag: MW-03-06_120121

Collected Date/Time: 12/01/2021 10:50

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210B9, Run Date: 12/11/2021 00:29, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**98.6**	50.0	200.0
1,4-Dioxane-D8		**99.0**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**84.5**	50.0	200.0

Lab Sample ID: S30821.09

Sample Tag: MW-03-05_120121

Collected Date/Time: 12/01/2021 12:00

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210B9, Run Date: 12/11/2021 00:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**97.8**	50.0	200.0
1,4-Dioxane-D8		**97.2**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**90.0**	50.0	200.0

Lab Sample ID: S30821.10

Sample Tag: DUP-09_120121

Collected Date/Time: 12/01/2021 00:01

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210B9, Run Date: 12/11/2021 01:10, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**97.7**	50.0	200.0
1,4-Dioxane-D8		**99.4**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**94.6**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S30821.11

Sample Tag: MW-13-52_120121

Collected Date/Time: 12/01/2021 13:20

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210B9, Run Date: 12/11/2021 01:30, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**98.7**	50.0	200.0
1,4-Dioxane-D8		**96.8**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**82.0**	50.0	200.0

Lab Sample ID: S30821.12

Sample Tag: MW-13-53_120121

Collected Date/Time: 12/01/2021 15:40

Matrix: Groundwater

COC Reference: 137966

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 211210A9, Run Date: 12/10/2021 16:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**91.2**	50.0	200.0
1,4-Dioxane-D8		**110.2**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**73.1**	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S30821.15

Sample Tag: Trip Blank

Collected Date/Time: 12/01/2021 00:01

Matrix: Liquid

COC Reference: 137966

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 211202A9, Run Date: 12/02/2021 15:35, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
Pentafluorobenzene		**96.6**	50.0	200.0
1,4-Difluorobenzene		**96.6**	50.0	200.0
Chlorobenzene-D5		**96.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**94.6**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VF211202W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 211202A9.BLKW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 13:47, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.0**	50.0	200.0
1,4-Difluorobenzene		**98.8**	50.0	200.0
Chlorobenzene-D5		**99.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**100.4**	50.0	200.0

Blank (BLK)

Lab Sample ID: 211202B9.BLKW02A

Run in Batch: 211202B9, Run Date: 12/02/2021 13:47, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Difluorobenzene		**101.0**	50.0	200.0
Chlorobenzene-D5		**101.3**	50.0	200.0
1,4-Dichlorobenzene-D4		**98.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:31, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**100.4**	50.0	200.0
1,4-Difluorobenzene		**100.1**	50.0	200.0
Chlorobenzene-D5		**100.2**	50.0	200.0
1,4-Dichlorobenzene-D4		**101.3**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 211202B9.LCSG02A

Run in Batch: 211202B9, Run Date: 12/02/2021 13:09, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Difluorobenzene		**101.4**	50.0	200.0
Chlorobenzene-D5		**106.0**	50.0	200.0
1,4-Dichlorobenzene-D4		**110.2**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211202A9.LCSDW02A, Parent Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:50, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		**97.1**	50.0	200.0
1,4-Difluorobenzene		**96.1**	50.0	200.0
Chlorobenzene-D5		**96.1**	50.0	200.0
1,4-Dichlorobenzene-D4		**97.1**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211202B9.LCSDG02A, Parent Sample ID: 211202B9.LCSG02A

Run in Batch: 211202B9, Run Date: 12/02/2021 13:28, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	**%Rec**	LCL	UCL
1,4-Difluorobenzene		**99.6**	50.0	200.0
Chlorobenzene-D5		**99.9**	50.0	200.0
1,4-Dichlorobenzene-D4		**95.8**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS211210W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 211210A9.BLKW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 16:31, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**85.3**	50.0	200.0
1,4-Dioxane-D8		**95.9**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**69.9**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 211210A9.LCSW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 12:08, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**104.5**	50.0	200.0
1,4-Dioxane-D8		**126.3**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**92.4**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211210A9.LCSDW10A, Parent Sample ID: 211210A9.LCSW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 12:29, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**109.7**	50.0	200.0
1,4-Dioxane-D8		**125.3**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**108.6**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3082113M, Parent Sample ID: S30821.12

Run in Batch: 211210A9, Run Date: 12/10/2021 12:49, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**97.2**	50.0	200.0
1,4-Dioxane-D8		**102.9**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**92.7**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3082404R, Parent Sample ID: S30824.03

Run in Batch: 211210A9, Run Date: 12/10/2021 15:31, Prep Date: 12/10/2021, Matrix: WW, Dilution: 10

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**93.1**	50.0	200.0
1,4-Dioxane-D8		**109.8**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**74.1**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3102906M, Parent Sample ID: S31029.05

Run in Batch: 211210A9, Run Date: 12/10/2021 14:10, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**92.2**	50.0	200.0
1,4-Dioxane-D8		**99.8**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**78.0**	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3103104M, Parent Sample ID: S31031.03

Run in Batch: 211210A9, Run Date: 12/10/2021 14:51, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**93.1**	50.0	200.0
1,4-Dioxane-D8		**101.7**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**76.3**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3082114N, Parent Sample ID: 211210A9.3082113M

Run in Batch: 211210A9, Run Date: 12/10/2021 13:10, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**92.6**	50.0	200.0
1,4-Dioxane-D8		**100.3**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**77.9**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3082405R, Parent Sample ID: 211210A9.3082404R

Run in Batch: 211210A9, Run Date: 12/10/2021 15:51, Prep Date: 12/10/2021, Matrix: WW, Dilution: 10

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**92.1**	50.0	200.0
1,4-Dioxane-D8		**103.9**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**74.1**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3102907N, Parent Sample ID: 211210A9.3102906M

Run in Batch: 211210A9, Run Date: 12/10/2021 14:30, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**91.3**	50.0	200.0
1,4-Dioxane-D8		**103.1**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**75.0**	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3103105N, Parent Sample ID: 211210A9.3103104M

Run in Batch: 211210A9, Run Date: 12/10/2021 15:11, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**84.7**	50.0	200.0
1,4-Dioxane-D8		**102.2**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**72.1**	50.0	200.0

Organics - Volatiles, Prep Batch ID: VS211210W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 211210B9.BLKW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 23:29, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**87.9**	50.0	200.0
1,4-Dioxane-D8		**83.1**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**95.2**	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 211210B9.LCSW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 22:28, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**91.0**	50.0	200.0
1,4-Dioxane-D8		**97.4**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**86.5**	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211210B9.LCSDW10B, Parent Sample ID: 211210B9.LCSW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 22:48, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,2-DIBROMOETHANE-D4 (I)		**96.2**	50.0	200.0
1,4-Dioxane-D8		**107.7**	50.0	200.0
1,2-DIBROMO-3-CHLOROPROPANE-C3 (I)		**88.9**	50.0	200.0

Metals, Prep Batch ID: MTD-120821-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-21-1208A.022.LRB

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 12:38, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Nickel		ND	0.001	mg/L
Vanadium		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-21-1208A.020.LCS

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 12:34, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		100	85	115
Chromium		105	85	115
Copper		101	85	115
Lead		96	85	115
Nickel		104	85	115
Vanadium		105	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-21-1208A.035.MS, Parent Sample ID: S30875.04

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 13:07, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	75	125
Chromium		106	75	125
Copper		103	75	125
Lead		96	75	125
Nickel		104	75	125
Vanadium		108	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-21-1208A.050.MS, Parent Sample ID: S30880.04

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 13:35, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		104	75	125
Chromium		104	75	125
Copper		90	75	125
Lead		87	75	125
Nickel		95	75	125
Vanadium		110	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-21-1208A.036.MSD, Parent Sample ID: MT4-21-1208A.035.MS

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 13:08, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		100	75	125	1	20
Chromium		102	75	125	5	20

Metals, Prep Batch ID: MTD-120821-2 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: MT4-21-1208A.036.MSD, Parent Sample ID: MT4-21-1208A.035.MS

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 13:08, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Copper		101	75	125	1	20
Lead		97	75	125	1	20
Nickel		104	75	125	0	20
Vanadium		104	75	125	4	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-21-1208A.051.MSD, Parent Sample ID: MT4-21-1208A.050.MS

Run in Batch: MT4-21-1208A, Run Date: 12/08/2021 13:36, Prep Date: 12/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		102	75	125	2	20
Chromium		98	75	125	2	20
Copper		87	75	125	3	20
Lead		87	75	125	0	20
Nickel		91	75	125	4	20
Vanadium		108	75	125	1	20

Organics - Volatiles, Prep Batch ID: VF211202W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 211202A9.BLKW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 13:47, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Acetone		ND	10.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Benzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Bromoform		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Chloroform		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Diethyl ether		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
2-Hexanone		ND	10.00	ug/l
Hexachloroethane		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Methyl iodide		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF211202W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 211202A9.BLKW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 13:47, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Naphthalene		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Toluene		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
o-Xylene		ND	1.00	ug/l
p,m-Xylene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:31, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Acetone		104.5	29.9	161.5
Acrylonitrile		108.6	69.9	128.9
2-Butanone (MEK)		103.8	44.0	134.4
Benzene		98.2	79.9	124.9
n-Butylbenzene		94.0	80.0	133.3
Bromobenzene		93.4	78.7	124.6
Bromochloromethane		101.6	78.2	120.8
Bromodichloromethane		100.1	80.4	128.2
Bromoform		95.4	69.4	128.0
Bromomethane		107.5	56.8	151.3
sec-Butylbenzene		96.9	77.4	129.8
tert-Butylbenzene		92.4	80.7	128.9
Carbon disulfide		92.8	63.8	137.4
Carbon tetrachloride		95.6	72.6	133.0
Chlorobenzene		96.6	79.2	122.7
Chloroethane		108.3	53.4	149.4
Chloroform		100.9	78.4	124.0
Chloromethane		108.2	23.8	166.5
1,1-Dichloroethane		100.4	71.5	126.2
1,1-Dichloroethene		96.1	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF211202W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:31, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,2-Dibromo-3-chloropropane		93.4	21.2	189.4
1,2-Dibromoethane		98.5	70.3	133.7
1,2-Dichlorobenzene		92.5	10.0	166.2
1,2-Dichloroethane		97.3	76.0	126.3
1,2-Dichloropropane		101.7	78.6	126.4
1,3-Dichlorobenzene		98.3	77.0	131.3
1,4-Dichlorobenzene		97.3	20.7	137.7
cis-1,2-Dichloroethene		98.6	76.6	122.1
cis-1,3-Dichloropropene		101.5	79.8	129.9
Dibromochloromethane		101.6	74.6	127.2
Dibromomethane		99.4	76.9	122.1
Dichlorodifluoromethane		87.2	10.0	222.8
Diethyl ether		120.6	67.4	121.2
trans-1,2-Dichloroethene		99.2	73.6	129.3
trans-1,3-Dichloropropene		100.0	74.0	131.3
trans-1,4-Dichloro-2-butene		128.5	68.6	135.4
Ethylbenzene		96.4	79.5	129.1
2-Hexanone		104.6	55.4	136.9
Hexachloroethane		91.7	23.8	138.1
p-Isopropyltoluene		99.7	79.8	137.5
Isopropylbenzene		92.9	74.4	121.5
2-Methylnaphthalene		87.8	25.5	165.5
4-Methyl-2-pentanone (MIBK)		102.4	71.6	125.2
tert-Methyl butyl ether (MTBE)		105.1	73.2	122.4
Methyl iodide		101.3	68.8	116.4
Methylene chloride		97.2	73.3	121.1
Naphthalene		84.4	32.9	135.8
n-Propylbenzene		92.4	82.0	130.7
Styrene		100.2	69.5	126.7
1,1,1,2-Tetrachloroethane		101.2	80.3	128.2
1,1,1-Trichloroethane		97.4	79.4	130.9
1,1,2,2-Tetrachloroethane		89.3	79.8	126.3
1,1,2-Trichloroethane		102.4	78.7	123.1
1,2,3-Trichlorobenzene		83.6	75.4	131.4
1,2,3-Trichloropropane		93.3	78.3	138.8
1,2,3-Trimethylbenzene		103.4	76.3	124.2
1,2,4-Trichlorobenzene		83.4	27.4	143.4
1,2,4-Trimethylbenzene		97.3	81.4	130.8
1,3,5-Trimethylbenzene		98.0	81.3	128.9
Tetrachloroethene		94.0	74.5	124.5
Tetrahydrofuran		102.0	59.0	117.9
Toluene		97.7	79.8	124.5
Trichloroethene		97.9	79.7	124.2
Trichlorofluoromethane		103.1	59.7	151.8
Vinyl chloride		104.5	43.5	149.1
o-Xylene		98.6	80.2	131.0

Organics - Volatiles, Prep Batch ID: VF211202W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:31, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
p,m-Xylene		97.3	79.4	132.2

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211202A9.LCSDW02A, Parent Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:50, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Acetone		100.4	29.9	161.5	4.0	30.0
Acrylonitrile		103.6	69.9	128.9	4.7	30.0
2-Butanone (MEK)		102.8	44.0	134.4	0.9	30.0
Benzene		98.3	79.9	124.9	0.2	30.0
n-Butylbenzene		103.5	80.0	133.3	9.6	30.0
Bromobenzene		94.0	78.7	124.6	0.6	30.0
Bromochloromethane		99.9	78.2	120.8	1.7	30.0
Bromodichloromethane		100.1	80.4	128.2	0.0	30.0
Bromoform		108.6	69.4	128.0	13.0	30.0
Bromomethane		106.2	56.8	151.3	1.2	30.0
sec-Butylbenzene		95.1	77.4	129.8	1.9	30.0
tert-Butylbenzene		92.5	80.7	128.9	0.2	30.0
Carbon disulfide		90.1	63.8	137.4	2.9	30.0
Carbon tetrachloride		92.8	72.6	133.0	3.0	30.0
Chlorobenzene		96.7	79.2	122.7	0.1	30.0
Chloroethane		103.8	53.4	149.4	4.2	30.0
Chloroform		98.3	78.4	124.0	2.7	30.0
Chloromethane		107.1	23.8	166.5	1.0	30.0
1,1-Dichloroethane		98.3	71.5	126.2	2.1	30.0
1,1-Dichloroethene		91.8	69.6	139.4	4.6	30.0
1,2-Dibromo-3-chloropropane		108.1	21.2	189.4	14.6	30.0
1,2-Dibromoethane		101.5	70.3	133.7	2.9	30.0
1,2-Dichlorobenzene		95.4	10.0	166.2	3.1	30.0
1,2-Dichloroethane		98.3	76.0	126.3	1.0	30.0
1,2-Dichloropropane		102.8	78.6	126.4	1.0	30.0
1,3-Dichlorobenzene		101.2	77.0	131.3	2.9	30.0
1,4-Dichlorobenzene		97.8	20.7	137.7	0.5	30.0
cis-1,2-Dichloroethene		98.9	76.6	122.1	0.4	30.0
cis-1,3-Dichloropropene		101.3	79.8	129.9	0.1	30.0
Dibromochloromethane		100.7	74.6	127.2	0.8	30.0
Dibromomethane		100.0	76.9	122.1	0.6	30.0
Dichlorodifluoromethane		84.8	10.0	222.8	2.8	30.0
Diethyl ether	*	126.4	67.4	121.2	4.6	30.0
trans-1,2-Dichloroethene		97.2	73.6	129.3	2.0	30.0
trans-1,3-Dichloropropene		101.7	74.0	131.3	1.7	30.0
trans-1,4-Dichloro-2-butene		125.4	68.6	135.4	2.4	30.0
Ethylbenzene		106.1	79.5	129.1	9.6	30.0
2-Hexanone		104.6	55.4	136.9	0.0	30.0
Hexachloroethane		91.5	23.8	138.1	0.3	30.0
p-Isopropyltoluene		102.6	79.8	137.5	2.9	30.0

Organics - Volatiles, Prep Batch ID: VF211202W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 211202A9.LCSDW02A, Parent Sample ID: 211202A9.LCSW02A

Run in Batch: 211202A9, Run Date: 12/02/2021 12:50, Prep Date: 12/02/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Isopropylbenzene		109.0	74.4	121.5	16.0	30.0
2-Methylnaphthalene		92.3	25.5	165.5	5.0	30.0
4-Methyl-2-pentanone (MIBK)		102.2	71.6	125.2	0.1	30.0
tert-Methyl butyl ether (MTBE)		104.3	73.2	122.4	0.8	30.0
Methyl iodide		98.1	68.8	116.4	3.2	30.0
Methylene chloride		94.5	73.3	121.1	2.8	30.0
Naphthalene		92.0	32.9	135.8	8.5	30.0
n-Propylbenzene		91.3	82.0	130.7	1.2	30.0
Styrene		96.9	69.5	126.7	3.4	30.0
1,1,1,2-Tetrachloroethane		102.0	80.3	128.2	0.9	30.0
1,1,1-Trichloroethane		95.0	79.4	130.9	2.5	30.0
1,1,2,2-Tetrachloroethane		91.6	79.8	126.3	2.6	30.0
1,1,2-Trichloroethane		99.9	78.7	123.1	2.4	30.0
1,2,3-Trichlorobenzene		85.9	75.4	131.4	2.6	30.0
1,2,3-Trichloropropane		91.7	78.3	138.8	1.8	30.0
1,2,3-Trimethylbenzene		100.4	76.3	124.2	3.0	30.0
1,2,4-Trichlorobenzene		103.0	27.4	143.4	21.1	30.0
1,2,4-Trimethylbenzene		94.0	81.4	130.8	3.4	30.0
1,3,5-Trimethylbenzene		94.3	81.3	128.9	3.8	30.0
Tetrachloroethene		94.1	74.5	124.5	0.1	30.0
Tetrahydrofuran		101.3	59.0	117.9	0.7	30.0
Toluene		96.4	79.8	124.5	1.3	30.0
Trichloroethene		97.1	79.7	124.2	0.8	30.0
Trichlorofluoromethane		97.7	59.7	151.8	5.3	30.0
Vinyl chloride		103.3	43.5	149.1	1.1	30.0
o-Xylene		94.5	80.2	131.0	4.3	30.0
p,m-Xylene		96.4	79.4	132.2	0.9	30.0

Organics - Volatiles, Prep Batch ID: VS211210W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 211210A9.BLKW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 16:31, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 211210A9.LCSW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 12:08, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		97.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211210A9.LCSDW10A, Parent Sample ID: 211210A9.LCSW10A

Run in Batch: 211210A9, Run Date: 12/10/2021 12:29, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		101.1	70.0	130.0	4.1	30.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3082113M, Parent Sample ID: S30821.12

Run in Batch: 211210A9, Run Date: 12/10/2021 12:49, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		121.4	70.0	130.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3082404R, Parent Sample ID: S30824.03

Run in Batch: 211210A9, Run Date: 12/10/2021 15:31, Prep Date: 12/10/2021, Matrix: WW, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		106.0	70.0	130.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3102906M, Parent Sample ID: S31029.05

Run in Batch: 211210A9, Run Date: 12/10/2021 14:10, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		124.2	70.0	130.0

Matrix Spike (MS)

Lab Sample ID: 211210A9.3103104M, Parent Sample ID: S31031.03

Run in Batch: 211210A9, Run Date: 12/10/2021 14:51, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane	*	145.1	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3082114N, Parent Sample ID: 211210A9.3082113M

Run in Batch: 211210A9, Run Date: 12/10/2021 13:10, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		110.4	70.0	130.0	9.3	30.0

Organics - Volatiles, Prep Batch ID: VS211210W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3082405R, Parent Sample ID: 211210A9.3082404R

Run in Batch: 211210A9, Run Date: 12/10/2021 15:51, Prep Date: 12/10/2021, Matrix: WW, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		100.7	70.0	130.0	3.2	30.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3102907N, Parent Sample ID: 211210A9.3102906M

Run in Batch: 211210A9, Run Date: 12/10/2021 14:30, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		106.6	70.0	130.0	14.8	30.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 211210A9.3103105N, Parent Sample ID: 211210A9.3103104M

Run in Batch: 211210A9, Run Date: 12/10/2021 15:11, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane	*	142.1	70.0	130.0	0.7	30.0

Organics - Volatiles, Prep Batch ID: VS211210W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 211210B9.BLKW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 23:29, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 211210B9.LCSW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 22:28, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		100.6	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 211210B9.LCSDW10B, Parent Sample ID: 211210B9.LCSW10B

Run in Batch: 211210B9, Run Date: 12/10/2021 22:48, Prep Date: 12/10/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		98.0	70.0	130.0	2.6	30.0

Merit Laboratories Login Checklist

Lab Set ID: S30821
Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)
Project: 30075941.04700 / RACER Lansing (Plant 6)
Submitted: 12/02/2021 08:15 Login User: JRM

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S30821 Submitted: 12/02/2021 08:15

Client: ARCADIS_NOVI (ARCADIS U.S., Inc.)

Project: 30075941.04700 / RACER Lansing (Plant 6)

Initial Preservation Check: 12/02/2021 08:50 JRM

Preservation Recheck (E200.8): N/A

Attention: Kaitlyn Hunt
Address: Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Phone: O:248-809-4013 FAX:
Email: Kaitlyn.Hunt@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S30821.01	125ml Plastic HNO3	<2			
S30821.02	125ml Plastic HNO3	<2			

PLANT-6

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

137966

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: KAITLYN HUNT
COMPANY: ARCADIS
ADDRESS: 28550 CABOT DR. SUITE 500
CITY: NOVI STATE: MI ZIP CODE: 48377
PHONE NO.: 947.777.5215 FAX NO.: —
P.O. NO.: 30075941.04700
E-MAIL ADDRESS: KAITLYN.HUNT@ARCADIS.COM
QUOTE NO.:

INVOICE TO

CONTACT NAME: ☒ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 30075941.04700/RACER Lansing (Plant 6)
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Brian J. Cobaw

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☒ Other MI
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	SW-6020A (As, Ni, Pb, V, Cr, Cu)	VOC 8260B sims	1,4 Dioxane 8260B sims
30821.01	11/30/21	12:05	MW-12-13_113021	GW	1			1					1		
.02	11/30/21	13:05	MW-13-36R_113021	GW	1			1					1		
.03	11/30/21	15:00	MW-20-132_113021	GW	3		3							3	
.04	11/30/21	16:15	MW-20-131_113021	GW	3		3							3	
.05	11/30/21	—	DUP-10_113021	GW	3		3							3	
.06	12/1/21	9:40	MW-21-141_120121	GW	3		3								3
.07	12/1/21	—	DUP-12_120121	GW	3		3								3
.08	12/1/21	10:50	MW-03-06_120121	GW	3		3								3
.09	12/1/21	12:00	MW-03-05_120121	GW	3		3								3
.10	12/1/21	—	DUP-09_120121	GW	3		3								3
.11	12/1/21	13:20	MW-13-52_120121	GW	3		3								3
.12/.13/.14	12/1/21	15:40	MW-13-53_120121	GW	9		9								9
.15	12/1/21	—	Trip Blank	GW	1										

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE	TIME
		12-1-21	1720
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Merit storage		12-1-21	1720
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Merit Storage		12/2/21	0815
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Johnna Munday		12/2/21	0815

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 4.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12