

TO
Christine Matlock, EGLE

COPIES
Joe Rogers, EGLE
Shaun Shields, EGLE
Brendan Mullen, RACER
Dave Favero, RACER Trust

DATE
March 14, 2025

PROJECT NUMBER
30267725

FROM
Patrick Curry, Arcadis

SUBJECT
Data Review and Summary Related to Potential Off-site Vapor Intrusion from the RACER Area 4/MW-14-158R
RACER Trust, Plant 2, Lansing, Michigan

On behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, Arcadis has completed additional characterization at Area of Interest (AOI) 2-8 and AOI 2-14 located near the west property boundary of Plant 2 (Site) in Lansing, Michigan. Previous work completed in the area included the replacement of MW-14-58 with MW-14-58R and installation of additional borings and wells to define the extent of 1,4-dioxane and volatile organic compounds (VOCs) in groundwater. Previous work was summarized in the *MW-14-58R Area Data Summary and Proposed Additional Work* report (Arcadis, 2023a) and *MW-14-58R Area September 2023 Investigation Summary* report (Arcadis, 2024). As noted in the September 2023 summary report, additional characterization regarding potential off-site groundwater impacts near the MW-14-58R area was deferred until work was completed by the United States Environmental Protection Agency (USEPA) to further characterize of the former Adams Plating Company (APC) Superfund site located west of Plant 2.

In November 2024, RACER Trust collaborated with the USEPA and the Michigan Department of Environment, Great Lakes and Energy (EGLE) to collect synoptic groundwater elevation and groundwater analytical data for the western portion of RACER Plant 2 and the APC site (**Figure 1**). The APC data package provided by EGLE, including analytical and groundwater elevation summary tables and summary figures is included as **Attachment 1**. The RACER groundwater elevation and analytical data is summarized as **Table 1** and **Table 2**, respectively. RACER laboratory analytical reports are provided as **Attachment 2**.

The following memorandum provides a summary of the of the groundwater elevation and volatile organic compound (VOC) data with a focus on the implications for potential off-site vapor intrusion (VI) associated with the RACER Site. RACER provided a more comprehensive presentation of the combined data to EGLE on January 9, 2025. A copy of the presentation slides has been provided to EGLE separately.

AOI 2-8 and 2-14 are shown on **Figure 1**. According to the Current Conditions Report (Arcadis 2008), AOI 2-8 was a former waste storage area initially identified on the Plant 2 Part A permit application in 1980; however, subsequent documents do not mention this unit. The unit was a 10 X 10 ft concrete paved area located northwest of Building 241, which was part of the main Plant 2 manufacturing complex. No secondary containment existed at the unit, and two drains were located near the unit that drained to the storm sewer system and ultimately to the Plant 3 Clarifier. The unit began operation sometime before 1980 and ceased in 1982. Approximately 150 to 200 feet south of AOI 2-8 is AOI 2-14. This was a former scrap metal storage area that was used to store scrap

produced from Plant 2 rear axle manufacturing operations. Scrap metal was stored at-grade on two paved (concrete/asphalt) areas. Wastes managed at AOI 2-14 included nonhazardous scrap metal such as machining chips, turnings, trimmings, and scrap parts. Scrap metal was accumulated in these areas in gondolas, open-topped roll off boxes, concrete enclosures, or on the pavement. A release at AOI 2-14 is known to have occurred in the past (Arcadis 2008) and oil-stained soil was excavated and disposed of off-site.

Groundwater Elevation

The groundwater elevations for both APC and RACER wells were used to create a groundwater elevation contour map (**Figure 2**). Given the anisotropy inherent to the perched groundwater zone, only monitoring wells of similar depth were used to generate the contours. The wells were grouped according to depth, with only APC wells at similar screen midpoint depths to RACER wells used for the evaluation. These wells fell into two general groups: “shallower” wells with screen midpoints between 833 and 839 feet above mean sea level (ft msl), and “deeper” wells with screen midpoints between 826 and 832 ft msl. Wells with mid-point depths greater and less than these ranges were not used for the groundwater elevation contour map. Review of the contour map suggests an overall northwesterly groundwater gradient. The sanitary main located along the east side of Rosemary Street appears to have a hydraulic effect on groundwater flow with static water level higher to the east of the sanitary line and lower to the west. The sanitary main is a 60-inch diameter gravity main with an invert depth approximately 15 feet below street level. The type of fill material placed around the sanitary main is unknown but may consist of a mix of fill and native materials (clay, silt, sand) and have generally low permeability.

Vapor Intrusion

As summarized in the RACER MW-14-58R Area summary reports (Arcadis 2023a, 2023b), VOCs with a potential vapor intrusion (VI) risk have been detected in groundwater at wells MW-22-153 and MW-22-156, as well as VAP borings located to the south of the MW-14-58R Area. The distribution of VOC impacts is shown on **Figure 3**. VAP borings (VAP-P2-NL58, -NP59, -NT58) were completed at AOI 2-14, which may be the source of the VOCs on the RACER property. Of the compounds detected on the RACER site (1,1-DCA, 1,1-DCE, cis-1,2-DCE, toluene, 1,1-TCA), 1,1-DCA exceeds the site-specific residential vapor intrusion criteria (SSVIAC) for slab on grade (130 µg/L) and basement scenarios (67 µg/L). VOCs were not detected downgradient of AOI 2-14, west of Rosemary Street, at well MW-22-157 (other than 1,4-dioxane), or to the north at MW-22-155 and APC wells MW-12S/D. Properties west of Rosemary are commercial with residential properties beginning further to the west on North Grace Street.

VOCs detected in other APC wells west of Rosemary Street include a similar suite of VOC compounds, as well as chloroethane, and do not exceed residential SSVIAC except for 1,1-DCA at the APC source area (MW-13S). The highest concentrations are detected at the APC property, but elevated 1,1-DCA, chloroethane and cis-1,2-DCE are also present in APC wells MW-6D and MW-11S located south of the APC property near commercial buildings on Genesee Street.

Next Steps

The apparent perched groundwater flow direction in the MW-14-58R area is to the northwest. Based on the flow direction, VOCs at the RACER property that exceed SSVIAC are defined by monitoring well MW-22-157 west of Rosemary Street, and to the north at well MW-22-155 and APC wells MW-12S/D. Therefore, no further evaluation of the potential for off-site vapor intrusion in this area is recommended except for routine groundwater monitoring in accordance with the revised 2025 Interim Monitoring Plan (IMP). The final revised IMP will be submitted to EGLE in April 2025 and include semi-annual monitoring for the MW-14-58R area wells with analysis of VOCs and/or 1,4-dioxane.

References

- Arcadis 2008. Current Conditions report (CCR) for GM Lansing Plants 2, 3 and 6. August 1.
- Arcadis 2023a. MW-14-58R Area Data Summary and Proposed Additional Work, RACER Trust Plant 2, Lansing, Michigan. February 2.
- Arcadis 2023b. RACER Lansing Water Well Survey. February 24, 2023.
- Arcadis 2024. MW-14-58R Area September 2023 Investigation Summary, RACER Trust Plant 2, Lansing, Michigan. January 19.

Enc.

Figures

- Figure 1. Western Plant 2 Layout
- Figure 2. Combined APC/RACER Groundwater Elevation Contour Map
- Figure 3. Perched VOC Distribution

Tables

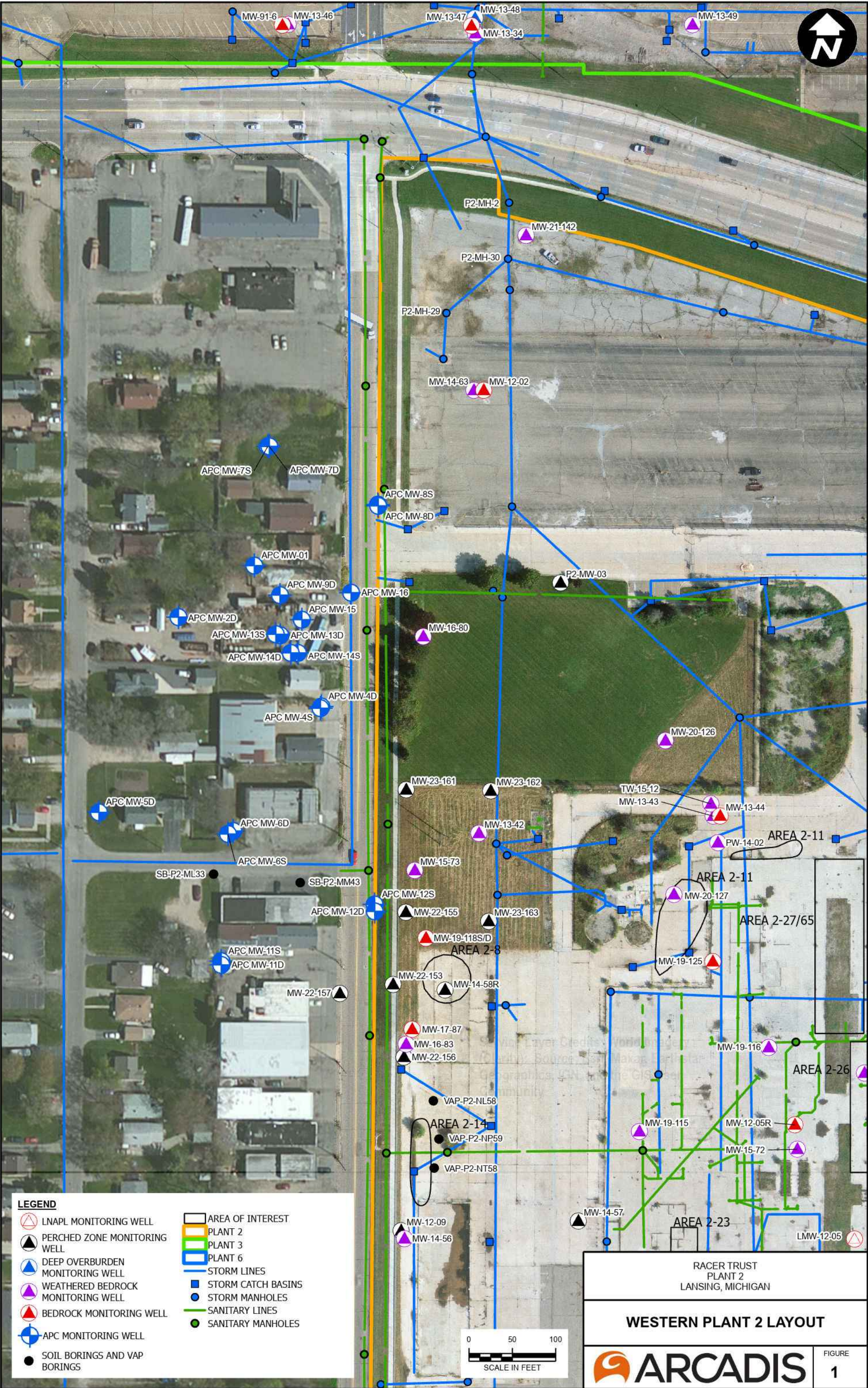
- Table 1. RACER Lansing Groundwater Elevation Summary
- Table 2. RACER Lansing Analytical Summary

Attachments

- Attachment 1. Adams Plating Data
- Attachment 2. RACER Analytical Summary

Figures

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TR: PROJECT NUMBER: 30214036 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl T:\ENV\RACER\Lansing_BuffaloData\MXDs\2025 APC Data Summary.aprx PLOTTED: 2/18/2025 3:59 PM BY: VDavis



LEGEND

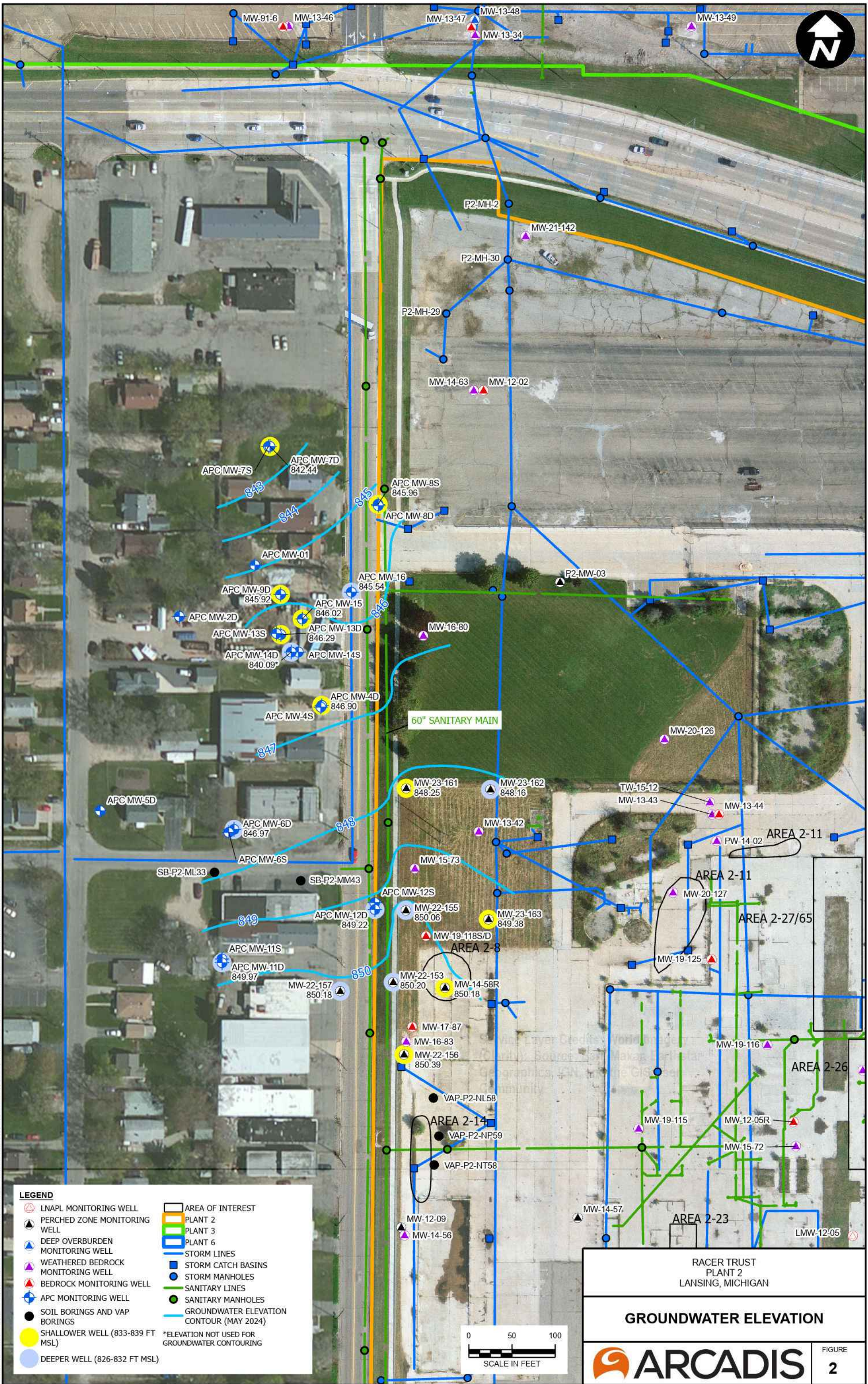
- | | |
|-----------------------------------|--------------------|
| LNAPl MONITORING WELL | AREA OF INTEREST |
| PERCHED ZONE MONITORING WELL | PLANT 2 |
| DEEP OVERBURDEN MONITORING WELL | PLANT 3 |
| WEATHERED BEDROCK MONITORING WELL | PLANT 6 |
| BEDROCK MONITORING WELL | STORM LINES |
| APC MONITORING WELL | STORM CATCH BASINS |
| SOIL BORINGS AND VAP BORINGS | STORM MANHOLES |
| | SANITARY LINES |
| | SANITARY MANHOLES |

RACER TRUST
PLANT 2
LANSING, MICHIGAN

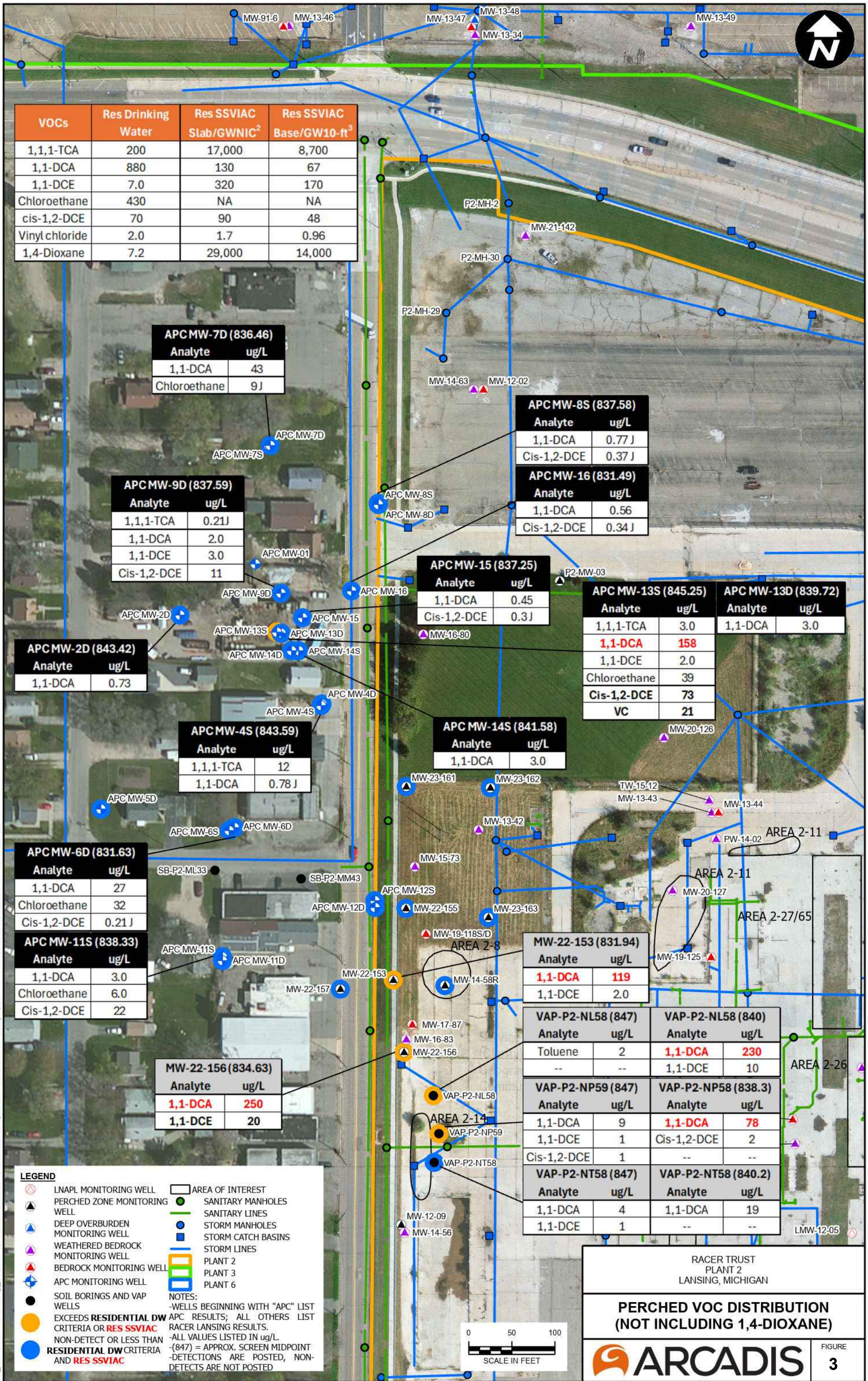
WESTERN PLANT 2 LAYOUT

FIGURE
1

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30214036 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\ENVRACER\Lansing_BuffaloData\MXDs\2025 APC Data Summary.aprx PLOTTED: 2/18/2025 3:59 PM BY: VDavis



CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30214036 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:\ENVRACER\Lansing_BuffaloData\2025 APC Data Summary.aprx PLOTTED: 2/18/2025 3:59 PM BY: VDavis



Tables

Table 1
Summary of Groundwater Elevations - April 8, 2024
RACER Trust Plant 2
Lansing, Michigan



Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet amsl)
Plant 2								
MW-14-56	4/8/2024	71.0	76.0	860.21	860.62	75.70	65.99	794.22
MW-14-58R	4/8/2024	22.0	27.0	862.93	860.09	29.61	12.75	850.18
MW-15-73	4/8/2024	78.0	83.0	861.56	859.12	80.98	73.46	788.10
MW-16-80	4/8/2024	68.0	73.0	853.03	853.41	73.30	65.51	787.52
MW-16-83	4/8/2024	71.0	76.0	862.97	860.17	79.08	74.11	788.86
MW-17-87	4/8/2024	100.0	112.0	862.82	860.44	113.86	76.53	786.29
MW-19-118S	4/8/2024	145.0	160.0	862.81	859.80	162.89	77.41	785.40
MW-20-126	4/8/2024	69.0	74.0	861.89	859.50	75.47	62.10	799.79
MW-22-153	4/8/2024	25.0	30.0	860.43	859.44	31.18	10.23	850.20
MW-22-155	4/8/2024	25.5	30.5	861.58	858.99	31.51	11.52	850.06
MW-22-156	4/8/2024	23.0	28.0	863.07	860.13	31.04	12.68	850.39
MW-22-157	4/8/2024	24.0	29.0	852.38	853.06	27.61	2.20	850.18
MW-23-161	4/8/2024	20.0	25.0	858.48	856.00	27.58	10.23	848.25
MW-23-162	4/8/2024	29.0	34.0	861.95	859.41	36.64	13.79	848.16
MW-23-163	4/8/2024	20.0	25.0	862.61	860.31	27.22	13.23	849.38

Notes:

bgs = below ground surface

amsl = above mean sea level

RACER = Revitalizing Auto Communities Environmental Response

TOC = top of casing

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



	Location ID: Date Collected: Sample Name:	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Unit s	MW-14-56 4/9/2024 MW-14-56_040924	MW-14-58R 4/8/2024 MW-14-58R_040824	MW-15-73 4/10/2024 MW-15-73_041024	MW-16-80 4/10/2024 MW-16-80_041024	MW-16-83 4/10/2024 MW-16-83_041024	MW-17-87 4/9/2024 MW-17-87_040924	MW-19-118S 4/9/2024 MW-19-118S_040924	MW-20-126 4/10/2024 MW-20-126_041024	MW-22-153 4/9/2024 MW-22-153_040824	MW-22-155 4/9/2024 MW-22-155_040824	MW-22-156 4/8/2024 MW-22-156_040824	MW-22-157 4/8/2024 MW-22-157_040824	MW-23-161 4/8/2024 MW-23-161_040824	MW-23-162 4/8/2024 MW-23-162_040824	MW-23-163 4/8/2024 MW-23-163_040824
Analyte																			
PFAS																			
11CI-PF3OUdS (F-53B Minor)	--	--	--	ng/L	13 UJ	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
4:2 FTS	--	--	--	ng/L	13 U	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
6:2FTS	--	--	--	ng/L	13 UJ	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
8:2FTS	--	--	--	ng/L	13 U	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
9CI-PF3ONS (F-53B Major)	--	--	--	ng/L	13 U	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
ADONA	--	--	--	ng/L	13 U	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
HFPO-DA (GenX)	370	--	--	ng/L	13 U	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	--	--	--	ng/L	13 U	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	--	--	--	ng/L	13 UJ	6.8 U [6.9 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanesulfonic acid (PFBS)	420	670,000		ng/L	0.82 J	1.9 J [1.2 J]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic acid (PFBA)	--	--	--	ng/L	14	9.5 [8.7]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanesulfonic acid (PFDS)	--	--	--	ng/L	6.6 U	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	--	--	--	ng/L	6.6 U	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorododecanoic acid (PFDoA)	--	--	--	ng/L	6.6 U	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanesulfonic acid (PFHpS)	--	--	--	ng/L	6.6 U	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	--	--	--	ng/L	2.3 J	4.8 [4.6]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanesulfonic acid (PFHxS)	51	210		ng/L	1.6 J	2.6 J [2.5 J]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	400,000	--	--	ng/L	6.5 J	7.1 [6.9]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanesulfonic acid (PFNS)	--	--	--	ng/L	6.6 U	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	6.0	30		ng/L	1.1 J	0.67 J [0.77 J]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctane Sulfonamide (FOSA)	--	--	--	ng/L	6.6 UJ	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctane sulfonic acid	16	12		ng/L	15	5.4 [5.2]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid	8.0	170		ng/L	8.2	12 [14]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanesulfonic acid (PFPeS)	--	--	--	ng/L	6.6 UJ	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic acid (PFPeA)	--	--	--	ng/L	23	6.9 [6.2]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotetradecanoic acid (PFTeA)	--	--	--	ng/L	6.6 UJ	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorotridecanoic Acid (PFTriA)	--	--	--	ng/L	6.6 UJ	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroundecanoic acid (PFUnA)	--	--	--	ng/L	6.6 U	3.4 U [3.4 U]	--	--	--	--	--	--	--	--	--	--	--	--	--
VOCs																			
1,1,1,2-Tetrachloroethane	77	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,1,1-Trichloroethane	200	89		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,1,2,2-Tetrachloroethane	8.5	78		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,1,2-Trichloroethane	5.0	330		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,1-Dichloroethane	880	740		ug/L	--	1 U [1 U]	--	--	--	--	--	--	119	1 U	250	1 U	--	--	--
1,1-Dichloroethene	7.0	130		ug/L	--	1 U [1 U]	--	--	--	--	--	--	2	1 U	20	1 U	--	--	--
1,2,3-Trichlorobenzene	--	--	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
1,2,3-Trichloropropane	42	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,2,3-Trimethylbenzene	--	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,2,4-Trichlorobenzene	70	99		ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
1,2,4-Trimethylbenzene	63	17		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,2-Dibromo-3-chloropropane (DBCP)	0.20	--	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,2-Dichlorobenzene	600	13		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,2-Dichloroethane	5.0	360		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,2-Dichloropropane	5.0	230		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,3,5-Trimethylbenzene	72	45		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,3-Dichlorobenzene	6.6	28		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,4-Dichlorobenzene	75	17		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
1,4-Dioxane	7.2	280		ug/L	18	280 [270]	3	25	1 U	3.4 [3.4]	0.73	7	79	153	116	61	52	28	11
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200		ug/L	--	25 U [25 U]	--	--	--	--	--	--	25 U	25 U	250 U	25 U	--	--	--
2-Hexanone	1,000	--	--	ug/L	--	50 U [50 U]	--	--	--	--	--	--	50 U	50 U	500 U	50 U	--	--	--
2-Methylnaphthalene	260	19		ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
2-Phenylbutane (sec-Butylbenzene)	80	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	--	--	ug/L	--	50 U [50 U]	--	--	--	--	--	--	50 U	50 U	500 U	50 U	--	--	--
Acetone	730	1,700		ug/L	--	50 U [50 U]	--	--	--	--	--	--	50 U	50 U	500 U	50 U	--	--	--
Acrylonitrile	2.6	2.0		ug/L	--	2 U [2 U]	--	--	--	--	--	--	2 U	2 U	20 U	2 U	--	--	--
Benzene	5.0	200		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Bromobenzene	18	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Bromodichloromethane	80	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Bromoform	80	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Bromomethane (Methyl bromide)	10	5.0		ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Carbon disulfide	800	--	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Carbon tetrachloride	5.0	38		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Chlorobenzene	100	25		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Chlorobromomethane	--	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Chloroethane	430	1,100		ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Chloroform (Trichloromethane)	80	350		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Chloromethane (Methyl chloride)	260	--	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
cis-1,2-Dichloroethene	70	620		ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
cis-1,3-Dichloropropene	--	--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Cymene (p-Isopropyltoluene)	--	--	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--

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



	Location ID: Date Collected: Sample Name:	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Unit s	MW-14-56 4/9/2024 MW-14-56_040924	MW-14-58R 4/8/2024 MW-14-58R_040824	MW-15-73 4/10/2024 MW-15-73_041024	MW-16-80 4/10/2024 MW-16-80_041024	MW-16-83 4/10/2024 MW-16-83_041024	MW-17-87 4/8/2024 MW-17-87_040924	MW-19-118S 4/9/2024 MW-19-118S_040924	MW-20-126 4/10/2024 MW-20-126_041024	MW-22-153 4/8/2024 MW-22-153_040824	MW-22-155 4/8/2024 MW-22-155_040824	MW-22-156 4/8/2024 MW-22-156_040824	MW-22-157 4/8/2024 MW-22-157_040824	MW-23-161 4/8/2024 MW-23-161_040824	MW-23-162 4/8/2024 MW-23-162_040824	MW-23-163 4/8/2024 MW-23-163_040824
Analyte																			
Dibromochloromethane		80	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Dibromomethane		80	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Dichlorodifluoromethane (CFC-12)		1,700	--	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Ethyl ether		10	--	ug/L	--	10 U [10 U]	--	--	--	--	--	--	10 U	10 U	100 U	10 U	--	--	--
Ethylbenzene		74	18	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Hexachloroethane		7.3	6.7	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Iodomethane		--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Isopropyl benzene		800	28	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
m&p-Xylene		--	--	ug/L	--	2 U [2 U]	--	--	--	--	--	--	2 U	2 U	20 U	2 U	--	--	--
Methyl tert butyl ether (MTBE)		40	7,100	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Methylene chloride		5.0	1,500	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
Naphthalene		520	11	ug/L	--	5 U [5 U]	--	--	--	--	--	--	5 U	5 U	50 U	5 U	--	--	--
N-Butylbenzene		80	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
N-Propylbenzene		80	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
o-Xylene		--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Styrene		100	80	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
tert-Butylbenzene		80	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Tetrachloroethene		5.0	60	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Tetrahydrofuran		95	11,000	ug/L	--	90 U [90 U]	--	--	--	--	--	--	90 U	90 U	900 U	90 U	--	--	--
Toluene		790	270	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
trans-1,2-Dichloroethene		100	1,500	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
trans-1,3-Dichloropropene		--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
trans-1,4-Dichloro-2-butene		--	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Trichloroethene		5.0	200	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Trichlorofluoromethane (CFC-11)		2,600	--	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--
Vinyl chloride		2.0	13	ug/L	--	1 U [1 U]	--	--	--	--	--	--	1 U	1 U	10 U	1 U	--	--	--

Attachment 1

Adams Plating Data

Tables

This page intentionally left blank

Table 3-1. Groundwater Elevation

Well ID	TOC Elevation (ft amsl)	Ground Elevation (ft amsl)	Water Bearing Unit (WBU)	9/25/2013		10/1/2013		3/21/2016		7/25/2016		4/8/2024	
				Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl)	Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl)	Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl)	Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl)	Groundwater Level (ft btoc)	Groundwater Elevation (ft amsl)
MW-2D	860.46	858.75	WBU1	15.25	845.21	15.45	845.01	12.63	847.83	15.14	845.32	22.63	837.83
MW-4S	853.78	853.78	WBU1	6.14	847.64	6.35	847.43	4.33	849.45	5.7	848.08	3.68	850.10
MW-4D	853.75	853.75	WBU2	8.53	845.22	8.67	845.08	7.45	846.30	8.55	845.20	6.85	846.90
MW-5D	857.79	857.79	WBU1	13.42	844.37	13.48	844.31	12.64	845.15	13.42	844.37	12.67	845.12
MW-6S	853.31	853.31	WBU1	5.39	847.92	5.62	847.69	2.47	850.84	4.48	848.83	7.88	845.43
MW-6D	853.13	853.13	WBU2	7.69	845.44	7.78	845.35	6.49	846.64	7.58	845.55	6.16	846.97
MW-7S	851.92	851.92	WBU1	6.64	845.28	8.25	843.67	3.39	848.53	7.15	844.77	2.92	849.00
MW-7D	851.96	851.96	WBU2	9.89	842.07	9.95	842.01	9.05	842.91	9.74	842.22	9.52	842.44
MW-8S	851.08	851.08	WBU1	5.3	845.78	5.39	845.69	4.23	846.85	5.37	845.71	5.12	845.96
MW-8D	851.04	851.04	WBU2	8.48	842.56	8.55	842.49	7.71	843.33	8.44	842.60	8.15	842.89
MW-9D	855.09	855.09	WBU1	10.94	844.15	11.26	843.83	9.82	845.27	11.07	844.02	9.17	845.92
MW-11S	856.02	853.83	WBU1	8.07	847.95	8.28	847.74	6.82	849.20	7.77	848.25	5.93	850.09
MW-11D	855.66	853.89	WBU2	8.75	846.91	7.95	847.71	6.67	848.99	7.58	848.08	5.69	849.97
MW-12S	852.62	852.62	WBU1	4.76	847.86	4.95	847.67	3.73	848.89	4.65	847.97	2.6	850.02
MW-12D	852.47	852.47	WBU2	4.62	847.85	4.8	847.67	3.61	848.86	4.49	847.98	3.25	849.22
MW-13S	856.75	856.75	WBU1	--	--	12.42	844.33	11.00	845.75	12.25	844.50	10.34	846.41
MW-13D	857.22	857.22	WBU1	--	--	12.94	844.28	11.52	845.70	12.74	844.48	10.93	846.29
MW-14S	859.87	857.08	WBU1	--	--	--	--	13.95	845.92	15.14	844.73	13.39	846.48
MW-14D	859.69	856.98	WBU2	--	--	--	--	20.76	838.93	20.86	838.83	19.6	840.09
MW-15	859.54	856.75	WBU1	--	--	--	--	14.21	845.33	15.3	844.24	13.52	846.02
MW-16	852.61	852.99	WBU1	--	--	--	--	--	--	--	--	7.07	845.54

Notes:
amsl = Above mean sea level
btoc = Below top of casing
ft = Feet
TOC = Top of casing
WBU = Water-bearing unit

Table 3-2. Monitoring Well Construction Details

Monitoring Well	Top of Casing Elevation (ft amsl)	Ground Elevation (ft amsl)	Depth to Top of Screen (ft bgs)	Screen Length (ft)	Well Depth (ft amsl)	Water Bearing Unit
MW-2	860.46	858.75	10.33	10	21	WBU1
MW-4S	853.78	853.78	5.19	10	16.5	WBU1
MW-4D	853.75	853.75	17	5	22	WBU2
MW-5D	857.79	857.79	9.39	10	21.6	WBU1
MW-6S	853.31	853.31	5.11	10	17	WBU1
MW-6D	853.13	853.13	19	5	25	WBU2
MW-7S	851.92	851.92	5	5	10	WBU1
MW-7D	851.96	851.96	13	5	22.5	WBU2
MW-8S	851.08	851.08	11	5	16	WBU1
MW-8D	851.04	851.04	31	5	36	WBU2
MW-9D	855.09	855.09	15	5	20	WBU1
MW-11S	856.02	853.83	13	5	18	WBU1
MW-11D	855.66	853.89	23	5	28	WBU2
MW-12S	852.62	852.62	14	5	19	WBU1
MW-12D	852.47	852.47	24	5	29	WBU2
MW-13S	856.75	856.75	9	5	14	WBU1
MW-13D	857.22	857.22	15	5	20	WBU1
MW-14S	859.87	857.08	13	5	18	WBU1
MW-14D	859.69	856.98	24	5	29	WBU2
MW-15	859.54	856.75	16	7	23	WBU1
MW-16	852.61	852.99	19	5	24	WBU1

Notes:
 amsl = Above mean sea level
 bgs = Below ground surface
 ft = Feet
 WBU = Water bearing unit

Table 4-1. Sampling Summary

Boring Location	Sample Date	Borehole Depth (ft bgs)	Grab Groundwater WBU1 (ft bgs)	Grab Groundwater WBU2 (ft bgs)	Number of Soil Samples Collected	Comments
SB-01	4/3/2024	43	10-15	--	9	No water found below 15 ft bgs, therefore a sample could not be collected.
SB-02	4/2/2024	40	--	15-20	8	No water encountered above 15 ft bgs. Field Team attempted another sample at 35-40 ft bgs but was unable to draw water.
SB-03	4/2/2024	35	--	--	7	No water bearing units were noted during logging. A temporary well was set at 30-35 ft bgs. Approximately 2 ft of water was measured; however, the team was not able to pull the water up with pump or ball valve. After removing the temporary well, the borehole collapsed and the DPT was not able to advance past 31 ft bgs.
SB-04	3/28/2024	40	--	13-18	5	0-15 ft bgs was noted as fill. DPT hit refusal when trying to advance back past 38 ft bgs. Field team attempted to collect a grab groundwater sample at the bottom of the borehole but it was dry.
SB-05	3/28/2024	45	--	13-18	9	Refusal hit at 45 ft.
SB-06	3/29/2024	35	--	14-19	7	0-5 ft bgs was noted as fill. Total depth at 35 ft. Attempted sample at 29-34 ft but water was too muddy for collection, even after running dry several times. After pulling the temporary well, the DPT couldn't advance back past 31 ft.
SB-07	4/1/2024	40	--	14-19	7	0-5 ft bgs was noted as fill, therefore no soil was collected from this interval. A second groundwater sample was attempted at the bottom of the borehole but there was no water.
SB-08	3/27/2024	55	7-12	--	11	
SB-09	3/26/2024	38	10-15	--	8	0-10 ft bgs was noted as fill. Refusal was hit at 38 ft bgs. No additional wet zones were identified.
SB-10	3/26/2024	50	7-12	19-24	10	DPT hit refusal at 50 ft.
SB-11	4/1/2024	40	10-15	14-19	6	0-10 ft bgs was noted as fill, therefore no soil was collected from this interval. Transmissive zones were encountered from approximately 12.5-13.2 ft and 18.3-18.6 ft, respectively. Lower unit produced well.

Notes:
Soil samples were collected every 5 ft to the bottom depth.
DPT = Direct-push technology
ft bgs = Feet below ground surface
WBU = Water-bearing unit
-- Sample not collected

Table 4-2. Soil Sampling Results for PFAS

Location Sample ID Parent Sample ID Sample Date Sample Depth (ft bgs)	Sub-01		Sub-01		Sub-01		Sub-01		Sub-01		Sub-01		Sub-01		Sub-01		
	Sub-01 00-05-040032024		Sub-01 05-10-040032024		Sub-01 10-15-040032024		Sub-01 15-20-040032024		Sub-01 20-25-040032024		Sub-01 25-30-040032024		Sub-01 30-35-040032024		Sub-01 35-40-040032024		
	4/3/2024		4/3/2024		4/3/2024		4/3/2024		4/3/2024		4/3/2024		4/3/2024		4/3/2024		
	0-5		5-10		10-15		15-20		20-25		25-30		30-35		35-40		
	Analyte		EPA RSL Residential Soil ⁽¹⁾		EPA RSL Industrial Soil ⁽²⁾		Ecological Soil Screening Value ⁽³⁾		Unit		Result		Result		Result		Result
PFAS (ASTMD17068-17M)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
1,1,1-Trichloroethane-2,2,2-trifluoroethane-1-sulfonic acid (1,1,1-TCF-PFOS/GS)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
4,4-Dioxo-3H-Perfluorooxanone Acid (ADONA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
9-Chlorobenzothiazothio-3-Cyanoamino-1-Sulfonic Acid (9CI-PTFONS)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Fluorotelomer Sulfonic Acid 6:2 (4:2 FTS)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Fluorotelomer Sulfonic Acid 8:2 (8:2 FTS)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Hexafluoropropylene Oxide Dimer Acid (HFPD-DA)		0.23		1.5		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		4.1E-05 U	
N-(11,11,11-trifluoro-4-oxo-4-oxa-1-undecyl)-N-methylglycine (N-MeFOSAA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
N-ethyl-N-(11,11,11-trifluoro-4-oxo-4-oxa-1-undecyl)-N-methylglycine (N-EtFOSAA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluoro-4-ethylcyclohexanesulfonamide (PF4ECS) (PF4ECS)		NSL		NSL		mg/kg		1.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorobutanesulfonamide (PFBS)		19		250		0.017		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorobutanoic Acid (PFBA)		78		1200		2.98		mg/kg		0.00012 U		7.3E-05 U		6.9E-05 U		8.2E-05 U	
Perfluorobutanesulfonamide (PFBSA) (PFBSA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorodecane sulfonic acid (PFDS)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorodecane sulfonic acid (PFDS)		NSL		NSL		0.0677		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		2.2		40		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.5E-05 U		4.1E-05 U	
Perfluorododecane sulfonic acid (PFDDA)		NSL		NSL		mg/kg		6.2E-05 U		3.6E-05 U		3.5E-05 U		3.			

Table 4-2. Soil Sampling Results for PFAS

Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	Ecological Soil Screening Value ⁽³⁾	Unit	Location											
					Sample ID											
					Parent Sample ID											
					Sample Date											
					Sample Depth (ft bgs)						Sample Depth (ft bgs)					
					40-45						40-45					
0-5						0-5										
5-10						5-10										
10-15						10-15										
15-20						15-20										
20-25						20-25										
25-30						25-30										
30-35						30-35										
35-40						35-40										
PFAS (ASTM D7984-17M)																
1,1,1-Trichloroethane-2,2,2-trifluoroethane-1-sulfonic acid (1,1,1-TCF-PFOS/GS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
4,8-Dioxa-3H-Perfluorooctanoic Acid (ADONA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
9,10-Dichloro-2,3,6,8-tetrafluoro-1,2,4-oxadiazole-5-sulfonic acid (9,10-Cl ₂ -PTFONS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Fluorotelomer Sulfonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Hexafluoropropylene Oxide Dimer Acid (HFO-DA)	0.23	1.5	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
N-(11,11,11-trifluoro-2-methyl-2-oxo-1-oxo-1,2,2,2-tetrafluoroethyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
N-Ethyl-N-(4-heptafluorooctyl)isourea (N-EtFOSAA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluoro-4-ethylcyclohexanesulfonate (PF4ECHS) (PF4ECHS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorobutanesulfonate (PFBS)	19	250	0.817	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorobutanoic Acid (PFBA)	78	1200	2.98	mg/kg	0.00019 U	8.5E-05 U	0.00018 U	0.00026 U	7.4E-05 U	3.9E-05 U	3.4E-05 U	0.00017 U	4.6E-05 U			
Perfluorobutylsulfonamide (PFBSA) (PFBSA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorodecane sulfonic Acid (PFDS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorodecanoic Acid (PFDA)	NSL	NSL	0.0677	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorododecanoic Acid (PFDDA)	3.2	41	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanesulfonic Acid (PFHxS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanoic Acid (PFHxS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanesulfonic Acid - BR (PFHxS-BR)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanesulfonic Acid - LN (PFHxS-LN)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanoic Acid (PFHxS)	32	410	6.2	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanesulfonic Acid (PFNS)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanoic Acid (PFNA)	0.19	2.3	0.0242	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctane Sulfonic Acid (PFOS)	0.0663	0.0083	0.0083	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluoropentanesulfonic Acid (PFPeS)	1,00E-05	7,80E-05	3.84	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluoropentanoic Acid (PFPeA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorotetraenoic Acid (PFTeDA)	63	820	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			
Perfluoroundecanoic Acid (PFUnDA)	19	250	NSL	mg/kg	9.3E-05 U	4.2E-05 U	8.9E-05 U	0.00013 U	3.7E-05 U	2E-05 U	2.7E-05 U	8.3E-05 U	2.3E-05 U			

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1) May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1) May 2024.
(3) Gripps et al. Derivation of PFAS Ecological Screening Values, 2021.
Bold = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Underlined = Concentration exceeds PFAS Eco Screening Value
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
The reported quantitation limit is approximate.
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No screening level
PFAS = Per- and polyfluoroalkyl substances
R = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria
RSL = Regional screening level

Version: FINAL
November 2024

Notes:

- (1) EPA RSL for Residential Soil (TRI-E-06, HQ-1). May 2024.
- (2) EPA RSL for Industrial Soil (TRI-E-06, HQ-1) May 2024.
- (3) Geopac et al., Derivation of PFAS Emission and Screening Values, 2021.
- Bd = Concentration exceeds EPA RSL for Residential Soil**
- Shaded = Concentration exceeds EPA RSL for Industrial Soil**
- Underlined = Concentration exceeds PFAS Emission Screening Value**
- J = The analyte concentration is an estimated quantity.
- J+ = The analyte concentration is an estimated quantity, but result may be biased low.
- J- = The analyte concentration is an estimated quantity, but result may be biased high.
- U = The analyte was analyzed but not detected.
- U? = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
- lb = lbs - Pounds ground surface soil
- mg/kg = Milligrams per kilogram
- NS = No screening level
- PFAS = Per- and polyfluorinated substances
- R = The data is unusable; sample results were rejected due to deficiencies in meeting QC criteria
- RSL = Regional screening level

Version: FINAL
November 2024

Notes:

- (1) EPA RSL for Residential Soil (TR-16, HQ-1) May 2024.
- (2) EPA RSL for Industrial Soil (TR-16, HQ-1) May 2024.
- (3) Geopros et al. Derivation of PNAS: Industrial Screening Values, 2021.
- Bold = Concentration exceeds EPA RSL for Industrial Soil**
- Shaded = Concentration exceeds EPA RSL for Industrial Soil**
- Underlined = Concentration exceeds PNAS EPC Screening Value

J = The analyte concentration is in estimated quantity

J+ = The analyte concentration is an estimated quantity, but result may be biased low.

J- = The analyte concentration is an estimated quantity, but result may be biased high.

UJ = The analyte was analyzed but not detected.

UD = The analyte was analyzed but not detected. The reported quantitation limit is approximate.

ft = ft = Feet below ground surface

mg/kg = Milligram(s) per kilogram

NSL = No screening level

PFAS = Per- and polyfluoralkyl substances

† = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria

RSL = Regional screening level

Table 4-2. Soil Sampling Results for PFAS

Analyte	Location													
	S1-05		S1-05		S1-05		S1-05		S1-05		S1-05		S1-05	
	Sample ID													
	Parent Sample ID													
	Sample Date													
Sample Depth (ft bgs)														
EPA RSL														
Residential Soil ⁽¹⁾														
Industrial Soil ⁽²⁾														
Ecological Soil														
Screening														
Value ⁽³⁾														
Unit														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														
Result														

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1) May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1) May 2024.
(3) Gripps et al. Derivation of PFAS Ecological Screening Values, 2021.
Bold = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Underlined = Concentration exceeds PFAS Ecological Screening Value
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U+ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No screening level
PFAS = Per- and polyfluoroalkyl substances
R = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria
RSL = Regional screening level

Version: FINAL
November 2024

Notes:

- 1) EPA RSL for Residential Soil (TR=1E-06, HQ=1), May 2024.
- 2) EPA RSL for Industrial Soil (TR=1E-06, HQ=1), May 2024
- 3) (Griggs et al. Derivation of PAHs Soil Guideline Screening Values, 2021.
- BPAH = Concentration exceeds EPA RSL for Residential Soil**
- Shaded = Concentration exceeds EPA RSL for Industrial Soil**
- Underlined = Concentration exceeds PNAS EPC Screening Value
- J = The analyte concentration is estimated quantity
- J+ = The analyte concentration is an estimated quantity, but result may be biased low
- J- = The analyte concentration is an estimated quantity, but result may be biased high
- U = The analyte was analyzed but not detected.
- UD = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
- ft lbs = Feet below ground surface
- mg/kg = Milligram(s) per kilogram
- NSSL = No screening level
- PFAS = Per- and polyfluoralkyl substances
- R = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria
- RSL = Regional screening level

Table 4-2. Soil Sampling Results for PFAS

Location	S11-07		S11-07		S11-07		S11-08		S11-08		S11-08		S11-08		S11-08		S11-08	
	S11-07-25-30-04012024		S11-07-30-35-04012024		S11-07-35-40-04012024		S11-08-00-05-03272024		S11-08-05-10-03272024		S11-08-10-15-03272024		S11-08-15-20-03272024		S11-08-20-25-03272024		S11-08-25-30-03272024	
	4/1/2024		4/1/2024		4/1/2024		3/27/2024		3/27/2024		3/27/2024		3/27/2024		3/27/2024		3/27/2024	
Parent Sample ID	25.30		30.35		35.40		0.5		5.10		5.10		10.15		15.20		20.25	
Sample Depth (ft bgs)																		
Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	Ecological Soil Screening Value ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PFAS (ASTM D5958-17M)																		
1,1,1-Trichloroethane-2,2,2-trifluoroethane-1-sulfonic acid (1,1,1-TCF-PFOSUGS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
4,8-Dioxa-3H-Perfluorooctanoic Acid (ADONA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
9,11-Dioxoheptafluorooctanoic-3-Oxooctanoic-1-Sulfonic Acid (PCL-PFONOS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Fluorotelomer Sulfonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Hexafluoroisopropyl Ether Dimer Acid (HFO-DA)	0.23	1.5	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
N-Ethyl-N-(heptafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
N-Ethyl-N-(heptafluorooctylsulfonyl)-N-methylglycine (N-EtFOSAA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluoro-4-ethylcyclohexanesulfonate (PF4CHS) (PF4CHS)	NSL	NSL	NSL	mg/kg	3.50E-05	4.50E-05	6.5E-05 U	0.00036	0.00077 J	0.00013 J	4.6E-05 U	2.5E-05 J	0.00002					
Perfluorobutanesulfonate (PFBS)	19	250	0.017	mg/kg	3.00E-05	2.1E-05 U	6.5E-05 U	5.50E-05	4.8E-05 J	7.9E-05 U	4.6E-05 U	0.00015	0.00036					
Perfluorobutanoic Acid (PFBA)	78	1200	2.98	mg/kg	5.4E-05 U	4.3E-05 U	0.00013 U	1.2E-05 J	8.9E-05 U	0.00016 U	9.1E-05 U	7E-05 U	4E-06 J					
Perfluorobutylsulfonate (PFBSA) (PFBSA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorodecane sulfonic Acid (PFDS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorodecanoic Acid (PFDA)	NSL	NSL	0.0677	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	7.4E-06 J	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorododecanoic Acid (PFDDA)	3.2	41	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorooctanesulfonic Acid (PFH8S)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	5.2E-06 J	4.6E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorooctanoic Acid (PFH9a)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorooctanesulfonate (PFH8SA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorohexanesulfonic acid (PFH6S)	1.3	16	0.0028	mg/kg	3.7E-05 U	2.1E-05 U	6.5E-05 U	1.1E-05 J	7.7E-06 J	7.9E-05 U	4.6E-05 U	3.5E-05 U	3.79E-05					
Perfluorohexanesulfonic acid - BR (PFH6S-BR)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorohexanesulfonic acid - LN (PFH6S-LN)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	1.1E-05 J	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorohexanoic Acid (PFH6a)	32	410	6.2	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	1.1E-05 J	7.7E-06 J	7.9E-05 U	4.6E-05 U	3.5E-05 U	3.79E-05					
Perfluoromethanesulfonic Acid (PFMS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluoromethanoic Acid (PFNA)	0.19	2.3	0.0242	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorooctane Sulfonic Acid (PFOS)	0.0663	0.038	0.0087	mg/kg	1.2E-05 J	1.3E-05 J	6.5E-05 U	0.002	0.0023 J	0.0013 J	3E-05 J	2.5E-05 J	0.0001					
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	mg/kg	4.8E-06 J	6.0E-06 J	6.5E-05 U	0.00002	0.0011 J	0.00054 J	1.3E-05 J	1.2E-05 J	6.70E-05					
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	mg/kg	5.8E-06 J	4.9E-06 J	6.5E-05 U	0.0011	0.0012 J	0.00074 J	1.4E-05 J	9.2E-06 J	3.10E-05					
Perfluorooctanesulfonate (PFOSA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluoropentanoic Acid (PFPeA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	7.4E-06 J	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorotridecanoic Acid (PFTeDA)	63	820	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluorotridecanoic Acid (PFTeDA)	NSL	NSL	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					
Perfluoroundecanoic Acid (PFUnA)	19	250	NSL	mg/kg	2.7E-05 U	2.1E-05 U	6.5E-05 U	3.2E-05 U	4.4E-05 U	7.9E-05 U	4.6E-05 U	3.5E-05 U	2.1E-05 U					

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1) May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1) May 2024.
(3) Gripps et al. Derivation of PFAS Ecological Screening Values, 2021.
Bold = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Underlined = Concentration exceeds PFAS Eco Screening Value
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No screening level
PFAS = Per- and polyfluoroalkyl substances
R = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria
RSL = Regional screening level

Version: FINAL
November 2024

Notes:

- (1) EPA RSL for Residential Soil (TR-16, HQ-1) May 2024.
- (2) EPA RSL for Industrial Soil (TR-16, HQ-1) May 2024.
- (3) Geopac et al. Derivation of PNAS: Industrial Screening Values, 2021.
- Bold = Concentration exceeds EPA RSL for Residential Soil**
- Shaded = Concentration exceeds EPA RSL for Industrial Soil**
- Underlined = Concentration exceeds PNAS EPC Screening Value

J = The analyte concentration is in estimated quantity

J+ = The analyte concentration is an estimated quantity, but result may be biased low.

J- = The analyte concentration is an estimated quantity, but result may be biased high.

UJ = The analyte was analyzed but not detected.

UD = The analyte was analyzed but not detected. The reported quantitation limit is approximate.

ft = ft = Feet below ground surface

mg/kg = Milligram(s) per kilogram

NSL = No screening level

PFAS = Per- and polyfluoralkyl substances

† = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria

RSL = Regional screening level

Table 4-2. Soil Sampling Results for PFAS

Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	Ecological Soil Screening Value ⁽³⁾	Unit	Location									
					Sample ID		Sample Date		Sample Depth (ft bgs)		Result			
					SB-09	SB-09	SB-09	SB-09	SB-09	SB-09	SB-09	SB-09		
					SB-09-10-15-03262024	SB-09-15-20-03262024	SB-09-20-25-03262024	SB-09-25-30-03262024	SB-09-30-35-03262024	SB-09-35-40-03262024	SB-09-40-45-03262024	SB-09-45-50-03262024		
					3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024		
					10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60

Table 4-2. Soil Sampling Results for PFAS

Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	Ecological Soil Screening Value ⁽³⁾	Unit	Location									
					Sample ID		Sample ID		Sample ID		Sample ID		Sample ID	
					Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID	
					Sample Date		Sample Date		Sample Date		Sample Date		Sample Date	
					Sample Depth (ft bgs)		Sample Depth (ft bgs)		Sample Depth (ft bgs)		Sample Depth (ft bgs)		Sample Depth (ft bgs)	
					Result		Result		Result		Result		Result	
PFAS (ASTM D5958-17M)														
1,1,1-Trichloroethane-2,2,2-trifluoroethane-1-sulfonic acid (1,1,1-TCF-PFOS/US)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
4,8-Dioxa-3H-Perfluorooctanoic Acid (ADONA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
9,11-Dichloro-9,11-difluoro-3,3,3-trifluoro-1-sulfonic acid (9,11-DCI-PFONS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Fluorotelomer Sulfonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Hexafluoropropylene Oxide Dimer Acid (HFO-DA)	0.23	1.5	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
N-(11,11,11-trifluoro-2,2,2-trifluoro-1-sulfonylethyl)glycine (N-MeFOSAA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
N-ethyl-N-(11,11,11-trifluoro-2,2,2-trifluoro-1-sulfonylethyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluoro-4-ethylcyclohexanesulfonate (PF4ECHS) (PF4ECHS)	NSL	NSL	NSL	mg/kg	0.00017	0.001	5.3E-05 J	3.30E-05	4.1E-05 U	7E-05 U	4.1E-05 J	0.00076	4.2E-05 J	
Perfluorobutanesulfonate (PFBS)	19	250	0.017	mg/kg	9.4E-06 J	1.7E-05 J	1E-05 J	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	0.00001	0.00015	
Perfluorobutanoic Acid (PFBA)	78	1200	2.98	mg/kg	4.4E-05 U	4.3E-06 J	1.2E-05 J	4.3E-05 U	8.2E-05 U	0.00014 U	1.3E-05 J	7.2E-05 U	0.00011 U	
Perfluorobutylsulfonamide (PFBSA) (PFBSA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorodecane sulfonic Acid (PFDS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorodecanoic Acid (PFDA)	NSL	NSL	0.0677	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorododecanoic Acid (PFDDA)	3.2	41	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorooctanesulfonic Acid (PFOS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	4.2E-06 J	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	1E-05 J	5.4E-05 U	
Perfluorooctanoic Acid (PFHxO)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorooctanesulfonic Acid (PFHxS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorohexanesulfonic acid (PFHxS)	1.3	16	0.0028	mg/kg	5.6E-06 J	2.1E-05 J	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	5.70E-05	1.3E-05 J	
Perfluorohexanoic acid - BR (PFHxS-BR)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	9.5E-06 J	1.1E-05 J	
Perfluorohexanesulfonic acid - LN (PFHxS-LN)	NSL	NSL	NSL	mg/kg	2.2E-05 U	1.6E-05 J	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	4.40E-05	2.4E-05 U	
Perfluorohexanoic Acid (PFHxA)	32	410	6.2	mg/kg	2.2E-05 U	5.1E-06 J	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	5.6E-06 J	6.3E-06 J	
Perfluoromethanesulfonic Acid (PFMS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluoromethanoic Acid (PFNA)	0.19	2.3	0.0242	mg/kg	2.2E-05 U	5.3E-06 J	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorooctane Sulfonic Acid (PFOS)	0.0663	0.0258	0.00012	mg/kg	0.00012	0.00012	6.3E-05 U	1.1E-05 J	4.1E-05 U	7E-05 U	0.0001	0.0024	2.80E-05	
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	mg/kg	4.30E-05	7.90E-05	6.3E-05 U	5.7E-06 J	4.1E-05 U	7E-05 U	2.8E-05 J	0.00082	2.1E-05 J	
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	mg/kg	7.00E-05	3.40E-05	6.3E-05 U	6.1E-06 J	4.1E-05 U	7E-05 U	8.00E-05	0.0016	5.1E-05 J	
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	4.3E-06 J	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	2.1E-05 J	3.8E-05 J	
Perfluoropentanoic Acid (PFPeA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.2E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	7.1E-06 J	5.4E-05 U	
Perfluorotetradecanoic Acid (PFTeDA)	63	820	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	
Perfluoroundecanoic Acid (PFUnDA)	19	250	NSL	mg/kg	2.2E-05 U	2.3E-05 U	6.3E-05 U	2.2E-05 U	4.1E-05 U	7E-05 U	7.4E-05 U	3.6E-05 U	5.4E-05 U	

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1) May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1) May 2024.
(3) Gripps et al. Derivation of PFAS Ecological Screening Values, 2021.
Bold = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Underlined = Concentration exceeds PFAS Ecological Screening Value
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U+ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No screening level
PFAS = Per- and polyfluoroalkyl substances
R = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria
RSL = Regional screening level

Table 4-2. Soil Sampling Results for PFAS

Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	Ecological Soil Screening Value ⁽³⁾	Unit	Location				
					Sample ID				
					Parent Sample ID				
					Sample Date				
					Sample Depth (ft bgs)				
					SB-11	SB-11	SB-11	SB-11	SB-11
					SB-11-20-25-04012024	SB-11-25-30-04012024	SB-11-30-35-04012024	SB-11-35-40-04012024	SB-11-35-40-04012024
					4/1/2024	4/1/2024	4/1/2024	4/1/2024	4/1/2024
					20-25	25-30	30-35	35-40	35-40
PFAS (ASTM D9963-17M)									
1,1,1-Trichloroethane-2,2,2-Trifluoroethane-1-Sulfonic Acid (1,1,1-TCF-PFOS/US)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
4,8-Dioxa-3H-Perfluorooctanoic Acid (ADONA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
9,11-Dichloro-9,11-difluoro-3-Oxooctanoic-1-Sulfonic Acid (9,11-DCI-PFONS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Fluorotelomer Sulfonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Fluorotelomer Sulfonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Hexafluoropropylene Oxide Dimer Acid (HFO-DA)	0.23	1.5	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
N-(11,11,11-trifluoro-2,2,2-trifluoroethyl)glycine (N-MeFOSAA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
N-ethyl-N-(11,11,11-trifluoro-2,2,2-trifluoroethyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluoro-4-ethylcyclohexanesulfonate (PF4ECHS) (PF4ECHS)	NSL	NSL	NSL	mg/kg	5.8E-06 J	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorobutanesulfonate (PFBS)	19	250	0.817	mg/kg	1.6E-05 J	2.4E-05 U	2.5E-05 U	4.2E-06 J	2.1E-05 U
Perfluorobutanoic Acid (PFBA)	78	1200	2.98	mg/kg	4.4E-05 U	5.3E-05 U	4.9E-05 U	4.5E-05 U	4.2E-05 U
Perfluorobutylsulfonate (PFBSA) (PFBSA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorodecylsulfonate (PFDS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorodecanoic Acid (PFDA)	NSL	NSL	0.0677	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorododecanoic Acid (PFDDA)	3.2	41	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorododecylsulfonate (PFDS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctanoic Acid (PFOS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctylsulfonate (PFOS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctanoic Acid (PFHxO)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctylsulfonate (PFHxS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorohexanesulfonate (PFHxS)	1.3	16	0.0028	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorohexanesulfonate acid - BR (PFHxS-BR)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorohexanesulfonate acid - LN (PFHxS-LN)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorohexanoic Acid (PFHxO)	32	410	6.2	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluoromethanesulfonate (PFMS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluoromethanesulfonate (PFMS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctanoic Acid (PFNA)	0.19	2.3	0.0242	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctane Sulfonic Acid (PFOS)	0.0663	0.0083	0.0083	mg/kg	2E-05 J	4.9E-06 J	2.5E-05 U	8.5E-06 J	2.1E-05 U
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	mg/kg	5.2E-06 J	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	mg/kg	1.3E-05 J	2.4E-05 U	2.5E-05 U	5.1E-06 J	2.1E-05 U
Perfluorooctylsulfonate (PFOS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorooctanoic Acid (PFPA)	1,90E-05	7,80E-05	3.84	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluoropentanesulfonate (PFPeS)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluoropentanoic Acid (PFPA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorotetradecanoic Acid (PFTeDA)	63	820	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U
Perfluoroundecanoic Acid (PFUnA)	19	250	NSL	mg/kg	2.2E-05 U	2.4E-05 U	2.5E-05 U	2.2E-05 U	2.1E-05 U

Notes:
(1) EPA RSL for Residential Soil (TR=1E-06, HQ=1) May 2024.
(2) EPA RSL for Industrial Soil (TR=1E-06, HQ=1) May 2024.
(3) Gripps et al. Derivation of PFAS Ecological Screening Values, 2021.
Bold = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Underlined = Concentration exceeds PFAS Ec Screening Value
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No screening level
PFAS = Per- and polyfluoroalkyl substances
R = The data is unusable; the sample results were rejected due to deficiencies in meeting QC criteria
RSL = Regional screening level

Region: FINAL
Number: 2024

(1) EPA BSL for Residential Soil (19-01-06, 102-11 May 2024). (2) EPA BSL for Industrial Soil (19-01-06, 102-11 May 2024). (3) EPA Region 9's Supplemental Soil Screening Levels for Hazardous Waste Sites. BSL = Concentration exceeds EPA BSL for Residential Soil BSL = Concentration exceeds EPA BSL for Industrial Soil BSL = Concentration exceeds EPA BSL for Supplemental Soil Unlabeled = Concentration exceeds EPA Region 9's Soil NS = No Action (prior to release) NSL = No Screening Level NSL = No Screening Level NSL = Regional Screening Level 1 = The analyte concentration is an estimated quantity. 2 = The analyte concentration is an estimated quantity, but result may be biased high. 3 = The analyte concentration is an estimated quantity, but result may be biased low. U = The analyte was analyzed but not detected. The reported quantitative limit is approximate. 4 = The data is unreliable. The sample results were rejected due to deficiencies in meeting QC criteria.
--

Region: FINAL
Number: 2024

(1) EPA HQ, for Residential Soil (78-10-06, HQ-1 May 2024).
 (2) EPA HQ, for Industrial Soil (78-10-06, HQ-1 May 2024).
 (3) EPA Region 9, A Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bulk + Concentration exceeds EPA HQ, for Residential Soil
 Bulk + Concentration exceeds EPA HQ, for Industrial Soil
Concentration + concentration exceeds LCL Screening Level.
 N/A = Not Applicable or Ignored
 NS = No Screening Level
 RSL = Regional Screening Level
 J = The analyte concentration is an estimated quantity
 J+ = The analyte concentration is an estimated quantity, but result may be biased high.
 J- = The analyte concentration is an estimated quantity, but result may be biased low.
 U = The analyte was analyzed but not detected.
 UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
 B = The data is unreliable. The sample results were rejected due to deficiencies in meeting QC criteria.

Version: FINAL
November 2024

(1) EPA, *Redox Indicator Test* (TR-10-02), 11 May 2024.
 (2) EPA, *Redox Indicator Test* (TR-10-06), 10 May 2024.
 (3) EPA, *Regulation of Air Supplemental Conditions for Reporting Levels for Hazardous Waste Sites*.
Redox = Concentration exceeds EPA RSL for Redox Indicator
Report = Concentration exceeds EPA RSL for Redox Indicator
Unlabeled = Concentration exceeds EPA RSL for Redox Indicator
 *Type = Free State, ground water
 n/a = Not Applicable per legend
 ND = No Detecting Limit
 RSL = Regional Screening Level
 S = The analyte concentration is an estimated quantity
 1 = The analyte concentration is an estimated quantity, but result may be biased high
 2 = The analyte concentration is an estimated quantity, but result may be biased low
 3 = The analyte concentration is an estimated quantity, but result may be biased low
 4 = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
 5 = The analyte was analyzed. The reported quantitation limit is the difference in recovery (%)

Table 4.3. Soil Sampling Results for VOCs

Location		SS-08		SS-09		SS-10		SS-11		SS-12		SS-13		SS-14		SS-15		SS-16		SS-17		SS-18		SS-19		SS-20		SS-21		SS-22		SS-23		SS-24		SS-25		SS-26		SS-27		SS-28		SS-29		SS-30		SS-31		SS-32		SS-33		SS-34		SS-35		SS-36		SS-37		SS-38		SS-39		SS-40		SS-41		SS-42		SS-43		SS-44		SS-45		SS-46		SS-47		SS-48		SS-49		SS-50		SS-51		SS-52		SS-53		SS-54		SS-55		SS-56		SS-57		SS-58		SS-59		SS-60		SS-61		SS-62		SS-63		SS-64		SS-65		SS-66		SS-67		SS-68		SS-69		SS-70		SS-71		SS-72		SS-73		SS-74		SS-75		SS-76		SS-77		SS-78		SS-79		SS-80		SS-81		SS-82		SS-83		SS-84		SS-85		SS-86		SS-87		SS-88		SS-89		SS-90		SS-91		SS-92		SS-93		SS-94		SS-95		SS-96		SS-97		SS-98		SS-99		SS-100		SS-101		SS-102		SS-103		SS-104		SS-105		SS-106		SS-107		SS-108		SS-109		SS-110		SS-111		SS-112		SS-113		SS-114		SS-115		SS-116		SS-117		SS-118		SS-119		SS-120		SS-121		SS-122		SS-123		SS-124		SS-125		SS-126		SS-127		SS-128		SS-129		SS-130		SS-131		SS-132		SS-133		SS-134		SS-135		SS-136		SS-137		SS-138		SS-139		SS-140		SS-141		SS-142		SS-143		SS-144		SS-145		SS-146		SS-147		SS-148		SS-149		SS-150		SS-151		SS-152		SS-153		SS-154		SS-155		SS-156		SS-157		SS-158		SS-159		SS-160		SS-161		SS-162		SS-163		SS-164		SS-165		SS-166		SS-167		SS-168		SS-169		SS-170		SS-171		SS-172		SS-173		SS-174		SS-175		SS-176		SS-177		SS-178		SS-179		SS-180		SS-181		SS-182		SS-183		SS-184		SS-185		SS-186		SS-187		SS-188		SS-189		SS-190		SS-191		SS-192		SS-193		SS-194		SS-195		SS-196		SS-197		SS-198		SS-199		SS-200		SS-201		SS-202		SS-203		SS-204		SS-205		SS-206		SS-207		SS-208		SS-209		SS-210		SS-211		SS-212		SS-213		SS-214		SS-215		SS-216		SS-217		SS-218		SS-219		SS-220		SS-221		SS-222		SS-223		SS-224		SS-225		SS-226		SS-227		SS-228		SS-229		SS-230		SS-231		SS-232		SS-233		SS-234		SS-235		SS-236		SS-237		SS-238		SS-239		SS-240		SS-241		SS-242		SS-243		SS-244		SS-245		SS-246		SS-247		SS-248		SS-249		SS-250		SS-251		SS-252		SS-253		SS-254		SS-255		SS-256		SS-257		SS-258		SS-259		SS-260		SS-261		SS-262		SS-263		SS-264		SS-265		SS-266		SS-267		SS-268		SS-269		SS-270		SS-271		SS-272		SS-273		SS-274		SS-275		SS-276		SS-277		SS-278		SS-279		SS-280		SS-281		SS-282		SS-283		SS-284		SS-285		SS-286		SS-287		SS-288		SS-289		SS-290		SS-291		SS-292		SS-293		SS-294		SS-295		SS-296		SS-297		SS-298		SS-299		SS-300		SS-301		SS-302		SS-303		SS-304		SS-305		SS-306		SS-307		SS-308		SS-309		SS-310		SS-311		SS-312		SS-313		SS-314		SS-315		SS-316		SS-317		SS-318		SS-319		SS-320		SS-321		SS-322		SS-323		SS-324		SS-325		SS-326		SS-327		SS-328		SS-329		SS-330		SS-331		SS-332		SS-333		SS-334		SS-335		SS-336		SS-337		SS-338		SS-339		SS-340		SS-341		SS-342		SS-343		SS-344		SS-345		SS-346		SS-347		SS-348		SS-349		SS-350		SS-351		SS-352		SS-353		SS-354		SS-355		SS-356		SS-357		SS-358		SS-359		SS-360		SS-361		SS-362		SS-363		SS-364		SS-365		SS-366		SS-367		SS-368		SS-369		SS-370		SS-371		SS-372		SS-373		SS-374		SS-375		SS-376		SS-377		SS-378		SS-379		SS-380		SS-381		SS-382		SS-383		SS-384		SS-385		SS-386		SS-387		SS-388		SS-389		SS-390		SS-391		SS-392		SS-393		SS-394		SS-395		SS-396		SS-397		SS-398		SS-399		SS-400		SS-401		SS-402		SS-403		SS-404		SS-405		SS-406		SS-407		SS-408		SS-409		SS-410		SS-411		SS-412		SS-413		SS-414		SS-415		SS-416		SS-417		SS-418		SS-419		SS-420		SS-421		SS-422		SS-423		SS-424		SS-425		SS-426		SS-427		SS-428		SS-429		SS-430		SS-431		SS-432		SS-433		SS-434		SS-435		SS-436		SS-437		SS-438		SS-439		SS-440		SS-441		SS-442		SS-443		SS-444		SS-445		SS-446		SS-447		SS-448		SS-449		SS-450		SS-451		SS-452		SS-453		SS-454		SS-455		SS-456		SS-457		SS-458		SS-459		SS-460		SS-461		SS-462		SS-463		SS-464		SS-465		SS-466		SS-467		SS-468		SS-469		SS-470		SS-471		SS-472		SS-473		SS-474		SS-475		SS-476		SS-477		SS-478		SS-479		SS-480		SS-481		SS-482		SS-483		SS-484		SS-485		SS-486		SS-487		SS-488		SS-489		SS-490		SS-491		SS-492		SS-493		SS-494		SS-495		SS-496		SS-497		SS-498		SS-499		SS-500		SS-501		SS-502		SS-503		SS-504		SS-505		SS-506		SS-507		SS-508		SS-509		SS-510		SS-511		SS-512		SS-513		SS-514		SS-515		SS-516		SS-517		SS-518		SS-519		SS-520		SS-521		SS-522		SS-523		SS-524		SS-525		SS-526		SS-527		SS-528		SS-529		SS-530		SS-531		SS-532		SS-533		SS-534		SS-535		SS-536		SS-537		SS-538		SS-539		SS-540		SS-541		SS-542		SS-543		SS-544		SS-545		SS-546		SS-547		SS-548		SS-549		SS-550		SS-551		SS-552		SS-553		SS-554		SS-555		SS-556		SS-557		SS-558		SS-559		SS-560		SS-561		SS-562		SS-563		SS-564		SS-565		SS-566		SS-567		SS-568		SS-569		SS-570		SS-571		SS-572		SS-573		SS-574		SS-575		SS-576		SS-577		SS-578		SS-579		SS-580		SS-581		SS-582		SS-583		SS-584		SS-585		SS-586		SS-587		SS-588		SS-589		SS-590		SS-591		SS-592		SS-593		SS-594		SS-595		SS-596		SS-597		SS-598		SS-599		SS-600		SS-601		SS-602		SS-603		SS-604		SS-605		SS-606		SS-607		SS-608		SS-609		SS-610		SS-611		SS-612		SS-613		SS-614		SS-615		SS-616		SS-617		SS-618		SS-619		SS-620		SS-621		SS-622		SS-623		SS-624		SS-625		SS-626		SS-627		SS-628		SS-629		SS-630		SS-631		SS-632		SS-633		SS-634		SS-635		SS-636		SS-637		SS-638		SS-639		SS-640		SS-641		SS-642		SS-643		SS-644		SS-645		SS-646		SS-647		SS-648		SS-649		SS-650		SS-651		SS-652		SS-653		SS-654		SS-655		SS-656		SS-657		SS-658		SS-659		SS-660		SS-661		SS-662		SS-663		SS-664		SS-665		SS-666		SS-667		SS-668		SS-669		SS-670		SS-671		SS-672		SS-673		SS-674		SS-675		SS-676		SS-677		SS-678		SS-679		SS-680		SS-681		SS-682		SS-683		SS-684		SS-685		SS-686		SS-687		SS-688		SS-689		SS-690		SS-691		SS-692		SS-693		SS-694		SS-695		SS-696		SS-697		SS-698		SS-699		SS-700		SS-701		SS-702		SS-703		SS-704		SS-705		SS-706		SS-707		SS-708		SS-709		SS-710		SS-711		SS-712		SS-713		SS-714		SS-715		SS-716		SS-717		SS-718		SS-719		SS-720		SS-721		SS-722		SS-723		SS-724		SS-725		SS-726		SS-727		SS-728		SS-729		SS-730		SS-731		SS-732		SS-733		SS-734		SS-735		SS-736		SS-737		SS-738		SS-739		SS-740		SS-741		SS-742		SS-743		SS-744		SS-745		SS-746		SS-747		SS-748		SS-749		SS-750		SS-751		SS-752		SS-753		SS-754		SS-755		SS-756		SS-757		SS-758		SS-759		SS-760		SS-761		SS-762		SS-763		SS-764		SS-765		SS-766		SS-767		SS-768		SS-769		SS-770		SS-771		SS-772		SS-773		SS-774		SS-775		SS-776		SS-777		SS-778		SS-779		SS-780		SS-781		SS-782		SS-783		SS-784		SS-785		SS-786		SS-787		SS-788		SS-789		SS-790		SS-791		SS-792		SS-793		SS-794		SS-795		SS-796		SS-797		SS-798		SS-799		SS-800		SS-801		SS-802		SS-803		SS-804		SS-805		SS-806		SS-807		SS-808		SS-809		SS-810		SS-811		SS-812		SS-813		SS-814		SS-815		SS-816		SS-817		SS-818		SS-819		SS-820		SS-821		SS-822		SS-823		SS-824		SS-825		SS-826		SS-827		SS-828		SS-829		SS-830		SS-831		SS-832		SS-833		SS-834		SS-835		SS-836		SS-837		SS-838		SS-839		SS-840		SS-841		SS-842		SS-843		SS-844		SS-845		SS-846		SS-847		SS-848		SS-849		SS-850		SS-851		SS-852		SS-853		SS-854		SS-855		SS-856		SS-857		SS-858		SS-859		SS-860		SS-861		SS-862		SS-863		SS-864		SS-865		SS-866		SS-867		SS-868		SS-869		SS-870		SS-871		SS-872		SS-873		SS-874		SS-875		SS-876		SS-877		SS-878		SS-879		SS-880		SS-881		SS-882		SS-883		SS-884		SS-885		SS-886		SS-887		SS-888		SS-889		SS-890		SS-891		SS-892		SS-893		SS-894		SS-895		SS-896		SS-897		SS-898		SS-899		SS-900		SS-901		SS-902		SS-903		SS-904		SS-905		SS-906		SS-907		SS-908		SS-909		SS-910		SS-911		SS-912		SS-913		SS-914		SS-915		SS-916		SS-917		SS-918		SS-919		SS-920		SS-921		SS-922		SS-923		SS-924		SS-925		SS-926		SS-927		SS-928		SS-929		SS-930		SS-931		SS-932		SS-933		SS-934		SS-935		SS-936		SS-937		SS-938		SS-939		SS-940		SS-941		SS-942		SS-943		SS-944		SS-945		SS-946		SS-947		SS-948		SS-949		SS-950		SS-951		SS-952		SS-953		SS-954		SS-955		SS-956		SS-957		SS-958		SS-959		SS-960		SS-961		SS-962		SS-963		SS-964		SS-965		SS-96	
----------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	-------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	--------	--	-------	--

Version: FINAL

(I) EPA Risk for Residential Soil (TR-E-106, HQ)=1 May 2024.
 (II) EPA Risk for Industrial Soil (IR-E-106, HQ)=1 May 2024.
 (III) EPA Region 4 Superfund Groundwater Soil Screening Levels for Hazardous Waste
Risk + Concentration exceeds EPA Risk for Residential Soil
Risk+Concentration exceeds EPA Risk for Industrial Soil
 Groundwater + Calculated at EPA Region 4 HQ=SSL
 g/kg = First three ground surface
 slugkg = Milligram per kilograms
 SSL = No Screening Level
 RSL = Regional Screening Level
 J = The analyte concentration is an estimated quantity
 J+ = The analyte concentration is an estimated quantity, but result may be biased high.
 - = The analyte concentration is an estimated quantity, but result may be biased low.
 U = The analyte was analyzed but not detected.
 ND = The analyte was analyzed but not detected. The reported concentration limit is approximately

Analyte	Location					Sample ID												
	Parent Sample ID					Sample Date												
	Sample Depth (ft bgs)					Sample Date												
	Sample Depth (ft bgs)					Sample Date												
	Sample Depth (ft bgs)					Unit						Result	Result	Result	Result	Result	Result	Result
Result						Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Cyanide (E335.4)	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	0.02 J	0.08 U	0.08 U	0.02 J	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Metals (SW602A/SW7471B)																		
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	7,400	6,690	4,640	4,210	4,370	5,960	6,930	1,140	2,350				
Antimony	31	470	NSL	0.27	mg/kg	0.18 J	0.15 J	0.12 J	0.12 J	0.13 J	0.19 J	0.17 J	0.1 J	0.15 J				
Arsenic	0.68	3	5.8	18	mg/kg	2.87	4.05	2.76	3.12	2.79	4.97	5.88	3.61	3.62				
Barium	15,000	220,000	78	130	mg/kg	46.4	45.6 J	31.1	30.8	35.3	42.7	60.1	6.29	14.6				
Beryllium	160	2,300	NSL	2.5	mg/kg	0.35	0.32	0.23	0.22	0.21	0.31	0.35	0.09 J	0.15 J				
Cadmium	7.1	100	1.2	0.36	mg/kg	0.13 J	0.1 J	0.09 J	0.08 J	0.1 J	0.16 J	0.17 J	0.06 J	0.08 J				
Calcium	NSL	NSL	NSL	NSL	mg/kg	18,000	71,500	48,700	41,500	53,000 J	49,900	54,300	36,200	41,100				
Chromium	0.3	6.3	18	23	mg/kg	15.1	15.9	14.4	11	10.5	12.7	14.2	3.48	8.35				
Cobalt	21	350	6.8	13	mg/kg	5	6.42	4.68	4.67	4.6	6.16	7.7	1.74	3.12				
Copper	3,100	47,000	37	28	mg/kg	9.35	12.9	8.24	8.21	8.55	11.5	12.7	2.69	8.67				
Iron	55,000	820,000	12,000	NSL	mg/kg	11,200	16,000	11,500	14,100	11,500	14,100	16,900	5,210	9,920				
Lead	100	800	21	11	mg/kg	8.94	5.12	3.86	3.95	3.91	4.88	5.84	1.48	3.07				
Magnesium	NSL	NSL	NSL	NSL	mg/kg	8,690	28,200	17,000	16,300	18,800	17,700	17,500	8,390	16,200				
Manganese	1,800	26,000	440	220	mg/kg	175	311	250	322	266	314	376	150	235				
Mercury	11	46	0.13	0.013	mg/kg	0.02 J	0.02 J	0.01 J	0.01 J	0.01 J	0.02 J	0.02 J	0.05 U	0.01 J				
Nickel	1,400	17,000	20	38	mg/kg	14.5	16.2	10.8	10.6	11.3	15.2	19.4	3.62	8.24				
Potassium	NSL	NSL	NSL	NSL	mg/kg	46.1	914 J	652	666	725	935	1240	176	388				
Selenium	990	5,800	0.41	0.52	mg/kg	0.14 J	0.4 U	0.1 J	0.4 U	0.4 U	0.17 J	0.27 J	0.41 U	0.4 U				
Silver	390	5,800	1	4.2	mg/kg	0.04 J	0.02 J	0.02 J	0.03 J	0.02 J	0.03 J	0.04 J	0.01 J	0.02 J				
Sodium	NSL	NSL	NSL	NSL	mg/kg	56.5	96.2	90.2	82.6	84.9	97.5	106	43.8	70.4				
Thallium	0.78	12	NSL	0.05	mg/kg	0.08 J	0.11 J	0.08 J	0.11 J	0.1 J	0.16 J	0.21	0.03 J	0.07 J				
Vanadium	390	5,800	NSL	7.8	mg/kg	17.2	20.4	15.8	13.4	13.2	16.2	19.1	4.71	9.97				
Zinc	23,000	350,000	47	46	mg/kg	29.5	30.3	25.2	30.2	29 J	34	37.6	6.4	22.8				

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Analyte	Location					Sample ID								
	Parent Sample ID					Sample Date								
	Sample Depth (ft bgs)					Sample Date								
EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyanide (E335.4)	23	150	0.39	B.L	mg/kg	0.08 U	0.08	0.02 J	0.1 U	0.1 U	0.1 U	0.08 U	0.08 U	0.08 U
Metals (SW6020A/SW7471B)														
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	3,470	4,410	5,880	4,980	3,950	4,910	7,290	1,140	1,370
Antimony	31	470	NSL	0.27	mg/kg	0.16 J	0.18 J	0.15 J	0.17 J	0.15 J	0.15 J	0.2 J	0.09 J	0.27 J
Arsenic	0.68	3	5.8	18	mg/kg	4.41	3.01	2.46	4.8	3.37	4.57	6.91	3.64	3.9
Barium	15,000	220,000	74	330	mg/kg	23	30.7 J	53.5	172	29.8	39.9	66.9	6.09	8.45
Beryllium	160	2,300	NSL	2.5	mg/kg	0.19 J	0.25	0.27	0.3	0.2	0.26	0.36	0.06 J	0.1 J
Cadmium	7.1	100	1.2	0.36	mg/kg	0.15 J	0.16 J	0.2	0.12 J	0.15 J	0.13 J	0.2 J	0.03 J	0.23
Calcium	NSL	NSL	NSL	NSL	mg/kg	38,800	50,700	65,500	61,300	50,300	57,100	62,900	35,200	44,100
Chromium	0.3	6.3	18	23	mg/kg	18	11.2	15.5	11.7	9.87	10.6	15	4.83	4.11
Cobalt	23	350	6.8	13	mg/kg	4.07	4	5.04	5.42	4.49	5.71	8.76	1.92	2.32
Copper	5,100	47,000	32	28	mg/kg	9.5	8.87	10.4	12.3	8.82	11.2	14.4	2.54	7.86
Iron	55,000	820,000	12,000	NSL	mg/kg	12,200	8,050	11,200	17,500	11,000	13,400	18,600	4,170	6,640
Lead	100	800	21	11	mg/kg	3.45	14.9 J	4.67	5.86	3.64	4.62	6.69	1.76	2.98
Magnesium	NSL	NSL	NSL	NSL	mg/kg	12,300	8,560	21,000	26,800	19,400	22,000	17,700	9,730	14,100
Manganese	1,800	26,000	440	220	mg/kg	252	129	220	403	258	302	437	115	203
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.02 J	0.01 J	0.01 J	0.01 J	0.01 J	0.02 J	0.05 U	0.01 J
Nickel	1,400	17,000	20	38	mg/kg	10.6	10.5	13.7	17	11.1	14.2	21.9	4.56	6.09
Potassium	NSL	NSL	NSL	NSL	mg/kg	620	316 J	922	803	588	796	1150	130	237
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.4 J	0.4 U	0.4 U	0.13 J	0.21 J	0.4 U	0.4 U
Silver	390	5,800	1	4.2	mg/kg	0.03 J	0.03 J	0.04 J	0.03 J	0.03 J	0.03 J	0.04 J	0.01 J	0.02 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	86.8	41.6	98.4	93.9	80.3	92.7	104	43.4	76.9
Thallium	0.78	12	NSL	0.05	mg/kg	0.06 J	0.06 J	0.11 J	0.09 J	0.09 J	0.14 J	0.32	0.03 J	0.09 J
Vanadium	390	5,800	NSL	7.8	mg/kg	14.5	13.6	15.3	17.1	12.4	14.5	18.5	4.9	8.38
Zinc	23,000	350,000	47	46	mg/kg	30.6	24.4	29.1	28.1	23.3	28.4	42.9	8.06	36.2

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Analyte	Location					Sample ID								
	Parent Sample ID					Sample Date								
	Sample Depth (ft bgs)					Sample Date								
EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyanide (E335.4)	23	150	0.39	g/L	mg/kg	0.09 U	0.066 U	0.08 U	0.083 U	0.08 U	0.09 U	0.095 U	0.063 U	0.07 U
Metals (SW6020A/SW7471B)														
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	9750 J	6,320	4470 J	6,570	4,130	5,400	7,010	1,790	3,390
Antimony	31	470	NSL	0.27	mg/kg	0.17 J	0.19 J	0.11 J	0.15 J	0.13 J	0.19 J	0.16 J	0.18 J	0.15 J
Arsenic	0.68	3	5.8	18	mg/kg	1.28	3.29	2.14	3.25	3.27	5.17	5.29	4.02	3.57
Barium	13,000	220,000	74	330	mg/kg	62.1 J	53.3	32.6 J	57.3	31.5	45.1	56.4	9.52	26.1
Beryllium	160	2,300	NSL	2.5	mg/kg	0.4	0.32	0.21	0.32	0.22	0.3	0.35	0.09 J	0.18 J
Cadmium	7.1	100	1.2	0.36	mg/kg	0.06 J	0.12 J	0.08 J	0.12 J	0.11 J	0.18 J	0.12 J	0.18 J	0.08 J
Calcium	NSL	NSL	NSL	NSL	mg/kg	32,500	54,500	39,700	57,400	49,000	56,500	45,900	50,800	66,800
Chromium	0.3	6.3	18	23	mg/kg	18.3 J	14.8	10.4 J	15.2	11.2	12.4	15.2	4.97	7.92
Cobalt	23	350	6.8	13	mg/kg	6.26	5.9	3.87	5.1	4.85	6.45	7.26	2.23	3.62
Copper	3,100	47,000	32	28	mg/kg	10	14.2	8.64	13.3	10.1	12.2	12.7	5.72	7.5
Iron	55,000	820,000	12,000	NSL	mg/kg	14,700	15,100	10,200	15,700	11,700	14,800	16,200	6,310	9,820
Lead	100	800	21	11	mg/kg	5.38	5.13	3.64	5.73	4.1	5.5	5.83	2.6	3.43
Magnesium	NSL	NSL	NSL	NSL	mg/kg	20,000	21,500	16,300	22,100	18,100	19,100	14,200	12,700	26,700
Manganese	1,800	26,000	440	220	mg/kg	244	455	197	472	266	340	321	191	242
Mercury	11	46	0.13	0.013	mg/kg	0.03 J	0.01 J	0.01 J	0.01 J	0.01 J	0.01 J	0.02 J	0.05 U	0.01 J
Nickel	1,400	17,000	20	38	mg/kg	17.3	17.9	11.1	18.7	11.2	16	18.8	6.42	9.37
Potassium	NSL	NSL	NSL	NSL	mg/kg	387	847	702	879	606	896	1140	260	621
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.12 J	0.11 J	0.4 U	0.4 U
Silver	390	5,800	1	4.2	mg/kg	0.05 J	0.02 J	0.02 J	0.02 J	0.02 J	0.03 J	0.03 J	0.02 J	0.02 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	148	176	121	185	100	98.8	100	83.5	101
Thallium	0.78	12	NSL	0.05	mg/kg	0.07 J	0.11 J	0.07 J	0.12 J	0.08 J	0.18 J	0.16 J	0.08 J	0.07 J
Vanadium	390	5,800	NSL	7.8	mg/kg	17.2	19.5	12.9 J	19.7	14	16.2	18.6	8.13	11
Zinc	23,000	350,000	47	46	mg/kg	31.1	30.7	21.3	33.1	25.2	33.4	37.6	29.5	20

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U+ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location						SB-04	SB-04	SB-04	SB-04	SB-04	SB-04	SB-05	SB-05	SB-05
Sample ID						SB-04-20-25-03292024	DUP SB-04-03292024	SB-04-25-30-03292024	SB-04-30-35-03292024	SB-04-35-40-03292024	DUP SB-05-03292024	SB-05-00-05-03282024	SB-05-05-10-03282024	SB-05-10-15-03282024
Parent Sample ID						SB-04-20-25-03292024	SB-04-20-25-03292024	SB-04-25-30-03292024	SB-04-30-35-03292024	SB-04-35-40-03292024	SB-04-35-40-03292024	SB-05-00-05-03282024	SB-05-05-10-03282024	SB-05-10-15-03282024
Sample Date						3/29/2024	3/29/2024	3/29/2024	3/29/2024	3/29/2024	3/29/2024	3/28/2024	3/28/2024	3/28/2024
Sample Depth (ft bgs)						20-25	20-25	25-30	30-35	35-40	35-40	0-5	5-10	10-15
Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyanide (E335.4)														
Cyanide	23	150	0.39	0.1	mg/kg	0.07 U	0.09 U	0.03 J	0.03 J	0.08 U	0.03 J	0.08 U	0.08 U	0.05 U
Metals (SW6020A/SW7471B)														
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	3,610	4,600	6,100	9,280	1,800	1,500	7,090	5,400	1,840
Antimony	31	870	NSL	0.27	mg/kg	0.13 J	0.14 J	0.18 J	0.29 J	0.28 J	0.17 J	0.12 J	0.14 J	0.08 J
Arsenic	0.68	3	5.8	18	mg/kg	3.43	4.12	8.82	14.9	4.42	3.37	1.7	3.02	2.07
Barium	15,000	220,000	74	330	mg/kg	24.2	35.9 J	84.1	73.1	8.4	7.64	58.5	43.7	15.6
Beryllium	160	2,300	NSL	2.5	mg/kg	0.19 J	0.25	0.31	0.49	0.11 J	0.08 J	0.33	0.26	0.11 J
Cadmium	7.1	100	1.2	0.36	mg/kg	0.08 J	0.12 J	0.16 J	0.2 J	0.18 J	0.13 J	0.17 J	0.09 J	0.05 J
Calcium	NSL	NSL	NSL	NSL	mg/kg	48,400	49,600	79,200	55,500	47,100	45,300	78,200	68,600	81,300
Chromium	0.3	6.3	18	23	mg/kg	8.01	10	12	16.4	4.17	3.4	24	12.3	4.6
Cobalt	23	250	6.8	13	mg/kg	4.09	4.9	1.09	9.77	2.84	2.04	5	5.77	2.03
Copper	3,100	47,000	32	28	mg/kg	7.61	10.1	13.6	17.4	6.63	7.26	9.87	10.6	4.02
Iron	55,000	820,000	12,000	NSL	mg/kg	9,330	13,100	15,400	21,300	7,280	5,840	11,100	13,800	5,830
Lead	100	800	21	11	mg/kg	3.7	4.21	5.69	7.94	3.01	2.68	7.16	4.28	2.12
Magnesium	NSL	NSL	NSL	NSL	mg/kg	14,300	18,100	23,100	15,600	17,000	13,700	24,900	27,700	23,800
Manganese	1,800	26,000	440	220	mg/kg	274	302	351	461	241	192	222	350	170
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.182 J	0.02 J	0.05 U	0.05 U	0.03 J	0.01 J	0.01 J
Nickel	1,400	17,000	20	38	mg/kg	9.68	13	18.3	25.8	6.24	5.19	14.7	14.5	5.29
Potassium	NSL	NSL	NSL	NSL	mg/kg	327	710	1060	1450	236	206	755	794	395
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.14 J	0.16 J	0.33 J	0.4 U	0.4 U	0.14 J	0.4 U	0.4 U
Silver	390	5,800	1	4.2	mg/kg	0.01 J	0.02 J	0.03 J	0.04 J	0.02 J	0.01 J	0.04 J	0.02 J	0.01 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	80.4	91.9	111	122	75.5	72	88.5	105	90.5
Thallium	0.78	12	NSL	0.05	mg/kg	0.09 J	0.13 J	0.19 J	0.28	0.11 J	0.07 J	0.08 J	0.08 J	0.03 J
Vanadium	390	5,800	NSL	7.8	mg/kg	10.8	12.4	15.2	21	7.64	6.75	16	15.2	6.75
Zinc	23,000	350,000	47	46	mg/kg	25.4	32.1	37.2 J	45	29	22	37.1	26	11.2

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Analyte	Location					Sample ID							
	Parent Sample ID					Sample Date							
	Sample Depth (ft bgs)					Sample Date							
	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	SB-05-15-20-03282024	SB-05-20-25-03282024	SB-05-25-30-03282024	SB-05-30-35-03282024	SB-05-35-40-03282024	SB-05-40-45-03282024	DU-P-SB-01-03282024	SB-06-05-10-03292024
Cyanide (E335.4)													
Cyanide	23	150	0.39	0.1	mg/kg	0.06 U	0.06 U	0.07 U	0.08 U	0.08 U	0.08 U	0.06 U	0.04 J
Metals (SW6020A/SW7471B)													
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	3,810	4,790	4,790	7,490	1,890	3,360	1,550	6,540
Antimony	31	470	NSL	0.27	mg/kg	0.14 J	0.1 J	0.29 J	0.29 J	0.32 J	0.23 J	0.27 J	0.15 J
Arsenic	0.68	3	5.8	18	mg/kg	2.13	5.01	5.09	7.05	5.15	4.77	4.84	2.52
Barium	15,000	220,000	74	330	mg/kg	24.3	46 J	45.6	62.8	11.7	21.3	9.82	46.1
Beryllium	160	2,300	NSL	2.3	mg/kg	0.19 J	0.26	0.24	0.38	0.12 J	0.2 J	0.09 J	0.32
Cadmium	7.1	100	1.2	0.36	mg/kg	0.1 J	0.13 J	0.17 J	0.21	0.19 J	0.47	0.21	0.08 J
Calcium	NSL	NSL	NSL	NSL	mg/kg	73,500	81,100 J	82,100	89,600	69,400	58,800	62,200	50,700
Chromium	0.3	6.3	18	23	mg/kg	8.18	10.6	10.5	13.9	4.86	8.42	3.98	13
Cobalt	23	350	6.8	13	mg/kg	4.13	6.08	5.82	8.48	2.69	4.16	2.56	3.46
Copper	3,100	47,000	32	28	mg/kg	8.29	11.4	12.2	15.4	8.32	10.3	7.93	15.8
Iron	55,000	820,000	12,000	NSL	mg/kg	10,100	15,500	13,500	18,200	8,310	11,700	7,700	13,400
Lead	100	800	21	11	mg/kg	3.94	5.05 J	5.02	7.17	3.21	4.47	3.11	4.74
Magnesium	NSL	NSL	NSL	NSL	mg/kg	28,400	23,100	26,300	24,700	22,900	23,200	21,600	19,700
Manganese	1,800	26,000	440	220	mg/kg	271	322	322	425	260	323	236	322
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.01 J	0.01 J	0.01 J	0.01 J	0.05 U	0.02 J
Nickel	1,400	17,000	20	38	mg/kg	10.3	15.3	15	22.7	7.24	10.6	6.69	14.8
Potassium	NSL	NSL	NSL	NSL	mg/kg	653	792 J	838	1,260	309	493	288	881
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.45 J	0.24 J	0.1 J	0.11 J	0.4 U	0.41 U
Silver	390	5,800	1	4.2	mg/kg	0.02 J	0.03 J	0.03 J	0.04 J	0.02 J	0.03 J	0.02 J	0.03 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	113	94.1	99.3	118	87	88.5	81.7	252
Thallium	0.78	12	NSL	0.05	mg/kg	0.07 J	0.15 J	0.16 J	0.24	0.14 J	0.1 J	0.11 J	0.09 J
Vanadium	390	5,800	NSL	7.8	mg/kg	11.4	14.4	13.9	17.4	7.02	11.2	6.34	16.8
Zinc	23,000	350,000	47	46	mg/kg	24.3	32.2	32.3	41.9	22.2	53	23.8	26.6

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location						SB-06	SB-06	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-07
Sample ID						SB-06-10-15-03292024	SB-06-15-20-03292024	SB-06-20-25-03292024	SB-06-25-30-03292024	SB-06-30-35-03292024	SB-07-05-10-04012024	SB-07-10-15-04012024	SB-07-15-20-04012024	SB-07-20-25-04012024
Parent Sample ID						3/29/2024	3/29/2024	3/29/2024	3/29/2024	3/29/2024	4/1/2024	4/1/2024	4/1/2024	4/1/2024
Sample Date						10-15	15-20	20-25	25-30	30-35	5-10	10-15	15-20	20-25
Sample Depth (ft bgs)														
Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyanide (E335.4)														
Cyanide	23	150	0.39	0.1	mg/kg	0.08	0.05 J	0.03 J	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U	0.02 J
Metals (SW6020A/SW7471B)														
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	5,580	4,840	6,830	6,070	3,490	5,430	3,190	3,080	4,380
Antimony	31	470	NSL	0.27	mg/kg	0.16 J	0.09 J	0.22 J	0.22 J	0.13 J	0.09 J	0.08 J	0.08 J	0.21 J
Arsenic	0.68	3	5.8	18	mg/kg	2.35	3.45	6.39	6.31	5.26	2.87	3.37	2.57	2.93
Barium	13,000	230,000	74	330	mg/kg	30.9	35	55.1	52.8	27.2	35.2	22	21.4 J	38.1
Beryllium	160	2,300	NSL	2.5	mg/kg	0.32	0.23	0.34	0.31	0.18 J	0.25	0.13 J	0.14 J	0.23
Cadmium	7.1	100	1.2	0.36	mg/kg	0.09 J	0.04 J	0.23	0.16 J	0.08 J	0.09 J	0.07 J	0.06 J	0.21
Calcium	NSL	NSL	NSL	NSL	mg/kg	55,000	55,700	67,200	54,500	38,100	79,500	66,900	64,200	84,300
Chromium	0.3	6.3	18	23	mg/kg	1210	216	14.1	19.5	86.5	13.5	7.84	7.5	10.9
Cobalt	23	350	6.8	13	mg/kg	5.31	4.41	7.46	6.73	3.8	5.54	3.38	3.22	5.05
Copper	3,100	47,000	32	28	mg/kg	10.3	10.1	14.2	13	7.79	11.2	15.6	6.98	10.8
Iron	55,000	820,000	12,000	NSL	mg/kg	12,900	11,300	12,400	15,000	9,040	13,300	8,800	9,210	13,600
Lead	100	800	21	11	mg/kg	4.53	3.33	6.48	5.66	3.44	4.9	3.17	3.32	4.44
Magnesium	NSL	NSL	NSL	NSL	mg/kg	23,800	23,800	23,000	16,700	12,400	28,000	24,800	26,300	27,900
Manganese	1,800	26,000	440	220	mg/kg	324	247	431	355	203	310	228	203	316
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.01 J	0.01 J	0.05 U	0.01 J	0.02 J	0.01 J	0.01 J
Nickel	1,400	17,000	20	38	mg/kg	12.5	10.5	19.7	17.7	10.3	23.9	8.66	8.12	13.1
Potassium	NSL	NSL	NSL	NSL	mg/kg	798	699	1010	957	608	892	505	548 J	697
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.24 J	0.17 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Silver	390	5,800	1	4.2	mg/kg	0.02 J	0.02 J	0.03 J	0.03 J	0.02 J	0.02 J	0.01 J	0.01 J	0.03 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	188	130	122	93.6	83.7	339	152	86.7	89.5
Thallium	0.78	12	NSL	0.05	mg/kg	0.09 J	0.07 J	0.21	0.2 J	0.11 J	0.07 J	0.06 J	0.06 J	0.11 J
Vanadium	390	5,800	NSL	7.8	mg/kg	15.4	14.5	18.8	16.2	9.67	16.2	11.8	11	14.7
Zinc	23,000	350,000	47	46	mg/kg	27	21.2	46.7	35.6	20.1	26.2	18.6	22.9 J	49.5

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location						SB-07	SB-07	SB-07	SB-08	SB-08	SB-08	SB-08	SB-08	SB-08
Sample ID						SB-07-25-30-04012024	SB-07-30-35-04012024	SB-07-35-40-04012024	SB-08-00-05-03272024	SB-08-05-10-03272024	DUP SB-01-03272024	SB-08-10-15-03272024	SB-08-15-20-03272024	SB-08-20-25-03272024
Parent Sample ID						-	-	-	-	-	SB-08-05-10-03272024	-	-	-
Sample Date						4/1/2024	4/1/2024	4/1/2024	3/27/2024	3/27/2024	3/27/2024	3/27/2024	3/27/2024	3/27/2024
Sample Depth (ft bgs)						25-30	30-35	35-40	0-5	5-10	5-10	10-15	15-20	20-25
Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyanide (E335.4)														
Cyanide	23	150	0.39	0.1	mg/kg	0.03 J	0.08 U	0.08 U	0.09 U	0.09 U	0.09 U	0.09 U	0.1 U	0.08 U
Metals (SW6020A/SW7471B)														
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	4,700	3,140	1,330	5,950	4,170	3,400	5,940	3,350	3,090
Antimony	31	470	NSL	0.27	mg/kg	0.17 J	0.1 J	0.19 J	0.25 J	0.2 J	0.19 J	0.11 J	0.1 J	0.12 J
Arsenic	0.68	3	5.8	18	mg/kg	8.23	17.2	3.7	4.1	4.8	4.81	3.83	4.82	1.83
Barium	15,000	220,000	74	330	mg/kg	43.3	30.4	7.46	46.6	26.1	20.4	49.2 J	44.6	26.1
Beryllium	160	2,300	NSL	2.5	mg/kg	0.23	0.17 J	0.09 J	0.32	0.21	0.17 J	0.29	0.28	0.16 J
Cadmium	7.1	100	1.2	0.36	mg/kg	0.11 J	0.06 J	0.18 J	0.15 J	0.09 J	0.14 J	0.14 J	0.09 J	0.07 J
Calcium	NSL	NSL	NSL	NSL	mg/kg	80,400	45,300	55,300	85,000	69,700	49,400	78,100	72,700	65,400
Chromium	0.3	6.3	18	23	mg/kg	10.1	6.9	3.63	18	19.9	23.8	14.3	13	8.08
Cobalt	23	350	6.8	13	mg/kg	5.19	2.34	1.94	5.4	4.78	4.02	6.82	5.85	3.39
Copper	5,100	47,000	32	28	mg/kg	11.2	6.12	8.24	16.2	10.1	14.2	15.1	10.8	9.31
Iron	55,000	820,000	12,000	NSL	mg/kg	12,900	8,930	6,590	12,700	11,000	8,830	14,100	13,200	9,780
Lead	100	800	21	11	mg/kg	4.76	3.56	4.02	6.75	4.23	3.81	5.19	4.64	3.42
Magnesium	NSL	NSL	NSL	NSL	mg/kg	26,500	12,400	15,000	38,600	27,800	18,200	31,300	29,900	25,000
Manganese	1,800	26,000	440	220	mg/kg	324	182	173	271	269	222	300	312	232
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.05 U	0.01 J	0.01 J	0.01 J	0.01 J	0.01 J	0.01 J
Nickel	1,400	17,000	20	38	mg/kg	13.7	9.05	5.51	14.2	15	22	17	14.8	9.01
Potassium	NSL	NSL	NSL	NSL	mg/kg	783	321	192	762	379	507	1200 J	857	521
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.4 U	0.13 J	0.4 U	0.4 U	0.4 U	0.1 J	0.4 U
Silver	390	5,800	1	4.2	mg/kg	0.02 J	0.02 J	0.02 J	0.04 J	0.04 J	0.04 J	0.03 J	0.02 J	0.02 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	89	52.7	54.9	308	133	98.6	176	132	122
Thallium	0.78	12	NSL	0.05	mg/kg	0.16 J	0.08 J	0.09 J	0.09 J	0.06 J	0.05 J	0.15 J	0.07 J	0.06 J
Vanadium	390	5,800	NSL	7.8	mg/kg	13.4	9.45	7.5	19.1	15.3	11.6	16.8	15.6	11.2
Zinc	23,000	350,000	47	46	mg/kg	28.9	18.4	33.7	31.9	22.7	24	29.1	25.9	20.3

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Location	Sample ID	Sample Date	Sample Depth (ft bgs)	SB-08	SB-08	SB-08	SB-08	SB-08	SB-08	SB-09	SB-09
						SB-08-25-30-03272024	SB-08-30-35-03272024	SB-08-35-40-03272024	SB-08-40-45-03282024	DUP-SB-02-03282024	SB-08-45-50-03282024	SB-08-50-55-03282024	SB-09-00-05-03262024	SB-09-05-10-03262024			
						3/27/2024	3/27/2024	3/27/2024	3/28/2024	3/28/2024	3/28/2024	3/28/2024	3/26/2024	3/26/2024			
						25-30	30-35	35-40	40-45	45-50	50-55	0-5	5-10				
						Result	Result	Result	Result	Result	Result	Result	Result	Result			
Cyanide (E335.4)																	
Cyanide	23	150	0.39	0.1	mg/kg	0.17	0.08 U	0.08 U	0.06 U	0.05 U	0.05 U	0.05 U	0.06 U	0.09 U			
Metals (SW6020A/SW7471B)																	
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	3,780	4,720	1,490	776	907	2,020	2,220	6,470	4,870			
Antimony	31	470	NSL	0.27	mg/kg	0.15 J	0.21 J	0.11 J	0.09 J	0.11 J	0.23 J	0.07 J	0.07 J	0.3 U			
Arsenic	0.68	3	5.8	18	mg/kg	3.06	6.16	2.06	2.42	2.4	4.45	2.13	2.54	2.61			
Barium	15,000	220,000	75	330	mg/kg	36.7	46.1	15.3	3.04	5.36	10.9	17.5	39.4	32.9			
Beryllium	160	2,300	NSL	2.5	mg/kg	0.21	0.25	0.09 J	0.05 J	0.06 J	0.1 J	0.17 J	0.317	0.22			
Cadmium	7.1	100	1.2	0.36	mg/kg	0.13 J	0.25	0.07 J	0.08 J	0.08 J	0.18 J	0.04 J	0.1 J	0.07 J			
Calcium	NSL	NSL	NSL	NSL	mg/kg	76,100	71,100	50,500	39,600	40,300	69,200	35,000	87,200 J	70,400			
Chromium	0.3	6.3	18	23	mg/kg	9.17	10.9	3.87	2.86	5.53	5.16	5.6	13.1	10.1			
Cobalt	23	350	6.8	13	mg/kg	4.52	6.03	1.85	1.62	1.35	3.08	3.05	3.26	3.97			
Copper	3,100	47,000	32	28	mg/kg	9.37	11.6	5	2.78 J	7.85 J	7.6	6.12	11.1	9.17			
Iron	55,000	820,000	12,000	NSL	mg/kg	11,900	14,100	4,470	3,520	3,760	8,560	9,060	14,800	9,600			
Lead	100	800	21	11	mg/kg	4.12	5.11	2.58	1.72	1.51	2.98	3.24	5.02	3.89			
Magnesium	NSL	NSL	NSL	NSL	mg/kg	32,000	23,300	19,100	9,170	8,740	26,500	13,700	31,900	28,200			
Manganese	1,800	26,000	440	220	mg/kg	277	338	141	124	186	249	208	281	221			
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.01 J	0.05 U	0.05 U	0.05 U	0.01 J	0.01 J	0.05 U			
Nickel	1,400	17,000	20	38	mg/kg	11.4	15.8	4.47	3.45	3.31	8.55	7.86	14.1	10.2			
Potassium	NSL	NSL	NSL	NSL	mg/kg	694	851	290	119	141	307	356	942 J	838			
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.12 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			
Silver	390	5,800	1	4.2	mg/kg	0.02 J	0.03 J	0.01 J	0.03 J	0.01 J	0.02 J	0.02 J	0.02 J	0.02 J			
Sodium	NSL	NSL	NSL	NSL	mg/kg	143	110	69.9	38.8	64.3	85.3	70 U	104	166			
Thallium	0.78	12	NSL	0.05	mg/kg	0.07 J	0.12 J	0.04 J	0.02 J	0.02 J	0.1 J	0.04 J	0.09 J	0.07 J			
Vanadium	390	5,800	NSL	7.8	mg/kg	12.8	14.4	5.56	2.88	4.13	8.46	6.75	17.6	13.8			
Zinc	23,000	350,000	47	46	mg/kg	24.8	42.9	18.9	6.26 J	37 J	21.5	18.5	27.9	19.1			

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA ECOSSL Region 4 ⁽⁴⁾	Unit	Location	SB-09	SB-09	SB-09	SB-09	SB-09	SB-09	SB-10	SB-10	SB-10
						Sample ID	SB-09-10-15-03262024	SB-09-15-20-03262024	SB-09-20-25-03262024	SB-09-25-30-03262024	SB-09-30-35-03262024	SB-09-35-38-03262024	SB-10-00-05-03262024	SB-10-05-10-03262024	SB-10-10-15-03262024
						Parent Sample ID	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024	3/26/2024
						Sample Date	10-15	15-20	20-25	25-30	30-35	35-38	0-5	5-10	10-15
						Sample Depth (ft bgs)									
Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result					
Cyanide (E335.4)					mg/kg	0.06 U	0.07 U	0.07 U	0.06 U	0.05 U	0.04 U	0.08	0.05 U	0.06 U	
Metals (SW6020A/SW7471B)															
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	2,520	4,020	7,660	5,670	2,700	1,460	11,700	5,270	6,310	
Antimony	0.31	470	NSL	0.27	mg/kg	0.5 U	0.5 U	0.09 J	0.06 J	0.5 U	0.16 J	0.36 J	0.1 J	0.5 U	
Arsenic	0.68	3	5.8	18	mg/kg	2.46	2.85	8.86	35.3	3.31	3.72	4.81	2.52	1.85	
Barium	15,000	220,000	74	130	mg/kg	15.8	27	60	43.3	15.5	8.55	93	33.5	41.9	
Beryllium	160	2,300	NSL	2.5	mg/kg	0.13 J	0.215	0.4	0.305	0.13 J	0.09 J	0.641	0.263	0.329	
Cadmium	7.1	100	1.2	0.36	mg/kg	0.07 J	0.13 J	0.16 J	0.1 J	0.07 J	0.212	0.657	0.07 J	0.1 J	
Calcium	NSL	NSL	NSL	NSL	mg/kg	62,400	67,700	67,500	52,900	54,600	56,700	34,400	65,200	92,900	
Chromium	0.3	6.3	18	23	mg/kg	5.6	7.92	13.7	11.8	5.75	4.21	39.7	24.4	14	
Cobalt	23	350	6.8	13	mg/kg	2.59	3.92	8.43	6.76	3.14	2.14	7.26	3.04	5.3	
Copper	5,100	47,000	32	28	mg/kg	5.5	8.25	14	10.1	5.92	4.36	24	9.26	9.59	
Iron	55,000	820,000	12,000	NSL	mg/kg	7,250	10,500	18,800	14,800	8,020	6,320	16,000	11,100	13,000	
Lead	100	800	21	11	mg/kg	2.78	4.51	6.99	5.01	2.99	2.98	20.6	4.14	4.93	
Magnesium	NSL	NSL	NSL	NSL	mg/kg	24,300	24,500	19,300	17,300	21,200	17,900	18,900	25,600	31,600	
Manganese	1,800	26,000	440	220	mg/kg	179	269	356	221	198	164	213	267	273	
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.01 J	0.05 U	0.05 U	0.05 U	0.068	0.05 U	0.01 J	
Nickel	1,400	17,000	20	38	mg/kg	6.08	9.7	21.2	17.5	6.37	5.15	21	12.4	13.1	
Potassium	NSL	NSL	NSL	NSL	mg/kg	420	692	1,330	1,010	402	242	858	786	1,000	
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.36	0.4 U	0.4 U	
Silver	390	5,800	1	4.2	mg/kg	0.01 J	0.02 J	0.03 J	0.02 J	0.01 J	0.02 J	0.1 J	0.04 J	0.03 J	
Sodium	NSL	NSL	NSL	NSL	mg/kg	108	106	108	94.7	80.5	75.5	133	118	145	
Thallium	0.78	12	NSL	0.05	mg/kg	0.05 J	0.1 J	0.24	0.19 J	0.05 J	0.07 J	0.12 J	0.08 J	0.09 J	
Vanadium	390	5,800	NSL	7.8	mg/kg	8.93	11.1	17.9	16.2	8.5	7.36	31.1	14.8	16.3	
Zinc	23,000	350,000	47	46	mg/kg	14.8	29	37.8	27.6	15.8	39.5	80.3	20.8	24.9	

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location						SB-10	SB-10	SB-10	SB-10	SB-10	SB-10	SB-10	SB-11	SB-11
Sample ID						SB-10-15-20-03262024	SB-10-20-25-03262024	SB-10-25-30-03262024	SB-10-30-35-03272024	SB-10-35-40-03272024	SB-10-40-45-03272024	SB-10-45-50-03272024	SB-11-10-15-04012024	SB-11-15-20-04012024
Parent Sample ID						3/26/2024	3/26/2024	3/26/2024	3/27/2024	3/27/2024	3/27/2024	3/27/2024	4/1/2024	4/1/2024
Sample Date						15-20	20-25	25-30	30-35	35-40	40-45	45-50	10-15	15-20
Sample Depth (ft bgs)														
Analyte	EPA RSL Residential Soil ⁽¹⁾	EPA RSL Industrial Soil ⁽²⁾	MI Background Level ⁽³⁾	EPA EcoSSL Region 4 ⁽⁴⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Cyanide (E335.4)	23	150	0.39	0.1	mg/kg	0.07 U	0.07 U	0.06 U	0.1 U	0.19	0.08 U	0.08 U	0.07 U	0.06 U
Metals (SW6020A/SW7471B)														
Aluminum	77,000	1,100,000	6,900	NSL	mg/kg	5,110	3,770	4,250	4,650	6,600	742	1,650	3,890	2,790
Antimony	31	470	NSL	0.27	mg/kg	0.05 J	0.5 U	0.07 J	0.16 J	0.34 J	0.12 J	0.2 J	0.11 J	0.07 J
Arsenic	0.68	3	5.8	18	mg/kg	3.1	2.02	2.86	8.37	7.98	2.68	3.82	2.27	3.5
Barium	15,000	220,000	74	330	mg/kg	39.3	29.2	30.7	42.9	64.7	4.56	11.8	29.8	19.1
Beryllium	160	2,300	NSL	2.5	mg/kg	0.223	0.2 J	0.299	0.24	0.34	0.05 J	0.1 J	0.2 J	0.13 J
Cadmium	7.1	100	1.2	0.36	mg/kg	0.07 J	0.1 J	0.09 J	0.24	0.17 J	0.02 J	0.15 J	0.08 J	0.04 J
Calcium	NSL	NSL	NSL	NSL	mg/kg	70,800	57,200	76,400	73,600	70,000	43,100	57,500	74,200	74,100
Chromium	0.3	6.3	18	23	mg/kg	11.3	7.59	8.85	11.4	14.7	2.11	5.4	10.6	6.92
Cobalt	23	350	6.8	13	mg/kg	4.9	2.58	4.05	5.71	7.75	1.33	2.27	4.23	3.18
Copper	5,100	47,000	32	28	mg/kg	8.74	7.48	7.21	11.5	13.6	2.32	5.53	9.06	6.88
Iron	55,000	820,000	12,000	NSL	mg/kg	11,100	9,040	10,800	13,800	17,700	5,150	6,870	10,600	7,750
Lead	100	800	21	11	mg/kg	4.3	3.35	4.06	4.91	6.17	1.3	2.48	3.63	2.53
Magnesium	NSL	NSL	NSL	NSL	mg/kg	28,800	21,300	28,400	22,700	26,700	10,800	21,800	28,500	24,300
Manganese	1,800	26,000	440	220	mg/kg	245	208	244	354	388	122	202	256	182
Mercury	11	46	0.13	0.013	mg/kg	0.01 J	0.01 J	0.01 J	0.03 J	0.01 J	0.05 U	0.01 J	0.01 J	0.01 J
Nickel	1,400	17,000	20	38	mg/kg	12.2	8.87	9.79	14.9	20.4	2.71	5.55	10.8	7.84
Potassium	NSL	NSL	NSL	NSL	mg/kg	812	378	681	769	1000	134	293	669	450
Selenium	390	5,800	0.41	0.52	mg/kg	0.4 U	0.4 U	0.4 U	0.1 J	0.17 J	0.4 U	0.4 U	0.4 U	0.4 U
Silver	390	5,800	1	4.2	mg/kg	0.02 J	0.02 J	0.02 J	0.03 J	0.03 J	0.01 J	0.01 J	0.02 J	0.01 J
Sodium	NSL	NSL	NSL	NSL	mg/kg	114	108	123	109	107	70 U	96.3	176	118
Thallium	0.78	12	NSL	0.05	mg/kg	0.08 J	0.07 J	0.08 J	0.1 J	0.15 J	0.02 J	0.06 J	0.08 J	0.06 J
Vanadium	390	5,800	NSL	7.8	mg/kg	13.7	10.4	12.5	14	18.7	2.73	6.35	13.7	9.94
Zinc	23,000	350,000	47	46	mg/kg	22.4	19.1	22.4	40.5	37.6	27.5	27.4	23	13.7

Notes:
(1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
(2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
(3) Michigan Statewide Default Background Level.
(4) EPA Region 4 ERA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.
Bolded = Concentration exceeds EPA RSL for Residential Soil
Shaded = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA Region 4 Eco SSL
ft bgs = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
U- = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-4. Soil Sampling Results for Metals and Cyanide

Notes:

- (1) EPA RSL for Residential Soil (TR-1E-06, HQ-1). May 2024.
- (2) EPA RSL for Industrial Soil (TR-1E-06, HQ-1). May 2024.
- (3) Michigan Statewide Default Background Level.
- (4) EPA Region 4 EPA Supplemental Guidance Soil Screening Levels for Hazardous Waste Sites.

Red = Concentration exceeds EPA RSL for Residential Soil
Orange = Concentration exceeds EPA RSL for Industrial Soil
Blue = Concentration exceeds Michigan Background
Underlined = Concentration exceeds EPA RSL for Region 4
B = Feet below ground surface
mg/kg = Milligram(s) per kilogram
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J = The analyte concentration is an estimated quantity, but result may be biased high.
J = The analyte concentration is an estimated quantity, but result may be biased low.
N = The analyte was analyzed but not detected.
R = The reported quantity limit is approximate.
U = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-5. Grab Groundwater Sampling Results for PFAS

Location				GW-02	GW-02	GW-04	GW-05	GW-06	GW-07	GW-08
Sample ID				GW-02-15-20-04022024	DUP-GW-02-04022024	GW-04-13-18-03282024	GW-05-13-18-03282024	GW-06-14-19-03292024	GW-07-14-19-04012024	GW-08-07-12-03272024
Parent Sample ID				4/2/2024	GW-02-15-20-04022024	3/28/2024	3/28/2024	3/29/2024	4/1/2024	3/27/2024
Sample Date				4/2/2024	4/2/2024	3/28/2024	3/28/2024	3/29/2024	4/1/2024	3/27/2024
Sample Depth (ft bgs)				15-20	15-20	13-18	13-18	14-19	14-19	7-12
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result
PFAS (ASTM D7979-19M)										
1,1-Chloroicosanfluoro-3-Oxaundecane-1-Sulfonic Acid (11CI-PF3OLdS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
4,8-Dioxo-3H-Perfluorononanoic Acid (ADONA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
9-Chlorohexadecafluoro-3-Oxanon-1-Sulfonic Acid (9CI-PF3ONS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Fluorotelomer Sulphonic Acid 4:2 (4:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Fluorotelomer Sulphonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	2.5	2 U
Fluorotelomer Sulphonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	2 U	2 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.5	10	370	ng/L	9.5 U	10 U	10 U	9.7 U	9.6 U	10 U
N-(Heptadecafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
N-ethyl-N-(heptadecafluorooctylsulfonyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	ng/L	3.8 U	4.1 U	4.1 U	3.9 U	3.8 U	4 U
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS) (PFECHS)	NSL	NSL	NSL	ng/L	2.2	2.4	45	370	9,300	160
Perfluorobutanesulfonate (PFBS)	600	NSL	420	ng/L	4.4	4.2	64	360	4,700	160
Perfluorobutanoic Acid (PFBA)	1,800	NSL	NSL	ng/L	9.5 U	10 U	6.2 U	8.6 U	33	27
Perfluorobutylsulfonamide (FBSA) (FBSA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	2.6 U	2 U
Perfluorodecane sulfonic Acid (PFDS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluorodecanoic Acid (PFDA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluorododecanoic Acid (PFDoA)	100	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluoroheptanesulfonic Acid (PFTHS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	3.3	8.9	7.5
Perfluorooctanoic Acid (PFHxA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.1 U	8.9	28
Perfluorohexanesulfonamide (PFHxSA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluorohexanesulfonic acid (PFHxS)	39	10	51	ng/L	1.9 U	2 U	7.9	40	600	76
Perfluorohexanesulfonic acid - BR (PFHxS-BR)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2.2	14	150	18
Perfluorohexanesulfonic acid - LN (PFHxS-LN)	NSL	NSL	NSL	ng/L	1.9 U	2 U	5.4	26	530	57
Perfluorohexanoic Acid (PFHxA)	990	NSL	400,000	ng/L	1.6 U	1.5 U	4.6	7.5	32	55
Perfluorooctanesulfonic Acid (PFOS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluorooctanoic Acid (PFNA)	5.9	10	6	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluorooctane Sulfonic Acid (PFOS)	0.2	4	16	ng/L	1.9 U	2 U	18	230	87	170
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	ng/L	1.9 U	2 U	16	140	51	140
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	84	6	32
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluorooctanoic Acid (PFOA)	0.0027	4	8	ng/L	1.9 U	2 U	1.4 U	2.5	15	14
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	3.8	29	410	34
Perfluoropentanoic Acid (PFPeA)	NSL	NSL	NSL	ng/L	3.8 U	4.1 U	1.4 U	4.3	17	80
Perfluorotetradecanoic Acid (PFTeDA)	2,000	NSL	NSL	ng/L	3.8 U	4.1 U	4.1 U	3.9 U	3.8 U	4 U
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U
Perfluoroundecanoic Acid (PFUnA)	600	NSL	NSL	ng/L	1.9 U	2 U	2 U	1.9 U	1.9 U	2 U

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL - May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
EGLE = Michigan Department of Environment, Great Lakes, and Energy
ft bgs = Feet below ground surface
MCL = Maximum contaminant level
ng/L = Nanogram(s) per liter
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.

Table 4-5. Grab Groundwater Sampling Results for PFAS

Location					GW-08	GW-09	GW-10	GW-10	GW-11	GW-11
Sample ID					DUP-GW-01-03272024	GW-09-10-15-03262024	GW-10-07-12-03262024	GW-10-19-24-03272024	GW-11-10-15-04012024	GW-11-14-19-04012024
Parent Sample ID					GW-08-07-12-03272024	--	--	--	--	--
Sample Date					3/27/2024	3/26/2024	3/26/2024	3/27/2024	4/1/2024	4/1/2024
Sample Depth (ft bgs)					7-12	10-15	7-12	19-24	10-15	14-19
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result
PFAS (ASTMD7979-19M)										
11-Chlorooctadecafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUDS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
4,8-Dioxo-3H-Perfluorononanoic Acid (ADONA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
9-Chlorohexadecafluoro-3-Oxanon-1-Sulfonic Acid (9Cl-PF3ONS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Fluorotelomer Sulphonic Acid 4:2 (4:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Fluorotelomer Sulphonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	4.1	2 U	2 U
Fluorotelomer Sulphonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.5	10	370	ng/L	9.6 U	9.7 U	9.7 U	10 U	10 U	10 U
N-(Heptadecafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
N-ethyl-N-(heptadecafluorooctylsulfonyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	ng/L	3.8 U	3.9 U	3.9 U	4.1 U	4.1 U	4.1 U
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)	NSL	NSL	NSL	ng/L	210	690	300	810	1,090	1,100
Perfluorobutanesulfonate (PFBS)	600	NSL	420	ng/L	240	47	92	83	2,400	2,500
Perfluorobutanoic Acid (PFBA)	1,800	NSL	NSL	ng/L	9.6	27 U	2.6 U	17	26 U	41
Perfluorobutylsulfonamide (FBSA) (FBSA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorodecane sulfonic Acid (PFDS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorodecanoic Acid (PFDA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorododecanoic Acid (PFDoA)	100	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorooheptanesulfonic Acid (PFHpS)	NSL	NSL	NSL	ng/L	3.9	4.1	3.4	6.5	20	3 U
Perfluorooheptanoic Acid (PFHpA)	NSL	NSL	NSL	ng/L	1.9 U	7	1.3 U	7.5	17	3.8
Perfluorohexanesulfonamide (PFHxSA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorohexanesulfonic acid (PFHxS)	39	10	51	ng/L	9.3	20	18	24	110	130
Perfluorohexanesulfonic acid - BR (PFHxS-BR)	NSL	NSL	NSL	ng/L	1.2 U	3.5	2.4	3.4	24	72
Perfluorohexanesulfonic acid - LN (PFHxS-LN)	NSL	NSL	NSL	ng/L	7.8	15	15	20	86	58
Perfluorohexanoic Acid (PFHxA)	990	NSL	400,000	ng/L	5.2	10	3.8	12	22	31
Perfluorooctanesulfonic Acid (PFOS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorooctanoic Acid (PFNA)	5.9	10	6	ng/L	1.5 U	11	1.9 U	14	6.5	2 U
Perfluorooctane Sulfonic Acid (PFOS)	0.2	4	16	ng/L	1,190	140	990	250	3,900	100
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	ng/L	600	97	330	150	1,300	32
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	ng/L	460	36	560	100	2,600	71
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluorooctanoic Acid (PFOA)	0.0027	4	8	ng/L	7.5	12	6.9	12	52	4.5
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	ng/L	3	6.9	3.3	10	50	270
Perfluoropentanoic Acid (PFPeA)	NSL	NSL	NSL	ng/L	3.2 U	6.5	3.1 U	8.5	21	23
Perfluorotetradecanoic Acid (PFTeDA)	2,000	NSL	NSL	ng/L	3.8 U	3.9 U	3.9 U	4.1 U	4.1 U	4.1 U
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U
Perfluoroundecanoic Acid (PFUnA)	600	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2.1 U	2 U	2 U

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL, May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
EGLE = Michigan Department of Environment, Great Lakes, and Energy
ft bgs = Feet below ground surface
MCL = Maximum contaminant level
ng/L = Nanogram(s) per liter
NSL = No Screening Level
RSL = Regional Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.

Table 4-6. Grab Groundwater Results for Alkalinity, VOCs, and 1,4-Dioxane

Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	EPA Residential VSL ⁽⁴⁾	EPA Industrial VSL ⁽⁵⁾	Sample Depth (ft bgs)	Location															
							Sample ID															
							Parent Sample ID															
							Sample Date															
Sample Depth (ft bgs)							15-20	15-20	15-18	15-18	14-19	14-19	7-12	7-12	16-18	7-12	16-18	16-24	16-24	16-24	16-24	
Result							Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Alkalinity (SM2220B)																						
Alkalinity (as CaCO ₃)	NSL	NSL	NSL	NSL	NSL	µm/L	664	628	616	624	628	442	546	444	622	488	714					
Volatile Organic Compounds (SW8260C)																						
1,1,1-Trichloroethane	0.77	NSL	77	3.71	16.2	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1,1-Trichloroethane	800	200	200	742	3,110	µg/L	1.0	1.0	1.0	1.0	69	700	1.0	128	124	1.0	11	6.32	1.0	1.0	1.0	
1,1,2-Trichloroethane	0.076	NSL	8.5	3.29	14.1	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1,2-Trichloroethane	1,000	NSL	170,000	24.2	102	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1,2-Trichloroethane	0.041	5	5	0.619	2.6	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1-Dichloroethane	2.7	NSL	880	7.64	33.4	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1-Dichloroethane	28	7	7	18.5	1.63	µg/L	1.0	1.0	1.0	1.0	7	8	1.0	0.94 J	0.99 J	1.0	1.0	1.0	1.0	1.0	1.0	
1,2-Dichloroethane	0.7	NSL	NSL	NSL	NSL	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
1,2-Dichloroethane	0.0075	NSL	42	2.23	9.17	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,2,3-Trichloropropane	5.3	NSL	NSL	35.1	147	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	33	1.0	1.0	1.0	1.0	1.0	
1,2,3-Trichloropropane	0.4	NSL	NSL	2.59	104	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
1,2,4-Trichlorobenzene	5.6	NSL	63	25.8	104	µg/L	1.0	1.0	1.0	1.0	2.59	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,2,4-Trichlorobenzene	0.0043	0.2	0.2	0.0281	0.24	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
1,2-Dibromochloroethane	0.0075	0.05	0.05	0.176	0.709	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,2-Dibromochloroethane	30	600	600	266	1,120	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,2-Dichloroethane	0.17	5	5	2.24	9.78	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,2-Dichloroethane	0.82	5	5	1.62	35.3	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.53 J	1.0	0.43 J	1.0	1.0	1.0	
1,2,5-Trichlorobenzene	8	NSL	72	17.5	73.3	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1,1-Dichloroethane	30	400	6.6	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1,1-Dichloroethane	30	400	6.6	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,1,1-Dichloroethane	0.48	75	75	2.59	113	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,4-Dichlorobenzene	NSL	NSL	NSL	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,4-Dichlorobenzene	NSL	NSL	NSL	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1,4-Dichlorobenzene	3.3	NSL	1,000	321	1,450	µg/L	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	
1,4-Dichlorobenzene	1,800	NSL	730	NSL	NSL	µg/L	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	
Acetone	0.0045	NSL	120	0.416	1.76	µg/L	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Acetone	0.052	NSL	2.6	1.22	3.2	µg/L	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Benzene	0.46	5	5	1.59	6.93	µg/L	1.0	1.0	1.0	1.0	1.0	0.44 J	1.0	1.0	1.0	1.0	1.0	1.0	1.0	6.38 J	6.91 J	
Bromobenzene	6.2	NSL	13	62	260	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Bromobenzene	8.3	NSL	NSL	65.9	264	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Bromobenzene	0.13	80	80	0.876	3.52	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Bromobenzene	5.5	NSL	80	11.7	5.0	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Bromobenzene	0.75	NSL	10	1.94	9.3	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Carbon disulfide	81	NSL	800	1,234	221	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Carbon tetrachloride	0.46	5	5	0.415	1.81	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Chlorobenzene	7.8	100	100	41	172	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Chlorobenzene	830	NSL	430	919	1,660	µg/L	5.0	5.0	5.0	5.0	600	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Chlorobenzene	0.22	80	80	0.114	1.55	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Chlorobenzene	19	NSL	360	36	109	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Chlorobenzene	0.41	NSL	NSL	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.16 J	1.0	0.33 J	1.0	1.0	1.0	1.0	
Cyclohexane	1,300	NSL	NSL	102	429	µg/L	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dibromochloroethane	NSL	NSL	NSL	NSL	NSL	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dibromochloroethane	0.37	80	80	NSL	NSL	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dibromochloroethane	0.83	NSL	80	12.4	52.1	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dibromochloroethane	NSL	NSL	1,200	0.344	1.22	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dichloroethane	390	NSL	10	NSL	NSL	µg/L	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Dichloroethane	19	10,000	280	38.5	162	µg/L	3.0	3.0	3.0	3.0	3.0	26	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.27 J	
Dichloroethane	1.5	NSL	10	3.40	8.52	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	NSL	NSL	NSL	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	150	NSL	30	697	2,930	µg/L	5.0	5.0	5.0	5.0	5.0	50.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dichloroethane	45	NSL	830	83.9	338	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dichloroethane	19	10,000	NSL	NSL	NSL	µg/L	2.0	2.0	2.0	2.0	2.0	11	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Dichloroethane	560	NSL	13,000	224,000	942,000	µg/L	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	
Dichloroethane	630	NSL	1,800	55,000	733,000	µg/L	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	
Dichloroethane	20	NSL	NSL	0.564	3.37	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	100	NSL	80	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	46	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	19	NSL	NSL	NSL	1,629	µg/L	1.0	1.0	1.0	1.0	1.0	46	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	19	NSL	NSL	49.2	207	µg/L	1.0	1.0	1.0	1.0	1.0	15	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	6.28 J	
Dichloroethane	200	NSL	80	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	28	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	100	NSL	100	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Dichloroethane	99	NSL	80	NSL	NSL	µg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.91 J	1.0	1.0	1.0	0.69 J	1.0	
Dichloroethane	NSL	NSL	190	NSL	NSL	µg/L	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Dichloroethane	150	NSL	NSL	3,800	14,010	µg/L	50.0	50.0														

Table 4-6. Grab Groundwater Results for Alkalinity, VOCs, and 1,4-Dioxane

Sample ID	Location																			
	CW-05		CW-06		CW-04		CW-05		CW-06		CW-07		CW-08		CW-09		CW-10		CW-11	
	CW-02, 14.10-14.0407202		CW-03, 14.11.18.0328202		CW-04, 14.11.18.0328202		CW-05, 14.11.18.0328202		CW-06, 14.11.18.0328202		CW-07, 14.11.18.0328202		CW-08, 14.11.18.0328202		CW-09, 14.11.18.0328202		CW-10, 14.11.18.0328202		CW-11, 14.11.18.0328202	
	Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID		Parent Sample ID	
Sample Date	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024	4-2-2024
Sample Depth (ft)	0-20		0-20		0-20		0-20		0-20		0-20		0-20		0-20		0-20		0-20	
Analyte	EPA Toxigenic BSL ⁽¹⁾	EPA Residential VSL ⁽²⁾	EGLC Ceiling Criteria ⁽³⁾	EPA Residential VSL ⁽²⁾	EPA Industrial VSL ⁽²⁾	Unit	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
	Test 1 - 4 Children's 2 Infants	Test 2 - 4 Children's 2 Infants	Test 3 - 4 Children's 2 Infants	Test 4 - 4 Children's 2 Infants	Test 5 - 4 Children's 2 Infants	Test 6 - 4 Children's 2 Infants	Test 7 - 4 Children's 2 Infants	Test 8 - 4 Children's 2 Infants	Test 9 - 4 Children's 2 Infants	Test 10 - 4 Children's 2 Infants	Test 11 - 4 Children's 2 Infants	Test 12 - 4 Children's 2 Infants	Test 13 - 4 Children's 2 Infants	Test 14 - 4 Children's 2 Infants	Test 15 - 4 Children's 2 Infants	Test 16 - 4 Children's 2 Infants	Test 17 - 4 Children's 2 Infants	Test 18 - 4 Children's 2 Infants	Test 19 - 4 Children's 2 Infants	Test 20 - 4 Children's 2 Infants
Test 1 - 4 Children's 2 Infants	NSL	NSL	0.0206	0.0106	0.0106	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 2 - 4 Children's 2 Infants	NSL	NSL	0.0128	0.0128	0.0128	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 3 - 4 Children's 2 Infants	NSL	NSL	2.669	NSL	NSL	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 4 - 4 Children's 2 Infants	0.0119	2	0.0119	2	0.0119	Unit	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669	2.669
Test 5 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 6 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 7 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 8 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 9 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 10 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 11 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 12 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 13 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 14 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 15 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 16 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 17 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 18 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 19 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Test 20 - 4 Children's 2 Infants	0.46	NSL	0.46	0.46	0.46	Unit	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

(Notes)

- (1) EPA RSL for Tapwater (Target risk = 1E-06, HQ = 0.1) May 2024.
- (2) EPA RSL - May 2024.
- (3) EGLE Clean Water Requirements for Response Activity, Part 20 (Residential Drinking Water).
- (4) EPA VSL: Target Groundwater Concentration for Residential and Commercial Recipients (1991).
- (5) **Underlined** = Concentration exceeds EPA Tapwater RSL.
- (6) **Shaded** = Concentration exceeds EPA RML.
- (7) **Blue** = Concentration exceeds EGLE Cleanup Criteria.
- (8) **Underlined** = Concentration exceeds EPA Residential RSL.
- (9) **Underlined** = Concentration exceeds EPA Industrial RSL.
- (10) $\mu\text{g/L}$ = Microgram(s) per liter
- (11) $\text{EGL} = \text{Michigan Department of Environment, Great Lakes, and Energy}$
- (12) $\text{E lbs/g} = \text{Feet below ground surface}$
- (13) $\text{MCL} = \text{Maximum contaminant level}$
- (14) $\text{mg/L} = \text{Milligram(s) per liter}$
- (15) $\text{N/A} = \text{No Screening Level}$
- (16) $\text{RSL} = \text{Regional Screening Levels}$
- (17) $\text{VSL} = \text{Value Iteration Screening Level}$
- (18) $\text{U} = \text{The analyte concentration is an estimated quantity.}$
- (19) $\text{U} = \text{The analyte concentration is an estimated quantity, but result may be biased high.}$
- (20) $\text{U} = \text{The analyte concentration is an estimated quantity, but result may be biased low.}$
- (21) $\text{U} = \text{The analyte concentration is an estimated quantity, but result may be biased low.}$
- (22) $\text{U} = \text{The analyte was analyzed but not detected. The reported quantitation limit is approximately 10 times the detection limit.}$

Table 4-6. Grab Groundwater Results for Alkalinity, VOCs, and 1,4-Dioxane

Sample ID							Location
Parent Sample ID							GW-11
Sample Date							10/11-14-19-2024-2025
Sample Depth (ft bgs)							4/1/2024
							14.19
Unit							Result
Alkalinity (SM2320B)	NSL	NSL	NSL	NSL	NSL	mg/L	626
Volatiles Organic Compounds (SW826C)							
1,1,1,2-Tetrachloroethane	0.57	NSL	77	3.71	16.2	µg/L	1 U
1,1,1-Trichloroethane	800	200	200	742	3,110	µg/L	4
1,1,2,2-Tetrachloroethane	0.078	NSL	8.5	3.23	14.1	µg/L	1 U
1,1,2-Trichloro-1,2,2-trifluoroethane	1,000	NSL	170,000	24.2	102	µg/L	1 U
1,1,2-Trichloroethane	0.041	5	5	0.619	2.6	µg/L	1 U
1,1-Dichloroethane	2.8	NSL	600	7.64	13.4	µg/L	44
1,1-Dichloroethene	28	7	7	19.5	1.63	µg/L	0.56 U
1,2,3-Trichlorobenzene	0.7	NSL	NSL	NSL	NSL	µg/L	5 U
1,2,3-Trichloropropane	0.00073	NSL	42	2.23	9.17	µg/L	1 U
1,2,3-Trimethylbenzene	5.5	NSL	NSL	35.1	147	µg/L	1 U
1,2,4-Trichlorobenzene	0.4	70	70	3.59	15.1	µg/L	5 U
1,2,4-Trimethylbenzene	5.6	NSL	63	24.8	108	µg/L	1 U
1,2-Dibromo-3-chloropropane	0.00033	0.2	0.2	0.0281	0.34	µg/L	8 U
1,2-Dibromomethane	0.0075	0.05	0.05	0.176	0.769	µg/L	1 U
1,2-Dichlorobenzene	39	600	600	266	1,120	µg/L	1 U
1,2-Dichloroethane	0.17	5	5	2.24	9.78	µg/L	1 U
1,2-Dichloropropane	0.82	5	5	1.62	15.2	µg/L	1 U
1,3,5-Trimethylbenzene	6	NSL	72	17.5	73.5	µg/L	1 U
1,3-Dichlorobenzene	39	600	6.6	NSL	NSL	µg/L	1 U
1,3-Dichloropropane	17	NSL	NSL	NSL	NSL	µg/L	1 U
1,4-Dichlorobenzene	0.48	75	75	2.59	11.3	µg/L	1 U
1,4-Chloroethanol ether	NSL	NSL	NSL	NSL	NSL	µg/L	1 U
1,4-Dioxane	24	NSL	150	NSL	NSL	µg/L	1 U
2-Hexanone	3.8	NSL	1,000	821	3,450	µg/L	50 U
Acetone	1,800	NSL	730	NSL	NSL	µg/L	50 U
Acetone	0.0042	NSL	120	0.418	1.76	µg/L	10 U
Acrylonitrile	0.052	NSL	2.6	7.32	32	µg/L	2 U
Butane	0.46	5	5	1.59	6.93	µg/L	1 U
Bromobenzene	6.2	NSL	18	62	260	µg/L	1 U
Bromochloromethane	0.3	NSL	NSL	60.9	284	µg/L	1 U
Bromodichloromethane	0.13	80	80	0.876	3.82	µg/L	1 U
Bromoflorm	3.3	80	80	117	510	µg/L	1 U
Bromonethane	0.75	NSL	10	1.74	7.3	µg/L	8 U
Carbon disulfide	81	NSL	800	124	521	µg/L	5 U
Carbon tetrachloride	0.46	5	5	0.413	1.81	µg/L	1 U
Chlorobenzene	7.8	100	100	41	172	µg/L	1 U
Chloroethane	830	NSL	430	919	3,860	µg/L	2.68 U
Chloroform	0.23	80	80	0.314	3.35	µg/L	1 U
Chloromethane	19	NSL	260	26	109	µg/L	8 U
cis-1,2-Dichloroethene	2.5	10	10	23	105	µg/L	0.42 U
cis-1,3-Dichloropropene	0.47	NSL	NSL	NSL	NSL	µg/L	1 U
Cyclohexane	1,300	NSL	NSL	102	429	µg/L	1 U
Cyclohexene	NSL	NSL	NSL	NSL	79	µg/L	5 U
Diisopropyl ether	0.87	80	80	NSL	NSL	µg/L	5 U
Dibromochloromethane	0.83	NSL	80	12.4	52.1	µg/L	5 U
Dibromomethane	26	NSL	1,700	0.768	3.12	µg/L	5 U
Dichloro ether	299	NSL	10	NSL	NSL	µg/L	10 U
Total Xylenes	19	10,000	280	38.5	162	µg/L	3 U
Cyclohexene	1.5	700	74	3.49	15.2	µg/L	1 U
Methyl iodide	NSL	NSL	NSL	NSL	NSL	µg/L	1 U
Diisopropyl ether (DIPE)	150	NSL	30	697	2,930	µg/L	5 U
Isopropyl Benzene	45	NSL	800	85	371	µg/L	5 U
m-Xylene	19	10,000	NSL	NSL	NSL	µg/L	2 U
2-Butanone	560	NSL	13,000	224,000	941,000	µg/L	25 U
1,4-Methyl-2-pentanone (MIBK)	0.30	NSL	1,000	55,500	233,000	µg/L	50 U
Methyl cyclohexane	20	NSL	NSL	0.564	2.37	µg/L	1 U
n-Butylbenzene	100	NSL	80	NSL	NSL	µg/L	1 U
m-Propylbenzene	66	NSL	80	243	1,020	µg/L	1 U
p-Xylene	19	NSL	NSL	49.2	207	µg/L	1 U
sec-Butylbenzene	200	NSL	80	NSL	NSL	µg/L	1 U
Styrene	120	100	100	928	3,900	µg/L	1 U
tert-Butylbenzene	69	NSL	80	NSL	NSL	µg/L	1 U
tert-Butyl methyl ether (TAME)	NSL	NSL	190	NSL	NSL	µg/L	5 U
tert-Butyl alcohol (TBA)	150	NSL	3,900	1,430,000	5,920,000	µg/L	50 U
Ethyl tert-butyl ether (ETBE)	70	NSL	49	523	2,280	µg/L	5 U
sec-Methyl tert-butyl ether (MTBE)	14	NSL	40	460	1,970	µg/L	5 U
Tetrahydrofuran	4.1	5	5	5.76	24.2	µg/L	1 U
Tetrahydrofuran	340	NSL	95	72,400	304,000	µg/L	90 U
Toluene	110	1,000	960	1,920	8,070	µg/L	1 U
trans-1,3-Dichloroethene	0.8	100	100	10.9	45.7	µg/L	1 U
trans-1,3-Dichloropropene	0.47	NSL	NSL	NSL	NSL	µg/L	1 U

Table 4-6. Grab Groundwater Results for Alkalinity, VOCs, and 1,4-Dioxane

Location							QW-11
Sample ID							QW-11-14-19-20-21-2024
Parent Sample ID							---
Sample Date							4/1/2024
Sample Depth (ft bgs)							14-19
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	EPA Residential VSL ⁽⁴⁾	EPA Industrial VSL ⁽⁴⁾	Unit	Result
trans-1,4-Dichloro-2-butene	0.0013	NSL	NSL	0.0246	0.106	µg/L	1 U
Trichloroethylene	0.28	5	5	0.518	2.18	µg/L	8.59 J
Trichlorofluoromethane	250	NSL	2,600	NSL	NSL	µg/L	1 U
Vinyl chloride	0.019	2	2	0.143	2.43	µg/L	1 U
1,4-Dioxane (SW8260 SIM)							
1,4-Dioxane	0.46	NSL	7.3	2,860	12,500	µg/L	58

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL, May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
(4) EPA VSL, Target Groundwater Concentration for Residential and Commercial Receptors (TR=1E-06, HQ = 0.1), May 2024.
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria.
Underlined = Concentration exceeds EPA Residential VSL.
Italicized = Concentration exceeds EPA Industrial VSL.
µg/L = Micrograms per liter
EGLE = Michigan Department of Environment, Great Lakes, and Energy
ft bgs = Feet below ground surface
MCL = Maximum contaminant level
mg/L = Milligrams per liter
NSL = No Screening Level
RSL = Regional Screening Levels
VSL = Vapor Intrusion Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UI = The analyte was analyzed but not detected. The reported quantitation limit is approximate.

Analyte	Location				Sample ID				Parent Sample ID				Sample Date				Sample Depth (ft bgs)				Fraction			
	GW-02				GW-02				GW-02				GW-02				GW-04				GW-04			
	GW-02-15-20-04022024-F				DUP-GW-02-04022024-F				GW-02-15-20-04022024				DUP-GW-02-04022024				GW-04-13-18-03282024				GW-04-13-18-03282024			
	Sample Date				GW-02-15-20-04022024-F				Sample Date				GW-02-15-20-04022024				Sample Date				GW-04-13-18-03282024			
	15-20				15-20				15-20				15-20				13-18				13-18			
Dissolved				Dissolved				Total				Total				Dissolved				Total				
Result				Result				Result				Result				Result				Result				
Metals (200.8, 245.1)																								
Aluminum	2,000	NSL	50	µg/L	10 U	10 U	333	348	10 U	1,290	10 U	2,650	10 U											
Antimony	0.78	6	6	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U											
Arsenic	0.052	10	10	µg/L	5	3	5	5	4	8	2	4	2											
Barium	380	2,000	2,000	µg/L	236	234	238	236	209	214	118	155	234											
Beryllium	2.5	4	4	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U											
Cadmium	0.18	5	5	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U											
Calcium	NSL	NSL	NSL	µg/L	138,000	127,000	142,000	145,000	161,000	180,000	148,000	182,000	165,000											
Chromium	2,200	100	100	µg/L	5 U	5 U	5 U	5 U	5 U	4.85 J	0.869 J	7	5 U											
Cobalt	0.6	NSL	40	µg/L	0.678 J	0.757 J	1.11 J	1.11 J	0.726 J	2.42 J	20	115												
Copper	80	1,300	1,000	µg/L	5 U	6	1.05 J	1.24 J	5 U	4.64 J	0.914 J	8	0.88 J											
Iron	1,400	NSL	300	µg/L	6,800	6,840	7,820	8,000	7,320	11,600	2,740	8,950	7,060											
Lead	15	15	4	µg/L	3 U	3 U	0.675 J	0.75 J	3 U	2.96 J	3 U	5	3 U											
Magnesium	NSL	NSL	400,000	µg/L	126,000	117,000	126,000	126,000	65,700	74,200	67,400	77,800	72,200											
Manganese	43	NSL	50	µg/L	225	226	254	255	810	858	884	907	233											
Mercury	0.063	2	2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U											
Nickel	39	NSL	100	µg/L	2.53 J	3.81 J	3.35 J	3.15 J	5 U	5	8	14	5 U											
Potassium	NSL	NSL	NSL	µg/L	2,010	1,900	2,080	2,110	1,160	1,610	1,960	2,620	2,650											
Selenium	10	50	50	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U											
Silver	9.4	NSL	34	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U											
Sodium	NSL	NSL	230,000	µg/L	37,800	35,400	37,100	37,300	13,500	13,600	33,400	33,700	62,100											
Thallium	0.02	2	2	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U											
Vanadium	8.6	NSL	4.5	µg/L	2.55 J	5 U	3.31 J	2.82 J	5 U	4.11 J	5 U	8	5 U											
Zinc	600	NSL	2,400	µg/L	5 U	5 U	5 U	5 U	5 U	11	6	20	5 U											

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1). May 2024.
(2) EPA MCL. May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
µg/L = Microgram(s) per liter
EGLE = Michigan Department of Environment, Great Lakes, and Energy
ft bgs = Feet below ground surface
MCL = Maximum contaminant level
RSL = Regional Screening Levels
NSL = No Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location					GW-06	GW-07	GW-07	GW-08	GW-08	GW-08	GW-08	GW-09	GW-09
Sample ID					GW-06-14-19-03292024	GW-07-14-19-04012024-F	GW-07-14-19-04012024	GW-08-07-12-03272024	DUP-GW-01-03272024	GW-08-07-12-03272024	DUP-GW-01-03272024	GW-09-10-15-03262024	GW-09-10-15-03262024
Parent Sample ID					--	--	--	--	GW-08-07-12-03272024	--	GW-08-07-12-03272024	--	--
Sample Date					3/29/2024	4/1/2024	4/1/2024	3/27/2024	3/27/2024	3/27/2024	3/27/2024	3/26/2024	3/26/2024
Sample Depth (ft bgs)					14-19	14-19	14-19	7-12	7-12	7-12	7-12	10-15	10-15
Fraction					Total	Dissolved	Total	Dissolved	Dissolved	Total	Total	Dissolved	Total
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals (200.8, 245.1)													
Aluminum	2,000	NSL	50	µg/L	6,950	10 U	152	10 U	10 U	461	563	10 U	26
Antimony	0.78	6	6	µg/L	22	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic	0.052	10	10	µg/L	13	2 U	1.71 J	1.6 J	2 U	2	3	5	5
Barium	380	2,000	2,000	µg/L	307	234	237	48	50	52	54	236	241
Beryllium	2.5	4	4	µg/L	0.393 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	0.18	5	5	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Calcium	NSL	NSL	NSL	µg/L	254,000	169,000	163,000	164,000	170,000	170,000	172,000	183,000	185,000
Chromium	2,200	100	100	µg/L	1150	5 U	5 U	2.66 J	2.54 J	6	6	5 U	5 U
Cobalt	0.6	NSL	40	µg/L	135	1.23 J	1.37 J	8	8	9	9	0.981 J	0.972 J
Copper	80	1,300	1,000	µg/L	22	3.75 J	0.92 J	4.27 J	2.34 J	4.73 J	4.85 J	5 U	5 U
Iron	1,400	NSL	300	µg/L	24,800	8,760	8,840	20 U	18.3 J	1,060	1,190	3,560	3,580
Lead	15	15	4	µg/L	12	3	3 U	3 U	3 U	0.776 J	0.859 J	3 U	3 U
Magnesium	NSL	NSL	400,000	µg/L	103,000	52,400	51,900	39,000	39,700	41,100	40,700	46,300	45,500
Manganese	43	NSL	50	µg/L	655	325	328	656	677	732	695	174	175
Mercury	0.063	2	2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	79	NSL	100	µg/L	27	3.14 J	4.48 J	68	69	73	74	1.65 J	1.82 J
Potassium	NSL	NSL	NSL	µg/L	4,370	1,290	1,240	1,420	1,420	1,560	1,620	1,820	1,870
Selenium	10	50	50	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Silver	9.4	NSL	34	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Sodium	NSL	NSL	230,000	µg/L	66,400	33,600	33,000	33,900	34,200	34,200	35,100	148,000	152,000
Thallium	0.02	2	2	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	8.6	NSL	4.5	µg/L	20	5 U	5 U	5 U	5 U	3.22 J	2.66 J	5 U	5 U
Zinc	600	NSL	2,400	µg/L	62	5 U	5 U	6	4.58 J	8	7	5 U	5 U

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1). May 2024.
(2) EPA MCL. May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
µg/L = Microgram(s) per liter
EGLE = Michigan Department of Environment, Great Lakes, and Energy
ft bgs = Feet below ground surface
MCL = Maximum contaminant level
RSL = Regional Screening Levels
NSL = No Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location					GW-10	GW-10	GW-10	GW-10	GW-11	GW-11	GW-11	GW-11
Sample ID					GW-10-07-12-03262024	GW-10-07-12-03262024	GW-10-19-24-03272024	GW-10-19-24-03272024	GW-11-10-15-04012024-F	GW-11-10-15-04012024-F	GW-11-14-19-04012024-F	GW-11-14-19-04012024-F
Parent Sample ID					--	--	--	--	--	--	--	--
Sample Date					3/26/2024	3/26/2024	3/27/2024	3/27/2024	4/1/2024	4/1/2024	4/1/2024	4/1/2024
Sample Depth (ft bgs)					7-12	7-12	19-24	19-24	10-15	10-15	14-19	14-19
Fraction					Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result
Metals (200.8, 245.1)												
Aluminum	2,000	NSL	50	µg/L	10 U	57	10 U	14,200	10 U	22,500	10 U	11,500
Antimony	0.78	6	6	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Arsenic	0.052	10	10	µg/L	2	2	2	66	5	25	6	24
Barium	380	2,000	2,000	µg/L	95	98	187	498	214	334	351	415
Beryllium	2.5	4	4	µg/L	1 U	1 U	1 U	3	1 U	1	1 U	0.548 J
Cadmium	0.18	5	5	µg/L	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.6	0.5 U	0.5 U
Calcium	NSL	NSL	NSL	µg/L	191,000	194,000	180,000	617,000	167,000	520,000	178,000	330,000
Chromium	2,200	100	100	µg/L	37	41	5 U	274	5 U	51	5 U	36
Cobalt	0.6	NSL	40	µg/L	2.06 J	2.26 J	4.66 J	17	68	85	90	99
Copper	80	1,300	1,000	µg/L	3.5 J	3.01 J	5 U	132	2.6 J	76	3.42 J	28
Iron	1,400	NSL	300	µg/L	70	170	1,840	100,000	3,100	52,700	6,340	30,800
Lead	15	15	4	µg/L	3 U	3 U	3 U	92	3 U	41	3 U	14
Magnesium	NSL	NSL	400,000	µg/L	40,000	43,200	47,800	211,000	52,200	190,000	79,000	133,000
Manganese	43	NSL	50	µg/L	35	46	490	2780	495	1730	203	785
Mercury	0.063	2	2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	79	NSL	100	µg/L	27	26	10	143	64	108	32	60
Potassium	NSL	NSL	NSL	µg/L	3,150	3,270	2,360	8,990	3,720	8,660	1,820	5,100
Selenium	10	50	50	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Silver	9.4	NSL	34	µg/L	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.307 J	0.5 U	0.5 U
Sodium	NSL	NSL	230,000	µg/L	57,800	60,500	152,000	146,000	224,000	220,000	157,000	155,000
Thallium	0.02	2	2	µg/L	2 U	2 U	2 U	0.76 J	2 U	0.687 J	2 U	2 U
Vanadium	8.6	NSL	4.5	µg/L	2.15 J	5 U	5 U	116	5 U	58	5 U	29
Zinc	600	NSL	2,400	µg/L	3.35 J	5 U	5 U	246	5 U	130	5 U	56

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1). May 2024.
(2) EPA MCL. May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
µg/L = Microgram(s) per liter
EGLE = Michigan Department of Environment, Great Lakes, and Energy
ft bgs = Feet below ground surface
MCL = Maximum contaminant level
RSL = Regional Screening Levels
NSL = No Screening Level
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-8. Monitoring Well Sampling Results for PFAS

Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Location							
					Sample ID	MW-02D	MW-04D	MW-04D	MW-04S	MW-05D	MW-06D	MW-06D
					Parent Sample ID	MW-02D-04092024	MW-04D-04102024	DUP-MW-03-04102024	MW-04S-04092024	MW-05D-04092024	MW-06D-04092024	DUP-MW-02-04092024
					Sample Date	4/9/2024	4/10/2024	4/10/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024
Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PFAS (ASTMD7979-19M)												
11-Chlorooctadecafluoro-3-Oxoundecanoic Acid (11Cl-PF3OUdS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
4,8-Dioxo-3H-Perfluorooctanoic Acid (ADONA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
9-Chlorohexadecafluoro-3-Oxonono-1-Sulfonic Acid (9Cl-PF3ONS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
Fluorotelomer Sulphonic Acid 4:2 (4:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
Fluorotelomer Sulphonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	1.3 J	2.2	2 U	3.3	2.3	1.9 U	2 U
Fluorotelomer Sulphonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.5	10	370	ng/L	9.7 U	9.5 U	9.5 U	9.9 U	9.6 U	9.4 U	9.5 U	10 U
N-(Heptafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.4 J	1.9 U	1.9 U	15
N-ethyl-N-(heptafluorooctylsulfonyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	ng/L	3.9 U	3.8 U	3.8 U	3.9 U	3.8 U	3.8 U	3.8 U	9.3
Perfluoro-4-ethylcyclohexanesulfonate (PFECyHS) (PFECyHS)	NSL	NSL	NSL	ng/L	42	410	400	60	250	1,200	1,400	3.9
Perfluorobutanesulfonate (PFBS)	600	NSL	420	ng/L	3.8	8.2	7.7	10	11	170	170	440
Perfluorobutanoic Acid (PFBA)	1,800	NSL	NSL	ng/L	3.2 J	13	12	6.8 J	11	110	110	220
Perfluorobutylsulfonamide (FBSA) (FBSA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	10	9.9	79
Perfluorobutanesulfonic Acid (PFDS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
Perfluorodecanoic Acid (PFDA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	4.3	6.4	6.3	440
Perfluorododecanoic Acid (PFDoA)	100	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.2 J	2.2	1.8 J	14
Perfluorooheptanesulfonic Acid (PFHpS)	NSL	NSL	NSL	ng/L	1.9 U	4.2	4.3	0.79 J	1.9 U	19	18	28
Perfluorooheptanoic Acid (PFHpA)	NSL	NSL	NSL	ng/L	1.9 U	8.5	8.5	2 U	11	190	190	430
Perfluorohexanesulfonamide (PFHxSA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	1.7 J
Perfluorohexanesulfonic acid (PFHxS)	39	10	51	ng/L	2	13	13	3.1	7.2	91	75	96
Perfluorohexanesulfonic acid - BR (PFHxS-BR)	NSL	NSL	NSL	ng/L	1.9 U	1.9	2.1	2 U	1.4 J	16	13	11
Perfluorohexanesulfonic acid - LN (PFHxS-LN)	NSL	NSL	NSL	ng/L	1.3 J	10	11	2.5	5.6	74	62	86
Perfluorohexanoic Acid (PFHxA)	990	NSL	400,000	ng/L	3.4	12	11	1.7 J	22	310	300	720
Perfluorononanesulfonic Acid (PFNS)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	1.9 U	1.9 U	2 U
Perfluorononanoic Acid (PFNA)	5.9	10	6	ng/L	1.9 U	12	14	2 U	3.5	530	520	1,300 J
Perfluorooctane Sulfonic Acid (PFOS)	0.2	4	16	ng/L	1.7 J	220	230	83	23	1,700	1,900	1,300
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	ng/L	1.9 U	120	120	30	7.6	710	740	480
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	ng/L	1.9 U	97	110	22	14	1000	1200	800
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	2.1	1.9 U	1.9 U	31
Perfluorooctanoic Acid (PFOA)	0.0027	4	8	ng/L	2.9	15	17	1.7 J	8.5	300	250	1,000
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	ng/L	1.9 U	1	2.6	2 U	2.5	12	12	11
Perfluoropentanoic Acid (PFPA)	NSL	NSL	NSL	ng/L	3.9 U	13	11	3.9 U	31	380	360	710
Perfluorotetradecanoic Acid (PFTeDA)	2,000	NSL	NSL	ng/L	3.9 U	3.8 U	3.8 U	3.9 U	3.8 U	3.8 U	3.8 U	2.8 J
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 U	0.98 J	1.9 U	2.7
Perfluoroundecanoic Acid (PFUnA)	600	NSL	NSL	ng/L	1.9 U	1.9 U	1.9 U	2 U	1.9 J	1 J	0.98 J	50

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL, May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
EGLE = Michigan Department of Environment, Great Lakes, and Energy
MCL = Maximum contaminant level
ng/L = Nanogram(s) per liter
NSL = No Screening Level
RSL = Regional Screening Levels
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-8. Monitoring Well Sampling Results for PFAS

Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Location								
					Sample ID								
					Parent Sample ID								
					Sample Date								
					MW-07D	MW-07S	MW-08D	MW-08S	MW-09D	MW-11D	MW-11S	MW-12D	MW-12S
					MW-07D-04 (02/24)	MW-07S-04 (02/24)	MW-08D-04 (02/24)	MW-08S-04 (02/24)	MW-09D-04 (02/24)	MW-11D-04 (02/24)	MW-11S-04 (02/24)	MW-12D-04 (02/24)	MW-12S-04 (02/24)
					4/10/2024	4/10/2024	4/10/2024	4/9/2024	4/10/2024	4/9/2024	4/9/2024	4/10/2024	4/11/2024
PFAS (ASTMD7979-19M)													
11-Chlorooctadecafluoro-3-Oxadecane-1-Sulfonic Acid (11Cl-PF30LdS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Fluorotelomer Sulphonic Acid 4:2 (4:2 FTS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Fluorotelomer Sulphonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Fluorotelomer Sulphonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.5	10	370	ng/L	10 U	10 U	10 U	10 U	9.4 U	10 U	10 U	9.8 U	9.8 U
N-(Heptafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
N-ethyl-N-(heptafluorooctylsulfonyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	ng/L	4 U	4 U	4.1 U	4.1 U	3.8 U	4 U	4.2 U	3.9 U	3.9 U
Perfluoro-4-ethylcyclohexanesulfonate (PFECyHS) (PFECyHS)	NSL	NSL	NSL	ng/L	200	2.5	1,600	2,300	1,500	5.8	250	4.6	14
Perfluorobutanesulfonate (PFBS)	600	NSL	420	ng/L	160	5.4	13	360	3,000	1.8	22	1.3	1.3
Perfluorobutanoic Acid (PFBA)	1,800	NSL	NSL	ng/L	5.8 J	7.2 J	8.4 J	9.7 J	33	9.2 J	18	12	6.9 J
Perfluorobutylsulfonamide (FBSA) (FBSA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	1.7 U	1.9 U	2 U	2.1	2 U	2 U
Perfluorobutanesulfonic Acid (PFBS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluorodecanoic Acid (PFDA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluorododecanoic Acid (PFDoA)	100	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluorooctanesulfonic Acid (PFHxS)	NSL	NSL	NSL	ng/L	0.96 J	2 U	10	23	2.7	3.4	3.4	2 U	2 U
Perfluorooheptanoic Acid (PFHpA)	NSL	NSL	NSL	ng/L	2 U	2 U	5.4	3.8	4.7	4.8	26	4.9	1.7 J
Perfluorohexanesulfonamide (PFHxSA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluorohexanesulfonic acid (PFHxS)	39	10	51	ng/L	9.4	1.1 J	39	69	170	2	18	1.7 J	1.4 J
Perfluorohexanesulfonic acid - BR (PFHxS-BR)	NSL	NSL	NSL	ng/L	2 U	2 U	4.4	7	75	2 U	2.8	2 U	2 U
Perfluorohexanesulfonic acid - LN (PFHxS-LN)	NSL	NSL	NSL	ng/L	8	2 U	34	62	90	1.3 J	14	1.7 J	0.98 J
Perfluorohexanoic Acid (PFHxA)	990	NSL	400,000	ng/L	3.1	3.5	9.2	7.2	26	7.2	38	7.5	3.6
Perfluorononanesulfonic Acid (PFNS)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluorononanoic Acid (PFNA)	5.9	10	6	ng/L	2 U	2 U	16	1.1 J	1.6 J	220	2 U	2 U	2 U
Perfluorooctane Sulfonic Acid (PFOS)	0.2	4	16	ng/L	12	3.7	220	1,600	170	6	120	5.6	7.2
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	ng/L	11	3.5	180	890	110	2.7	62	2.5	3.8
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	ng/L	2 U	2 U	39	750	54	2.4	52	2	2.4
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluorooctanoic Acid (PFOA)	0.0027	4	8	ng/L	2.9	5	13	13	5.1	8.3	55	11	3.2
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	ng/L	3 U	2 U	7.5	10	220	2 U	4.2	2 U	2 U
Perfluoropentanoic Acid (PFPA)	NSL	NSL	NSL	ng/L	2.8 J	4.9	8.6	5.3	19	6.8	42	6.6	3.9
Perfluorotetradecanoic Acid (PFTeDA)	2,000	NSL	NSL	ng/L	4 U	4 U	4.1 U	4.1 U	3.8 U	4 U	4.2 U	3.9 U	3.9 U
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U
Perfluoroundecanoic Acid (PFUnA)	600	NSL	NSL	ng/L	2 U	2 U	2.1 U	2 U	1.9 U	2 U	2.1 U	2 U	2 U

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL, May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
EGLE = Michigan Department of Environment, Great Lakes, and Energy
MCL = Maximum contaminant level
ng/L = Nanogram(s) per liter
NSL = No Screening Level
RSL = Regional Screening Levels
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UD = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-8. Monitoring Well Sampling Results for PFAS

Analyte	Location				MW-13D		MW-13S		MW-14D		MW-14D		MW-14S		MW-15		MW-16	
	Sample ID				MW-13D-04082024		MW-13S-04082024		MW-14D-04082024		DUP-MW-01-04082024		MW-14S-04082024		MW-15-04102024		MW-16-04102024	
	Parent Sample ID				--		--		--		MW-14D-04082024		--		--		--	
	Sample Date				4/8/2024		4/8/2024		4/8/2024		4/8/2024		4/8/2024		4/10/2024		4/10/2024	
	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PFAS (ASTMD7979-19M)																		
11-Chlorooctadecafluoro-3-Oxadecane-1-Sulfonic Acid (11Cl-PF30LdS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Fluorotelomer Sulphonic Acid 4:2 (4:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Fluorotelomer Sulphonic Acid 6:2 (6:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	3.9	2 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
Fluorotelomer Sulphonic Acid 8:2 (8:2 FTS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.5	10	370	ng/L	9.7 U	10 U	9.6 U	10 U	9 U	10 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U
N-(Heptafluorooctylsulfonyl)-N-methylglycine (N-MeFOSAA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.5 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
N-ethyl-N-(heptafluorooctylsulfonyl)glycine (N-EtFOSAA)	NSL	NSL	NSL	ng/L	3.9 U	4 U	3.8 U	4.2 U	3.6 U	4 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U
Perfluoro-4-ethylcyclohexanesulfonate (PFECyHS) (PFECyHS)	NSL	NSL	NSL	ng/L	3,400	31,000	1.5 J	2.1 U	1,600	1,500	790	790	790	790	790	790	790	790
Perfluorobutanesulfonate (PFBS)	600	NSL	420	ng/L	1,600	22,000	3.3	3.6	350	1,400	60	60	60	60	60	60	60	60
Perfluorobutanoic Acid (PFBA)	1,800	NSL	NSL	ng/L	32	120	6 J	7 J	10	14	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U	9.9 U
Perfluorobutylsulfonamide (FBSA) (FBSA)	NSL	NSL	NSL	ng/L	1.9 U	5.5	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorodecane sulfonic Acid (PFDS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorodecanoic Acid (PFDA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorododecanoic Acid (PFDoA)	100	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorooheptanesulfonic Acid (PFHpS)	NSL	NSL	NSL	ng/L	1.4 J	21	1.9 U	2.1 U	9.5	11	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Perfluorooheptanoic Acid (PFHpA)	NSL	NSL	NSL	ng/L	19	41	1.9 U	2.1 U	8.6	9.6	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Perfluorohexanesulfonamide (PFHxSA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorohexanesulfonic acid (PFHxS)	39	10	51	ng/L	170	2,800	1.9 U	2.1 U	34	44	20	20	20	20	20	20	20	20
Perfluorohexanesulfonic acid - BR (PFHxS-BR)	NSL	NSL	NSL	ng/L	66	820	1.9 U	2.1 U	5.5	10	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Perfluorohexanesulfonic acid - LN (PFHxS-LN)	NSL	NSL	NSL	ng/L	100	2,000	1.9 U	2.1 U	28	34	16	16	16	16	16	16	16	16
Perfluorohexanoic Acid (PFHxA)	990	NSL	400,000	ng/L	49	100	1.5 J	2 J	16	18	11	11	11	11	11	11	11	11
Perfluorononanesulfonic Acid (PFNS)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorononanoic Acid (PFNA)	5.9	10	6	ng/L	3.2	2 U	1.9 U	2.1 U	22	30	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Perfluorooctane Sulfonic Acid (PFOS)	0.2	4	16	ng/L	21	120	1.9 U	2.1 U	600	420	94	94	94	94	94	94	94	94
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NSL	NSL	NSL	ng/L	19	100	1.9 U	2.1 U	340	280	70	70	70	70	70	70	70	70
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NSL	NSL	NSL	ng/L	2	20	1.9 U	2.1 U	290	140	23	23	23	23	23	23	23	23
Perfluorooctanesulfonamide (PFOSA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorooctanoic Acid (PFOA)	0.0027	4	8	ng/L	11	33 J	1.9 U	2.1 U	11	11	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Perfluoropentanesulfonic Acid (PFPeS)	NSL	NSL	NSL	ng/L	180	2300	1.9 U	2.1 U	11	25	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Perfluoropentanoic Acid (PFPA)	NSL	NSL	NSL	ng/L	58	69	3.8 J	3.9 J	18	19	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Perfluorotetradecanoic Acid (PFTeDA)	2,000	NSL	NSL	ng/L	3.9 U	4 U	3.8 U	4.2 U	3.6 U	4 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U
Perfluorotridecanoic Acid (PFTriDA)	NSL	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluoroundecanoic Acid (PFUnA)	600	NSL	NSL	ng/L	1.9 U	2 U	1.9 U	2.1 U	1.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL, May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria
EGLE = Michigan Department of Environment, Great Lakes, and Energy
MCL = Maximum contaminant level
ng/L = Nanogram(s) per liter
NSL = No Screening Level
RSL = Regional Screening Levels
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-8. Monitoring Well Sampling Results for Alkalinity, VOCs, and L&B-Disinfect

Location	Sample ID	MW-001		MW-002		MW-003		MW-004		MW-005		MW-006		MW-007		MW-008		MW-009		MW-010		MW-011		MW-012		MW-013		MW-014		MW-015		MW-016		MW-017		MW-018		MW-019		MW-020		MW-021		MW-022		MW-023		MW-024		MW-025		MW-026		MW-027		MW-028		MW-029		MW-030		MW-031		MW-032		MW-033		MW-034		MW-035		MW-036		MW-037		MW-038		MW-039		MW-040		MW-041		MW-042		MW-043		MW-044		MW-045		MW-046		MW-047		MW-048		MW-049		MW-050		MW-051		MW-052		MW-053		MW-054		MW-055		MW-056		MW-057		MW-058		MW-059		MW-060		MW-061		MW-062		MW-063		MW-064		MW-065		MW-066		MW-067		MW-068		MW-069		MW-070		MW-071		MW-072		MW-073		MW-074		MW-075		MW-076		MW-077		MW-078		MW-079		MW-080		MW-081		MW-082		MW-083		MW-084		MW-085		MW-086		MW-087		MW-088		MW-089		MW-090		MW-091		MW-092		MW-093		MW-094		MW-095		MW-096		MW-097		MW-098		MW-099		MW-100		MW-101		MW-102		MW-103		MW-104		MW-105		MW-106		MW-107		MW-108		MW-109		MW-110		MW-111		MW-112		MW-113		MW-114		MW-115		MW-116		MW-117		MW-118		MW-119		MW-120		MW-121		MW-122		MW-123		MW-124		MW-125		MW-126		MW-127		MW-128		MW-129		MW-130		MW-131		MW-132		MW-133		MW-134		MW-135		MW-136		MW-137		MW-138		MW-139		MW-140		MW-141		MW-142		MW-143		MW-144		MW-145		MW-146		MW-147		MW-148		MW-149		MW-150		MW-151		MW-152		MW-153		MW-154		MW-155		MW-156		MW-157		MW-158		MW-159		MW-160		MW-161		MW-162		MW-163		MW-164		MW-165		MW-166		MW-167		MW-168		MW-169		MW-170		MW-171		MW-172		MW-173		MW-174		MW-175		MW-176		MW-177		MW-178		MW-179		MW-180		MW-181		MW-182		MW-183		MW-184		MW-185		MW-186		MW-187		MW-188		MW-189		MW-190		MW-191		MW-192		MW-193		MW-194		MW-195		MW-196		MW-197		MW-198		MW-199		MW-200		MW-201		MW-202		MW-203		MW-204		MW-205		MW-206		MW-207		MW-208		MW-209		MW-210		MW-211		MW-212		MW-213		MW-214		MW-215		MW-216		MW-217		MW-218		MW-219		MW-220		MW-221		MW-222		MW-223		MW-224		MW-225		MW-226		MW-227		MW-228		MW-229		MW-230		MW-231		MW-232		MW-233		MW-234		MW-235		MW-236		MW-237		MW-238		MW-239		MW-240		MW-241		MW-242		MW-243		MW-244		MW-245		MW-246		MW-247		MW-248		MW-249		MW-250		MW-251		MW-252		MW-253		MW-254		MW-255		MW-256		MW-257		MW-258		MW-259		MW-260		MW-261		MW-262		MW-263		MW-264		MW-265		MW-266		MW-267		MW-268		MW-269		MW-270		MW-271		MW-272		MW-273		MW-274		MW-275		MW-276		MW-277		MW-278		MW-279		MW-280		MW-281		MW-282		MW-283		MW-284		MW-285		MW-286		MW-287		MW-288		MW-289		MW-290		MW-291		MW-292		MW-293		MW-294		MW-295		MW-296		MW-297		MW-298		MW-299		MW-300		MW-301		MW-302		MW-303		MW-304		MW-305		MW-306		MW-307		MW-308		MW-309		MW-310		MW-311		MW-312		MW-313		MW-314		MW-315		MW-316		MW-317		MW-318		MW-319		MW-320		MW-321		MW-322		MW-323		MW-324		MW-325		MW-326		MW-327		MW-328		MW-329		MW-330		MW-331		MW-332		MW-333		MW-334		MW-335		MW-336		MW-337		MW-338		MW-339		MW-340		MW-341		MW-342		MW-343		MW-344		MW-345		MW-346		MW-347		MW-348		MW-349		MW-350		MW-351		MW-352		MW-353		MW-354		MW-355		MW-356		MW-357		MW-358		MW-359		MW-360		MW-361		MW-362		MW-363		MW-364		MW-365		MW-366		MW-367		MW-368		MW-369		MW-370		MW-371		MW-372		MW-373		MW-374		MW-375		MW-376		MW-377		MW-378		MW-379		MW-380		MW-381		MW-382		MW-383		MW-384		MW-385		MW-386		MW-387		MW-388		MW-389		MW-390		MW-391		MW-392		MW-393		MW-394		MW-395		MW-396		MW-397		MW-398		MW-399		MW-400		MW-401		MW-402		MW-403		MW-404		MW-405		MW-406		MW-407		MW-408		MW-409		MW-410		MW-411		MW-412		MW-413		MW-414		MW-415		MW-416		MW-417		MW-418		MW-419		MW-420		MW-421		MW-422		MW-423		MW-424		MW-425		MW-426		MW-427		MW-428		MW-429		MW-430		MW-431		MW-432		MW-433		MW-434		MW-435	
		Latitude	EPA Typecode	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA	EPA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

[illegible]

Location		MW-02D	MW-02D	MW-04D	MW-04D	MW-04D	MW-04D	MW-04S	MW-04S	MW-05D	MW-05D	MW-06D	MW-06D	MW-06D	MW-06D	MW-06S	MW-06S
Sample ID		MW-02D-04092024-1	MW-02D-04092024-2	MW-04D-04102024-1	MW-04D-04102024-2	MW-04D-04102024-3	MW-04D-04102024-4	MW-04S-04092024-1	MW-04S-04092024-2	MW-05D-04092024-1	MW-05D-04092024-2	MW-06D-04092024-1	MW-06D-04092024-2	MW-06D-04092024-3	MW-06D-04092024-4	MW-06S-04092024-1	MW-06S-04092024-2
Parent Sample ID		MW-04D-04102024-1				MW-04D-04102024-2				MW-06D-04092024-1				MW-06D-04092024-2			
Sample Date		4/9/2024	4/9/2024	4/10/2024	4/10/2024	4/10/2024	4/10/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024	4/9/2024
Fraction		Dissolved	Total	Dissolved	Dissolved	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLC Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals (200.8, 245.1)																	
Aluminum	2,000	NSL	50	µg/L	10 (U)	28 J	10 (U)	10 (U)	817 J	10 (U)	240	10 (U)	13	10 (U)	10 (U)	33	26
Antimony	0.78	6	6	µg/L	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)
Arsenic	0.052	10	10	µg/L	2 (U)	239	3	239	3	2 (U)	2 (U)	2 (U)	1.68 J	3	4	3	2
Barium	380	2,000	2,000	µg/L	124	266	279	265	275	31	32	31	214	215	224	216	66
Beryllium	2.5	4	4	µg/L	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)	1 (U)
Cadmium	0.18	5	5	µg/L	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	1.6	1.7	2.6	2.5	0.5 (U)
Calcium	NSL	NSL	NSL	µg/L	111,000	179,000	193,000	182,000	204,000	87,300	90,300	234,000	238,000	181,000	172,000	174,000	118,000
Chromium	2,200	100	100	µg/L	172 J	5 (U)	5 (U)	5 (U)	14	20	135 J	5 (U)	279 J	5 (U)	112 J	1 (U)	22
Cobalt	0.6	NSL	40	µg/L	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	18	0.451 J	0.509 J	0.475 J	0.509 J	5 (U)	0.732 J
Copper	1.30	1,300	1,300	µg/L	3.07 J	0.944 J	5 (U)	5 (U)	4.27 J	4.53 J	14	1.16 J	1.09 J	1.08 J	1.08 J	16	7
Lead	1,400	NSL	500	µg/L	240	179 J	7,400	7,276	8,800	7,818	130	6,590	6,520	8,800	8,800	40	675
Manganese	15	35	4	µg/L	3 (U)	0.478 J	3 (U)	3 (U)	0.53 J	1.15 J	0.473 J	0.507 J	3 (U)	3 (U)	3 (U)	3 (U)	4
Mercury	NSL	NSL	400,000	µg/L	66,700	69,300	43,900	43,900	44,900	22,200	22,400	103,400	42,400	40,400	41,600	36,700	29,200
Molybdenum	0.5	NSL	50	µg/L	5 (U)	9	246	246	303	5 (U)	9	290	243	243	243	100	125
Nickel	0.063	2	2	µg/L	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)	0.2 (U)
Nitrate	20	NSL	100	µg/L	2,27 J	3,35 J	2,26 J	2,27 J	2,43 J	5	5	2,43 J	2,43 J	2,43 J	2,43 J	4,03 J	2,43 J
Potassium	NSL	NSL	17,000	µg/L	17,000	1650	1650	1650	1650	880	850	2,490	2,510	2,510	2,510	12,70	12,70
Selenium	10	30	30	µg/L	3 (U)	5 (U)	5 (U)	5 (U)	5 (U)	12	11	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)	5 (U)
Silver	0.24	NSL	24	µg/L	6.5 (U)	6.5 (U)	6.5 (U)	6.5 (U)	6.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)	0.5 (U)
Sodium	NSL	NSL	250,000	µg/L	17,200	18,100	184,000	168,000	173,000	16,100	15,000	52,000	125,000	126,000	126,000	20,900	18,700
Sulfate	0.03	3	3	µg/L	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)	2 (U)
Vanadium	0.6	NSL	4.5	µg/L	4.61 J	4.46 J	2.7 J	4.5 J	3.35 J	1.8 J	1.6 J	3.78 J	3.71 J	3.6 J	3.6 J	4.3 J	4.5 J
Zinc	600	NSL	2,000	µg/L	4.5 J	4.57 J	3 (U)	3.5 J	3 (U)	38	46	9	9	40	31	31	9

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1). May 2024.
(2) EPA MCL. May 2024.
(3) EGLC Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLC Cleanup Criteria
µg/L = Microgram(s) per liter
EGLC = Michigan Department of Environment, Great Lakes, and Energy
MCL = Maximum contaminant level
NSL = No Screening Level
RSL = Regional Screening Levels
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UI = The analyte was analyzed but not detected. The reported quantization limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Location Sample ID Parent Sample ID Sample Date Fraction	MW-07D		MW-07D		MW-07S		MW-07S		MW-08D		MW-08S		MW-08S		MW-09D		MW-09D		MW-11D		MW-11D		MW-11S		MW-11S		MW-12D		MW-12D			
	MW-07D-04102024.J		MW-07D-04102024.J		MW-07S-04102024.J		MW-07S-04102024.J		MW-08D-04102024.J		MW-08D-04092024.J		MW-08S-04092024.J		MW-08S-04102024.J		MW-09D-04102024.J		MW-09D-04102024.J		MW-11D-04092024.J		MW-11D-04092024.J		MW-11S-04092024.J		MW-11S-04092024.J		MW-12D-04102024.J		MW-12D-04102024.J	
	4/10/2024		4/10/2024		4/10/2024		4/10/2024		4/10/2024		4/10/2024		4/9/2024		4/9/2024		4/10/2024		4/10/2024		4/9/2024		4/9/2024		4/9/2024		4/9/2024		4/10/2024		4/10/2024	
	Dissolved		Total		Dissolved		Total		Dissolved		Total		Dissolved		Total		Dissolved		Total		Dissolved		Total		Dissolved		Total		Dissolved		Total	
Analyte	EPA Tapwater RSL ⁽¹⁾	EPA MCL ⁽²⁾	EGLE Cleanup Criteria ⁽³⁾	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result		
Metals (200.8, 245.1)																																
Aluminum	2,000	NSL	50	µg/L	10 U	18	10 U	10 U	10 U	49	10 U	24	10 U	47	10 U	11	10 U	11	10 U	8.45 J	10 U	296										
Arsenic	0.78	6	6	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		
Boron	0.052	10	10	µg/L	2 U	1.95 J	2	3	3	3	2 U	2 U	1.76 J	3	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2	4									
Barium	380	2,000	2,000	µg/L	45	48	112	111	399	398	236	219	257	273	140	148	124	127	241	247												
Beryllium	2.5	4	4	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			
Cadmium	0.18	5	5	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
Calcium	NSL	NSL	NSL	µg/L	180,000	180,000	156,000	159,000	247,000	246,000	176,000	166,000	160,000	160,000	156,000	440,000	444,000	133,000	128,000	263,000	259,000											
Chromium	2,200	100	100	µg/L	5 U	1.7 J	5 U	0.789 J	5 U	0.908 J	5 U	0.853 J	0.924 J	4.73 J	5 U	22	5 U	1.35 J	5 U	12												
Cobalt	0.6	NSL	40	µg/L	0.697 J	0.738 J	0.488 J	0.492 J	1.44 J	1.78 J	4.39 J	4.4 J	126	130	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U			
Copper	80	1,300	1,300	µg/L	1.24 J	5 U	1 J	5 U	5 U	5 U	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U			
Iron	1,400	NSL	500	µg/L	8.540	11,500	1,450	1,450	10,600	11,100	5,276	6,378	5,480	8,020	5,878	3,590	4,520	5,350	6,450	6,450												
Lead	15	15	4	µg/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	0.486 J	3 U	4										
Magnesium	NSL	NSL	400,000	µg/L	82,000	75,400	45,500	46,500	63,000	62,700	48,100	46,100	65,200	72,000	22,400	21,900	38,400	38,300	52,900	56,000												
Manganese	45	NSL	50	µg/L	237	321	338	397	416	278	290	202	212	662	479	358	389	432	432													
Mercury	0.063	2	2	µg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			
Nickel	27	NSL	100	µg/L	1.25 J	1.54 J	2.96 J	2.97 J	1.98 J	2.23 J	5 U	2.45 J	85	68	1.9 J	1.78 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J	1.69 J			
Potassium	NSL	NSL	NSL	µg/L	1520	1550	2750	2540	2480	2620	2640	1830	1880	6000	6090	1120	1120	4650	4650													
Selenium	10	50	50	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U			
Silver	0.4	NSL	34	µg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			
Sodium	NSL	NSL	250,000	µg/L	34,400	33,300	12,400	11,700	270,000	264,000	156,000	170,000	142,000	144,000	144,000	144,000	36,800	37,700	225,000	232,000												
Sulfur	0.02	2	2	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			
Vanadium	8.6	NSL	4.5	µg/L	6.73 J	4.03 J	5	2.97 J	3.59 J	3.54 J	4.13 J	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U			
Zinc	600	NSL	2,400	µg/L	11	22	6	5 U	3 U	4.61 J	7	5 U	4.73 J	9	5 U	3.44 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U			

Notes:
(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA MCL, May 2024.
(3) EGLE Cleanup Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Bolded = Concentration exceeds EPA Tapwater RSL.
Bolded = Concentration exceeds EPA MCL.
Blue = Concentration exceeds EGLE Cleanup Criteria.
µg/L = Microgram(s) per liter
EGLE = Michigan Department of Environment, Great Lakes, and Energy
MCL = Maximum contaminant level
NSL = No Screening Level
RSL = Regional Screening Levels
J = The analyte concentration is an estimated quantity.
J+ = The analyte concentration is an estimated quantity, but result may be biased high.
J- = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation limit is approximate.
R = The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Version: FINAL
September 2024

(1) EPA RSLs for Tapwater (Target risk = 1E-06, HQ = 0.1), May 2024.
(2) EPA RSLs for Tapwater, May 2024.
(3) EGLE Check Criteria Requirements for Response Activity, Part 201 (Residential Drinking Water Criteria).
Blue = Concentration exceeds EPA Tapwater RSL.
Shaded = Concentration exceeds EGLE CMCL.
Bdd = Concentration exceeds EGLE CMCL.
p/L = Micrograms per liter
EGLE = Michigan Department of Environment, Great Lakes, and Energy
MCL = Maximum Contaminant Level
NSL = No Screening Level
RSL = Residential Screening Levels
J = The analyte concentration is an estimated quantity.
J- = The analyte concentration is an estimated quantity, but result may be biased high.
J+ = The analyte concentration is an estimated quantity, but result may be biased low.
U = The analyte was analyzed but not detected.
UJ = The analyte was analyzed but not detected. The reported quantitation level is appropriate.
The data is unusable. The sample results were rejected due to deficiencies in meeting QC criteria.

Table 4-11. Geochemical Parameters

Temporary Well / Monitoring Well Number	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (millivolts)	pH	Ferrous Iron (mg/L)	Alkalinity (mg/L)
GW-02 (15-20 ft bgs)	--	--	--	--	664
GW-04 (13-18 ft bgs)	8.88	-62.2	7.17	1.06	616
GW-05 (13-18 ft bgs)	--	--	--	--	624
GW-06 (14-19 ft bgs)*	--	--	--	--	628
GW-07 (14-19 ft bgs)	--	26.6	6.97	1.25	442
GW-08 (13-18 ft bgs)*	--	--	--	0.64	546
GW-09 (10-15 ft bgs)	3.07	-77.8	6.94	--	444
GW-10 (7-12 ft bgs)	5.52	118.5	9.73	--	622
GW-10 (19-24 ft bgs)	8.11	-77.1	7.13	--	488
GW-11 (10-15 ft bgs)*	--	--	--	2.74	714
GW-11 (14-19 ft bgs)	3.1	-68.3	6.85	1.37	626
MW-02D	7.24	386.3	7.19	--	498
MW-04D	2.66	220.3	6.82	0.98	316
MW-04S	3.89	108.4	7.18	0.13	298
MW-05D	2.7	500.6	7.05	0.37	460
MW-06D	2.11	160.8	6.86	0.55	346
MW-06S	2.76	289.7	6.87	0.28	396
MW-07D	2.86	133.6	6.61	0.83	502
MW-07S	2.96	311.3	6.71	1.59	518
MW-08D*	0.22	-36.8	7.72	0.36	320
MW-08S	-0.04	-65.5	6.93	0.54	476
MW-09D	2.92	192.1	6.77	0.49	592
MW-11D	-0.02	-78.3	6.9	0.41	286
MW-11S	0.13	-57.2	6.92	0.46	432
MW-12D	0.06	-34	6.73	0.63	290
MW-12S*	0.58	75.1	8.3	0.46	386
MW-13D	5.82	74.2	6.99	0.46	550
MW-13S	0.15	-25.5	7	2.83	778
MW-14D	2.63	206.3	6.95	0.57	474
MW-14S	2.58	169.1	6.85	0.54	374
MW-15	0.05	-86.7	6.68	0.63	446
MW-16	0.56	-81.1	6.95	0.46	458

Notes:

-- = Sample not collected

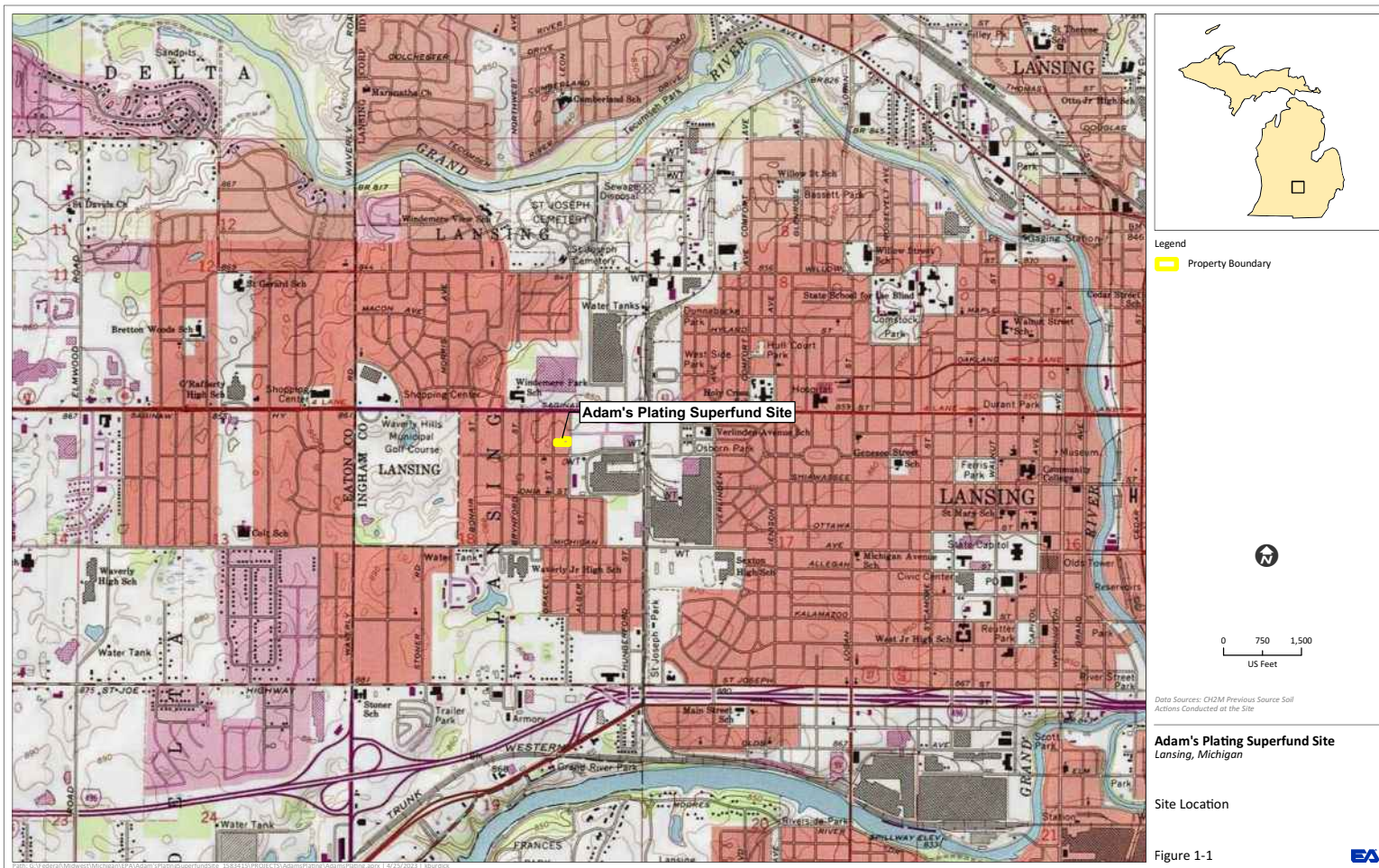
ft bgs = Feet below ground surface

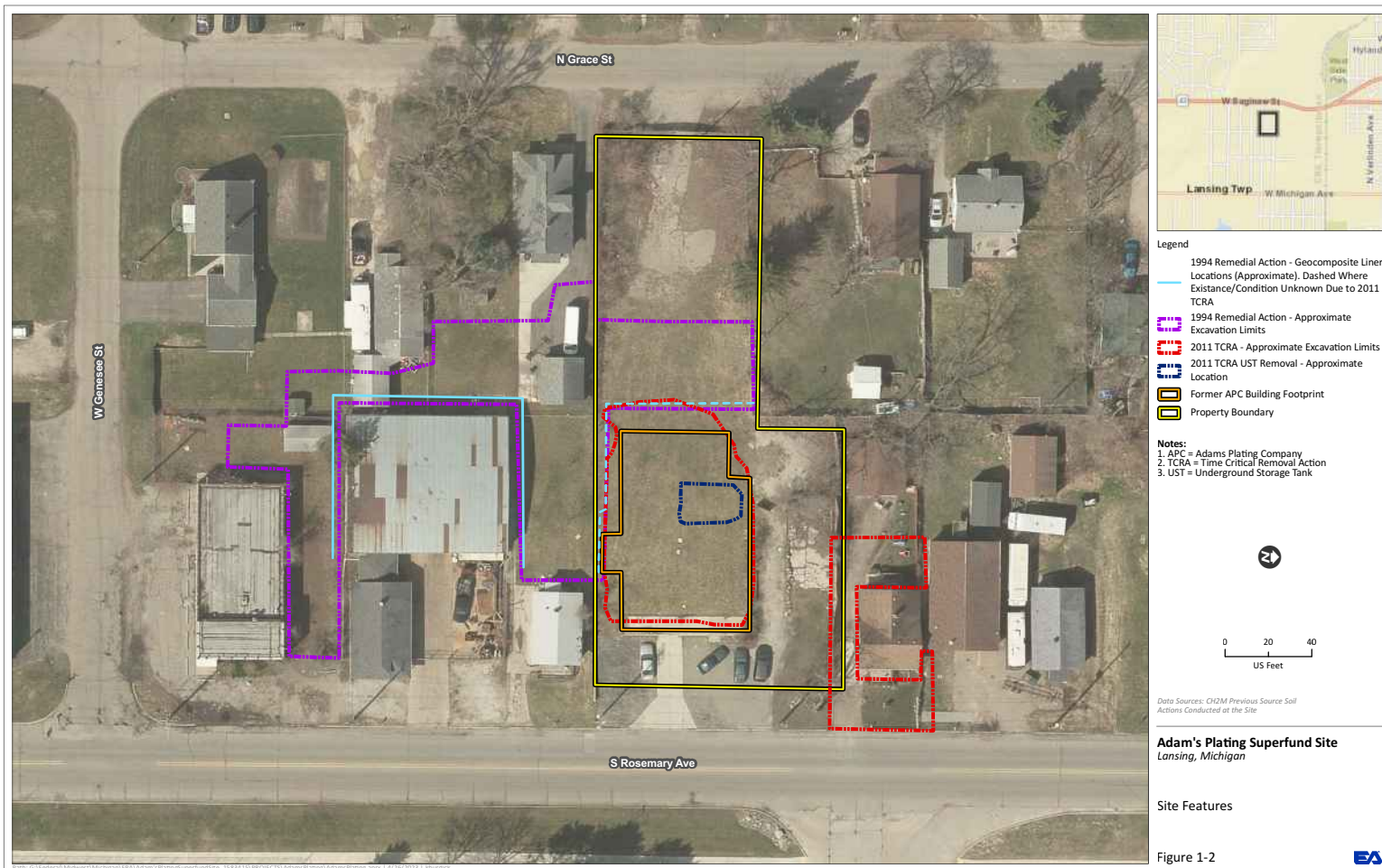
mg/L = Milligram(s) per liter

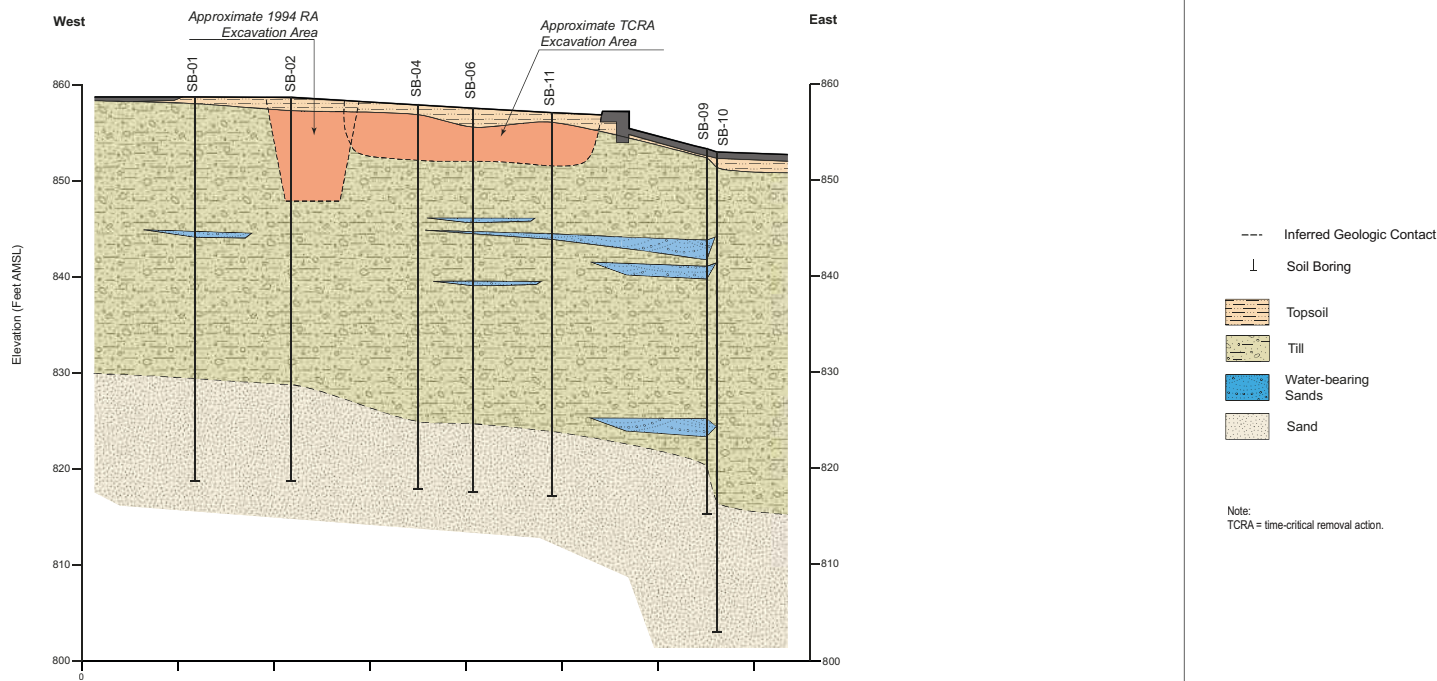
*Well went dry during pumping. Parameters collected after pumping approximately 3 well volumes.

Figures

This page intentionally left blank







Data Sources: ESRI, Levios 2019, USGS

Adams Plating Superfund Site
Lansing, Ingham County, Michigan

Geologic Cross Section A-A'

Figure 3-1





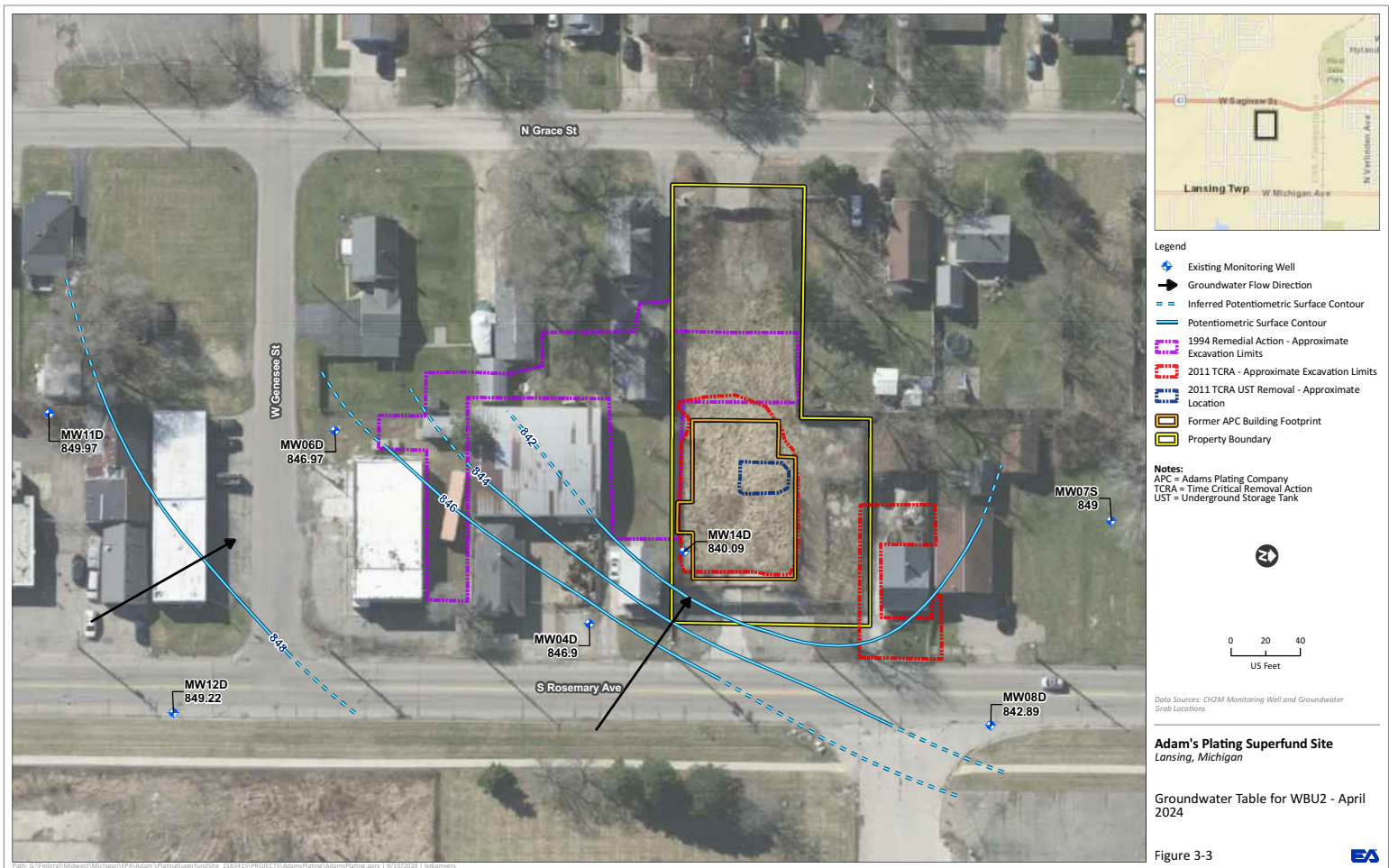
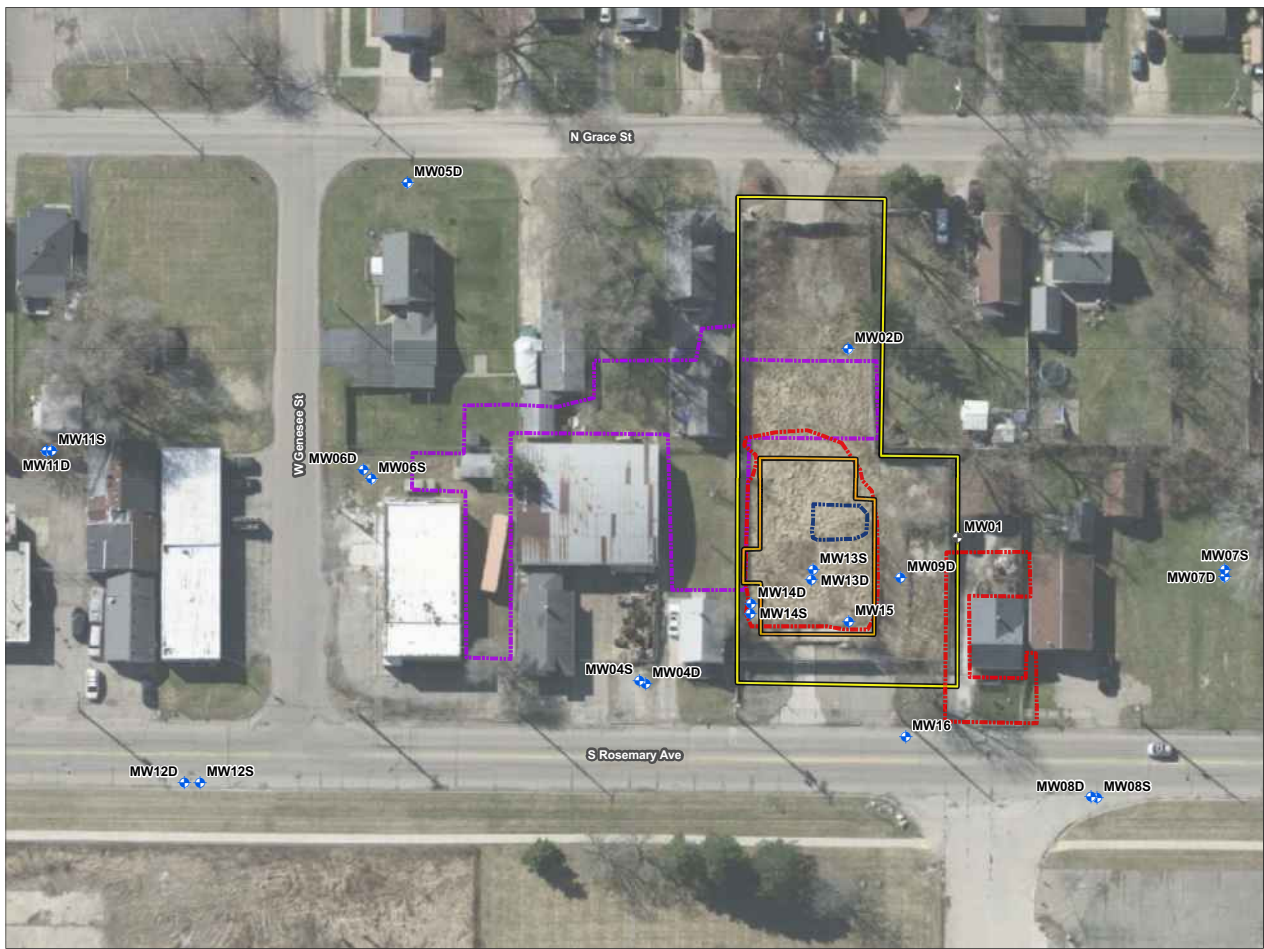


Figure 3-3





- Legend**
- Abandoned Monitoring Well
 - Existing Monitoring Well
 - 1994 Remedial Action - Approximate Excavation Limits
 - 2011 TCRA - Approximate Excavation Limits
 - 2011 TCRA UST Removal - Approximate Location
 - Former APC Building Footprint
 - Property Boundary

Notes:
APC = Adams Plating Company
TCRA = Time Critical Removal Action
UST = Underground Storage Tank



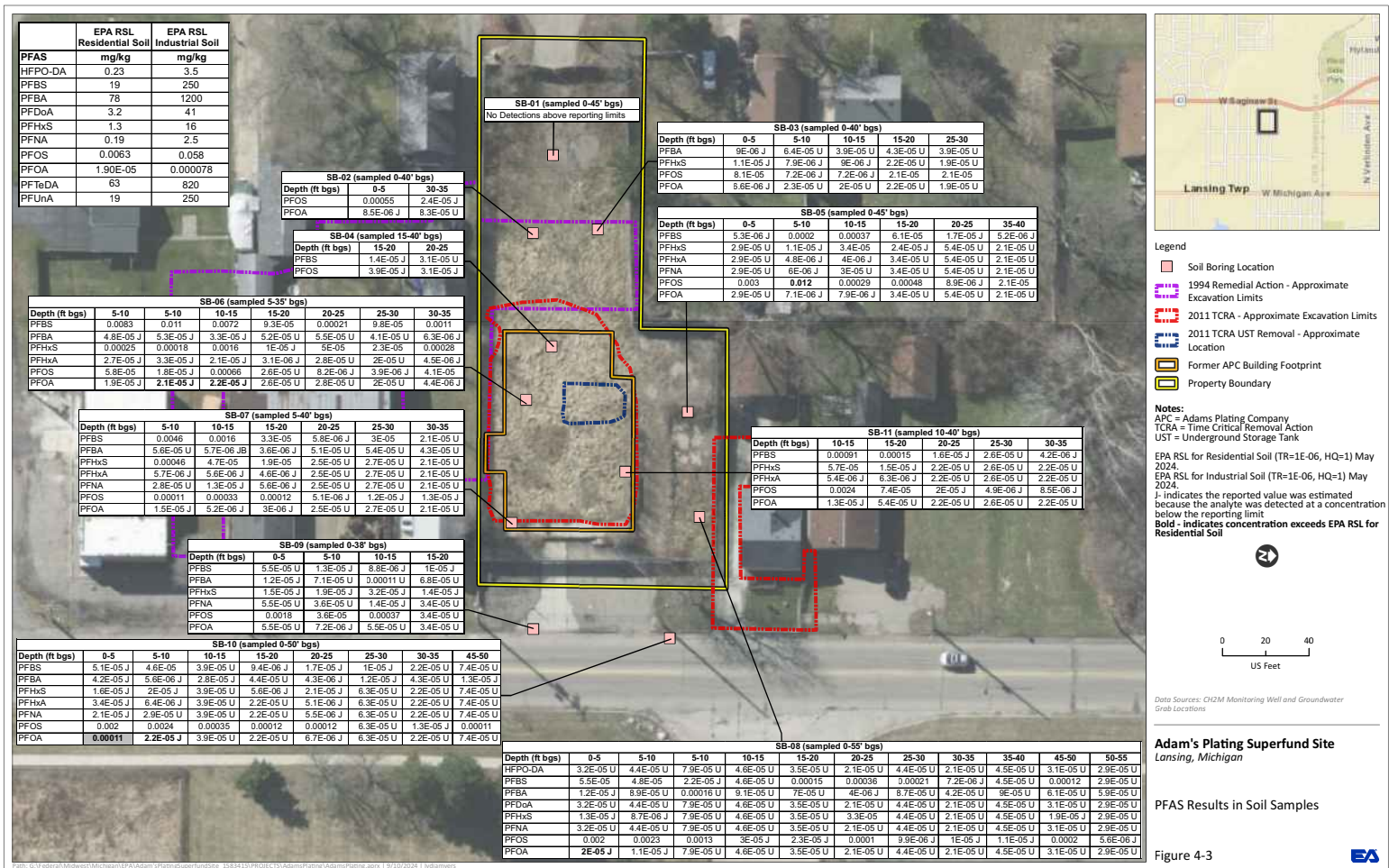
Data Sources: CH2M Monitoring Well and Groundwater Grab Locations

Adam's Plating Superfund Site
Lansing, Michigan

Existing Monitoring Well Locations

Figure 4-2





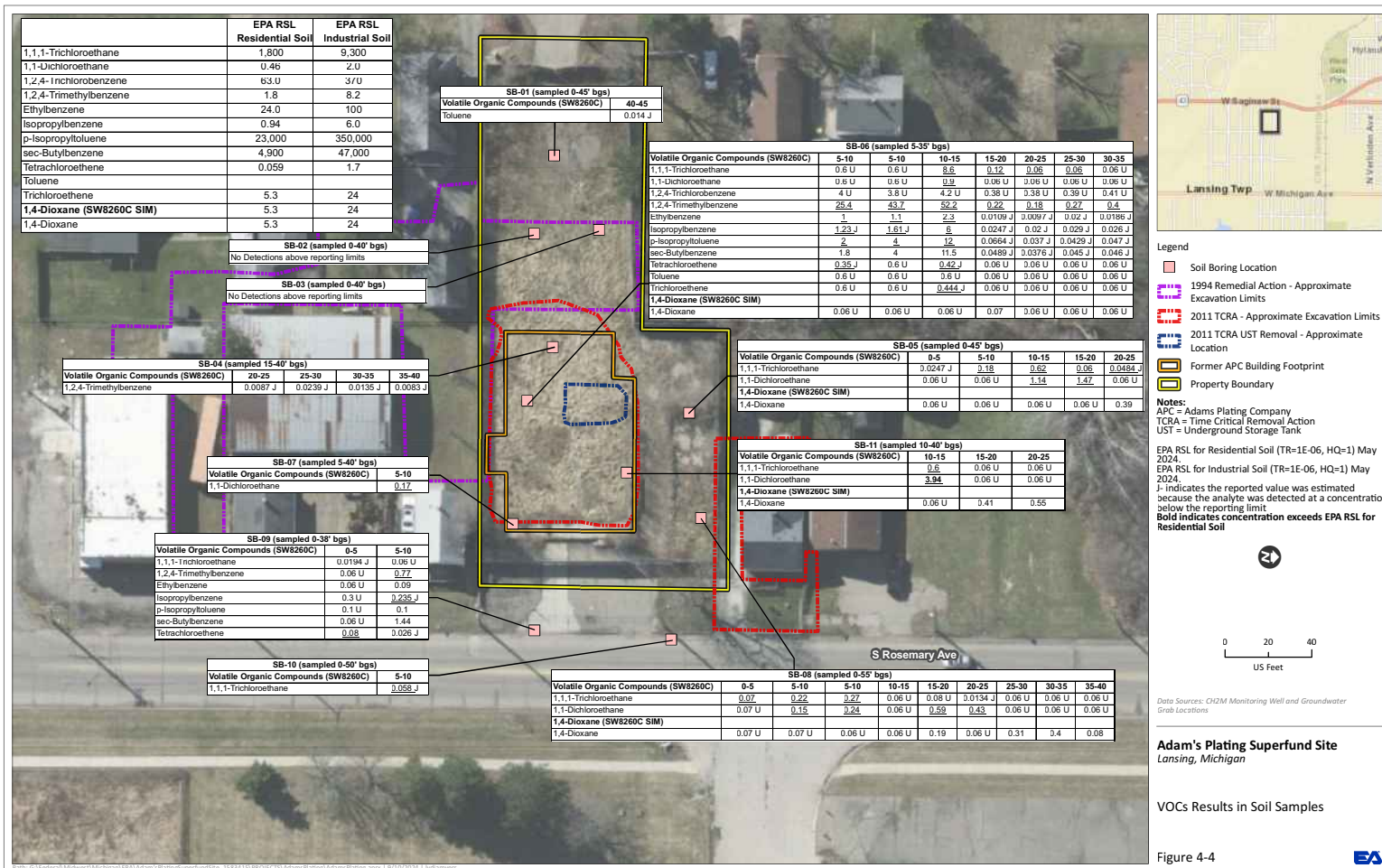
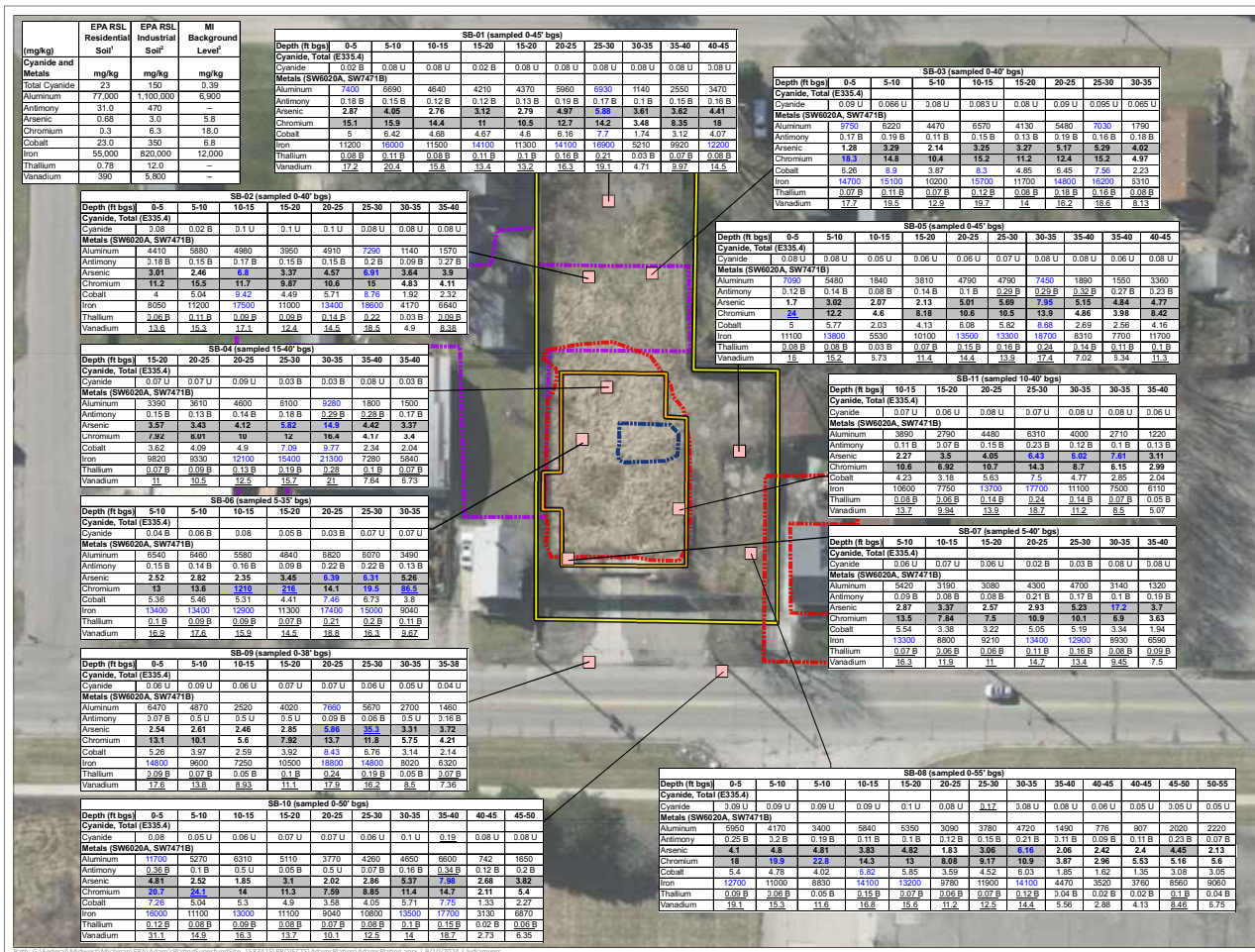


Figure 4-4





- Legend
- Soil Boring Location
 - 1994 Remedial Action - Approximate Excavation Limits
 - 2011 TCRA - Approximate Excavation Limits
 - 2011 TCRA UST Removal - Approximate Location
 - Former APC Building Footprint
 - Property Boundary

Notes:

- APC = Adams Plating Company
- TCRA = Time Critical Removal Action
- UST = Underground Storage Tank
- 1. EPA RSL for Residential Soil (TR=1E-06, HQ=1) May 2024.
- 2. EPA RSL for Industrial Soil (TR=1E-06, HQ=1) May 2024.
- 3. Michigan Statewide Default Background Level.
- J- indicates the reported value was estimated because the analyte was detected at a concentration below the reporting limit.
- Gray cells indicate concentration exceeds EPA RSL for Residential Soil
- Bold** - indicates concentration exceeds EPA RSL for Residential Soil
- Blue text indicates concentrations exceeds Michigan Background
- Underlined text indicates concentrations exceeds EPA Region 5 Eco SSL



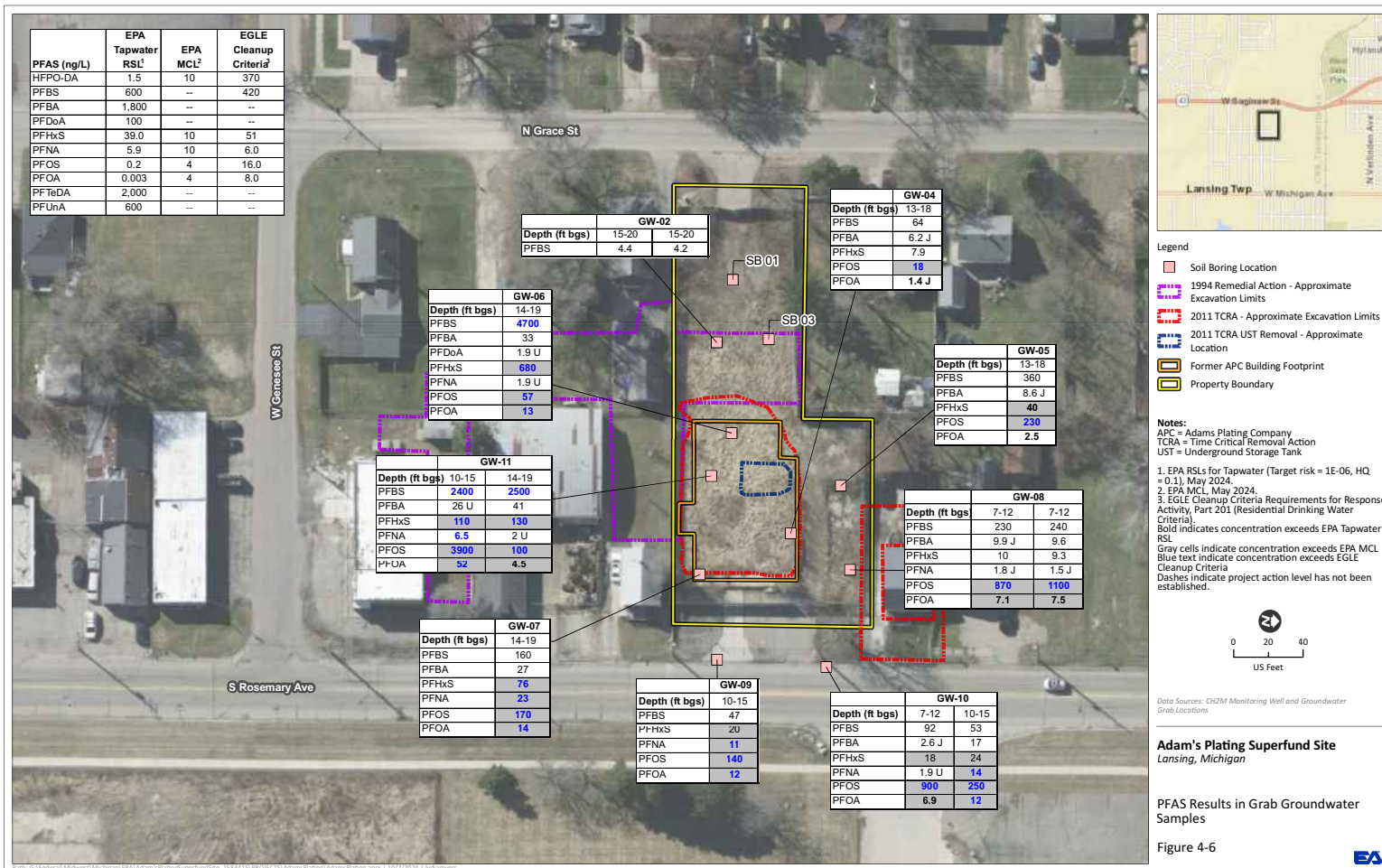
Data Sources: CH2M Monitoring Well and Groundwater Grab Locations

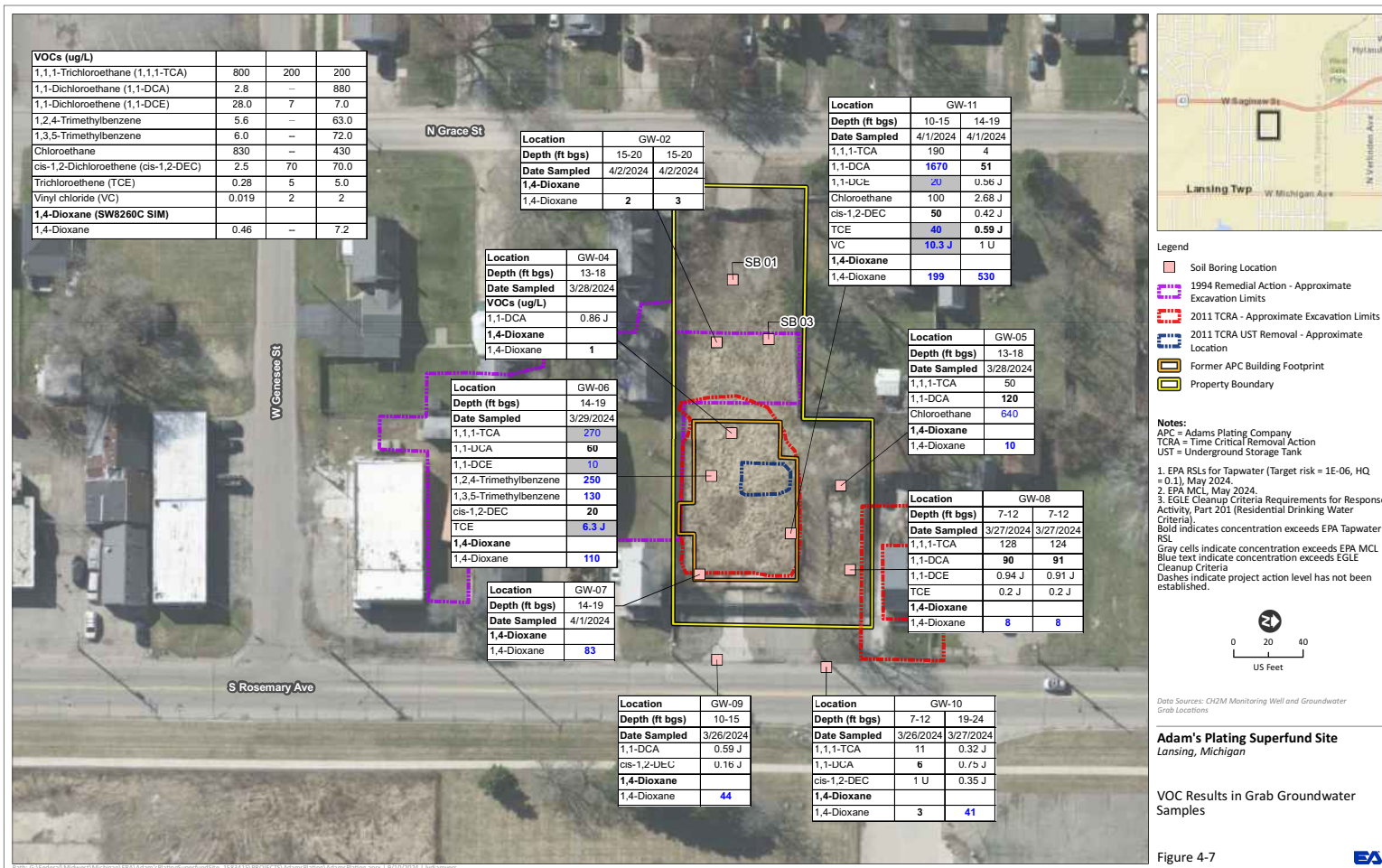
Adam's Plating Superfund Site
Lansing, Michigan

Metal Results in Soil Samples

Figure 4-5







Location GW-02 GW-02 GW-02 GW-02
Date Sampled 4/2/2024 4/2/2024 4/2/2024 4/2/2024
Sample Depth (ft bgs) 15-20 15-20 15-20 15-20
Metals Dissolved Dissolved Total Total
 Aluminum 26 10 U 333 348
 Arsenic 5 3 5 5
 Chromium 2 2.21 3.13 3.23
 Cobalt 5.678 0.757 1.11 1.11
 Iron 6890 6840 7820 8090
 Manganese 225 226 254 255
 Nickel 2.53 3.81 3.35 3.15
 Vanadium 2.55 5 U 3.31 2.82

Location GW-04 GW-04
Date Sampled 3/28/2024 3/28/2024
Sample Depth (ft bgs) 13-18 13-18
Metals Dissolved Total
 Aluminum 10 U 1260
 Arsenic 4 8
 Chromium 5 U 4.85
 Cobalt 0.726 2.42
 Iron 7320 11600
 Manganese 810 858
 Nickel 5 U 5
 Vanadium 5 U 4.11

Location GW-05 GW-05
Date Sampled 3/29/2024 3/29/2024
Sample Depth (ft bgs) 14-19 14-19
Metals Dissolved Total
 Aluminum 10 U 6950
 Antimony 5 U 22
 Arsenic 2 13
 Chromium 1.74 1150
 Cobalt 115 135
 Iron 7060 24800
 Manganese 233 655
 Nickel 7 27
 Vanadium 5 U 29

Location GW-07 GW-07
Date Sampled 4/1/2024 4/1/2024
Sample Depth (ft bgs) 14-19 14-19
Metals Dissolved Total
 Aluminum 10 U 152
 Arsenic 2 U 1.71
 Chromium 0.988 1.03
 Cobalt 1.23 1.37
 Iron 6760 8840
 Manganese 325 528
 Nickel 3.14 4.48

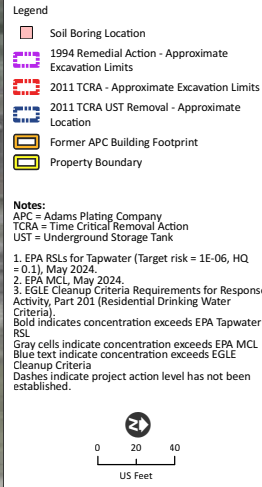
Location GW-09 GW-09
Date Sampled 3/26/2024 3/26/2024
Sample Depth (ft bgs) 10-15 10-15
Metals Dissolved Total
 Aluminum 10 U 26
 Arsenic 5 5
 Cobalt 0.981 0.972
 Iron 3560 3580
 Manganese 174 175
 Nickel 1.65 1.82
 Thallium 2 U 2 U

Location GW-11 GW-11 GW-11
Date Sampled 4/1/2024 4/1/2024 4/1/2024
Sample Depth (ft bgs) 10-15 10-15 14-19 14-19
Metals Dissolved Dissolved Dissolved
 Aluminum 10 U 22500 18 11500
 Arsenic 5 25 6 24
 Chromium 1.98 51 1.66 36
 Cobalt 58 83 90 98
 Iron 3100 52700 6340 30800
 Manganese 495 1730 203 755
 Nickel 64 108 32 60
 Thallium 2 U 0.687 2 U 2 U
 Vanadium 5 U 58 5 U 29

Location GW-05 GW-05
Date Sampled 3/28/2024 3/28/2024
Sample Depth (ft bgs) 13-18 13-18
Metals Dissolved Total
 Aluminum 10 U 2650
 Arsenic 2 4
 Chromium 0.869 7
 Cobalt 20 22
 Iron 2740 8550
 Manganese 684 907
 Nickel 8 8
 Vanadium 5 U 8

Location GW-08 GW-08 GW-08 GW-08
Date Sampled 3/27/2024 3/27/2024 3/27/2024 3/27/2024
Sample Depth (ft bgs) 7-12 7-12 7-12 7-12
Metals Dissolved Dissolved Total Total
 Aluminum 10 U 10 U 461 563
 Arsenic 1.8 2 U 2 3
 Chromium 2.66 2.54 6 6
 Cobalt 8 8 9 9
 Iron 20 U 18.3 1060 1190
 Manganese 656 677 732 695
 Nickel 68 69 73 74
 Vanadium 5 U 5 U 3.22 2.86

Location GW-10 GW-10 GW-10
Date Sampled 3/26/2024 3/26/2024 3/27/2024 3/27/2024
Sample Depth (ft bgs) 7-12 7-12 10-19 10-19
Metals Dissolved Dissolved Dissolved
 Aluminum 10 U 57 10 U 34200
 Arsenic 2 2 2 66
 Chromium 37 41 5 U 274
 Cobalt 2.06 2.26 4.66 47
 Iron 70 170 1840 100000
 Manganese 35 46 499 2759
 Nickel 27 26 10 143
 Thallium 2 U 2 U 2 U 0.76
 Vanadium 2.15 5 U 5 U 116

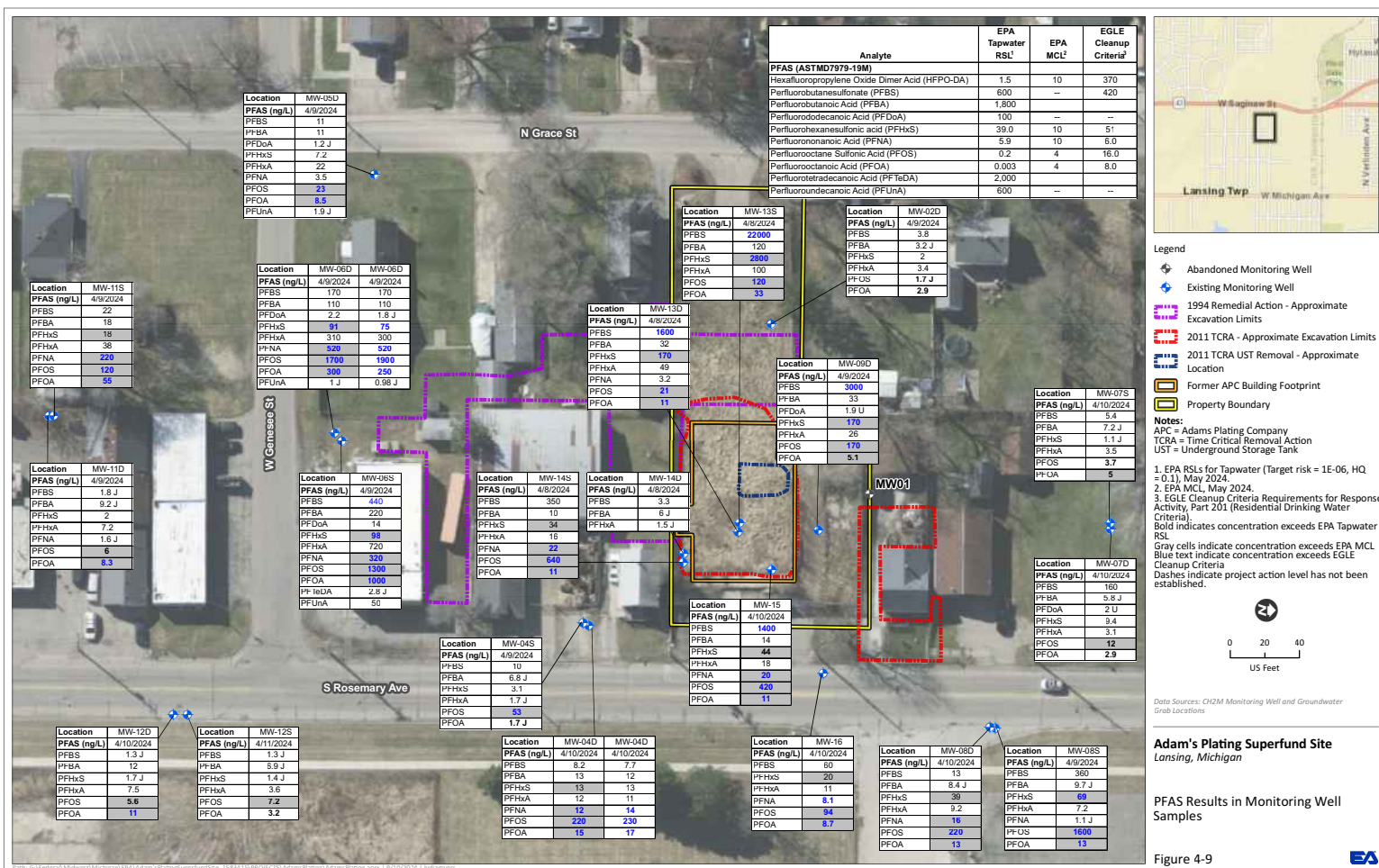


Adam's Plating Superfund Site
Lansing, Michigan

Metal Results in Grab Groundwater Samples

Figure 4-8





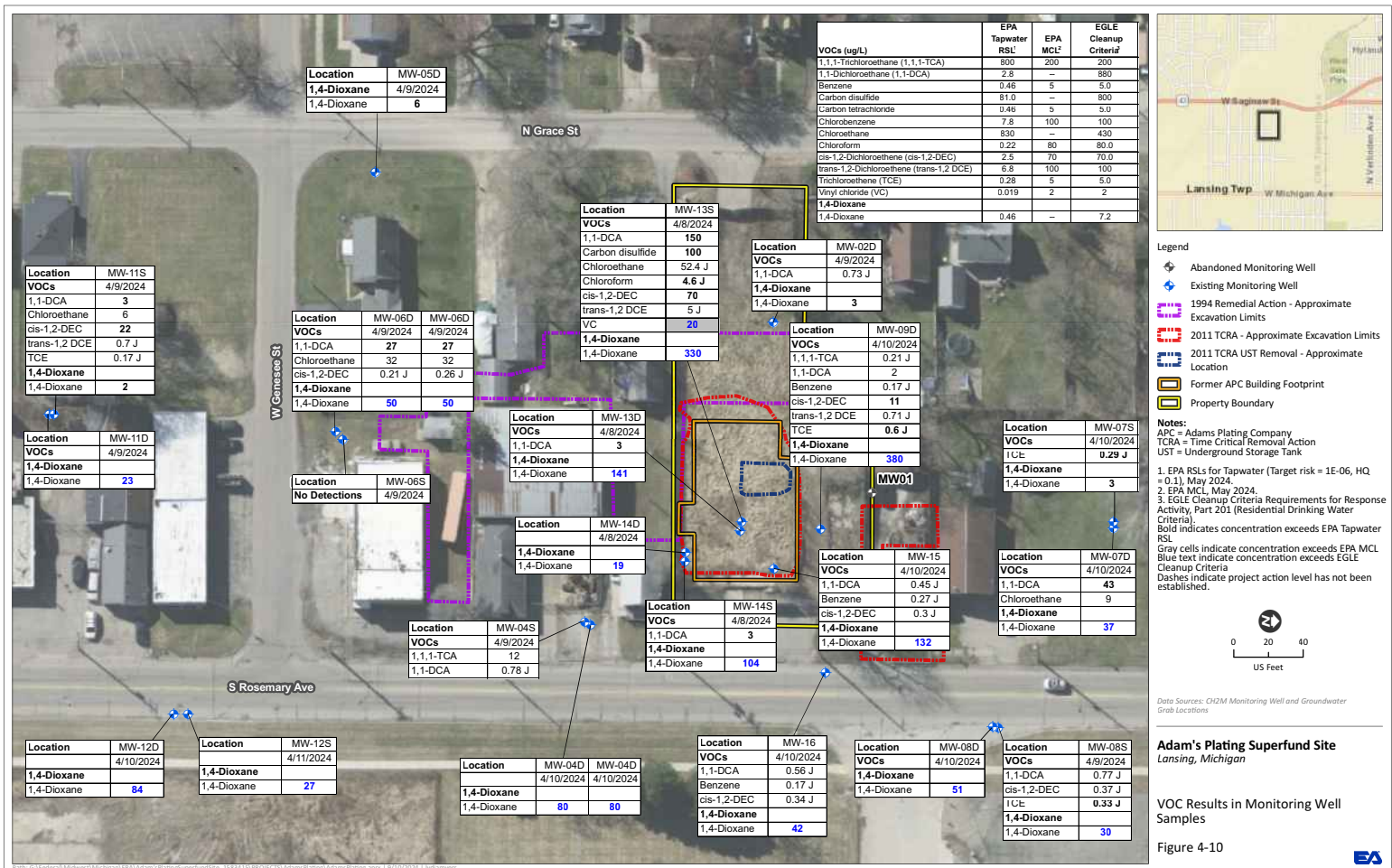
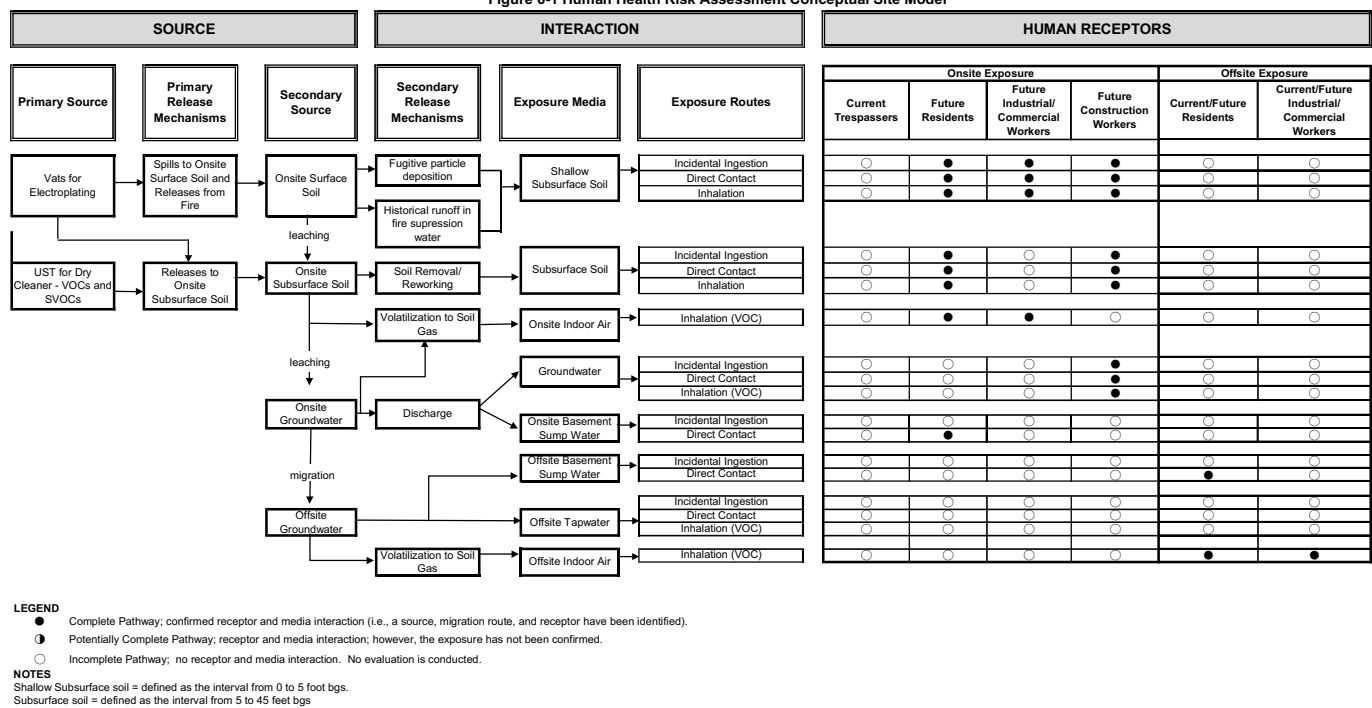


Figure 6-1 Human Health Risk Assessment Conceptual Site Model



Attachment 2

RACER Analytical Summary



Analytical Laboratory Report

Report ID: S60829.01(01)+QC01
Generated on 04/22/2024

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

Additional Contacts: 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 Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60829.01-S60829.17
Project: 30214036.0047A / RACER Lansing GWS
Collected Date(s): 04/08/2024 - 04/10/2024
Submitted Date/Time: 04/10/2024 15:50
Sampled by: Austin Westhuis
P.O. #: 30214036.0047A

Table of Contents

- Cover Page (Page 1)
- General Report Notes (Page 2)
- Report Narrative (Page 2)
- Laboratory Accreditations (Page 3)
- Qualifier Descriptions (Page 3)
- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- Sample Summary (Page 5)
- QC Report (Pages 30-86)


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).

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 and acrylonitrile, and 2-chloroethylvinyl 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.

Starred (*) analytes are not NY 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.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
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



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (17 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60829.01	MW-14-58R_040824	Groundwater	04/08/24 13:35
S60829.02	MW-22-153_040824	Groundwater	04/08/24 14:35
S60829.03	MW-22-155_040824	Groundwater	04/08/24 15:30
S60829.04	MW-22-156_040824	Groundwater	04/08/24 16:35
S60829.05	MW-22-157_040824	Groundwater	04/08/24 20:00
S60829.06	MW-23-161_040824	Groundwater	04/08/24 17:35
S60829.07	MW-23-162_040824	Groundwater	04/08/24 18:20
S60829.08	MW-23-163_040824	Groundwater	04/08/24 19:10
S60829.09	DUP-01_040824	Groundwater	04/08/24 00:01
S60829.10	MW-14-56_040924	Groundwater	04/09/24 13:50
S60829.11	MW-14-56_040924 MS	Groundwater	04/09/24 13:50
S60829.12	MW-14-56_040924 MSD	Groundwater	04/09/24 13:50
S60829.13	MW-16-83_041024	Groundwater	04/10/24 10:10
S60829.14	MW-15-73_041024	Groundwater	04/10/24 11:35
S60829.15	MW-20-126_041024	Groundwater	04/10/24 13:50
S60829.16	MW-16-80_041024	Groundwater	04/10/24 14:45
S60829.17	Trip Blank_041024	Water	04/10/24 00:01



Analytical Laboratory Report

Lab Sample ID: S60829.01
Sample Tag: MW-14-58R_040824
Collected Date/Time: 04/08/2024 13:35
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/19/24 19:17, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	280	10		ug/L	10	123-91-1	Y

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:18, Analyst: NDK

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	

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S60829.01 (continued)

Sample Tag: MW-14-58R_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:18, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	



Analytical Laboratory Report

Lab Sample ID: S60829.02
Sample Tag: MW-22-153_040824
Collected Date/Time: 04/08/2024 14:35
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 15:07, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	79	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:41, Analyst: NDK

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	2	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	119	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	



Analytical Laboratory Report

Lab Sample ID: S60829.02 (continued)

Sample Tag: MW-22-153_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 17:41, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	



Analytical Laboratory Report

Lab Sample ID: S60829.03
Sample Tag: MW-22-155_040824
Collected Date/Time: 04/08/2024 15:30
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 15:32, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	153	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:04, Analyst: NDK

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	



Analytical Laboratory Report

Lab Sample ID: S60829.03 (continued)

Sample Tag: MW-22-155_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:04, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	



Analytical Laboratory Report

Lab Sample ID: S60829.04
Sample Tag: MW-22-156_040824
Collected Date/Time: 04/08/2024 16:35
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 15:57, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	116	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 21:13, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	100		ug/L	10	60-29-7	Y
Acetone	Not detected	500		ug/L	10	67-64-1	Y
Methyl iodide	Not detected	10		ug/L	10	74-88-4	Y
Carbon disulfide	Not detected	50		ug/L	10	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	50		ug/L	10	1634-04-4	Y
Acrylonitrile	Not detected	20		ug/L	10	107-13-1	Y
2-Butanone (MEK)	Not detected	250		ug/L	10	78-93-3	Y
Dichlorodifluoromethane	Not detected	50		ug/L	10	75-71-8	Y
Chloromethane	Not detected	50		ug/L	10	74-87-3	Y
Vinyl chloride	Not detected	10		ug/L	10	75-01-4	Y
Bromomethane	Not detected	50		ug/L	10	74-83-9	Y
Chloroethane	Not detected	50		ug/L	10	75-00-3	Y
Trichlorofluoromethane	Not detected	10		ug/L	10	75-69-4	Y
1,1-Dichloroethene	20	10		ug/L	10	75-35-4	Y
Methylene chloride	Not detected	50		ug/L	10	75-09-2	Y
trans-1,2-Dichloroethene	Not detected	10		ug/L	10	156-60-5	Y
1,1-Dichloroethane	250	10		ug/L	10	75-34-3	Y
cis-1,2-Dichloroethene	Not detected	10		ug/L	10	156-59-2	Y
Tetrahydrofuran*	Not detected	900		ug/L	10	109-99-9	Y
Chloroform	Not detected	10		ug/L	10	67-66-3	Y
Bromochloromethane	Not detected	10		ug/L	10	74-97-5	Y
1,1,1-Trichloroethane	Not detected	10		ug/L	10	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	500		ug/L	10	108-10-1	Y
2-Hexanone	Not detected	500		ug/L	10	591-78-6	Y
Carbon tetrachloride	Not detected	10		ug/L	10	56-23-5	Y
Benzene	Not detected	10		ug/L	10	71-43-2	Y
1,2-Dichloroethane	Not detected	10		ug/L	10	107-06-2	Y
Trichloroethene	Not detected	10		ug/L	10	79-01-6	Y
1,2-Dichloropropane	Not detected	10		ug/L	10	78-87-5	Y
Bromodichloromethane	Not detected	10		ug/L	10	75-27-4	Y
Dibromomethane	Not detected	50		ug/L	10	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-01-5	Y

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S60829.04 (continued)

Sample Tag: MW-22-156_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 21:13, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	Not detected	10		ug/L	10	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	10		ug/L	10	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	10		ug/L	10	79-00-5	Y
Tetrachloroethene	Not detected	10		ug/L	10	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	10		ug/L	10	110-57-6	Y
Dibromochloromethane	Not detected	50		ug/L	10	124-48-1	Y
1,2-Dibromoethane	Not detected	10		ug/L	10	106-93-4	Y
Chlorobenzene	Not detected	10		ug/L	10	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	10		ug/L	10	630-20-6	Y
Ethylbenzene	Not detected	10		ug/L	10	100-41-4	Y
p,m-Xylene*	Not detected	20		ug/L	10		Y
o-Xylene	Not detected	10		ug/L	10	95-47-6	Y
Styrene	Not detected	10		ug/L	10	100-42-5	Y
Isopropylbenzene	Not detected	50		ug/L	10	98-82-8	Y
Bromoform	Not detected	10		ug/L	10	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	10		ug/L	10	79-34-5	Y
1,2,3-Trichloropropane	Not detected	10		ug/L	10	96-18-4	Y
n-Propylbenzene	Not detected	10		ug/L	10	103-65-1	Y
Bromobenzene	Not detected	10		ug/L	10	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	10		ug/L	10	108-67-8	Y
tert-Butylbenzene	Not detected	10		ug/L	10	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	10		ug/L	10	95-63-6	Y
sec-Butylbenzene	Not detected	10		ug/L	10	135-98-8	Y
p-Isopropyltoluene	Not detected	50		ug/L	10	99-87-6	Y
1,3-Dichlorobenzene	Not detected	10		ug/L	10	541-73-1	Y
1,4-Dichlorobenzene	Not detected	10		ug/L	10	106-46-7	Y
1,2-Dichlorobenzene	Not detected	10		ug/L	10	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	10		ug/L	10	526-73-8	Y
n-Butylbenzene	Not detected	10		ug/L	10	104-51-8	Y
Hexachloroethane	Not detected	50		ug/L	10	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	50		ug/L	10	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	50		ug/L	10	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	50		ug/L	10	87-61-6	Y
Naphthalene	Not detected	50		ug/L	10	91-20-3	Y
2-Methylnaphthalene	Not detected	50		ug/L	10	91-57-6	Y

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S60829.05
Sample Tag: MW-22-157_040824
Collected Date/Time: 04/08/2024 20:00
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 16:22, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	61	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:28, Analyst: NDK

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	



Analytical Laboratory Report

Lab Sample ID: S60829.05 (continued)

Sample Tag: MW-22-157_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	



Analytical Laboratory Report

Lab Sample ID: S60829.06
Sample Tag: MW-23-161_040824
Collected Date/Time: 04/08/2024 17:35
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 16:47, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	52	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.07
Sample Tag: MW-23-162_040824
Collected Date/Time: 04/08/2024 18:20
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 17:12, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	28	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.08
Sample Tag: MW-23-163_040824
Collected Date/Time: 04/08/2024 19:10
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 17:37, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	11	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.09
Sample Tag: DUP-01_040824
Collected Date/Time: 04/08/2024 00:01
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/19/24 19:43, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	270	10		ug/L	10	123-91-1	Y

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:52, Analyst: NDK

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	

Y-Elevated reporting limit due to high target concentration



Analytical Laboratory Report

Lab Sample ID: S60829.09 (continued)

Sample Tag: DUP-01_040824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 18:52, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	



Analytical Laboratory Report

Lab Sample ID: S60829.10
Sample Tag: MW-14-56_040924
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 18:27, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	18	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.11
Sample Tag: MW-14-56_040924 MS
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 19:42, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	67	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S60829.12
Sample Tag: MW-14-56_040924 MSD
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/14/24 20:07, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	59	1		ug/L	1	123-91-1	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S60829.13
Sample Tag: MW-16-83_041024
Collected Date/Time: 04/10/2024 10:10
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 06:32, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	Not detected	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.14
Sample Tag: MW-15-73_041024
Collected Date/Time: 04/10/2024 11:35
Matrix: Groundwater
COC Reference: 170528

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 06:58, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.15
Sample Tag: MW-20-126_041024
Collected Date/Time: 04/10/2024 13:50
Matrix: Groundwater
COC Reference: 166916

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 07:23, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.16
Sample Tag: MW-16-80_041024
Collected Date/Time: 04/10/2024 14:45
Matrix: Groundwater
COC Reference: 166916

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	04/15/24 12:22	ACK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 04/15/24 07:49, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	25	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S60829.17
Sample Tag: Trip Blank_041024
Collected Date/Time: 04/10/2024 00:01
Matrix: Water
COC Reference: 166916

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	04/21/24 13:23	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 13:47, Analyst: NDK

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	



Analytical Laboratory Report

Lab Sample ID: S60829.17 (continued)

Sample Tag: Trip Blank_041024

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/20/24 13:47, Analyst: NDK (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: S60829.01(01)+QC01
Generated on 04/22/2024

Report to

Attention: Kaitlyn Hunt
Arcadis
28550 Cabot Drive
Suite 500
Novi, MI 48377

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Phone: O:248-809-4013 C:947-777-5215 FAX:

Report Summary

Lab Sample ID(s): S60829.01-S60829.17
Project: 30214036.0047A / RACER Lansing GWS
Submitted Date/Time: 04/10/2024 15:50
Sampled by: Austin Westhuis
P.O. #: 30214036.0047A

QC Report Sections

Cover Page (Page 30)
Analysis Summary (Pages 31-47)
Prep Batch Summary (Page 48)
Surrogates per Lab Sample (Pages 49-55)
Surrogates per QC Sample (Pages 56-59)
Internal Standards per Lab Sample (Pages 60-74)
Internal Standards per QC Sample (Pages 75-78)
Batch QC Results (Pages 79-86)

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: S60829.01
Sample Tag: MW-14-58R_040824
Collected Date/Time: 04/08/2024 13:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/19/24 19:17	240419A9	VS240419W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:18	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.02
Sample Tag: MW-22-153_040824
Collected Date/Time: 04/08/2024 14:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 15:07	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:41	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.03
Sample Tag: MW-22-155_040824
Collected Date/Time: 04/08/2024 15:30
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 15:32	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:04	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.04
Sample Tag: MW-22-156_040824
Collected Date/Time: 04/08/2024 16:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 15:57	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 21:13	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.05
Sample Tag: MW-22-157_040824
Collected Date/Time: 04/08/2024 20:00
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 16:22	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:28	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.06
Sample Tag: MW-23-161_040824
Collected Date/Time: 04/08/2024 17:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 16:47	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.07
Sample Tag: MW-23-162_040824
Collected Date/Time: 04/08/2024 18:20
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 17:12	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.08
Sample Tag: MW-23-163_040824
Collected Date/Time: 04/08/2024 19:10
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 17:37	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.09
Sample Tag: DUP-01_040824
Collected Date/Time: 04/08/2024 00:01
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/19/24 19:43	240419A9	VS240419W1	Yes	BLK/LCS/LCSD/MS/MS
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:52	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.10
Sample Tag: MW-14-56_040924
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 18:27	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.11
Sample Tag: MW-14-56_040924 MS
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 19:42	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.12
Sample Tag: MW-14-56_040924 MSD
Collected Date/Time: 04/09/2024 13:50
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/14/24 20:07	240414A9	VS240414W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60829.13
Sample Tag: MW-16-83_041024
Collected Date/Time: 04/10/2024 10:10
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 06:32	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.14
Sample Tag: MW-15-73_041024
Collected Date/Time: 04/10/2024 11:35
Matrix: Groundwater
COC Reference: 170528

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 06:58	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.15
Sample Tag: MW-20-126_041024
Collected Date/Time: 04/10/2024 13:50
Matrix: Groundwater
COC Reference: 166916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 07:23	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.16
Sample Tag: MW-16-80_041024
Collected Date/Time: 04/10/2024 14:45
Matrix: Groundwater
COC Reference: 166916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
1,4-Dioxane	SW8260B - SIM	04/15/24 07:49	240414B9	VS240414W3	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60829.17

Sample Tag: Trip Blank_041024

Collected Date/Time: 04/10/2024 00:01

Matrix: Water

COC Reference: 166916

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 13:47	240419D3	VF240419W6	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: VF240419W6

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.01	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:18	240419D3
S60829.02	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 17:41	240419D3
S60829.03	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:04	240419D3
S60829.04	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 21:13	240419D3
S60829.05	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:28	240419D3
S60829.09	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 18:52	240419D3
S60829.17	Volatile Organics - DEQ List	SW5030C/8260C	04/20/24 13:47	240419D3

Organics - Volatiles, Prep Batch ID: VS240414W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.02	1,4-Dioxane	SW8260B - SIM	04/14/24 15:07	240414A9
S60829.03	1,4-Dioxane	SW8260B - SIM	04/14/24 15:32	240414A9
S60829.04	1,4-Dioxane	SW8260B - SIM	04/14/24 15:57	240414A9
S60829.05	1,4-Dioxane	SW8260B - SIM	04/14/24 16:22	240414A9
S60829.06	1,4-Dioxane	SW8260B - SIM	04/14/24 16:47	240414A9
S60829.07	1,4-Dioxane	SW8260B - SIM	04/14/24 17:12	240414A9
S60829.08	1,4-Dioxane	SW8260B - SIM	04/14/24 17:37	240414A9
S60829.10	1,4-Dioxane	SW8260B - SIM	04/14/24 18:27	240414A9
S60829.11	1,4-Dioxane	SW8260B - SIM	04/14/24 19:42	240414A9
S60829.12	1,4-Dioxane	SW8260B - SIM	04/14/24 20:07	240414A9

Organics - Volatiles, Prep Batch ID: VS240414W3

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.13	1,4-Dioxane	SW8260B - SIM	04/15/24 06:32	240414B9
S60829.14	1,4-Dioxane	SW8260B - SIM	04/15/24 06:58	240414B9
S60829.15	1,4-Dioxane	SW8260B - SIM	04/15/24 07:23	240414B9
S60829.16	1,4-Dioxane	SW8260B - SIM	04/15/24 07:49	240414B9

Organics - Volatiles, Prep Batch ID: VS240419W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60829.01	1,4-Dioxane	SW8260B - SIM	04/19/24 19:17	240419A9
S60829.09	1,4-Dioxane	SW8260B - SIM	04/19/24 19:43	240419A9

Lab Sample ID: S60829.01
Sample Tag: MW-14-58R_040824
Collected Date/Time: 04/08/2024 13:35
Matrix: Groundwater
COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:18, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.0	80.0	124.0
1,2-Dichloroethane-D4		98.2	72.0	125.0
Toluene-D8		103.1	89.0	112.0

Lab Sample ID: S60829.02
Sample Tag: MW-22-153_040824
Collected Date/Time: 04/08/2024 14:35
Matrix: Groundwater
COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:41, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.8	80.0	124.0
1,2-Dichloroethane-D4		96.1	72.0	125.0
Toluene-D8		102.3	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.03

Sample Tag: MW-22-155_040824

Collected Date/Time: 04/08/2024 15:30

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:04, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		103.7	80.0	124.0
1,2-Dichloroethane-D4		102.8	72.0	125.0
Toluene-D8		103.0	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.04

Sample Tag: MW-22-156_040824

Collected Date/Time: 04/08/2024 16:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 21:13, Matrix: WW, Dilution: 10

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.6	80.0	124.0
1,2-Dichloroethane-D4		99.0	72.0	125.0
Toluene-D8		102.4	89.0	112.0

Lab Sample ID: S60829.05
Sample Tag: MW-22-157_040824
Collected Date/Time: 04/08/2024 20:00
Matrix: Groundwater
COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:28, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		103.5	80.0	124.0
1,2-Dichloroethane-D4		102.7	72.0	125.0
Toluene-D8		102.7	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.09

Sample Tag: DUP-01_040824

Collected Date/Time: 04/08/2024 00:01

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:52, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.5	80.0	124.0
1,2-Dichloroethane-D4		94.4	72.0	125.0
Toluene-D8		102.6	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60829.17

Sample Tag: Trip Blank_041024

Collected Date/Time: 04/10/2024 00:01

Matrix: Water

COC Reference: 166916

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 13:47, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.8	80.0	124.0
1,2-Dichloroethane-D4		98.9	72.0	125.0
Toluene-D8		102.3	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240419W6

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.6	80.0	124.0
1,2-Dichloroethane-D4		96.9	72.0	125.0
Toluene-D8		102.4	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		104.5	80.0	124.0
1,2-Dichloroethane-D4		101.3	72.0	125.0
Toluene-D8		103.5	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		104.9	80.0	124.0
1,2-Dichloroethane-D4		105.2	72.0	125.0
Toluene-D8		103.0	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240414A9.BLKW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 12:11, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:31, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414A9.LCSDW14A, Parent Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:56, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240414A9.6071812M, Parent Sample ID: S60718.08

Run in Batch: 240414A9, Run Date: 04/14/2024 20:33, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240414A9.6082911M, Parent Sample ID: S60829.10

Run in Batch: 240414A9, Run Date: 04/14/2024 19:42, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6071813N, Parent Sample ID: 240414A9.6071812M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:58, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6082912N, Parent Sample ID: 240414A9.6082911M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:07, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240414B9.BLKW14B

Run in Batch: 240414B9, Run Date: 04/15/2024 00:18, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample (LCS)

Lab Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 22:37, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414B9.LCSDW14B, Parent Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 23:02, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
No Surrogates				

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VS240419W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240419A9.BLKW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 11:46, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Laboratory Control Sample (LCS)

Lab Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:17, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419A9.LCSDW19A, Parent Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:42, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Matrix Spike (MS)

Lab Sample ID: 240419A9.6084807M, Parent Sample ID: S60848.03

Run in Batch: 240419A9, Run Date: 04/19/2024 10:07, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240419A9.6084808N, Parent Sample ID: 240419A9.6084807M

Run in Batch: 240419A9, Run Date: 04/19/2024 10:32, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
-----------	-------	------	-----	-----

No Surrogates

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.01

Sample Tag: MW-14-58R_040824

Collected Date/Time: 04/08/2024 13:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240419A9, Run Date: 04/19/2024 19:17, Matrix: WW, Dilution: 10

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		98.7	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:18, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		97.0	50.0	200.0
1,4-Difluorobenzene		96.5	50.0	200.0
Chlorobenzene-D5		97.5	50.0	200.0
1,4-Dichlorobenzene-D4		93.9	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.02

Sample Tag: MW-22-153_040824

Collected Date/Time: 04/08/2024 14:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 15:07, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		93.6	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 17:41, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		95.3	50.0	200.0
1,4-Difluorobenzene		94.3	50.0	200.0
Chlorobenzene-D5		94.3	50.0	200.0
1,4-Dichlorobenzene-D4		90.7	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.03

Sample Tag: MW-22-155_040824

Collected Date/Time: 04/08/2024 15:30

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 15:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		95.3	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:04, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		94.8	50.0	200.0
1,4-Difluorobenzene		95.2	50.0	200.0
Chlorobenzene-D5		97.1	50.0	200.0
1,4-Dichlorobenzene-D4		95.7	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.04

Sample Tag: MW-22-156_040824

Collected Date/Time: 04/08/2024 16:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 15:57, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		93.1	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 21:13, Matrix: WW, Dilution: 10

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		98.5	50.0	200.0
1,4-Difluorobenzene		97.9	50.0	200.0
Chlorobenzene-D5		98.7	50.0	200.0
1,4-Dichlorobenzene-D4		97.2	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.05

Sample Tag: MW-22-157_040824

Collected Date/Time: 04/08/2024 20:00

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 16:22, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		103.0	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:28, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		95.5	50.0	200.0
1,4-Difluorobenzene		95.3	50.0	200.0
Chlorobenzene-D5		97.2	50.0	200.0
1,4-Dichlorobenzene-D4		95.6	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.06

Sample Tag: MW-23-161_040824

Collected Date/Time: 04/08/2024 17:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 16:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		91.0	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.07

Sample Tag: MW-23-162_040824

Collected Date/Time: 04/08/2024 18:20

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 17:12, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		97.5	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.08

Sample Tag: MW-23-163_040824

Collected Date/Time: 04/08/2024 19:10

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 17:37, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		94.6	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.09

Sample Tag: DUP-01_040824

Collected Date/Time: 04/08/2024 00:01

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240419A9, Run Date: 04/19/2024 19:43, Matrix: WW, Dilution: 10

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		111.5	50.0	200.0

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 18:52, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		93.4	50.0	200.0
1,4-Difluorobenzene		91.6	50.0	200.0
Chlorobenzene-D5		91.2	50.0	200.0
1,4-Dichlorobenzene-D4		88.5	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.10

Sample Tag: MW-14-56_040924

Collected Date/Time: 04/09/2024 13:50

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414A9, Run Date: 04/14/2024 18:27, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		96.4	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.13

Sample Tag: MW-16-83_041024

Collected Date/Time: 04/10/2024 10:10

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 06:32, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		85.5	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.14

Sample Tag: MW-15-73_041024

Collected Date/Time: 04/10/2024 11:35

Matrix: Groundwater

COC Reference: 170528

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 06:58, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		86.1	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.15

Sample Tag: MW-20-126_041024

Collected Date/Time: 04/10/2024 13:50

Matrix: Groundwater

COC Reference: 166916

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 07:23, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		85.8	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.16

Sample Tag: MW-16-80_041024

Collected Date/Time: 04/10/2024 14:45

Matrix: Groundwater

COC Reference: 166916

Organics - Volatiles, Analysis: 1,4-Dioxane

Run in Batch: 240414B9, Run Date: 04/15/2024 07:49, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		82.4	50.0	200.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60829.17

Sample Tag: Trip Blank_041024

Collected Date/Time: 04/10/2024 00:01

Matrix: Water

COC Reference: 166916

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240419D3, Run Date: 04/20/2024 13:47, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		96.6	50.0	200.0
1,4-Difluorobenzene		95.5	50.0	200.0
Chlorobenzene-D5		95.6	50.0	200.0
1,4-Dichlorobenzene-D4		93.1	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VF240419W6

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		97.7	50.0	200.0
1,4-Difluorobenzene		97.4	50.0	200.0
Chlorobenzene-D5		97.5	50.0	200.0
1,4-Dichlorobenzene-D4		94.9	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		100.4	50.0	200.0
1,4-Difluorobenzene		100.6	50.0	200.0
Chlorobenzene-D5		102.7	50.0	200.0
1,4-Dichlorobenzene-D4		103.3	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
Pentafluorobenzene		99.1	50.0	200.0
1,4-Difluorobenzene		98.5	50.0	200.0
Chlorobenzene-D5		99.3	50.0	200.0
1,4-Dichlorobenzene-D4		100.3	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240414A9.BLKW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 12:11, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		101.4	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:31, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		99.8	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414A9.LCSDW14A, Parent Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:56, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		97.7	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6071812M, Parent Sample ID: S60718.08

Run in Batch: 240414A9, Run Date: 04/14/2024 20:33, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		92.6	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6082911M, Parent Sample ID: S60829.10

Run in Batch: 240414A9, Run Date: 04/14/2024 19:42, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		90.8	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6071813N, Parent Sample ID: 240414A9.6071812M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:58, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		91.6	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6082912N, Parent Sample ID: 240414A9.6082911M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:07, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		90.6	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240414W3

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240414B9.BLKW14B

Run in Batch: 240414B9, Run Date: 04/15/2024 00:18, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		96.7	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 22:37, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		99.6	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414B9.LCSDW14B, Parent Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 23:02, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		95.3	50.0	200.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: VS240419W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240419A9.BLKW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 11:46, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		96.7	50.0	200.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:17, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		105.0	50.0	200.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419A9.LCSDW19A, Parent Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:42, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		102.7	50.0	200.0

Matrix Spike (MS)

Lab Sample ID: 240419A9.6084807M, Parent Sample ID: S60848.03

Run in Batch: 240419A9, Run Date: 04/19/2024 10:07, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		96.2	50.0	200.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240419A9.6084808N, Parent Sample ID: 240419A9.6084807M

Run in Batch: 240419A9, Run Date: 04/19/2024 10:32, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
1,4-Dioxane-D8		106.0	50.0	200.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240419W6

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

Blank (BLK)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, 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	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

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

Blank (BLK) (continued)

Lab Sample ID: 240419D3.BLKW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 13:23, Prep Date: 04/19/2024, 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: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		104.2	67.4	121.2
Acetone		105.9	29.9	161.5
Methyl iodide		104.4	68.8	116.4
Carbon disulfide		89.5	63.8	137.4
tert-Methyl butyl ether (MTBE)		109.9	73.2	122.4
Acrylonitrile		99.2	69.9	128.9
2-Butanone (MEK)		97.0	44.0	134.4
Dichlorodifluoromethane		111.5	10.0	222.8
Chloromethane		121.8	23.8	166.5
Vinyl chloride		109.6	43.5	149.1
Bromomethane		103.8	56.8	151.3
Chloroethane		101.3	53.4	149.4
Trichlorofluoromethane		98.9	59.7	151.8
1,1-Dichloroethene		98.1	69.6	139.4
Methylene chloride		105.5	73.3	121.1
trans-1,2-Dichloroethene		99.3	73.6	129.3
1,1-Dichloroethane		103.2	71.5	126.2
cis-1,2-Dichloroethene		105.0	76.6	122.1
Tetrahydrofuran		96.5	59.0	117.9
Chloroform		102.2	78.4	124.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		106.0	78.2	120.8
1,1,1-Trichloroethane		101.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		104.0	71.6	125.2
2-Hexanone		105.4	55.4	136.9
Carbon tetrachloride		100.1	72.6	133.0
Benzene		105.7	79.9	124.9
1,2-Dichloroethane		98.5	76.0	126.3
Trichloroethene		108.4	79.7	124.2
1,2-Dichloropropane		107.8	78.6	126.4
Bromodichloromethane		104.7	80.4	128.2
Dibromomethane		106.3	76.9	122.1
cis-1,3-Dichloropropene		101.2	79.8	129.9
Toluene		105.0	79.8	124.5
trans-1,3-Dichloropropene		99.8	74.0	131.3
1,1,2-Trichloroethane		106.0	78.7	123.1
Tetrachloroethene		102.3	74.5	124.5
trans-1,4-Dichloro-2-butene		85.6	68.6	135.4
Dibromochloromethane		104.1	74.6	127.2
1,2-Dibromoethane		102.8	70.3	133.7
Chlorobenzene		103.0	79.2	122.7
1,1,1,2-Tetrachloroethane		105.4	80.3	128.2
Ethylbenzene		100.7	79.5	129.1
p,m-Xylene		101.6	79.4	132.2
o-Xylene		102.7	80.2	131.0
Styrene		105.5	69.5	126.7
Isopropylbenzene		101.3	74.4	121.5
Bromoform		104.2	69.4	128.0
1,1,2,2-Tetrachloroethane		92.2	79.8	126.3
1,2,3-Trichloropropane		98.8	78.3	138.8
n-Propylbenzene		97.9	82.0	130.7
Bromobenzene		104.1	78.7	124.6
1,3,5-Trimethylbenzene		101.6	81.3	128.9
tert-Butylbenzene		100.0	80.7	128.9
1,2,4-Trimethylbenzene		102.6	81.4	130.8
sec-Butylbenzene		95.7	77.4	129.8
p-Isopropyltoluene		98.6	79.8	137.5
1,3-Dichlorobenzene		101.3	77.0	131.3
1,4-Dichlorobenzene		98.7	20.7	137.7
1,2-Dichlorobenzene		101.2	10.0	166.2
1,2,3-Trimethylbenzene		104.1	76.3	124.2
n-Butylbenzene		90.8	80.0	133.3
Hexachloroethane		109.2	23.8	138.1
1,2-Dibromo-3-chloropropane		97.6	21.2	189.4
1,2,4-Trichlorobenzene		95.5	27.4	143.4
1,2,3-Trichlorobenzene		97.8	75.4	131.4
Naphthalene		98.1	32.9	135.8

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 11:49, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		109.7	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		103.6	67.4	121.2	0.6	30.0
Acetone		110.8	29.9	161.5	4.5	30.0
Methyl iodide		100.7	68.8	116.4	3.6	30.0
Carbon disulfide		87.9	63.8	137.4	1.8	30.0
tert-Methyl butyl ether (MTBE)		112.2	73.2	122.4	2.0	30.0
Acrylonitrile		105.1	69.9	128.9	5.8	30.0
2-Butanone (MEK)		105.5	44.0	134.4	8.4	30.0
Dichlorodifluoromethane		112.0	10.0	222.8	0.4	30.0
Chloromethane		120.6	23.8	166.5	1.0	30.0
Vinyl chloride		106.3	43.5	149.1	3.1	30.0
Bromomethane		101.4	56.8	151.3	2.4	30.0
Chloroethane		99.2	53.4	149.4	2.1	30.0
Trichlorofluoromethane		96.6	59.7	151.8	2.4	30.0
1,1-Dichloroethene		95.3	69.6	139.4	2.9	30.0
Methylene chloride		103.9	73.3	121.1	1.5	30.0
trans-1,2-Dichloroethene		98.3	73.6	129.3	1.0	30.0
1,1-Dichloroethane		102.1	71.5	126.2	1.0	30.0
cis-1,2-Dichloroethene		103.3	76.6	122.1	1.6	30.0
Tetrahydrofuran		102.0	59.0	117.9	5.5	30.0
Chloroform		100.2	78.4	124.0	2.0	30.0
Bromochloromethane		105.1	78.2	120.8	0.8	30.0
1,1,1-Trichloroethane		100.2	79.4	130.9	1.4	30.0
4-Methyl-2-pentanone (MIBK)		113.5	71.6	125.2	8.8	30.0
2-Hexanone		114.9	55.4	136.9	8.6	30.0
Carbon tetrachloride		100.8	72.6	133.0	0.7	30.0
Benzene		104.6	79.9	124.9	1.0	30.0
1,2-Dichloroethane		99.1	76.0	126.3	0.6	30.0
Trichloroethene		100.7	79.7	124.2	7.3	30.0
1,2-Dichloropropane		106.6	78.6	126.4	1.1	30.0
Bromodichloromethane		103.3	80.4	128.2	1.3	30.0
Dibromomethane		106.0	76.9	122.1	0.3	30.0
cis-1,3-Dichloropropene		101.0	79.8	129.9	0.3	30.0
Toluene		103.8	79.8	124.5	1.2	30.0
trans-1,3-Dichloropropene		100.6	74.0	131.3	0.8	30.0
1,1,2-Trichloroethane		107.2	78.7	123.1	1.2	30.0
Tetrachloroethene		100.5	74.5	124.5	1.7	30.0
trans-1,4-Dichloro-2-butene		91.5	68.6	135.4	6.6	30.0
Dibromochloromethane		105.8	74.6	127.2	1.7	30.0
1,2-Dibromoethane		106.3	70.3	133.7	3.3	30.0
Chlorobenzene		103.5	79.2	122.7	0.5	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240419W6 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240419D3.LCSDW19C, Parent Sample ID: 240419D3.LCSW19C

Run in Batch: 240419D3, Run Date: 04/20/2024 12:13, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		106.3	80.3	128.2	0.8	30.0
Ethylbenzene		101.3	79.5	129.1	0.6	30.0
p,m-Xylene		102.2	79.4	132.2	0.6	30.0
o-Xylene		102.7	80.2	131.0	0.1	30.0
Styrene		105.8	69.5	126.7	0.3	30.0
Isopropylbenzene		102.3	74.4	121.5	1.0	30.0
Bromoform		109.7	69.4	128.0	5.2	30.0
1,1,2,2-Tetrachloroethane		107.2	79.8	126.3	15.0	30.0
1,2,3-Trichloropropane		107.1	78.3	138.8	8.1	30.0
n-Propylbenzene		99.8	82.0	130.7	1.9	30.0
Bromobenzene		104.3	78.7	124.6	0.2	30.0
1,3,5-Trimethylbenzene		101.8	81.3	128.9	0.2	30.0
tert-Butylbenzene		100.0	80.7	128.9	0.0	30.0
1,2,4-Trimethylbenzene		103.4	81.4	130.8	0.8	30.0
sec-Butylbenzene		96.9	77.4	129.8	1.2	30.0
p-Isopropyltoluene		99.8	79.8	137.5	1.2	30.0
1,3-Dichlorobenzene		102.1	77.0	131.3	0.9	30.0
1,4-Dichlorobenzene		100.5	20.7	137.7	1.7	30.0
1,2-Dichlorobenzene		103.2	10.0	166.2	1.9	30.0
1,2,3-Trimethylbenzene		105.3	76.3	124.2	1.1	30.0
n-Butylbenzene		93.9	80.0	133.3	3.4	30.0
Hexachloroethane		110.6	23.8	138.1	1.2	30.0
1,2-Dibromo-3-chloropropane		107.7	21.2	189.4	9.8	30.0
1,2,4-Trichlorobenzene		99.7	27.4	143.4	4.2	30.0
1,2,3-Trichlorobenzene		102.1	75.4	131.4	4.3	30.0
Naphthalene		105.2	32.9	135.8	7.0	30.0
2-Methylnaphthalene		120.6	25.5	165.5	9.5	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VS240414W1

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

Blank (BLK)

Lab Sample ID: 240414A9.BLKW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 12:11, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:31, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		91.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414A9.LCSDW14A, Parent Sample ID: 240414A9.LCSW14A

Run in Batch: 240414A9, Run Date: 04/14/2024 10:56, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		96.4	70.0	130.0	5.7	30.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6071812M, Parent Sample ID: S60718.08

Run in Batch: 240414A9, Run Date: 04/14/2024 20:33, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		93.5	70.0	130.0

Matrix Spike (MS)

Lab Sample ID: 240414A9.6082911M, Parent Sample ID: S60829.10

Run in Batch: 240414A9, Run Date: 04/14/2024 19:42, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		98.0	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6071813N, Parent Sample ID: 240414A9.6071812M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:58, Prep Date: 04/14/2024, Matrix: WW, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		89.4	70.0	130.0	3.2	30.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240414A9.6082912N, Parent Sample ID: 240414A9.6082911M

Run in Batch: 240414A9, Run Date: 04/14/2024 20:07, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		83.1	70.0	130.0	11.8	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VS240414W3

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

Blank (BLK)

Lab Sample ID: 240414B9.BLKW14B

Run in Batch: 240414B9, Run Date: 04/15/2024 00:18, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane		ND	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 22:37, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		90.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240414B9.LCSDW14B, Parent Sample ID: 240414B9.LCSW14B

Run in Batch: 240414B9, Run Date: 04/14/2024 23:02, Prep Date: 04/14/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		97.1	70.0	130.0	6.8	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VS240419W1

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

Blank (BLK)

Lab Sample ID: 240419A9.BLKW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 11:46, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
1,4-Dioxane	*	3.4980	0.02	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:17, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		94.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240419A9.LCSDW19A, Parent Sample ID: 240419A9.LCSW19A

Run in Batch: 240419A9, Run Date: 04/19/2024 09:42, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		93.8	70.0	130.0	0.2	30.0

Matrix Spike (MS)

Lab Sample ID: 240419A9.6084807M, Parent Sample ID: S60848.03

Run in Batch: 240419A9, Run Date: 04/19/2024 10:07, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
1,4-Dioxane		94.5	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240419A9.6084808N, Parent Sample ID: 240419A9.6084807M

Run in Batch: 240419A9, Run Date: 04/19/2024 10:32, Prep Date: 04/19/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,4-Dioxane		99.5	70.0	130.0	4.8	30.0

Merit Laboratories Login Checklist

Lab Set ID:S60829

Client:ARCADIS_NOVI (ARCADIS U.S., Inc.)

Project: 30214036.0047A / RACER Lansing GWS

Submitted:04/10/2024 15:50 Login User: MMC

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.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 6.0
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ 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: _____

C.O.C. PAGE # 1 OF 2 170528

INVOICE TO

CONTACT NAME		NAME	
COMPANY			
ADDRESS			
CITY		STATE	ZIP CODE
PHONE NO.	E-MAIL ADDRESS Tiffany.Linder@arcadis.com		

Certifications

☐ OHIO VAP ☐ Drinking Water

☐ DoD ☐ NPDES

Project Locations

☐ Detroit ☐ New York

☐ Other _____

Special Instructions

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	ANALYSIS						☐ Other _____ Special Instructions		
	DATE	TIME											14-C	8-Pb	VOC	SVOC	SILICA				
60829.01	4/3/24	1335	MW-14-58R_040824	GW	3		3						X	X							
.02	4/8/24	1435	MW-22-153_040824	GW	3		3						X	X							
.03	4/8/24	1530	MW-22-155_040824	GW	3		3						X	X							
.04	4/8/24	1635	MW-22-156_040824	GW	3		3						X	X							
.05	4/8/24	2000	MW-22-157_040824	GW	3		3						X	X							
.06	4/8/24	1735	MW-23-161_040824	GW	3		3						X								
.07	4/8/24	1820	MW-23-162_040824	GW	3		3						X								
.08	4/8/24	1910	MW-23-163_040824	GW	3		3						X								
.09	4/8/24	—	DUP-01_040824	GW	3		3						X	X							
10/11/12	4/9/24	1350	MW-14-56_040924	GW	9		9						X								MS/MSD
.13	4/10/24	1010	MW-16-83_041024	GW	3		3						X								
.14	4/10/24	1135	MW-15-73_041024	GW	3		3						X								

RELINQUISHED BY:		Merit Drop Box		DATE	TIME
SIGNATURE/ORGANIZATION				4/10/24	1550
RECEIVED BY:		M. Delgado		DATE	TIME
SIGNATURE/ORGANIZATION				4/10/24	1550
SEAL NO	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL	
SEAL NO	SEAL INTACT YES ☐ NO ☐	INITIALS	6.0		

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



Merit
Laboratories, Inc.

C.O.C. PAGE # 2 OF 2 166916

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME		IS SAME	
COMPANY			
ADDRESS			
CITY		STATE	ZIP CODE
PHONE NO	E-MAIL ADDRESS Tiffany.Linder@arcadis.com		

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications

☐ OHIO VAP ☐ Drinking Water

☐ DoD ☐ NPDES

Project Locations

☐ Detroit ☐ New York

☐ Other _____

Special Instructions

Containers & Preservatives

[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION		Merit Drop Box		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		M. Cheluto		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES	TEMP ON ARRIVAL	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		6.0	

894 126 22



Report of Analysis

Arcadis U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch, CO 80129
Attention: Tiffany Linder

Project Name: RACER Lansing GWS

Project Number: 30214036.0037A

Lot Number: **ZD10028**

Date Completed: 04/26/2024

Kathy Smith

04/26/2024 4:09 PM

Approved and released by:
Project Manager II: **Kathy E. Smith**



The electronic signature above is the equivalent of a handwritten signature.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative Arcadis U.S., Inc. Lot Number: ZD10028

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Additionally, the DoD QSM version 5.4 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.4 table B-15 and our PFAS SOP. Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

$$CF = DF * FV / V_o$$

FV is volume of extract (mL)

V_o is initial sample volume (mL)

DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:

Concentration (ng/L) = C_s*CF,

$$C_s = \frac{\left(\frac{(A_s \times C_{is})}{A_{is}} \right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)

C_{is} is concentration of internal standard in the sample (ng/L)

A_s is peak response of target analyte in the sample

A_{is} is peak response of internal standard in the sample

M1 is the average RF from ICAL or the slope from linear regression ICAL

B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

PFAS

Surrogate recovery for the following samples was outside the upper control limit: ZD10028-001, ZD10028-002. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Arcadis U.S., Inc.

Lot Number: ZD10028

Project Name: RACER Lansing GWS

Project Number: 30214036.0037A

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-14-58R_040824	Aqueous	04/08/2024 1335	04/10/2024
002	DUP-01_040824	Aqueous	04/08/2024	04/10/2024
003	MW-14-56_040924	Aqueous	04/09/2024 1350	04/10/2024
004	EB-01_040924	Aqueous	04/09/2024 1415	04/10/2024

(4 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Arcadis U.S., Inc.

Lot Number: ZD10028

Project Name: RACER Lansing GWS

Project Number: 30214036.0037A

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-14-58R_040824	Aqueous	PFBS	PFAS by ID	1.9	J	ng/L	5
001	MW-14-58R_040824	Aqueous	PFHxS	PFAS by ID	2.6	J	ng/L	5
001	MW-14-58R_040824	Aqueous	PFBA	PFAS by ID	9.5		ng/L	5
001	MW-14-58R_040824	Aqueous	PFHpA	PFAS by ID	4.8		ng/L	5
001	MW-14-58R_040824	Aqueous	PFHxA	PFAS by ID	7.1		ng/L	5
001	MW-14-58R_040824	Aqueous	PFNA	PFAS by ID	0.67	J	ng/L	5
001	MW-14-58R_040824	Aqueous	PFOA	PFAS by ID	12		ng/L	5
001	MW-14-58R_040824	Aqueous	PFPeA	PFAS by ID	6.9		ng/L	5
001	MW-14-58R_040824	Aqueous	PFOS	PFAS by ID	5.4		ng/L	5
002	DUP-01_040824	Aqueous	PFBS	PFAS by ID	1.2	J	ng/L	7
002	DUP-01_040824	Aqueous	PFHxS	PFAS by ID	2.5	J	ng/L	7
002	DUP-01_040824	Aqueous	PFBA	PFAS by ID	8.7		ng/L	7
002	DUP-01_040824	Aqueous	PFHpA	PFAS by ID	4.6		ng/L	7
002	DUP-01_040824	Aqueous	PFHxA	PFAS by ID	6.9		ng/L	7
002	DUP-01_040824	Aqueous	PFNA	PFAS by ID	0.77	J	ng/L	7
002	DUP-01_040824	Aqueous	PFOA	PFAS by ID	14		ng/L	7
002	DUP-01_040824	Aqueous	PFPeA	PFAS by ID	6.2		ng/L	7
002	DUP-01_040824	Aqueous	PFOS	PFAS by ID	5.2		ng/L	7
003	MW-14-56_040924	Aqueous	PFBS	PFAS by ID	0.82	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFHxS	PFAS by ID	1.6	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFBA	PFAS by ID	14		ng/L	9
003	MW-14-56_040924	Aqueous	PFHpA	PFAS by ID	2.3	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFHxA	PFAS by ID	6.5	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFNA	PFAS by ID	1.1	J	ng/L	9
003	MW-14-56_040924	Aqueous	PFOA	PFAS by ID	8.2		ng/L	9
003	MW-14-56_040924	Aqueous	PFPeA	PFAS by ID	23		ng/L	9
003	MW-14-56_040924	Aqueous	PFOS	PFAS by ID	15		ng/L	9

(27 detections)

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.			Laboratory ID: ZD10028-001		
Description: MW-14-58R_040824			Matrix: Aqueous		
Date Sampled: 04/08/2024 1335			Project Name: RACER Lansing GWS		
Date Received: 04/10/2024			Project Number: 30214036.0037A		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/23/2024 1717	ALM	04/22/2024 1138	10424

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.8	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.8	0.74	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.8	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	J	3.4	0.35	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.66	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.6	J	3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	9.5		3.4	0.51	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDaA)	307-55-1	PFAS by ID SOP	ND		3.4	0.40	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	4.8		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	7.1		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.67	J	3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.9		3.4	0.46	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.4		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	238	25-150
13C2_6:2FTS	N	330	25-150
13C2_8:2FTS	N	216	25-150
13C2_PFDaA		105	25-150
13C2_PFTeDA		121	25-150
13C3_PFBs		89	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		74	25-150
13C4_PFBa		46	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		89	25-150
13C5_PFPeA		71	25-150
13C6_PFDa		130	25-150
13C7_PFUdA		101	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.	Laboratory ID: ZD10028-001
Description: MW-14-58R_040824	Matrix: Aqueous
Date Sampled: 04/08/2024 1335	Project Name: RACER Lansing GWS
Date Received: 04/10/2024	Project Number: 30214036.0037A

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		124	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		124	25-150
d5-EtFOSAA		138	25-150
d3-MeFOSAA		138	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.			Laboratory ID: ZD10028-002		
Description: DUP-01_040824			Matrix: Aqueous		
Date Sampled: 04/08/2024			Project Name: RACER Lansing GWS		
Date Received: 04/10/2024			Project Number: 30214036.0037A		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/23/2024 1728	ALM	04/22/2024 1138	10424

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.9	0.57	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	6.9	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	6.9	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	6.9	0.75	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		6.9	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		6.9	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.9	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.9	0.80	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.2	J	3.4	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.4	0.67	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.4	0.43	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.61	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.4	0.53	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.4	0.51	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.5	J	3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	8.7		3.4	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDaA)	307-55-1	PFAS by ID SOP	ND		3.4	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	4.6		3.4	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	6.9		3.4	0.59	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.77	J	3.4	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	14		3.4	0.71	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.2		3.4	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.4	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.4	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.4	0.54	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.2		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	240	25-150
13C2_6:2FTS	N	311	25-150
13C2_8:2FTS	N	206	25-150
13C2_PFDaA		96	25-150
13C2_PFTeDA		104	25-150
13C3_PFBs		84	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBa		43	25-150
13C4_PFHpA		77	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		71	25-150
13C6_PFDa		122	25-150
13C7_PFUdA		94	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.	Laboratory ID: ZD10028-002
Description: DUP-01_040824	Matrix: Aqueous
Date Sampled: 04/08/2024	Project Name: RACER Lansing GWS
Date Received: 04/10/2024	Project Number: 30214036.0037A

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	25-150
13C8_PFOS		95	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		115	25-150
d5-EtFOSAA		128	25-150
d3-MeFOSAA		136	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.			Laboratory ID: ZD10028-003		
Description: MW-14-56_040924			Matrix: Aqueous		
Date Sampled: 04/09/2024 1350			Project Name: RACER Lansing GWS		
Date Received: 04/10/2024			Project Number: 30214036.0037A		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/23/2024 1739	ALM	04/22/2024 1138	10424

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		13	0.79	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		13	1.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		13	2.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		13	3.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		13	1.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		13	3.4	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		13	0.79	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		13	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		13	1.5	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	0.82 J		6.6	0.68	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		6.6	1.3	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		6.6	0.82	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		6.6	1.2	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		6.6	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		6.6	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.6 J		6.6	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	14		6.6	0.98	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		6.6	0.86	ng/L	1
Perfluoro-n-dodecanoic acid (PFDaA)	307-55-1	PFAS by ID SOP	ND		6.6	0.77	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.3 J		6.6	0.73	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	6.5 J		6.6	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.1 J		6.6	0.76	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	8.2		6.6	1.4	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	23		6.6	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		6.6	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		6.6	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		6.6	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	15		6.6	3.3	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		84	25-150
13C2_6:2FTS		77	25-150
13C2_8:2FTS		51	25-150
13C2_PFDaA		40	25-150
13C2_PFTeDA		51	25-150
13C3_PFBs		56	25-150
13C3_PFHxS		57	25-150
13C3-HFPO-DA		53	25-150
13C4_PFBa		47	25-150
13C4_PFHpA		52	25-150
13C5_PFHxA		61	25-150
13C5_PFPeA		56	25-150
13C6_PFDa		48	25-150
13C7_PFUdA		40	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.	Laboratory ID: ZD10028-003
Description: MW-14-56_040924	Matrix: Aqueous
Date Sampled: 04/09/2024 1350	Project Name: RACER Lansing GWS
Date Received: 04/10/2024	Project Number: 30214036.0037A

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		66	25-150
13C8_PFOS		45	25-150
13C8_PFOA		45	10-150
13C9_PFNA		54	25-150
d5-EtFOSAA		42	25-150
d3-MeFOSAA		43	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.			Laboratory ID: ZD10028-004		
Description: EB-01_040924			Matrix: Aqueous		
Date Sampled: 04/09/2024 1415			Project Name: RACER Lansing GWS		
Date Received: 04/10/2024			Project Number: 30214036.0037A		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	04/25/2024 1256	NRP	04/24/2024 1048	10557

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.65	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDaA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		92	25-150
13C2_PFDaA		99	25-150
13C2_PFTeDA		99	25-150
13C3_PFBs		102	25-150
13C3_PFHxS		111	25-150
13C3-HFPO-DA		102	25-150
13C4_PFBa		106	25-150
13C4_PFHpA		102	25-150
13C5_PFHxA		115	25-150
13C5_PFPeA		110	25-150
13C6_PFDa		109	25-150
13C7_PFUdA		99	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Arcadis U.S., Inc.	Laboratory ID: ZD10028-004
Description: EB-01_040924	Matrix: Aqueous
Date Sampled: 04/09/2024 1415	Project Name: RACER Lansing GWS
Date Received: 04/10/2024	Project Number: 30214036.0037A

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		107	25-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: ZQ10424-001

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9CI-PF3ONS	ND		1	8.0	0.48	ng/L	04/23/2024 1449
11CI-PF3OUdS	ND		1	8.0	0.66	ng/L	04/23/2024 1449
8:2 FTS	ND		1	8.0	1.6	ng/L	04/23/2024 1449
6:2 FTS	ND		1	8.0	2.0	ng/L	04/23/2024 1449
4:2 FTS	ND		1	8.0	0.87	ng/L	04/23/2024 1449
GenX	ND		1	8.0	2.1	ng/L	04/23/2024 1449
ADONA	ND		1	8.0	0.48	ng/L	04/23/2024 1449
EtFOSAA	ND		1	8.0	0.75	ng/L	04/23/2024 1449
MeFOSAA	ND		1	8.0	0.93	ng/L	04/23/2024 1449
PFBS	ND		1	4.0	0.41	ng/L	04/23/2024 1449
PFDS	ND		1	4.0	0.78	ng/L	04/23/2024 1449
PFHpS	ND		1	4.0	0.50	ng/L	04/23/2024 1449
PFNS	ND		1	4.0	0.71	ng/L	04/23/2024 1449
PFOSA	ND		1	4.0	0.61	ng/L	04/23/2024 1449
PFPeS	ND		1	4.0	0.59	ng/L	04/23/2024 1449
PFHxS	ND		1	4.0	0.55	ng/L	04/23/2024 1449
PFBA	ND		1	4.0	0.60	ng/L	04/23/2024 1449
PFDA	ND		1	4.0	0.52	ng/L	04/23/2024 1449
PFDaA	ND		1	4.0	0.47	ng/L	04/23/2024 1449
PFHpA	ND		1	4.0	0.45	ng/L	04/23/2024 1449
PFHxA	ND		1	4.0	0.69	ng/L	04/23/2024 1449
PFNA	ND		1	4.0	0.46	ng/L	04/23/2024 1449
PFOA	ND		1	4.0	0.83	ng/L	04/23/2024 1449
PFPeA	ND		1	4.0	0.54	ng/L	04/23/2024 1449
PFTeDA	ND		1	4.0	0.60	ng/L	04/23/2024 1449
PFTTrDA	ND		1	4.0	0.53	ng/L	04/23/2024 1449
PFUdA	ND		1	4.0	0.63	ng/L	04/23/2024 1449
PFOS	ND		1	4.0	2.0	ng/L	04/23/2024 1449

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		99	25-150
13C2_6:2FTS		125	25-150
13C2_8:2FTS		112	25-150
13C2_PFDaA		101	25-150
13C2_PFTeDA		118	25-150
13C3_PFBs		105	25-150
13C3_PFHxS		99	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBa		103	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		109	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: ZQ10424-001

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	25-150
13C7_PFUdA		91	25-150
13C8_PFOA		115	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		114	25-150
d5-EtFOSAA		102	25-150
d3-MeFOSAA		102	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and $\geq$ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10424-002

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	13		1	87	50-150	04/23/2024 1459
11CI-PF3OUdS	15	12		1	81	50-150	04/23/2024 1459
8:2 FTS	15	15		1	101	50-150	04/23/2024 1459
6:2 FTS	15	13		1	89	50-150	04/23/2024 1459
4:2 FTS	15	13		1	86	50-150	04/23/2024 1459
GenX	32	34		1	105	50-150	04/23/2024 1459
ADONA	15	16		1	105	50-150	04/23/2024 1459
EtFOSAA	16	15		1	95	50-150	04/23/2024 1459
MeFOSAA	16	14		1	87	50-150	04/23/2024 1459
PFBS	14	14		1	102	50-150	04/23/2024 1459
PFDS	15	13		1	84	50-150	04/23/2024 1459
PFHpS	15	14		1	90	50-150	04/23/2024 1459
PFNS	15	15		1	96	50-150	04/23/2024 1459
PFOSA	16	17		1	107	50-150	04/23/2024 1459
PFPeS	15	13		1	89	50-150	04/23/2024 1459
PFHxS	15	13		1	88	50-150	04/23/2024 1459
PFBA	16	16		1	100	50-150	04/23/2024 1459
PFDA	16	15		1	96	50-150	04/23/2024 1459
PFDaA	16	18		1	112	50-150	04/23/2024 1459
PFHpA	16	15		1	97	50-150	04/23/2024 1459
PFHxA	16	13		1	83	50-150	04/23/2024 1459
PFNA	16	16		1	98	50-150	04/23/2024 1459
PFOA	16	17		1	107	50-150	04/23/2024 1459
PFPeA	16	17		1	104	50-150	04/23/2024 1459
PFTeDA	16	17		1	103	50-150	04/23/2024 1459
PFTTrDA	16	16		1	102	50-150	04/23/2024 1459
PFUdA	16	14		1	87	50-150	04/23/2024 1459
PFOS	15	15		1	100	50-150	04/23/2024 1459
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		105	25-150				
13C2_6:2FTS		137	25-150				
13C2_8:2FTS		99	25-150				
13C2_PFDaA		99	25-150				
13C2_PFTeDA		127	25-150				
13C3_PFBs		108	25-150				
13C3_PFHxS		102	25-150				
13C3-HFPO-DA		104	25-150				
13C4_PFBa		101	25-150				
13C4_PFHpA		102	25-150				
13C5_PFHxA		114	25-150				
13C5_PFPeA		100	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10424-002

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		102	25-150
13C7_PFUdA		102	25-150
13C8_PFOA		111	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		110	25-150
d5-EtFOSAA		100	25-150
d3-MeFOSAA		108	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and $\geq$ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MS

Sample ID: ZD10028-003MS

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	ND	24	20		1	81	50-150	04/23/2024 1749
11CI-PF3OUdS	ND	25	16		1	67	50-150	04/23/2024 1749
8:2 FTS	ND	25	30		1	122	50-150	04/23/2024 1749
6:2 FTS	ND	25	24		1	95	50-150	04/23/2024 1749
4:2 FTS	ND	24	22		1	92	50-150	04/23/2024 1749
GenX	ND	52	51		1	98	50-150	04/23/2024 1749
ADONA	ND	25	24		1	99	50-150	04/23/2024 1749
EtFOSAA	ND	26	24		1	93	50-150	04/23/2024 1749
MeFOSAA	ND	26	23		1	89	50-150	04/23/2024 1749
PFBS	0.82	23	23		1	97	50-150	04/23/2024 1749
PFDS	ND	25	18		1	72	50-150	04/23/2024 1749
PFHpS	ND	25	25		1	100	50-150	04/23/2024 1749
PFNS	ND	25	20		1	79	50-150	04/23/2024 1749
PFOSA	ND	26	23		1	87	50-150	04/23/2024 1749
PFPeS	ND	24	21		1	85	50-150	04/23/2024 1749
PFHxS	1.6	24	24		1	93	50-150	04/23/2024 1749
PFBA	14	26	40		1	101	50-150	04/23/2024 1749
PFDA	ND	26	26		1	98	50-150	04/23/2024 1749
PFDaA	ND	26	27		1	105	50-150	04/23/2024 1749
PFHpA	2.3	26	25		1	88	50-150	04/23/2024 1749
PFHxA	6.5	26	30		1	89	50-150	04/23/2024 1749
PFNA	1.1	26	28		1	102	50-150	04/23/2024 1749
PFOA	8.2	26	33		1	95	50-150	04/23/2024 1749
PFPeA	23	26	41		1	67	50-150	04/23/2024 1749
PFTeDA	ND	26	26		1	100	50-150	04/23/2024 1749
PFTTrDA	ND	26	22		1	86	50-150	04/23/2024 1749
PFUdA	ND	26	27		1	103	50-150	04/23/2024 1749
PFOS	15	24	34		1	79	50-150	04/23/2024 1749

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		91	25-150
13C2_6:2FTS		87	25-150
13C2_8:2FTS		54	25-150
13C2_PFDaA		44	25-150
13C2_PFTeDA		55	25-150
13C3_PFBs		61	25-150
13C3_PFHxS		56	25-150
13C3-HFPO-DA		56	25-150
13C4_PFBa		50	25-150
13C4_PFHpA		58	25-150
13C5_PFHxA		64	25-150
13C5_PFPeA		64	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MS

Sample ID: ZD10028-003MS

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		52	25-150
13C7_PFUdA		39	25-150
13C8_PFOA		68	25-150
13C8_PFOS		53	25-150
13C8_PFOSA		52	10-150
13C9_PFNA		57	25-150
d5-EtFOSAA		46	25-150
d3-MeFOSAA		49	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and $\geq$ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MSD

Sample ID: ZD10028-003MD

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9CI-PF3ONS	ND	30	27		1	88	30	50-150	30	04/23/2024 1800
11CI-PF3OUdS	ND	30	24	+	1	79	37	50-150	30	04/23/2024 1800
8:2 FTS	ND	31	30		1	98	0.57	50-150	30	04/23/2024 1800
6:2 FTS	ND	31	34	+	1	111	36	50-150	30	04/23/2024 1800
4:2 FTS	ND	30	27		1	91	20	50-150	30	04/23/2024 1800
GenX	ND	65	64		1	100	23	50-150	30	04/23/2024 1800
ADONA	ND	30	29		1	96	19	50-150	30	04/23/2024 1800
EtFOSAA	ND	32	32		1	98	27	50-150	30	04/23/2024 1800
MeFOSAA	ND	32	37	+	1	114	45	50-150	30	04/23/2024 1800
PFBS	0.82	29	29		1	99	22	50-150	30	04/23/2024 1800
PFDS	ND	31	23		1	74	24	50-150	30	04/23/2024 1800
PFHpS	ND	31	27		1	88	9.0	50-150	30	04/23/2024 1800
PFNS	ND	31	25		1	82	25	50-150	30	04/23/2024 1800
PFOSA	ND	32	34	+	1	104	39	50-150	30	04/23/2024 1800
PFPeS	ND	30	30	+	1	98	35	50-150	30	04/23/2024 1800
PFHxS	1.6	29	30		1	97	24	50-150	30	04/23/2024 1800
PFBA	14	32	47		1	103	16	50-150	30	04/23/2024 1800
PFDA	ND	32	29		1	89	11	50-150	30	04/23/2024 1800
PFDaA	ND	32	35		1	108	24	50-150	30	04/23/2024 1800
PFHpA	2.3	32	34		1	98	29	50-150	30	04/23/2024 1800
PFHxA	6.5	32	37		1	95	23	50-150	30	04/23/2024 1800
PFNA	1.1	32	34		1	101	20	50-150	30	04/23/2024 1800
PFOA	8.2	32	40		1	97	18	50-150	30	04/23/2024 1800
PFPeA	23	32	51		1	87	24	50-150	30	04/23/2024 1800
PFTeDA	ND	32	38	+	1	117	38	50-150	30	04/23/2024 1800
PFTTrDA	ND	32	38	+	1	116	51	50-150	30	04/23/2024 1800
PFUdA	ND	32	35		1	108	26	50-150	30	04/23/2024 1800
PFOS	15	30	37		1	74	8.9	50-150	30	04/23/2024 1800

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		65	25-150
13C2_6:2FTS		67	25-150
13C2_8:2FTS		42	25-150
13C2_PFDaA		33	25-150
13C2_PFTeDA		43	25-150
13C3_PFBs		47	25-150
13C3_PFHxS		46	25-150
13C3-HFPO-DA		44	25-150
13C4_PFBa		43	25-150
13C4_PFHpA		45	25-150
13C5_PFHxA		50	25-150
13C5_PFPeA		51	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MSD

Sample ID: ZD10028-003MD

Matrix: Aqueous

Batch: 10424

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/22/2024 1138

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		42	25-150
13C7_PFUdA		33	25-150
13C8_PFOA		48	25-150
13C8_PFOS		42	25-150
13C8_PFOSA		39	10-150
13C9_PFNA		46	25-150
d5-EtFOSAA		36	25-150
d3-MeFOSAA		36	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and $\geq$ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: ZQ10557-001

Matrix: Aqueous

Batch: 10557

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/24/2024 1048

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
9CI-PF3ONS	ND		1	8.0	0.48	ng/L	04/25/2024 1235
11CI-PF3OUdS	ND		1	8.0	0.66	ng/L	04/25/2024 1235
8:2 FTS	ND		1	8.0	1.6	ng/L	04/25/2024 1235
6:2 FTS	ND		1	8.0	2.0	ng/L	04/25/2024 1235
4:2 FTS	ND		1	8.0	0.87	ng/L	04/25/2024 1235
GenX	ND		1	8.0	2.1	ng/L	04/25/2024 1235
ADONA	ND		1	8.0	0.48	ng/L	04/25/2024 1235
EtFOSAA	ND		1	8.0	0.75	ng/L	04/25/2024 1235
MeFOSAA	ND		1	8.0	0.93	ng/L	04/25/2024 1235
PFBS	ND		1	4.0	0.41	ng/L	04/25/2024 1235
PFDS	ND		1	4.0	0.78	ng/L	04/25/2024 1235
PFHpS	ND		1	4.0	0.50	ng/L	04/25/2024 1235
PFNS	ND		1	4.0	0.71	ng/L	04/25/2024 1235
PFOSA	ND		1	4.0	0.61	ng/L	04/25/2024 1235
PFPeS	ND		1	4.0	0.59	ng/L	04/25/2024 1235
PFHxS	ND		1	4.0	0.55	ng/L	04/25/2024 1235
PFBA	ND		1	4.0	0.60	ng/L	04/25/2024 1235
PFDA	ND		1	4.0	0.52	ng/L	04/25/2024 1235
PFDaA	ND		1	4.0	0.47	ng/L	04/25/2024 1235
PFHpA	ND		1	4.0	0.45	ng/L	04/25/2024 1235
PFHxA	ND		1	4.0	0.69	ng/L	04/25/2024 1235
PFNA	ND		1	4.0	0.46	ng/L	04/25/2024 1235
PFOA	ND		1	4.0	0.83	ng/L	04/25/2024 1235
PFPeA	ND		1	4.0	0.54	ng/L	04/25/2024 1235
PFTeDA	ND		1	4.0	0.60	ng/L	04/25/2024 1235
PFTTrDA	ND		1	4.0	0.53	ng/L	04/25/2024 1235
PFUdA	ND		1	4.0	0.63	ng/L	04/25/2024 1235
PFOS	ND		1	4.0	2.0	ng/L	04/25/2024 1235

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	25-150
13C2_6:2FTS		98	25-150
13C2_8:2FTS		98	25-150
13C2_PFDaA		103	25-150
13C2_PFTeDA		109	25-150
13C3_PFBs		98	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		111	25-150
13C4_PFBa		105	25-150
13C4_PFHpA		111	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		100	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: ZQ10557-001

Matrix: Aqueous

Batch: 10557

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/24/2024 1048

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		114	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		108	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		112	25-150
d5-EtFOSAA		108	25-150
d3-MeFOSAA		111	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and $\geq$ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10557-002

Matrix: Aqueous

Batch: 10557

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/24/2024 1048

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9CI-PF3ONS	15	13		1	89	50-150	04/25/2024 1246
11CI-PF3OUdS	15	13		1	85	50-150	04/25/2024 1246
8:2 FTS	15	17		1	108	50-150	04/25/2024 1246
6:2 FTS	15	14		1	90	50-150	04/25/2024 1246
4:2 FTS	15	17		1	111	50-150	04/25/2024 1246
GenX	32	32		1	99	50-150	04/25/2024 1246
ADONA	15	14		1	93	50-150	04/25/2024 1246
EtFOSAA	16	16		1	97	50-150	04/25/2024 1246
MeFOSAA	16	17		1	104	50-150	04/25/2024 1246
PFBS	14	14		1	97	50-150	04/25/2024 1246
PFDS	15	13		1	84	50-150	04/25/2024 1246
PFHpS	15	13		1	88	50-150	04/25/2024 1246
PFNS	15	15		1	97	50-150	04/25/2024 1246
PFOSA	16	16		1	102	50-150	04/25/2024 1246
PFPeS	15	14		1	94	50-150	04/25/2024 1246
PFHxS	15	12		1	82	50-150	04/25/2024 1246
PFBA	16	14		1	90	50-150	04/25/2024 1246
PFDA	16	15		1	97	50-150	04/25/2024 1246
PFDaA	16	16		1	99	50-150	04/25/2024 1246
PFHpA	16	15		1	91	50-150	04/25/2024 1246
PFHxA	16	14		1	88	50-150	04/25/2024 1246
PFNA	16	16		1	102	50-150	04/25/2024 1246
PFOA	16	16		1	98	50-150	04/25/2024 1246
PFPeA	16	15		1	97	50-150	04/25/2024 1246
PFTeDA	16	14		1	90	50-150	04/25/2024 1246
PFTTrDA	16	15		1	93	50-150	04/25/2024 1246
PFUdA	16	15		1	96	50-150	04/25/2024 1246
PFOS	15	13		1	90	50-150	04/25/2024 1246
Surrogate	Q	% Rec	Acceptance Limit				
13C2_4:2FTS		102	25-150				
13C2_6:2FTS		110	25-150				
13C2_8:2FTS		96	25-150				
13C2_PFDaA		101	25-150				
13C2_PFTeDA		104	25-150				
13C3_PFBs		107	25-150				
13C3_PFHxS		123	25-150				
13C3-HFPO-DA		109	25-150				
13C4_PFBa		107	25-150				
13C4_PFHpA		107	25-150				
13C5_PFHxA		110	25-150				
13C5_PFPeA		101	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - LCS

Sample ID: ZQ10557-002

Matrix: Aqueous

Batch: 10557

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 04/24/2024 1048

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		110	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		106	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		101	25-150
d5-EtFOSAA		99	25-150
d3-MeFOSAA		110	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and $\geq$ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Chain of Custody and Miscellaneous Documents

Plant 2

Trace Analytical[®] Chain of Custody Record

Telephone No. (803) 791-9707 Fax No. (803) 791-9111

www.pacelabs.com

Page 28 of 29

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: Arcadis

Cooler Inspected by/date: MM / 4/10/24

Lot #: 2D10028

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☒ FedEx ☐ Other:	
☒ Yes ☐ No	1. Were custody seals present on the cooler?
☒ Yes ☐ No ☐ NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>MM</u> Chlorine Strip ID: <u>MM</u> Tested by: <u>MM</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: <u>MM</u>	
<u>2.6 / 2.6 °C</u> <u>NA / NA °C</u> <u>NA / NA °C</u> <u>NA / NA °C</u>	
Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: <u>8</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: ☒ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None	
☒ Yes ☐ No ☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes ☐ No ☒ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes ☐ No	5. Were proper custody procedures (relinquished/received) followed?
☒ Yes ☐ No	6. Were sample IDs listed on the COC and all sample containers?
☒ Yes ☐ No	7. Was collection date & time listed on the COC and all sample containers?
☒ Yes ☐ No	8. Did all container label information (ID, date, time) agree with the COC?
☒ Yes ☐ No	9. Were tests to be performed listed on the COC?
☒ Yes ☐ No	10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☒ Yes ☐ No	11. Was adequate sample volume available?
☒ Yes ☐ No	12. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
☒ Yes ☐ No	13. Were all samples containers accounted for? (No missing/excess)
☐ Yes ☐ No ☒ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles > "pca-size" (1/4" or 6mm in diameter) in any of the VOA vials?
☐ Yes ☐ No ☒ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes ☐ No ☒ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes ☐ No ☒ NA	17. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☒ Yes ☐ No ☐ NA	18. Was the quote number listed on the container label? If yes, Quote # <u>25329</u>

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) MM were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H₂SO₄, HNO₃, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles > 6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na₂S₂O₃) with Unique ID: NA.

Comments:

ANALYTICAL REPORT

PREPARED FOR

Attn: Tiffany Linder
Arcadis U.S., Inc.
28550 Cabot Drive
Suite 500
Novi, Michigan 48377

Generated 4/24/2024 11:31:38 AM

JOB DESCRIPTION

Racer Lansing

JOB NUMBER

240-202613-1

Eurofins Cleveland

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
4/24/2024 11:31:38 AM

Authorized for release by
Michael DelMonico, Project Manager I
Michael.DelMonico@et.eurofinsus.com
(330)497-9396

Table of Contents

Cover Page 1

Table of Contents 3

Definitions/Glossary 4

Case Narrative 5

Method Summary 6

Sample Summary 7

Detection Summary 8

Client Sample Results 9

Surrogate Summary 12

QC Sample Results 13

QC Association Summary 14

Lab Chronicle 15

Certification Summary 16

Chain of Custody 17

Receipt Checklists 24



Definitions/Glossary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Arcadis U.S., Inc.
Project: Racer Lansing

Job ID: 240-202613-1

Job ID: 240-202613-1

Eurofins Cleveland

Job Narrative 240-202613-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 4/10/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C.

GC/MS Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Cleveland

Method Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Method	Method Description	Protocol	Laboratory
522	1,4 Dioxane (GC/MS SIM)	EPA	EET BUR
522	Solid-Phase Extraction (SPE)	EPA	EET BUR

Protocol References:
EPA = US Environmental Protection Agency

Laboratory References:
EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Sample Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-202613-1	MW-19-118S_040924	Water	04/09/24 11:20	04/10/24 09:40
240-202613-2	MW-17-87_040924	Water	04/09/24 12:30	04/10/24 09:40
240-202613-3	DUP-02_040924	Water	04/09/24 00:00	04/10/24 09:40

Detection Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-19-118S_040924

Lab Sample ID: 240-202613-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.73		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: MW-17-87_040924

Lab Sample ID: 240-202613-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.4		0.20	0.092	ug/L	1		522	Total/NA

Client Sample ID: DUP-02_040924

Lab Sample ID: 240-202613-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.4		0.20	0.092	ug/L	1		522	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-19-118S_040924

Lab Sample ID: 240-202613-1

Date Collected: 04/09/24 11:20

Matrix: Water

Date Received: 04/10/24 09:40

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,4-Dioxane	0.73		0.20	0.092	ug/L		04/23/24 10:15	04/23/24 20:48	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,4-Dioxane-d8 (Surr)	104		46 - 130				04/23/24 10:15	04/23/24 20:48	1	

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-17-87_040924

Lab Sample ID: 240-202613-2

Date Collected: 04/09/24 12:30

Matrix: Water

Date Received: 04/10/24 09:40

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,4-Dioxane	3.4		0.20	0.092	ug/L		04/23/24 10:15	04/23/24 21:02	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,4-Dioxane-d8 (Surr)	99		46 - 130				04/23/24 10:15	04/23/24 21:02	1	

Client Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: DUP-02_040924

Lab Sample ID: 240-202613-3

Date Collected: 04/09/24 00:00

Matrix: Water

Date Received: 04/10/24 09:40

Method: EPA 522 - 1,4 Dioxane (GC/MS SIM)										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
1,4-Dioxane	3.4		0.20	0.092	ug/L		04/23/24 10:15	04/23/24 21:15	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,4-Dioxane-d8 (Surr)	96		46 - 130				04/23/24 10:15	04/23/24 21:15	1	

Surrogate Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		DXE					
Lab Sample ID	Client Sample ID	(46-130)					
240-202613-1	MW-19-118S_040924	104					
240-202613-2	MW-17-87_040924	99					
240-202613-3	DUP-02_040924	96					
LCS 200-203346/2-A	Lab Control Sample	99					
MB 200-203346/1-A	Method Blank	101					
Surrogate Legend							
DXE = 1,4-Dioxane-d8 (Surr)							

QC Sample Results

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Method: 522 - 1,4 Dioxane (GC/MS SIM)

Lab Sample ID: MB 200-203346/1-A

Matrix: Water

Analysis Batch: 203368

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 203346

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.092	ug/L		04/23/24 10:15	04/23/24 16:59	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8 (Surr)	101		46 - 130				04/23/24 10:15	04/23/24 16:59	1

Lab Sample ID: LCS 200-203346/2-A

Matrix: Water

Analysis Batch: 203368

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 203346

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dioxane	8.00	8.43		ug/L		105	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,4-Dioxane-d8 (Surr)	99		46 - 130				

QC Association Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

GC/MS Semi VOA

Prep Batch: 203346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-202613-1	MW-19-118S_040924	Total/NA	Water	522	
240-202613-2	MW-17-87_040924	Total/NA	Water	522	
240-202613-3	DUP-02_040924	Total/NA	Water	522	
MB 200-203346/1-A	Method Blank	Total/NA	Water	522	
LCS 200-203346/2-A	Lab Control Sample	Total/NA	Water	522	

Analysis Batch: 203368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-202613-1	MW-19-118S_040924	Total/NA	Water	522	203346
240-202613-2	MW-17-87_040924	Total/NA	Water	522	203346
240-202613-3	DUP-02_040924	Total/NA	Water	522	203346
MB 200-203346/1-A	Method Blank	Total/NA	Water	522	203346
LCS 200-203346/2-A	Lab Control Sample	Total/NA	Water	522	203346

Lab Chronicle

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Client Sample ID: MW-19-118S_040924
Date Collected: 04/09/24 11:20
Date Received: 04/10/24 09:40

Lab Sample ID: 240-202613-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			203346	DO	EET BUR	04/23/24 10:15
Total/NA	Analysis	522		1	203368	K1P	EET BUR	04/23/24 20:48

Client Sample ID: MW-17-87_040924
Date Collected: 04/09/24 12:30
Date Received: 04/10/24 09:40

Lab Sample ID: 240-202613-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			203346	DO	EET BUR	04/23/24 10:15
Total/NA	Analysis	522		1	203368	K1P	EET BUR	04/23/24 21:02

Client Sample ID: DUP-02_040924
Date Collected: 04/09/24 00:00
Date Received: 04/10/24 09:40

Lab Sample ID: 240-202613-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	522			203346	DO	EET BUR	04/23/24 10:15
Total/NA	Analysis	522		1	203368	K1P	EET BUR	04/23/24 21:15

Laboratory References:

EET BUR = Eurofins Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Arcadis U.S., Inc.
Project/Site: Racer Lansing

Job ID: 240-202613-1

Laboratory: Eurofins Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-26
Connecticut	State	PH-0751	09-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-18-24
Florida	NELAP	E87467	06-30-24
Minnesota	NELAP	050-999-436	12-31-24
New Hampshire	NELAP	2006	12-18-24
New Jersey	NELAP	VT972	06-30-24
New York	NELAP	10391	03-31-25
Pennsylvania	NELAP	68-00489	04-30-25
Rhode Island	State	LAO00298	12-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00272	12-19-26
Vermont	State	VT4000	02-10-25
Virginia	NELAP	460209	12-14-24
Wisconsin	State	399140830	08-31-24

Barberton, OH 44203-3543
phone 330.497.9396 fax 330.497.0772

Chain of Custody Record



Environment Testing
America

Eurofins Environment Testing America

[illegible]

Eurofins - Cleveland Sample Receipt Form/Narrative Login #: 2022613

Barborton Facility

Client Accadis Site Name Racer Lensing Cooler unpacked by AKB

Cooler Received on 4-10-24 Exp 4-10-24 Opened on 4-10-24

FedEx 1st Grd UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used Bubble Wrap Wet Ice Blue Ice Dry Ice Water None Other

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 19 (CPH) 1.5 °C Observed Cooler Temp 0.2 °C Corrected Cooler Temp. 1.7 °C

2 Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1

-Were the seals on the outside of the cooler(s) signed & dated? ☒ Yes ☒ No ☒ NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? ☒ Yes ☒ No ☒ NA

-Were tamper/custody seals intact and uncompromised? ☒ Yes ☒ No ☒ NA

3 Shippers' packing slip attached to the cooler(s)? ☒ Yes ☒ No ☒ NA

4 Did custody papers accompany the sample(s)? ☒ Yes ☒ No ☒ NA

5 Were the custody papers relinquished & signed in the appropriate place? ☒ Yes ☒ No ☒ NA

6 Was/were the person(s) who collected the samples clearly identified on the COC? ☒ Yes ☒ No ☒ NA

7 Did all bottles arrive in good condition (Unbroken)? ☒ Yes ☒ No ☒ NA

8 Could all bottle labels (ID/Date/Time) be reconciled with the COC? ☒ Yes ☒ No ☒ NA

9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? ☒ Yes ☒ No ☒ NA

10 Were correct bottle(s) used for the test(s) indicated? ☒ Yes ☒ No ☒ NA

11 Sufficient quantity received to perform indicated analyses? ☒ Yes ☒ No ☒ NA

12 Are these work share samples and all listed on the COC? ☒ Yes ☒ No ☒ NA

If yes, Questions 13-17 have been checked at the originating laboratory

13 Were all preserved sample(s) at the correct pH upon receipt? ☒ Yes ☒ No ☒ NA pH Strip Lot# HC329089

14. Were VOAs on the COC? ☒ Yes ☒ No ☒ NA

15 Were air bubbles >6 mm in any VOA vials? ☒ Yes ☒ No ☒ NA

16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # ☒ Yes ☒ No ☒ NA

17 Was a LL Hg or Me Hg trip blank present? ☒ Yes ☒ No ☒ NA

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page Samples processed by:

19 SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20 SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved Preservative(s) added/Lot number(s)

VOA Sample Preservation Date/Time VOAs Frozen

4/10/2024

Login Container Summary Report

240-202613

4/24/2024

Temperature readings				
<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservation, Added</u> <u>Temp</u> <u>Lot Number</u>
MW-19-118S_040924	240-202613-A-1	Amber Glass 250mL - hydrochloric acid		
MW-19-118S_040924	240-202613-B_1	Amber Glass 250mL - hydrochloric acid		
MW-17-87_040924	240-202613-A-2	Amber Glass 250mL - hydrochloric acid		
MW-17-87_040924	240-202613-B-2	Amber Glass 250mL - hydrochloric acid		
DUP-02_040924	240-202613-A-3	Amber Glass 250mL - hydrochloric acid		
DUP-02_040924	240-202613-B-3	Amber Glass 250mL - hydrochloric acid		

Chain of Custody Record

180 S. Van Buren Avenue
Barberton, OH 44203
Phone. 330-497-9396 Fax: 330-497-0772



ofins

Environment Testing

[illegible]

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

ORIGIN ID: CKA (330) 312-0176
 LANCE HERSTAN
 EUROPE'S TESTAMERICA BARRINGTON
 180 S VAIL BUREAU
 BARRINGTON, OH 44203
 UNITED STATES US

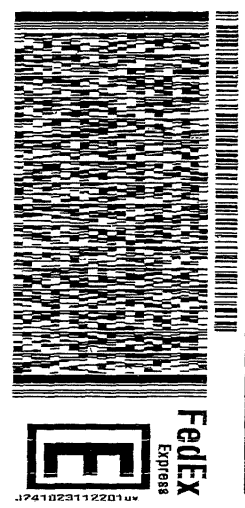
SHIP DATE: 10/09/24
 ACTING: 33.00 LB HHN
 CPO: 0792304/CHE3803

BILL SENDER

10 SHIPPING/RECEIVING

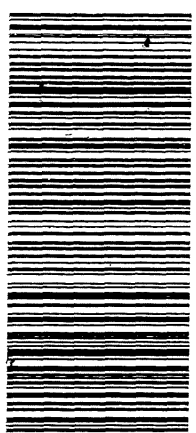
TESTAMERICA LABORATORIES, INC.
530 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

REF: 6240-1195/8
 PO: 178



THU - 11 APR 10:30A
PRIORITY OVERNIGHT

NX BTVA
05403
VT-US BTV



12 Chain of Custody

Ver: 06/08/2021

ORIGIN ID: CKA (330) 312-0176
LANCE HERMAN
EUNICE TESTAMERICA BARRINGTON
180 S VAN BUREN

BARRINGTON, OH 44203
UNITED STATES US

SHIP DATE: 10APR24
ACTWT: 33.00 LB 7MM
CHD: 0792304/CHF3803

BILL SENDER

TO SHIPPING/RECEIVING

TESTAMERICA LABORATORIES, INC.

530 COMMUNITY DRIVE

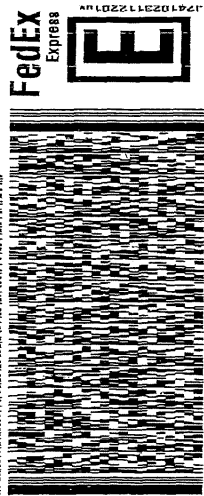
SUITE 11

SOUTH BURLINGTON VT 05403

(802) 560-1900

PO: YES

REF: 8240-119578



THU - 11 APR 10:30A

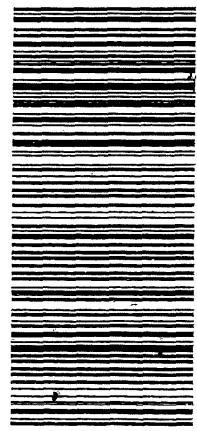
TRK 7180 5079 9548

PRIORITY OVERNIGHT

NX BTVA

05403

VT-US-BTV



- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Login Sample Receipt Checklist

Client: Arcadis U.S., Inc.

Job Number: 240-202613-1

Login Number: 202613

List Number: 2

Creator: Muniz, Luca

List Source: Eurofins Burlington

List Creation: 04/12/24 09:09 AM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	