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EMERGING CONTAMINANT EVALUATION REPORT ADDENDUM
SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE & 1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN 53172
WDNR BRRTS ACTIVITY #02-41-576336 & 02-41-579429
WDNR FID #241828620

March 28, 2022

DAI Project Number: 6255

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1.0 SUMMARY OF PREVIOUS EMERGING CONTAMINANT INVESTIGATIONS

Sampling for per- and polyfluoroalkyl substances (PFAS) in groundwater was performed at the Sunrise Shopping Center facility (Site) in March 2021 at MW-3 and MW-5, followed by sampling of all six (6) on-site monitoring wells for PFAS in August 2021. The results of August sampling identified 15 PFAS constituents in the groundwater samples. PFAS concentrations were observed in all monitoring wells, with the highest contaminant concentrations observed in monitoring well MW-4, and the least impacted groundwater monitoring well was MW-201. The concentrations of two (2) PFAS constituents were above the recommended Preventative Action Limits (PALs) in five (5) of the six (6) monitoring wells sampled. The combined concentrations of two (2) or more PFAS constituents were observed at levels above the Enforcement Standard in monitoring wells MW-1 to MW-5, and above the PAL in MW-201.

Sampling of the Ace Hardware sump water treatment system in August 2021 identified PFAS constituents in the sump water sample at a level exceeding the PAL. However the sump water is treated using activated carbon prior to discharge and the post-treatment effluent sample results showed no detectable concentrations. Therefore, there is no discharge of any emerging contaminant into the City of South Milwaukee's stormwater sewer system.

2.0 ADDITIONAL EMERGING CONTAMINANT INVESTIGATIONS

2.1 MONITORING WELL INSTALLATION

DAI Environmental, Inc. (DAI) oversaw the installation of four (4) on-site monitoring wells (MW-600 to MW-603) on January 20, 2022. Three (3) monitoring wells (MW-601 to MW-603) were installed along the upgradient property boundary to evaluate whether an off-site source of PFAS was contributing to the PFAS groundwater contamination observed on-site. MW-600 was located in a further downgradient area of the Site not previously sampled to better ensure that there were no on-site sources of PFAS.

The monitoring wells were installed by Cabeno Environmental Field Services, LLC (Cabeno) of New Lenox, Illinois using a Geoprobe® System with augering capabilities. The monitoring wells

were constructed compliant with the standards set forth in NR 141: Groundwater Monitoring Well Requirements and following the same methodology utilized during Site Investigation activities. All installation activities were conducted under the direct supervision of DAI personnel.

All monitoring wells were constructed of 2-in diameter schedule 40 PVC riser pipe connected to a 10-ft long, 0.01-in factory slotted PVC screen set at 15-feet below ground surface (bgs), 0.5-ft above the terminus of the boring. The filter pack, consisting of an artificially introduced sand pack, was extended from 0.5-feet below the screen to 2-ft above the top of the screen. At least 1-ft of fine sand was dispensed on top of the filter pack sand. Bentonite was used to seal the well up to a depth of approximately 6-in bgs. A flush-mounted steel vault was installed in concrete to secure and protect each well. Soil boring logs (Form 4400-122) and monitoring well construction logs (Form 4400-113) for the monitoring wells are included in Appendix C.1.A. Form 4400-89 is provided in Appendix C.1.C and includes a summary of all monitoring wells (previously existing and newly installed) with top of casing information provided in relation to the recent complete survey of all monitoring wells completed on February 1, 2022. Figure B.3.d provides the monitoring wells locations and includes the unique well information, as applicable.

Drums of soil cuttings from installation of the monitoring wells is pending a waste profile and approval prior to disposal. Documentation of the drum disposal will be provided as part of the *Case Close Out Report*.

2.2 MONITORING WELL DEVELOPMENT

Per the requirements of NR 141.21, well development cannot be performed earlier than 12-hrs after installation. Monitoring wells MW-600 to MW-603 were installed on January 20th and initially developed on January 24, 2022. The monitoring wells were initially developed using disposable bailers. During the subsequent PFAS groundwater sampling performed on February 3-4, 2022, low-flow purging and sampling protocol was performed consistent with the August 2021 PFAS sampling event and as described in the *Emerging Contaminant Evaluation Report Amendment* dated October 18, 2021. In addition to the newly installed monitoring wells, MW-4 was resampled for verification of August 2021 results (i.e., effectively duplicate

sampling). Copies of the low-flow sampling field sheets with the multi-parameter data collected for monitoring for groundwater stability prior to sample collection are included Appendix C.1.G.

2.3 GROUNDWATER SAMPLING PROCEDURES

All groundwater samples were collected using the low-flow sampler. Once purging of the monitoring wells was complete, the tubing was disconnected and groundwater was then dispensed directly from low-flow pump tubing into 250-mL unpreserved plastic containers that were obtained from the laboratory.

New disposable nitrile gloves were used to collect each sample to limit cross contamination. The samples were stored on ice immediately after collection and were maintained at a temperature of 4ºC or lower via a cooler with ice before being transferred to a refrigerator. Ice packs were not used per the published recommendations indicating a potential for PFAS contamination from the ice packs. The samples were stored in the refrigerator until picked up by the laboratory courier. The courier transported the samples to Pace Analytical Services, LLC (Pace Analytical) of Green Bay, Wisconsin, an independent commercial Wisconsin certified analytical laboratory following standard chain-of-custody procedures. Pace Analytical subsequently transferred the samples to an affiliate laboratory in West Columbia, South Carolina, where the groundwater samples were analyzed for PFAS (Wisconsin 33 list per March 1, 2021) via PFAS by Isotope Dilution (ID) Standard Operating Procedures (SOP).

2.4 STATIC GROUNDWATER ELEVATIONS

Static water level measurements were recorded at all monitoring wells using an electronic water level indicator capable of detecting water depth with an accuracy of ±0.01 ft. The groundwater elevation was measured from the top of the well casing. Because a national geodetic survey datum was not able to be identified, the monitoring wells were surveyed to a generic on-site datum with assumed elevation of 100-ft. A complete elevation survey of all wells was completed on February 1, 2022.

3.0 GROUNDWATER ANALYTICAL RESULTS

3.1 STATIC GROUNDWATER ELEVATIONS

A complete round of static water elevations was collected during the PFAS sampling event. The measurements were collected to verify the previously observed groundwater flow direction and to better depict the static groundwater elevations with the addition of the four (4) newly installed monitoring wells. All static water level measurements are referenced to the February 1, 2022, monitoring well elevation survey.

Figure B.3.c.21 (see Appendix B) includes the potentiometric surface map completed with measurements collected on February 3, 2022. As observed in the figure, the groundwater flow direction is consistent with the direction observed during previous quarterly sampling events, northwesterly along the southern half of the Site and north-northeasterly within the northern half of the Site.

3.2 GROUNDWATER SAMPLE ANALYTICAL RESULTS

Table A.1.D (see Appendix A) provides a summary of the PFAS analytical results in comparison to the PALs and Enforcement Standards presently recommended for addition to NR 140. The table includes the results for March and August 2021 sampling, as well as the recent samples collected on February 3-4, 2022. (Table A.1.E summarizing the August 2021 PFAS sampling of the Ace Hardware sump water is also provided in Appendix A.) A copy of the laboratory analytical report from February 2022 is provided in this report as Appendix C.1.E.

In review of Table A.1.D, 15 of 33 constituents on the Wisconsin Department of Natural Resources (WDNR) PFAS List have been reported by the laboratory at concentrations at a concentration above the Limit of Detection (LOD). All other constituents have been reported below the Limit of Quantification (LOQ) during each of the three (3) rounds of sampling. The observed PFAS constituents include:

PFAS with Detectable Concentrations

- Perfluorobutanoic acid (PFBA)
- Perfluoropentanoic acid (PFPeA)
- Perfluorohexanoic acid (PFHxA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorononanoic acid (PFNA)
- Perfluorodecanoic acid (PFDA)
- Perfluorobutanesulfonic acid (PFBS)
- Perfluoropentanesulfonic acid (PFPeS)
- Perfluorohexanesulfonic acid (PFHxS)
- Perfluoroheptanesulfonic acid (PFHpS)
- 6:2 Fluorotelomersulfonic acid (6:2 FTS)
- Perfluorooctanoic acid (PFOA)*
- Perfluorooctanesulfonic acid (PFOS)*
- Perfluorooctane sulfonamide (PFOSA)*
- N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)*

* – One (1) of six (6) PFAS constituents included in the cumulative concentration objective.

As previously discussed, many of the PFAS constituents were reported at concentrations below the recommended PALs, or are listed constituents with no recommended PAL. Only two (2) individual PFAS constituents have been reported at concentrations above the PAL: PFNA and PFHxS. Based upon the most recent sampling results (either August 2021 or February 2022), only MW-4 and MW-603 were reported with a PFNA concentration above the PAL. (PFNA was observed in MW-3 at a concentration above the PAL in March 2021, but the August 2021 results were below the PAL.) PFHxS was observed in MW-1 to MW-5 and MW-603. A detectable concentration of PFHxS was observed in MW-201 below the PAL; no detectable concentrations were observed in MW-600 to MW-602.

In addition to the individual PFAS constituents, the cumulative PFAS concentration for one (1) or more of PFOA, PFOS, PFOSA, and NEtFOSAA were observed in most monitoring wells. (The other two (2) PFAS constituents that are included in the cumulative PFAS concentration were reported below the LOQ in all wells during each sampling event.) Similar to PFHxS, total cumulative concentrations were reported at levels above the recommended Enforcement Standard in MW-1 to MW-5 and MW-603. The cumulative concentration in MW-201 was above

the PAL and the cumulative concentration in MW-602 was below the PAL. None of the cumulative PFAS constituents were reported above the LOQ in MW-600 or MW-601.

Figure B.3.b.3d provides a summary of all PFAS results from the three (3) sampling events. Figures B.3.b.3a to B.3.b.3c show the individual results for the March 2021, August 2021, and February 2022 sampling events, respectively. The identified exceedances based upon the most recently available sampling results are summarized below.

PFAS with Exceedances of the PALs

- PFNA – MW-4 and MW-603
- PFHxS – MW-1 to MW-5 and MW-603
- Combined PFAS (PFOA only) – MW-201

PFAS with Exceedances of the Enforcement Standards

- Combined PFAS (PFOA and PFOS) – MW-1
- Combined PFAS (PFOA, PFOS, PFOSA, and NEtFOSAA) – MW-2
- Combined PFAS (PFOA, PFOS, and PFOSA) – MW-3
- Combined PFAS (PFOA and PFOS) – MW-4
- Combined PFAS (PFOA, PFOS, and PFOSA) – MW-5
- Combined PFAS (PFOA and PFOS) – MW-603

4.0 SUMMARY AND CONCLUSIONS

As directed in the WDNR letter dated November 23, 2020, an evaluation of potential emerging contaminants has been completed for the Sunrise Shopping Center Site. During the preliminary sampling performed in March 2021, groundwater contamination for PFAS was observed. Subsequently, two (2) additional rounds of PFAS sampling have been performed (August 2021 and February 2022) to better evaluate possible on-site sources of contamination, and to assess potential off-site sources of PFAS contamination migrating on-site.

A thorough review of the historical uses of the Site as a petroleum distribution facility and a strip mall that included two (2) dry cleaning operations was performed to determine whether the past operations could be identified as the source of the PFAS contamination. Further evaluation included reviewing prior building tenants that may have used PFAS, as well as a historical review of any recorded fires at the Site where PFAS containing firefighting foams may have been used. An inquiry to the Fire Chief at the neighboring Fire Station was made in an effort to investigate whether firefighting foams could have been discharged at the fire station. The response from the Fire Chief stated that there were no releases or discharges of firefighting foam to the ground surface at the fire station (see Appendix C.1.F). In summary, the historical review did not identify any on-site sources of the observed PFAS contamination.

The information collected to date indicate an off-site source of PFAS contamination migrating onto the Sunrise Shopping Center Site. This finding is supported by both the lack of any evidence of an on-site source, and more importantly from the results of the most recent groundwater sampling, which shows the highest PFAS concentration occurring at the upgradient corner of the Site. As can be noted from Figure B.3.b.3d, the highest cumulative PFAS concentrations were observed in MW-603, located in the southwestern portion of the Site where no historical use or likely source of contamination is known to have existed. The PFAS groundwater concentrations then decline with downgradient distance from MW-603, as is consistent with a typical groundwater plume. While the source of the PFAS contamination cannot be determined from the currently available data, it is noted that the area upgradient of the Site was previously used for industrial operations.

DAI believes that with this report and findings, the current Responsible Party (and property owner) has met the obligations of WDNR's December 9, 2021, request, and that no further PFAS investigations at the Site are warranted. A Case Close Out Report will be prepared and submitted to WDNR for approval.

APPENDIX A
TABLES

Table A.1.D. Groundwater Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)				PAL[1]	ES[2]
	MW-1 (08/04/21)	MW-2 (08/04/21)	MW-3 (03/11/21)	MW-3 (08/05/21)		
Perfluorobutanoic acid (PFBA)	11	13	31 (EB)	17	2,000	10,000
Perfluoropentanoic acid (PFPeA)	8.3	17	<3.5	20	NL	NL
Perfluorohexanoic acid (PFHxA)	7.6	9.4	<3.5	15	30,000	150,000
Perfluoroheptanoic acid (PFHpA)	5.9	4.1	4.5 (EB)	25	NL	NL
Perfluorononanoic acid (PFNA)	0.82 (J)	<0.39	**4.3**	2.2 (J)	3	30
Perfluorodecanoic acid (PFDA)	<0.44	<0.44	1.8 (J)	1 (J)	60	300
Perfluoroundecanoic acid (PFUnA)	<0.52	<0.53	<3.5	<0.54	600	3,000
Perfluorododecanoic acid (PFDoA)	<0.39	<0.4	<3.5	<0.41	100	500
Perfluorotridecanoic acid (PFTriA)	<0.44	<0.45	<3.5	<0.46	NL	NL
Perfluorotetradecanoic acid (PFTeA)	<0.5	<0.5	<3.5	<0.55	2,000	10,000
Perfluorobutanesulfonic acid (PFBS)	9	16	19	34	90,000	450,000
Perfluoropentanesulfonic acid (PFPeS)	2.8 (J)	6.7	<3.5	<0.51	NL	NL
Perfluorohexanesulfonic acid (PFHxS)	**11**	**14**	<3.5	**7.1**	4	40
Perfluoroheptanesulfonic acid (PFHpS)	<0.42	<0.42	<3.5	<0.43	NL	NL
Perfluorononanesulfonic acid (PFNs)	<0.6	<0.6	<3.5	<0.61	NL	NL
Perfluorodecanesulfonic acid (PFDs)	<0.65	<0.65	<3.5	<0.67	NL	NL
Perfluorododecanesulfonic acid (PFDoS)	<0.87	<0.88	<6.9	<0.9	NL	NL
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<0.73	<0.74	<6.9	<0.75	NL	NL
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	1.7 (J)	3.6 (J)	2.7 (J, FB)	<1.8	NL	NL
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.3	<1.3	<6.9	<1.4	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.1	<1.1	<14	<1.1	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSAA)	<0.78	<0.78	<6.9	<0.8	NL	NL
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSE)	<1.1	<1.1	<6.9	<1.1	NL	NL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<1.7	<1.7	<6.9	<1.8	30	300
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.4	<0.41	<6.9	<0.42	600	3,000
9-chlorohexadecafluoro-3-oxanone-1-	<0.4	<0.41	<6.9	<0.42	NL	NL

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)				PAL[1]	ES[2]
	MW-1 (08/04/21)	MW-2 (08/04/21)	MW-3 (03/11/21)	MW-3 (08/05/21)		
sulfonic acid (9Cl-PF3ONS)						
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.55	<0.56	<6.9	<0.57	NL	NL
Perfluorooctanoic acid (PFOA)**	11	22	12	9.6	PAL[1]	ES[2]
Perfluorooctanesulfonic acid (PFOS)**	9.6	14	<3.5	29		
Perfluorooctane sulfonamide (PFOSA)**	<0.51	0.84 (J)	47	4.2		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)**	<1.1	<1.1	<6.9	<1.2		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)**	<0.63	2.5 (J)	<6.9	<0.65		
N-Methyl perfluorooctane sulfonamidethanol (NEtFOSE)**	<0.8	<0.8	<6.9	<0.82		
TOTAL[3]	**20.6**	**39.34**	**59**	**42.8**	2	20

[1] – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[2] – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[3] – Total combined concentration of six (6) PFAS compared to the PAL and the ES
** – PFAS constituent included in the combined total compared to the PAL and the ES
-- – All PFAS constituents reported below limit of quantification; total concentration taken as highest "non-detect concentration and listed in parentheses
NL – Not Listed in NR 140 or recommended for inclusion in NR 140
Bold – Concentration exceeds the PAL
Underlined – Concentration exceeds the PAL and the ES
(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification
(B) – Concentration of contaminant observed in the laboratory method blank sample
(EB) – Concentration of contaminant observed in the equipment blank sample
(FB) – Concentration of contaminant observed in the field blank sample
PFAS via PFAS by ID SOP

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L)
(Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)					PAL[1]	ES[2]
	MW-4 (08/05/21)	MW-4 (02/04/22)	MW-5 (03/11/21)	MW-5 Dup (03/11/21)	MW-5 (08/05/21)		
Perfluorobutanoic acid (PFBA)	71	62	11 (EB)	11 (EB)	26	2,000	10,000
Perfluoropentanoic acid (PFPeA)	33	35	12 (EB)	12 (EB)	18	NL	NL
Perfluorohexanoic acid (PFHxA)	20	17	8.6 (EB)	9.1 (EB)	13	30,000	150,000
Perfluoroheptanoic acid (PFHpA)	13	12	5.9 (EB)	6.4 (EB)	8	NL	NL
Perfluorononanoic acid (PFNA)	**4.4**	**3.4 (J)**	<3.4	<3.4	0.97 (J)	3	30
Perfluorodecanoic acid (PFDA)	3.5	2.1 (J)	<3.4	<3.4	<0.44	60	300
Perfluoroundecanoic acid (PFUnA)	<0.52	<0.6	<3.4	<3.4	<0.52	600	3,000
Perfluorododecanoic acid (PFDoA)	<0.39	<0.45	<3.4	<3.4	<0.39	100	500
Perfluorotridecanoic acid (PFTriA)	<0.44	<0.51	<3.4	<3.4	<0.44	NL	NL
Perfluorotetradecanoic acid (PFTeA)	<0.53	<0.58	<3.4	<3.4	<0.5	2,000	10,000
Perfluorobutanesulfonic acid (PFBS)	71	74	21	20	17	90,000	450,000
Perfluoropentanesulfonic acid (PFPeS)	1.8 (J)	3 (J)	1.4 (J)	1.3 (J)	1.3 (J)	NL	NL
Perfluorohexanesulfonic acid (PFHxS)	**13**	**13**	**5.2**	**5.9**	**6.1**	4	40
Perfluoroheptanesulfonic acid (PFHpS)	0.9 (J)	<0.48	<3.4	<3.4	<0.42	NL	NL
Perfluorononanesulfonic acid (PFNs)	<0.59	<0.68	<3.4	<3.4	<0.6	NL	NL
Perfluorodecanesulfonic acid (PFDs)	<0.65	<0.75	<3.4	<3.4	<0.65	NL	NL
Perfluorododecanesulfonic acid (PFDoS)	<0.87	<1	<6.7	<6.9	<0.87	NL	NL
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<0.73	<0.84	<6.7	<6.9	<0.73	NL	NL
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.3	<1.9	<6.7	<6.9	<1.7	NL	NL
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.3	<1.5	<6.7	<6.9	<1.3	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1	<1.2	<13	<13	<1.1	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSAA)	<0.77	<0.9	<6.7	<6.9	<0.78	NL	NL
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSE)	<1.1	<1.2	<6.7	<6.9	<1.1	NL	NL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<1.7	<2.0	<6.7	<6.9	<1.7	30	300
4,8-Dioxa-3H-perfluorononanoic acid	<0.4	<0.47	<6.7	<6.9	<0.4	600	3,000

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)					PAL[1]	ES[2]
	MW-4 (08/05/21)	MW-4 (02/04/22)	MW-5 (03/11/21)	MW-5 Dup (03/11/21)	MW-5 (08/05/21)		
(DONA)							
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	<0.4	<0.46	<6.7	<6.9	<0.4	NL	NL
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.55	<0.64	<6.7	<6.9	<0.55	NL	NL
Perfluorooctanoic acid (PFOA)**	29	23	12	12	15	**PAL[1]**	**ES[2]**
Perfluorooctanesulfonic acid (PFOS)**	69	40	<3.4	<3.4	13		
Perfluorooctane sulfonamide (PFOSA)**	<0.51	<0.59	9.5	9.4	1.8 (J)		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)**	<1.1	<1.3	<6.7	<6.9	<1.1		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)**	<0.62	<0.72	<6.7	<6.9	<0.63		
N-Methyl perfluorooctane sulfonamidethanol (NEtFOSE)**	<0.79	<0.92	<6.7	<6.9	<0.8		
TOTAL[3]	**98**	**63**	**21.5**	**21.4**	**29.8**	2	20

[1] – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[2] – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[3] – Total combined concentration of six (6) PFAS compared to the PAL and the ES
** – PFAS constituent included in the combined total compared to the PAL and the ES
-- – All PFAS constituents reported below limit of quantification; total concentration taken as highest "non-detect concentration and listed in parentheses
NL – Not Listed in NR 140 or recommended for inclusion in NR 140
Bold – Concentration exceeds the PAL
Underlined – Concentration exceeds the PAL and the ES
(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification
(B) – Concentration of contaminant observed in the laboratory method blank sample
(EB) – Concentration of contaminant observed in the equipment blank sample
(FB) – Concentration of contaminant observed in the field blank sample
PFAS via PFAS by ID SOP

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L)
(Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)					PAL[1]	ES[2]
	MW-201 (08/04/21)	MW-600 (02/04/22)	MW-601 (02/03/22)	MW-602 (02/04/22)	MW-603 (02/03/22)		
Perfluorobutanoic acid (PFBA)	1.6 (J)	4.8	5.4	6.1	180	2,000	10,000
Perfluoropentanoic acid (PFPeA)	6.1	0.47 (J)	<0.48	1.3 (J)	520	NL	NL
Perfluorohexanoic acid (PFHxA)	7.2	<0.58	<0.61	<0.58	230	30,000	150,000
Perfluoroheptanoic acid (PFHpA)	5.3	<0.38	<0.39	0.91 (J)	100	NL	NL
Perfluorononanoic acid (PFNA)	<0.38	<0.39	<0.41	<0.39	**7.8**	3	30
Perfluorodecanoic acid (PFDA)	<0.44	<0.44	<0.46	<0.44	3.3 (J)	60	300
Perfluoroundecanoic acid (PFUnA)	<0.52	<0.53	<0.55	<0.53	<0.56	600	3,000
Perfluorododecanoic acid (PFDoA)	<0.39	<0.4	<0.42	<0.4	<0.42	100	500
Perfluorotridecanoic acid (PFTriA)	<0.44	<0.45	<0.47	<0.45	<0.47	NL	NL
Perfluorotetradecanoic acid (PFTeA)	<0.5	<0.51	<0.53	<0.51	<0.54	2,000	10,000
Perfluorobutanesulfonic acid (PFBS)	3.2 (J)	<0.35	<0.36	3.0 (J)	150	90,000	450,000
Perfluoropentanesulfonic acid (PFPeS)	<0.49	<0.5	<0.52	<0.5	4	NL	NL
Perfluorohexanesulfonic acid (PFHxS)	0.95 (J)	<0.47	<0.49	<0.47	**23**	4	40
Perfluoroheptanesulfonic acid (PFHpS)	<0.41	<0.42	<0.44	<0.42	1.8 (J)	NL	NL
Perfluorononanesulfonic acid (PFNs)	<0.59	<0.60	<0.63	<0.6	<0.64	NL	NL
Perfluorodecanesulfonic acid (PFDs)	<0.65	<0.66	<0.68	<0.66	<0.69	NL	NL
Perfluorododecanesulfonic acid (PFDoS)	<0.87	<0.89	<0.92	<0.88	<0.93	NL	NL
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<0.73	<0.74	<0.77	<0.74	<0.78	NL	NL
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	29	16	2.9 (J)	<1.7	2.9 (J)	NL	NL
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.3	<1.4	<1.4	<1.4	<1.4	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1	<1.1	<1.1	<1.1	<1.1	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSAA)	<0.77	<0.79	<0.82	<0.79	<0.83	NL	NL
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSE)	<1.1	<1.1	<1.1	<1.1	<1.1	NL	NL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<1.7	<1.8	<1.8	<1.8	<1.9	30	300
4,8-Dioxa-3H-perfluorononanoic acid	<0.4	<0.41	<0.43	<0.41	<0.43	600	3,000

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)					PAL[1]	ES[2]
	MW-201 (08/04/21)	MW-600 (02/04/22)	MW-601 (02/03/22)	MW-602 (02/04/22)	MW-603 (02/03/22)		
(DONA)							
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	<0.4	<0.41	<0.42	<0.41	<0.43	NL	NL
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.55	<0.56	<0.58	<0.56	<0.59	NL	NL
Perfluorooctanoic acid (PFOA)**	6.7	<0.7	<0.73	0.78 (J)	95	PAL[1]	ES[2]
Perfluorooctanesulfonic acid (PFOS)**	<1.7	<1.7	<1.8	<1.7	59		
Perfluorooctane sulfonamide (PFOSA)**	<0.51	<0.52	<0.54	<0.52	<0.55		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)**	<1.1	<1.1	<1.2	<1.1	<1.2		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)**	<0.62	<0.64	<0.66	<0.63	<0.67		
N-Methyl perfluorooctane sulfonamidethanol (NEtFOSE)**	<0.79	<0.81	<0.84	<0.8	<0.85		
TOTAL[3]	**6.7**	--	--	0.78	**<u>154</u>**	2	20

[1] – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[2] – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[3] – Total combined concentration of six (6) PFAS compared to the PAL and the ES
** – PFAS constituent included in the combined total compared to the PAL and the ES
-- – All PFAS constituents reported below limit of quantification; total concentration taken as highest "non-detect concentration and listed in parentheses
NL – Not Listed in NR 140 or recommended for inclusion in NR 140
Bold – Concentration exceeds the PAL
<u>Underlined</u> – Concentration exceeds the PAL and the ES
(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification
(B) – Concentration of contaminant observed in the laboratory method blank sample
(EB) – Concentration of contaminant observed in the equipment blank sample
(FB) – Concentration of contaminant observed in the field blank sample
PFAS via PFAS by ID SOP

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L)
(Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)				PAL[1]	ES[2]
	Equipment Blank (03/11/21)	Equipment Blank (08/04/21)	Field Blank (03/11/21)	Field Blank (08/04/21)		
Perfluorobutanoic acid (PFBA)	9.8 (B)	<0.42	<3.4	<0.45	2,000	10,000
Perfluoropentanoic acid (PFPeA)	68	<0.56	<3.4	<0.59	NL	NL
Perfluorohexanoic acid (PFHxA)	2.6 (J)	<0.7	<3.4	<0.74	30,000	150,000
Perfluoroheptanoic acid (PFHpA)	8.1	<0.46	<3.4	<0.48	NL	NL
Perfluorononanoic acid (PFNA)	<3.4	<0.47	<3.4	<0.5	3	30
Perfluorodecanoic acid (PFDA)	<3.4	<0.54	<3.4	<0.57	60	300
Perfluoroundecanoic acid (PFUnA)	<3.4	<0.64	<3.4	<0.67	600	3,000
Perfluorododecanoic acid (PFDoA)	<3.4	<0.48	<3.4	<0.51	100	500
Perfluorotridecanoic acid (PFTriA)	<3.4	<0.54	<3.4	<0.57	NL	NL
Perfluorotetradecanoic acid (PFTeA)	<3.4	<0.61	<3.4	<0.65	2,000	10,000
Perfluorobutanesulfonic acid (PFBS)	<3.4	<0.61	<3.4	<0.65	90,000	450,000
Perfluoropentanesulfonic acid (PFPeS)	<3.4	<0.61	<3.4	<0.64	NL	NL
Perfluorohexanesulfonic acid (PFHxS)	<3.4	<0.57	<3.4	<0.59	4	40
Perfluoroheptanesulfonic acid (PFHpS)	<3.4	<0.51	<3.4	<0.54	NL	NL
Perfluorononanesulfonic acid (PFNs)	<3.4	<0.73	<3.4	<0.77	NL	NL
Perfluorodecanesulfonic acid (PFDs)	<3.4	<0.8	<3.4	<0.84	NL	NL
Perfluorododecanesulfonic acid (PFDoS)	<6.7	<1.1	<6.8	<1.1	NL	NL
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<6.7	<0.9	<6.8	<0.94	NL	NL
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<6.7	2.2 (J)	2.2 (J)	<2.2	NL	NL
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<6.7	<1.6	<6.8	<1.7	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<13	<1.3	<14	<1.4	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSAA)	<6.7	<0.96	<6.8	<1.0	NL	NL
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSE)	<6.7	<1.3	<6.8	<1.4	NL	NL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<6.7	<2.1	<6.8	<2.2	30	300
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<6.7	<0.50	<6.8	<0.52	600	3,000

Table A.1.D (Continued). Groundwater Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)				PAL[1]	ES[2]
	Equipment Blank (03/11/21)	Equipment Blank (08/04/21)	Field Blank (03/11/21)	Field Blank (08/04/21)		
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	<6.7	<0.49	<6.8	<0.52	NL	NL
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<6.7	<0.68	<6.8	<0.71	NL	NL
Perfluorooctanoic acid (PFOA)**	<3.4	<0.85	<3.4	<0.89	**PAL[1]**	**ES[2]**
Perfluorooctanesulfonic acid (PFOS)**	<3.4	<2.1	<3.4	<2.2		
Perfluorooctane sulfonamide (PFOSA)**	<3.4	<0.63	<3.4	<0.66		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)**	<6.7	<1.4	<6.8	<1.5		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)**	<6.7	<0.77	<6.8	<0.81		
N-Methyl perfluorooctane sulfonamidethanol (NEtFOSE)**	<6.7	<0.98	<6.8	<1		
TOTAL	--	--	--	--	2	20

[1] – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[2] – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[3] – Total combined concentration of six (6) PFAS compared to the PAL and the ES
** – PFAS constituent included in the combined total compared to the PAL and the ES
-- – All PFAS constituents reported below limit of quantification; total concentration taken as highest "non-detect concentration and listed in parentheses
NL – Not Listed in NR 140 or recommended for inclusion in NR 140
Bold – Concentration exceeds the PAL
Underlined – Concentration exceeds the PAL and the ES
(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification
(B) – Concentration of contaminant observed in the laboratory method blank sample
(EB) – Concentration of contaminant observed in the equipment blank sample
(FB) – Concentration of contaminant observed in the field blank sample
PFAS via PFAS by ID SOP

Table A.1.E. Ace Hardware Sump Water Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

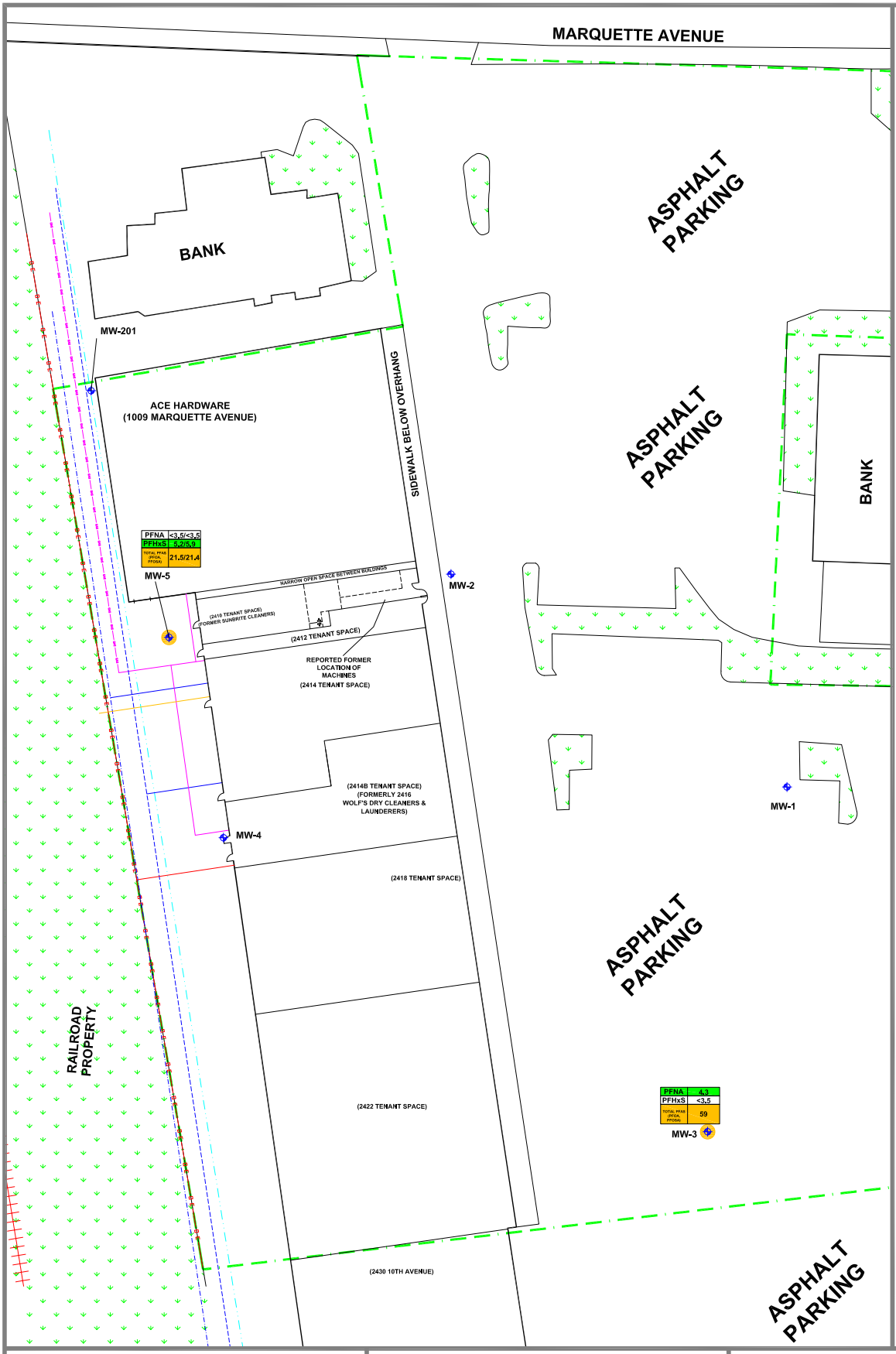
Emerging Contaminants	Sample Location (Sample Date)		PAL[1]	ES[2]
	Sump (08/04/21)	Effluent (08/05/21)		
Perfluorobutanoic acid (PFBA)	6.5	<0.35	2,000	10,000
Perfluoropentanoic acid (PFPeA)	8.2	<0.46	NL	NL
Perfluorohexanoic acid (PFHxA)	5.4	<0.58	30,000	150,000
Perfluoroheptanoic acid (PFHpA)	2.1 (J)	<0.38	NL	NL
Perfluorononanoic acid (PFNA)	0.45 (J)	<0.39	3	30
Perfluorodecanoic acid (PFDA)	<0.46	<0.44	60	300
Perfluoroundecanoic acid (PFUnA)	<0.55	<0.53	600	3,000
Perfluorododecanoic acid (PFDoA)	<0.41	<0.4	100	500
Perfluorotridecanoic acid (PFTriA)	<0.46	<0.44	NL	NL
Perfluorotetradecanoic acid (PFTeA)	<0.52	<0.5	2,000	10,000
Perfluorobutanesulfonic acid (PFBS)	13	<0.5	90,000	450,000
Perfluoropentanesulfonic acid (PFPeS)	1.1 (J)	<0.5	NL	NL
Perfluorohexanesulfonic acid (PFHxS)	3 (J)	<0.46	4	40
Perfluoroheptanesulfonic acid (PFHpS)	<0.44	<0.42	NL	NL
Perfluorononanesulfonic acid (PFNs)	<0.62	<0.6	NL	NL
Perfluorodecanesulfonic acid (PFDs)	<0.68	<0.65	NL	NL
Perfluorododecanesulfonic acid (PFDoS)	<0.91	<0.88	NL	NL
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)	<0.76	<0.73	NL	NL
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)	<1.7	<1.7	NL	NL
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)	<1.4	<1.3	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSA)	<1.1	<1.1	NL	NL
N-Methyl perfluorooctane sulfonamide (NMeFOSAA)	<0.81	<0.78	NL	NL
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSE)	<1.1	<1.1	NL	NL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<1.8	<1.7	30	300
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	<0.42	<0.41	600	3,000
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	<0.42	<0.4	NL	NL
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.58	<0.56	NL	NL

Table A.1.E (Continued). Ace Hardware Sump Water Analytical Table for Emerging Contaminants (ng/L) (Perfluoroalkyl and Polyfluoroalkyl Substances)

Emerging Contaminants	Sample Location (Sample Date)		PAL[1]	ES[2]
	Sump (08/04/21)	Effluent (08/05/21)		
Perfluorooctanoic acid (PFOA)**	4.8	<0.7	PAL[1]	ES[2]
Perfluorooctanesulfonic acid (PFOS)**	5.9	<1.7		
Perfluorooctane sulfonamide (PFOSA)**	<0.54	<0.51		
N-Ethyl perfluorooctane sulfonamide (NEtFOSA)**	<1.2	<1.1		
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)**	<0.66	<0.63		
N-Methyl perfluorooctane sulfonamidethanol (NEtFOSE)**	<0.83	<0.8		
TOTAL[3]	**10.7**	--	2	20

[1] – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[2] – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1
[3] – Total combined concentration of six (6) PFAS compared to the PAL and the ES
** – PFAS constituent included in the combined total compared to the PAL and the ES
-- – All PFAS constituents reported below limit of quantification; total concentration taken as highest "non-detect concentration and listed in parentheses
NL – Not Listed in NR 140 or recommended for inclusion in NR 140
Bold – Concentration exceeds the PAL
Underlined – Concentration exceeds the PAL and the ES
(J) – Concentration reported by the laboratory above the Limit of Detection, but below the Limit of Quantification
(B) – Concentration of contaminant observed in the laboratory method blank sample
(EB) – Concentration of contaminant observed in the equipment blank sample
(FB) – Concentration of contaminant observed in the field blank sample
PFAS via PFAS by ID SOP

APPENDIX B
FIGURES



LEGEND

APPROXIMATE PROPERTY BOUNDARY

VEGETATION

(2410)
UNIT ADDRESS

FIBER OPTICS UTILITY LINE

GAS UTILITY LINE

SANITARY UTILITY LINE

WATER UTILITY LINE (12")

WATER UTILITY LINE (4")

OVERHEAD ELECTRIC UTILITY LINE

MONITORING WELL LOCATION

OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL FOR PFAS CONSTITUENT

OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL AND ES FOR PFAS CONSTITUENT

PFAS CONSTITUENT	PFAS CONC. (ng/L)

NOTE: DUPLICATE SAMPLE RESULTS DISPLAYED AS # / #

TOTAL PFAS = CUMULATIVE CONCENTRATIONS OF PFOA, PFOS, PFOSA AND NEtFOSAA

N

0' 65'

S C A L E

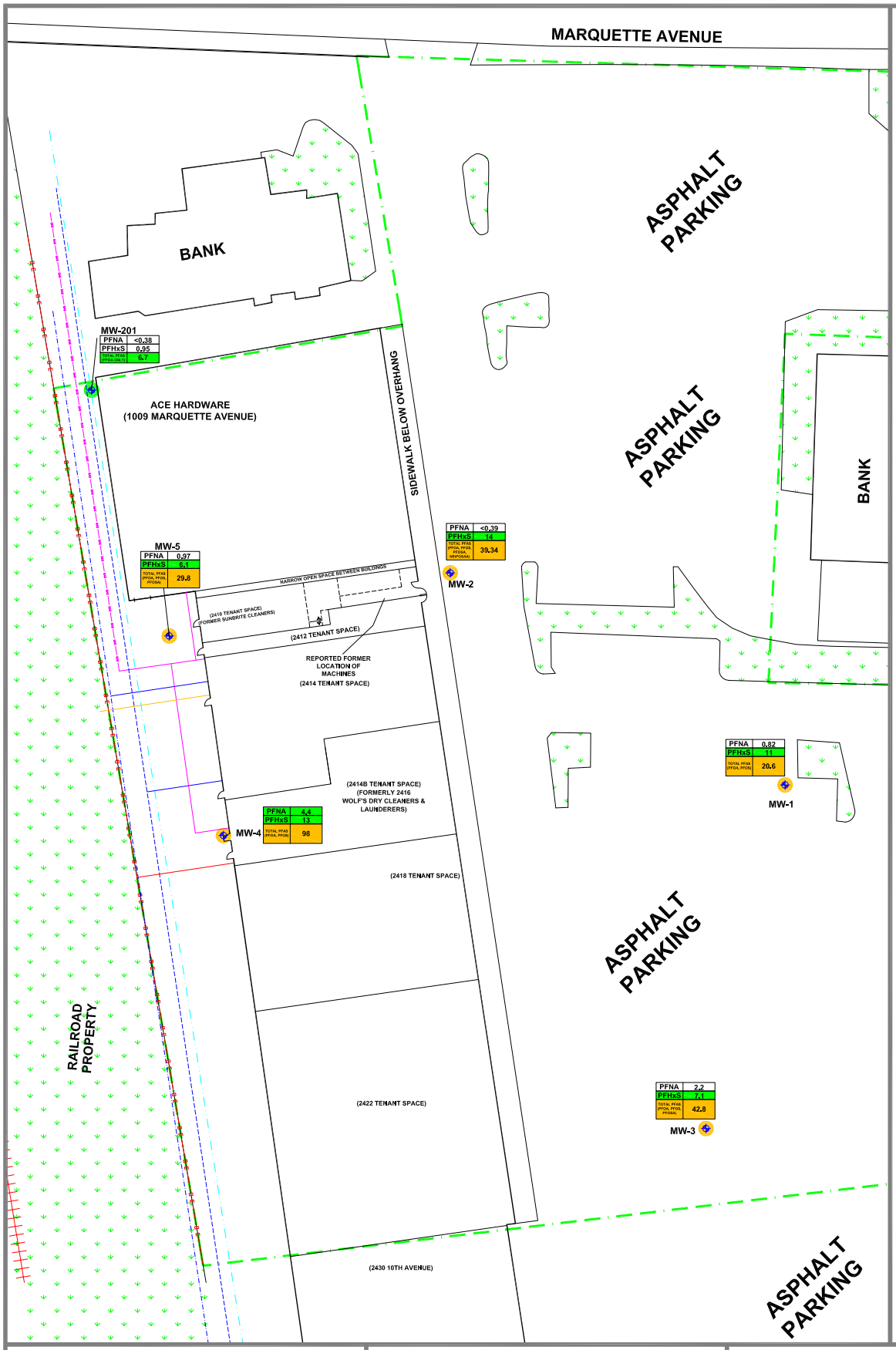
CAD FILE: 6255-210c

REVISED: 03/24/22

DAI ENVIRONMENTAL

SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE B.3.b.3a
GROUNDWATER ISOCONCENTRATION (PFAS - MAY 2021)



LEGEND

APPROXIMATE PROPERTY BOUNDARY

VEGETATION

(2410) UNIT ADDRESS

FIBER OPTICS UTILITY LINE

GAS UTILITY LINE

SANITARY UTILITY LINE

WATER UTILITY LINE (12")

WATER UTILITY LINE (4")

OVERHEAD ELECTRIC UTILITY LINE

MONITORING WELL LOCATION

OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL FOR PFAS CONSTITUENT

OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL AND ES FOR PFAS CONSTITUENT

PFAS CONSTITUENT	PFAS CONC. (ng/L)

NOTE: AUGUST 2021 SAMPLES AT MW-3 AND MW-5 ARE DUPLICATE SAMPLES TO MAY 2021 SAMPLES

TOTAL PFAS = CUMULATIVE CONCENTRATIONS OF PFOA, PFOS, PFOSA AND NEtFOSAA

N

0' 65'

S C A L E

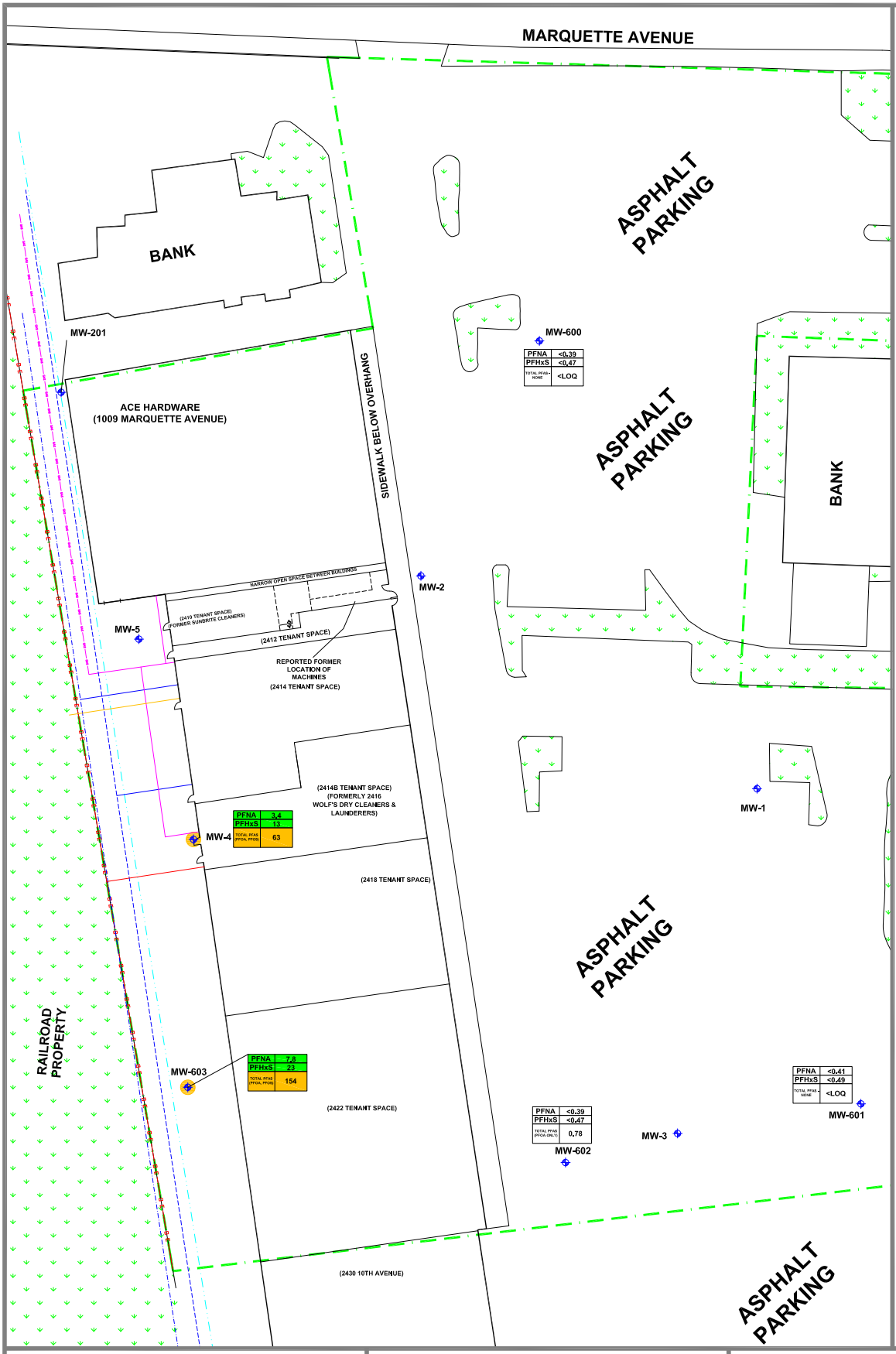
CAD FILE: 6255-210B

REVISED: 03/24/22

DAI ENVIRONMENTAL

SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE B.3.b.3b
GROUNDWATER ISOCONCENTRATION
(PFAS - AUGUST 2021)



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- VEGETATION
- (2410) UNIT ADDRESS
- FIBER OPTICS UTILITY LINE
- GAS UTILITY LINE
- SANITARY UTILITY LINE
- WATER UTILITY LINE (12")
- WATER UTILITY LINE (4")
- OVERHEAD ELECTRIC UTILITY LINE
- MONITORING WELL LOCATION
- OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL FOR PFAS CONSTITUENT
- OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL AND ES FOR PFAS CONSTITUENT

PFAS CONSTITUENT	PFAS CONC. (ng/L)

<LOQ - BELOW THE LIMIT OF QUANTIFICATION

NOTE: IN LIEU OF A DUPLICATE SAMPLE, MW-4 WAS RESAMPLED FOR COMPARISON TO AUGUST 2021 RESULTS

TOTAL PFAS = CUMULATIVE CONCENTRATIONS OF PFOA, PFOS, PFOSA AND NEtFOSAA

N

0' 65'

S C A L E

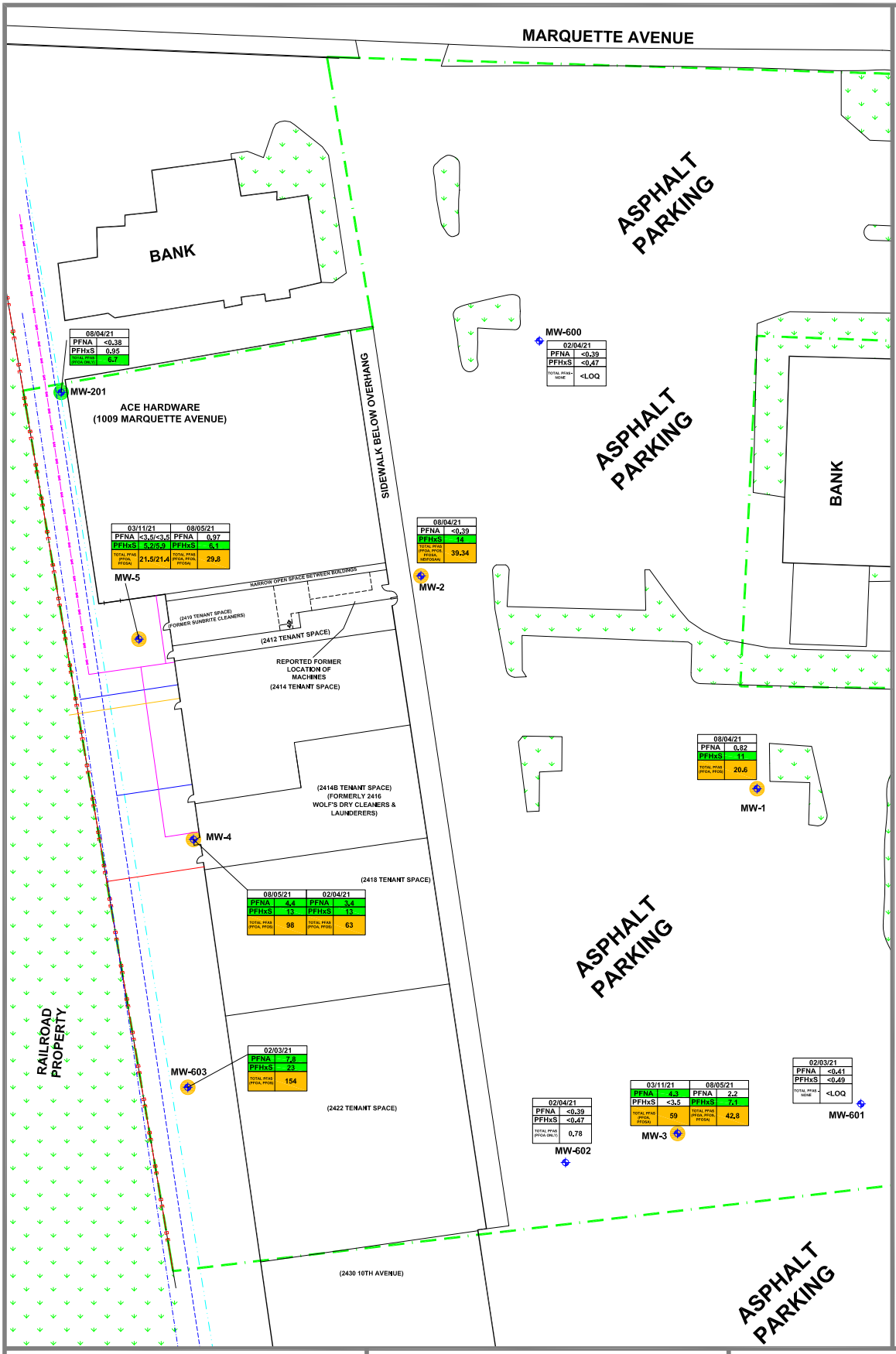
CAD FILE: 6255-210D

REVISED: 03/24/22

ENVIRONMENTAL

SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE B.3.b.3c
GROUNDWATER
ISOCONCENTRATION
(PFAS - FEB 2022)



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- VEGETATION
- (2410) UNIT ADDRESS
- FIBER OPTICS UTILITY LINE
- GAS UTILITY LINE
- SANITARY UTILITY LINE
- WATER UTILITY LINE (12")
- WATER UTILITY LINE (4")
- OVERHEAD ELECTRIC UTILITY LINE
- MONITORING WELL LOCATION
- OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL FOR PFAS CONSTITUENT
- OBSERVED EXCEEDANCE OF THE RECOMMENDED PAL AND ES FOR PFAS CONSTITUENT

PFAS CONSTITUENT	PFAS CONC. (ng/L)

<LOQ - BELOW THE LIMIT OF QUANTIFICATION

NOTE: IN LIEU OF A DUPLICATE SAMPLE, MW-4 WAS RESAMPLED FOR COMPARISON TO AUGUST 2021 RESULTS

TOTAL PFAS = CUMULATIVE CONCENTRATIONS OF PFOA, PFOS, PFOSA AND NEtFOSAA

N

0' 65'

SCALE

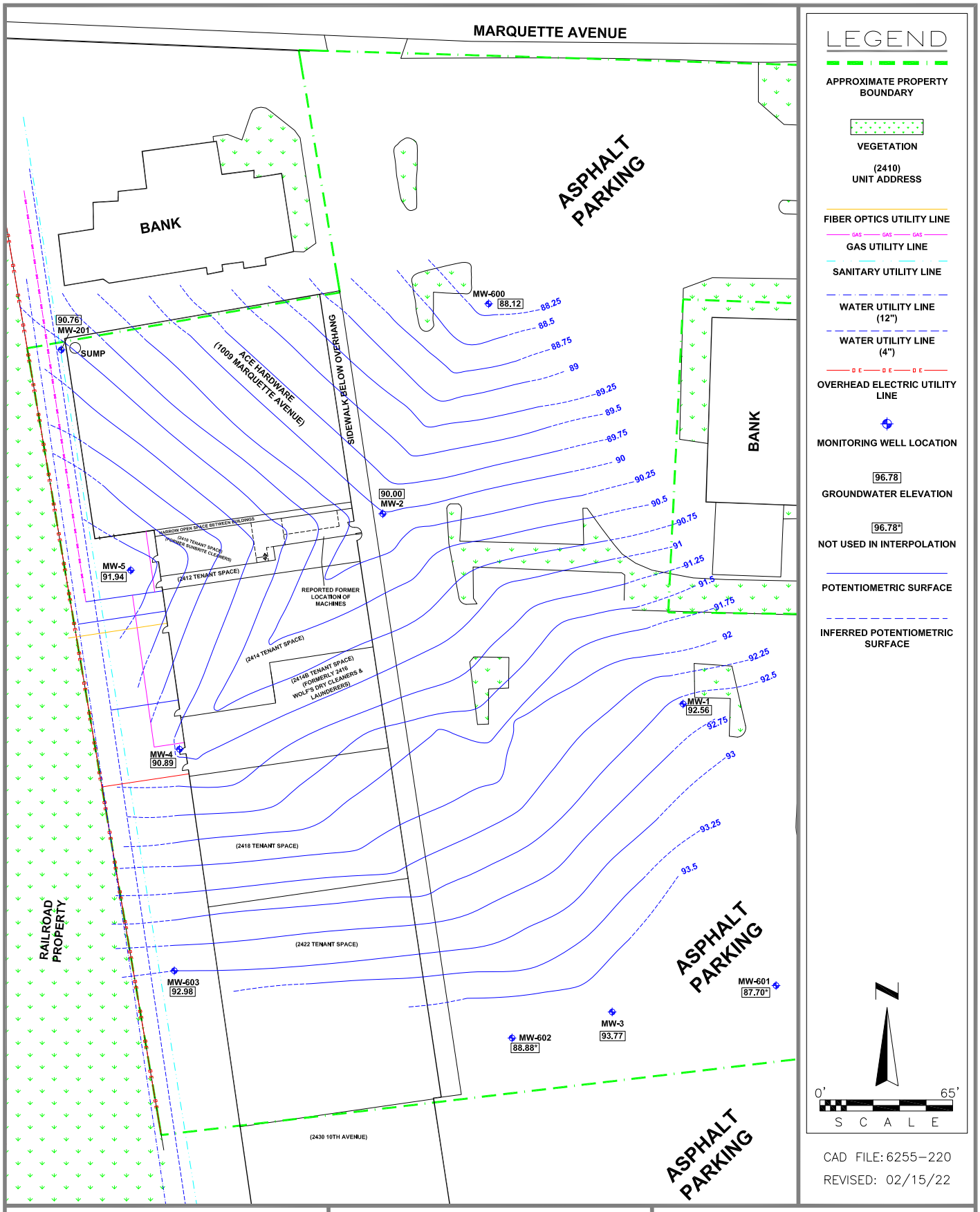
CAD FILE: 6255-210D

REVISED: 03/24/22

ENVIRONMENTAL

SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE B.3.b.3d
GROUNDWATER ISOCONCENTRATION (PFAS - 2021-2022)



LEGEND

APPROXIMATE PROPERTY BOUNDARY

VEGETATION

(2410) UNIT ADDRESS

FIBER OPTICS UTILITY LINE

GAS UTILITY LINE

SANITARY UTILITY LINE

WATER UTILITY LINE (12")

WATER UTILITY LINE (4")

OVERHEAD ELECTRIC UTILITY LINE

MONITORING WELL LOCATION

96.78
GROUNDWATER ELEVATION

96.78*
NOT USED IN INTERPOLATION

POTENTIOMETRIC SURFACE

INFERRED POTENTIOMETRIC SURFACE

N

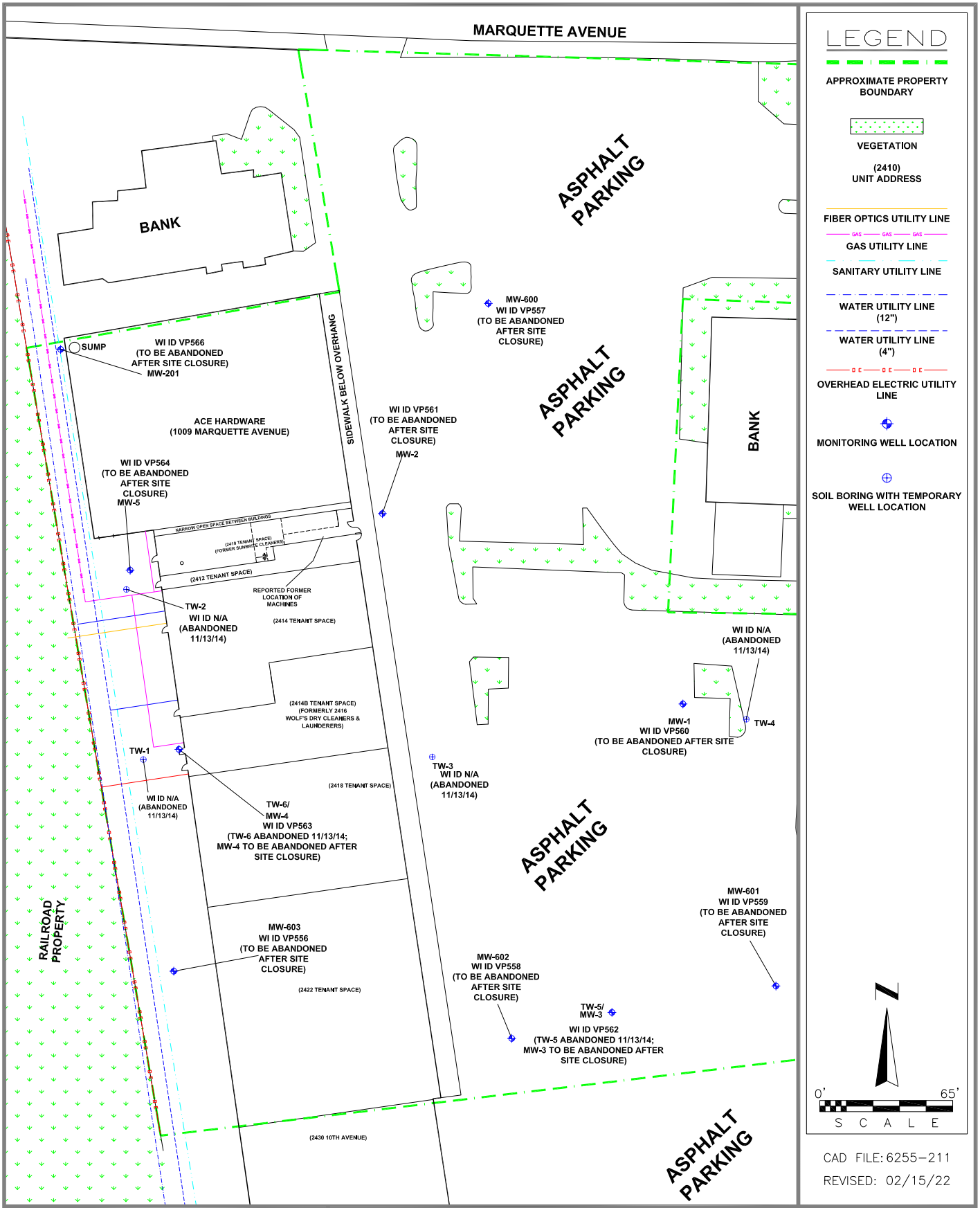
0' 65'
S C A L E

CAD FILE: 6255-220
REVISED: 02/15/22

ENVIRONMENTAL

SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE B.3.c.21
GROUNDWATER FLOW DIRECTION
(FEBRUARY 3, 2022)



CAD FILE: 6255-211

REVISED: 02/15/22

DAI ENVIRONMENTAL

SUNRISE SHOPPING CENTER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE B.3.d
MONITORING WELLS

APPENDIX C.1.A
SOIL BORING AND MONITORING WELL CONSTRUCTION LOGS
(FORMS 4400-122 AND 4400-113)

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Facility/Project Name: **Sunrise Shopping Center (6255)**	License/Permit/Monitoring Number:	Boring Number:	
Boring Drilled By: Name of crew chief (first, last) and Firm — First Name: **Ben** Last Name: **Graupera** Firm: **Cabeno**	Date Drilling Started: **01 / 20 / 2022**	Date Drilling Completed: **01 / 20 / 2022**	Drilling Method: **Direct Push/HSA**
WI Unique Well No.: **VP557**	DNR Well ID No.:	Well Name: **MW-600**	Final Static Water Level: **8.80** Feet Relative
Surface Elevation: **98.22** Feet Relative	Borehole Diameter: **3.75** inches		
Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐ — State Plane _____ N, _____ E — **NE 1/4 of SW 1/4 & NW 1/4 of SE 1/4 of Section 11, T 5 N, R 22E**	Lat ° ' " — Long ° ' "	Local Grid Location FROM SOUTHWEST CORNER OF ACE HARDWARE BUILDING: ☒ N ☒ E **115'** Feet ☐ S **192'-9"** Feet ☐ W	
Facility ID: **241828620**	County: **Milwaukee**	County Code: **41**	Civil Town/City/ or Village: **City of South Milwaukee**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				0'-15.5' Blind drill for monitoring well installation										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm: DAI Environmental, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Sunrise Shopping Center (6255)	Local Grid Location of Well FROM SE CORNER OF ACE HARDWARE: 115' ft. ☒ N. ☐ S. 192'-9" ft. ☒ E. ☐ W.	Well Name: MW-600
Facility License, Permit or Monitoring No.	Local Grid Origin ☒ (estimated: ☒) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VP557 / DNR Well ID No.
Facility ID: 241828620	St. Plane ft. N, ft. E. S/C/N	Date Well Installed: 01 / 20 / 2022 (m m / d d / y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 OF SE 1/4 & NE 1/4 of SW 1/4 of Sec. 11, T. 5 N, R. 22 ☒ E. ☐ W.	Well Installed By: Name (first, last) and Firm: BEN GRAUPERA / CABENO
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation NOT OBTAINED ft.

B. Well casing, top elevation _____ ft.

C. Land surface elevation NOT OBTAINED ft.

D. Surface seal, bottom _____ ft. MSL or 0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top _____ ft. MSL or 0.5 ft.

F. Fine sand, top _____ ft. MSL or 1.0 ft.

G. Filter pack, top _____ ft. MSL or 3.0 ft.

H. Screen joint, top _____ ft. MSL or 5.0 ft.

I. Well bottom _____ ft. MSL or 15.0 ft.

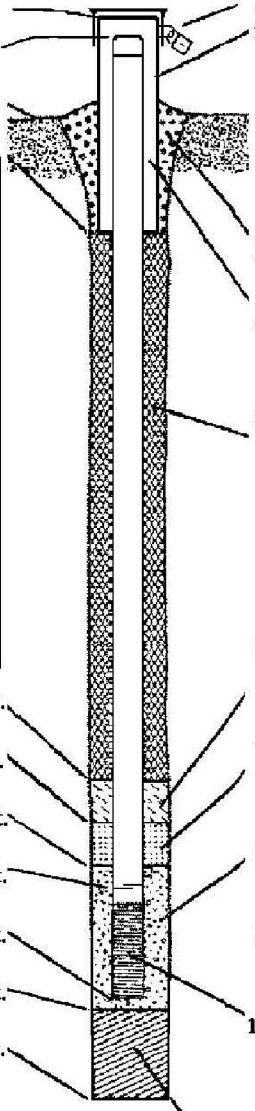
J. Filter pack, bottom _____ ft. MSL or 15.5 ft.

K. Borehole, bottom _____ ft. MSL or 15.5 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 9.5 in.
b. Length: 1 ft.
c. Material: FLUSH-MOUNT WELL LID — Steel ☒ 04 / Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 / Concrete ☒ 01 / Other ☐

4. Material between well casing and protective pipe: NONE — Bentonite ☐ 30 / Other ☒

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #4000
b. Volume added 1 BAG ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #5
b. Volume added 5.5 BAGS ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ _____

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐
10 Slot Screen
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	DAI Environmental, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
Sunrise Shopping Center (6255)	Milwaukee	MW-600

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	41	VP557	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☒ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 14.74 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 0.97 gal.

7. Volume of water removed from well 15.00 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 8.8 ft.	ft.
Date	b. 01 / 24 / 2022 (m m d d y y y y)	01 / 24 / 2022 (m m d d y y y y)
Time	c. 11 : 40 ☒ a.m. ☐ p.m.	12 : 10 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☒ 25 (Describe)
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

Fill in if drilling fluids were used and well is at solid waste facility:

16. Well developed by: Name (first, last) and Firm
First Name: Marcus Last Name: Greschner
Firm: DAI Environmental, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Steven Last Name: Dukatt
Facility/Firm: Carol Investment Corporation
Street: 1401 South Clinton Street
City/State/Zip: Chicago, Illinois

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: Marcus Greschner
Firm: DAI Environmental, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Sunrise Shopping Center (6255)		

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Ben Last Name: Graupera Firm: Cabeno	01 / 20 / 2022 (m m / d d / y y y y)	01 / 20 / 2022 (m m / d d / y y y y)	Direct Push/HSA

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
VP559		MW-601	8.80 Feet Relative	98.61 Feet Relative	3.75 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane _____ N, _____ E
NE 1/4 of SW 1/4 & NW 1/4 of SE 1/4 of Section 11, T 5 N, R 22E
Lat ° ' "
Long ° ' "
Local Grid Location FROM SOUTHWEST CORNER OF ACE HARDWARE BUILDING
☒ N ☒ E
218'-10" Feet ☐ S 333'-5" Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
241828620	Milwaukee	41	City of South Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				0'-15.5' Blind drill for monitoring well installation										

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Signature	Firm
	DAI Environmental, Inc.

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State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Sunrise Shopping Center (6255)	Local Grid Location of Well FROM SE CORNER OF ACE HARDWARE: 218'-10" ft. ☐ N. ☒ S. 333'-5" ft. ☒ E. ☐ W.	Well Name: MW-601
Facility License, Permit or Monitoring No.	Local Grid Origin ☒ (estimated: ☒) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VP559 / DNR Well ID No.
Facility ID: 241828620	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 01 / 20 / 2022 (m m d d y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 OF SE 1/4 & NE 1/4 of SW 1/4 of Sec. 11, T. 5 N, R. 22 ☒ E. ☐ W.	Well Installed By: Name (first, last) and Firm: BEN GRAUPERA / CABENO
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known	Gov. Lot Number

A. Protective pipe, top elevation NOT OBTAINED ft.

B. Well casing, top elevation _____ ft.

C. Land surface elevation NOT OBTAINED ft.

D. Surface seal, bottom _____ ft. MSL or 0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top _____ ft. MSL or 0.5 ft.

F. Fine sand, top _____ ft. MSL or 1.0 ft.

G. Filter pack, top _____ ft. MSL or 3.0 ft.

H. Screen joint, top _____ ft. MSL or 5.0 ft.

I. Well bottom _____ ft. MSL or 15.0 ft.

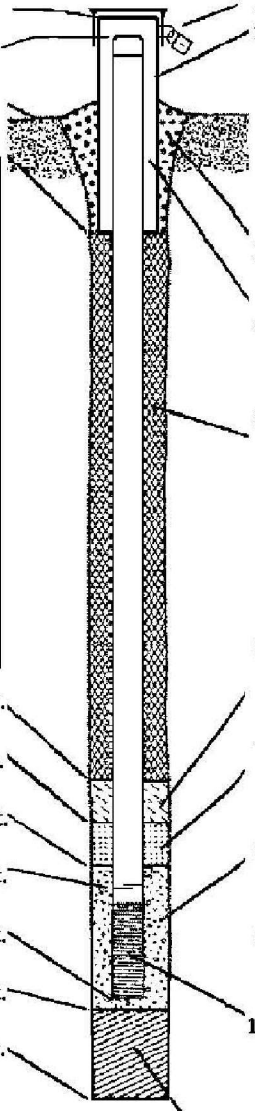
J. Filter pack, bottom _____ ft. MSL or 15.5 ft.

K. Borehole, bottom _____ ft. MSL or 15.5 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 9.5 in.
b. Length: 1 ft.
c. Material: FLUSH-MOUNT WELL LID — Steel ☒ 04 / Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 / Concrete ☒ 01 / Other ☐

4. Material between well casing and protective pipe: NONE — Bentonite ☐ 30 / Other ☒

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #4000
b. Volume added 1 BAG ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #5
b. Volume added 5.5 BAGS ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ____

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / 10 Slot Screen / Other ☐
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	DAI Environmental, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
Sunrise Shopping Center (6255)	Milwaukee	MW-601
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number** / **DNR Well ID Number**
	41	VP559 /

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☒ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 14.85 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 0.77 gal.

7. Volume of water removed from well 10.00 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.12 ft.	ft.
Date	b. 01 / 24 / 2022 (m m d d y y y y)	01 / 24 / 2022
Time	c. 12 : 20 ☐ a.m. ☒ p.m.	12 : 50 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☒ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Marcus Last Name: Greschner
Firm: DAI Environmental, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Steven Last Name: Dukatt
Facility/Firm: Carol Investment Corporation
Street: 1401 South Clinton Street
City/State/Zip: Chicago, Illinois

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: Marcus Greschner
Firm: DAI Environmental, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Sunrise Shopping Center (6255)		

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Ben Last Name: Graupera Firm: Cabeno	01 / 20 / 2022 (m m / d d / y y y y)	01 / 20 / 2022 (m m / d d / y y y y)	Direct Push/HSA

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
VP558		MW-602	8.80 Feet Relative	99.69 Feet Relative	3.75 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane _____ N, _____ E
NE 1/4 of SW 1/4 & NW 1/4 of SE 1/4 of Section 11, T 5 N, R 22E
Lat ° ' "
Long ° ' "
Local Grid Location FROM SOUTHWEST CORNER OF ACE HARDWARE BUILDING
☒ N ☒ E
244'-6" Feet ☐ S 204'-3" Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
241828620	Milwaukee	41	City of South Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				0'-15.5' Blind drill for monitoring well installation										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	DAI Environmental, Inc.

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State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Sunrise Shopping Center (6255)	Local Grid Location of Well: FROM SE CORNER OF ACE HARDWARE — 244'-6" ft. ☐ N. ☒ S. — 204'-3" ft. ☒ E. ☐ W.	Well Name: MW-602
Facility License, Permit or Monitoring No.	Local Grid Origin ☒ (estimated: ☒) or Well Location ☐ — Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VP558 — DNR Well ID No.:
Facility ID: 241828620	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 01 / 20 / 2022 (m m / d d / y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 OF SE 1/4 & NE 1/4 of SW 1/4 of Sec. 11, T. 5 N, R. 22 ☒ E. ☐ W.	Well Installed By: Name (first, last) and Firm: BEN GRAUPERA / CABENO
Distance from Waste/Source ____ ft. — Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation NOT OBTAINED ft.

B. Well casing, top elevation _____ ft.

C. Land surface elevation NOT OBTAINED ft.

D. Surface seal, bottom _____ ft. MSL or 0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top _____ ft. MSL or 0.5 ft.

F. Fine sand, top _____ ft. MSL or 1.0 ft.

G. Filter pack, top _____ ft. MSL or 3.0 ft.

H. Screen joint, top _____ ft. MSL or 5.0 ft.

I. Well bottom _____ ft. MSL or 15.0 ft.

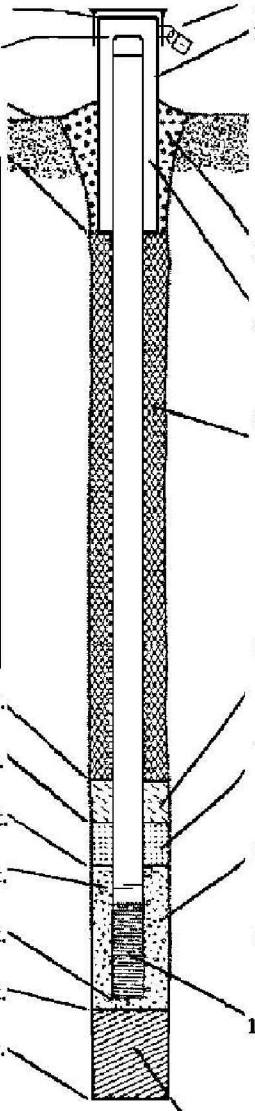
J. Filter pack, bottom _____ ft. MSL or 15.5 ft.

K. Borehole, bottom _____ ft. MSL or 15.5 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 9.5 in.
b. Length: 1 ft.
c. Material: FLUSH-MOUNT WELL LID — Steel ☒ 04 / Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 / Concrete ☒ 01 / Other ☐

4. Material between well casing and protective pipe: NONE — Bentonite ☐ 30 / Other ☒

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #4000
b. Volume added 1 BAG ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #5
b. Volume added 5.5 BAGS ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ _____

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / 10 Slot Screen — Other ☐
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	DAI Environmental, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
Sunrise Shopping Center (6255)	Milwaukee	MW-602

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	41	VP558	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☒ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 14.62 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 0.73 gal.

7. Volume of water removed from well 10.00 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.21 ft.	ft.
Date	b. 01 / 24 / 2022 (m m d d y y y y)	01 / 24 / 2022 (m m d d y y y y)
Time	c. 1 : 00 ☐ a.m. ☒ p.m.	1 : 30 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☒ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Marcus Last Name: Greschner
Firm: DAI Environmental, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Steven Last Name: Dukatt
Facility/Firm: Carol Investment Corporation
Street: 1401 South Clinton Street
City/State/Zip: Chicago, Illinois

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: Marcus Greschner
Firm: DAI Environmental, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name: **Sunrise Shopping Center (6255)**	License/Permit/Monitoring Number	Boring Number	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: **Ben** Last Name: **Graupera** Firm: **Cabeno**	Date Drilling Started: **01 / 20 / 2022**	Date Drilling Completed: **01 / 20 / 2022**	Drilling Method: **Direct Push/HSA**
WI Unique Well No.: **VP556** / DNR Well ID No.: __ __ __ / Well Name: **MW-603**	Final Static Water Level: **8.80** Feet Relative	Surface Elevation: **100.02** Feet Relative	Borehole Diameter: **3.75** inches
Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐ State Plane _____ N, _____ E **NE 1/4 of SW 1/4 &** **NW 1/4 of SE 1/4 of Section 11, T 5 N, R 22E**	Lat ° ' " Long ° ' "	Local Grid Location FROM SOUTHWEST CORNER OF ACE HARDWARE BUILDING ☐ N ☒ E **211'-7"** Feet ☒ S **38'-11"** Feet ☐ W	
Facility ID: **241828620**	County: **Milwaukee**	County Code: **41**	Civil Town/City/ or Village: **City of South Milwaukee**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				0'-15.5' Blind drill for monitoring well installation										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	DAI Environmental, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Sunrise Shopping Center (6255)	Local Grid Location of Well FROM SW CORNER OF ACE HARDWARE: 211'-7" ft. ☐ N. ☒ S. 38'-11" ft. ☒ E. ☐ W.	Well Name: MW-603
Facility License, Permit or Monitoring No.	Local Grid Origin ☒ (estimated: ☒) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VP556 / DNR Well ID No.
Facility ID: 241828620	St. Plane ft. N, ft. E. S/C/N	Date Well Installed: 01 / 20 / 2022 (m m / d d / y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: NW 1/4 OF SE 1/4 & NE 1/4 of SW 1/4 of Sec. 11, T. 5 N, R. 22 ☐ E. ☐ W.	Well Installed By: Name (first, last) and Firm: BEN GRAUPERA / CABENO
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☒ Not Known	Gov. Lot Number

A. Protective pipe, top elevation NOT OBTAINED ft.

B. Well casing, top elevation _____ ft.

C. Land surface elevation NOT OBTAINED ft.

D. Surface seal, bottom _____ ft. MSL or 0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ___

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top _____ ft. MSL or 0.5 ft.

F. Fine sand, top _____ ft. MSL or 1.0 ft.

G. Filter pack, top _____ ft. MSL or 3.0 ft.

H. Screen joint, top _____ ft. MSL or 5.0 ft.

I. Well bottom _____ ft. MSL or 15.0 ft.

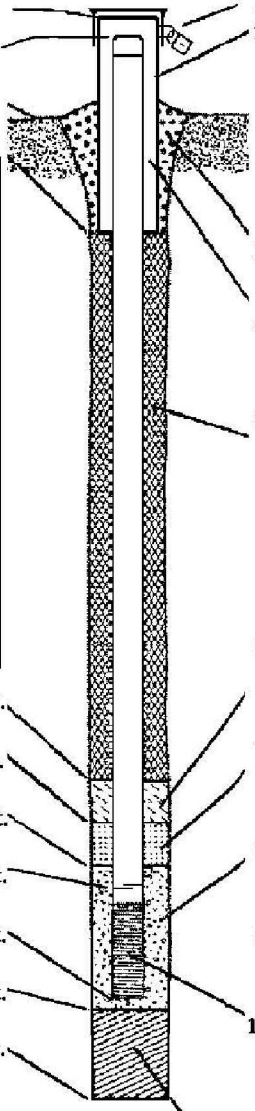
J. Filter pack, bottom _____ ft. MSL or 15.5 ft.

K. Borehole, bottom _____ ft. MSL or 15.5 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.07 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 9.5 in.
b. Length: 1 ft.
c. Material: FLUSH-MOUNT WELL LID — Steel ☒ 04 / Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 / Concrete ☒ 01 / Other ☐

4. Material between well casing and protective pipe: NONE — Bentonite ☐ 30 / Other ☒

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #4000
b. Volume added 1 BAG ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. RW SIDLEY QUARTZ SAND #5
b. Volume added 5.5 BAGS ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ___

10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / 10 Slot Screen — Other ☐ ___
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐ ___

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	DAI Environmental, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
Sunrise Shopping Center (6255)	Milwaukee	MW-603

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	41	VP556	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☒ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 14.79 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 1.37 gal.

7. Volume of water removed from well 17.00 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 6.42 ft.	ft.
Date	b. 01 / 24 / 2022 (m m d d y y y y)	01 / 24 / 2022 (m m d d y y y y)
Time	c. 1 : 40 ☐ a.m. ☒ p.m.	2 : 10 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0.0 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☒ 25 (Describe)
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

Fill in if drilling fluids were used and well is at solid waste facility:

16. Well developed by: Name (first, last) and Firm
First Name: Marcus Last Name: Greschner
Firm: DAI Environmental, Inc.

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: Steven Last Name: Dukatt
Facility/Firm: Carol Investment Corporation
Street: 1401 South Clinton Street
City/State/Zip: Chicago, Illinois

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: Marcus Greschner
Firm: DAI Environmental, Inc.

NOTE: See instructions for more information including a list of county codes and well type codes.

APPENDIX C.1.C
MONITORING WELL INFORMATION SUMMARY
(FORM 4400-89)

Save... | Print... | Clear Data | Instructions

Note: In order to fill and save this form electronically, it must be opened using Adobe Reader or Acrobat software. Save a copy of the file, open Adobe Reader, select File > Open and browse for the file you saved.

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

GROUNDWATER MONITORING WELL AND POINT INFORMATION

Form 4400-089 (R 04/19)

Use the Groundwater Monitoring Well and Point Information Form to record identification, location and construction information for groundwater monitoring wells and any other sample "points," (e.g., gas probes, lysimeters, leachate collection systems, etc.), that are part of the environmental monitoring program. **NOTE:** Not all fields will be applicable to all point types. Only **one** coordinate reference system may be used per site. Allowable coordinate systems are listed below. (Coordinates for each system require a minimum number of digits as described below.) Local grid coordinates cannot be accepted. Identify the Coordinate Reference System, Datum and Method used.

Facility Name	County	Facility ID No. (FID)	License, Permit or Monitoring No.	Date	Completed By (Name and Firm)
Sunrise Shopping Center	Milwaukee	241828620		03/24/2022	Christopher Cailles, DAI Environment

DNR Point ID No.	Point Name[1]	WUWN[2] (if app.)	Type	Status	Gradient	*Enf. Stds. Y/N.*	Construction Date	Elevations msl (ft)		Well Casing			Well Screen Length (ft)	Well (Pt) Total Length[5] (ft)	Coordinates[6,7,8,9]	
								Ground Surface	Well Top (of casing)	Type	Diam[3] (in)	Length[4] (ft)			Y / Lat / Northing	X / Long / Easting
	MW-1	VP560	11	A	Y		01/07/2015	98.58	98.08		2.07	4.5	10	14.5	-80.92	287.96
	MW-2	VP561	11	A	D		01/07/2015	99.82	99.32		2.07	4.5	10	14.5	12.20	140.93
	MW-3	VP562	11	A	U		01/07/2015	99.47	98.97		2.07	4.5	10	14.5	-231.74	253.21
	MW-4	VP563	11	A	Y		01/07/2015	100.25	99.75		2.07	4.5	10	14.5	-103.08	41.42
	MW-5	VP564	11	A	Y		01/07/2015	99.86	99.36		2.07	4.5	10	14.5	-15.58	17.55
	MW-201	VP566	11	A	D		03/11/2015	99.93	99.43		2.07	4.5	10	14.5	92.48	-16.46
	MW-600	VP557	11	A	D		01/20/2022	98.22	97.75		2.07	4.5	10	14.5	115.00	192.75
	MW-601	VP559	11	A	U		01/20/2022	98.61	98.11		2.07	4.5	10	14.5	-218.83	333.42
	MW-602	VP558	11	A	U		01/20/2022	99.68	99.18		2.07	4.5	10	14.5	-244.50	204.25
	MW-603	VP556	11	A	U		01/20/2022	100.02	99.52		2.07	4.5	10	14.5	-211.58	38.92

[1] Include previous name as well if one exists.

[2] Wisconsin Unique Well Number.

[3] Well Casing Diameter measures inside diameter.

[4] Length of well casing from top of casing to top of screen.

[5] Total length of well from top of casing to bottom of well. *Should equal sum of well casing length and screen length.*

[6] Identify Coordinate Reference System (only one system may be used per site):

- ○ Lat/Long (Decimal Degrees) WGS84 (min. 8 digits total w/ 6 right of decimal, e.g., -89.123456)

State Plane (min. 2 digits right of decimal)

- ○ North
- ○ Central
- ○ South
- ○ Wisc. Transverse Mercator WTM91 (min. 2 digits right of decimal)
- ○ Local County Coord. Sys. (WISCRS) (min. digits vary by county)

[7] Identify Projection Datum and units*

- ○ NAD83
- ○ NAD27
- ○ NAD83(91)
- ○ NAD83(11)
- ○ Other
  Describe:

Units used for State Plane, WTM or County Coord. Sys:

- ○ meters
- ○ feet

*NOTE: A datum and units are not required for Lat/Long

[8] Identify the Method Used to Determine the Coordinates:

- ○ GPS001-Survey grade
- ○ GPS003-Mapping grade/real-time differential correction
- ○ GPS004-Mapping grade/post processing
- ○ SRV001-Classical terrestrial surveying techniques
- ⊗ OTH001 (Other), Describe:
  Local grid measured from SW corner of Ace building

[9] Y / Lat / Northing describe the vertical axis.

X / Long / Easting describe the horizontal axis.

(include "-" where needed, e.g., -89.123456)

Remarks:

Casing elevation per survey completed 2/1/22 set to a 100-ft relative datum. Gradient direction for wells dependent upon what contamination being assessed; noted gradients are per the overall groundwater flow direction.

Completion of this form is mandatory under chs. 281, 289 and 292, Wis. Stats., and ss. NR 110.25, NR 507.14 and NR 716.15, Wis. Admin. Code

APPENDIX C.1.E
LABORATORY ANALYTICAL REPORT
(EMERGING CONTAMINANTS ANALYSIS, FEBRUARY 2022)

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

March 04, 2022

Chris Cailles
DAI Environmental
Polo Park Business Center
27834 Irma Lee Circle
Lake Forest, IL 60045

RE: Project: 6255 S. MILWAUKEE
Pace Project No.: 40240300

Dear Chris Cailles:

Enclosed are the analytical results for sample(s) received by the laboratory on February 08, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Steven Mleczko
steve.mleczko@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Jenny Rovzar, DAI

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: 6255 S. MILWAUKEE
Pace Project No.: 40240300

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40240300001	**MW-600**	Water	02/04/22 11:00	02/08/22 07:45
40240300002	**MW-601**	Water	02/03/22 13:00	02/08/22 07:45
40240300003	**MW-602**	Water	02/04/22 12:25	02/08/22 07:45
40240300004	**MW-603**	Water	02/03/22 14:00	02/08/22 07:45
40240300005	**MW-4**	Water	02/04/22 13:20	02/08/22 07:45

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

U024O300

Pace Analytical®
www.pacelabs.com

CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

(Please Print Clearly)	
Company Name:	DAI Environmental
Branch/Location:	Lake Forest
Project Contact:	Chris Cailles
Phone:	847-573-8900
Project Number:	6255
Project Name:	S. Milwaukee
Project State:	Wisconsin
Sampled By (Print):	Marcus Greschner
Sampled By (Sign):	Marcus Greschner
PO #:	Regulatory Program:

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
☐ EPA Level III
☐ EPA Level IV

MS/MSD
☐ On your sample (billable)
☐ NOT needed on your sample

Matrix Codes

A = Air	W = Water
B = Biota	DW = Drinking Water
C = Charcoal	GW = Ground Water
O = Oil	SW = Surface Water
S = Soil	WW = Waste Water
SI = Sludge	WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	Analyses Requested: PFAS
001	MW-600	2/4/22	11:00	GW			X
002	MW-601	2/3/22	1:00				X
003	MW-602	2/4/22	12:25				X
004	MW-603	2/3/22	2:00				X
005	MW-4	2/4/22	1:20				X

CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

Email #1:	
Email #2:	
Telephone:	
Fax:	

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
	2/7/22 9:55	Mike	2/7/22 9:55
Mikey	2/7/22 5:00	GS Logistics	2/7/22 8:00
GS Logistics	2/8/22 0745		2/8/22 0745

PACE Project No.
U024O300

Receipt Temp = 1 °C

Sample Receipt pH OK / Adjusted

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Client Name: DAI

Sample Preservation Receipt Form

Project # UD240300

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

All containers needing preservation have been checked and noted below: □Yes □No ☑N/A

Initial when completed: Date/ Time:

Lab Lot# of pH paper: Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass: AG1U	BG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	Plastic: BP1U	BP3U	BP3B	BP3N	BP3S	Vials: VG9A	DG9T	VG9U	VG9H	VG9M	VG9D	Jars: JGFU	JG9U	WGFU	WPFU	General: SP5T	ZPLC	GN	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001										2																						2.5 / 5 / 10
002										2																						2.5 / 5 / 10
003										2																						2.5 / 5 / 10
004										2																						2.5 / 5 / 10
005										2																						2.5 / 5 / 10
006																																2.5 / 5 / 10
007																																2.5 / 5 / 10
008																																2.5 / 5 / 10
009																																2.5 / 5 / 10
010																																2.5 / 5 / 10
011																																2.5 / 5 / 10
012																																2.5 / 5 / 10
013																																2.5 / 5 / 10
014																																2.5 / 5 / 10
015																																2.5 / 5 / 10
016																																2.5 / 5 / 10
017																																2.5 / 5 / 10
018																																2.5 / 5 / 10
019																																2.5 / 5 / 10
020																										2/28/25 SK						2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:_____ Headspace in VOA Vials (>6mm) : □Yes □No ☑N/A *If yes look in headspace column

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG4U	120 mL amber glass unpres
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4

VG9A	40 mL clear ascorbic
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN	

Pace Analytical® 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 26Mar2020
	Document No.: ENV-FRM-GBAY-0014-Rev.00	Author: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: DAI Env.

Project #:

WO# : 40240300

40240300

Courier: ☒ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 105 **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: 1 /Corr: 1

Temp Blank Present: ☐ yes ☒ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Person examining contents:
Date: 2/8/22 /Initials: SKV

Labeled By Initials: AZ

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	Filter, Preserve, Pg #, Mail + INV. Info 2/8/22
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☑N/A	
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	☐Yes ☑No ☐N/A	12. No dates + times. Client used water soluable ink labels barely legible 2/8/22 SKV
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Report of Analysis

Pace Analytical Services, LLC
1241 Bellevue Street
Suite 9
Green Bay, WI 54302
Attention: Steve Mleczko

Project Name: 6255 S. MILWAUKEE

Project Number: 40240300

Lot Number:**XB09003**

Date Completed:03/03/2022

03/04/2022 8:06 AM
Approved and released by:
Project Manager II: **Edward Barnett**

Case Narrative
Pace Analytical Services, LLC
Lot Number: XB09003

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. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

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. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, 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.

PFAS

Samples XB09003-001, XB09003-002 and XB09003-003 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Sample XB09003-004 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

For sample XB09003-005, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Surrogate recovery for the following samples was outside the upper control limit: XB09003-001 and XB09003-003. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following sample was outside the upper control limit: XB09003-005. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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 Pace Quality Assurance Management Plan (QAMP), applicable standard operating procedures (SOPs), the 2003 NELAC standard, and Pace policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 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). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

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

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

Sample Summary
Pace Analytical Services, LLC
Lot Number: XB09003
Project Name: 6255 S. MILWAUKEE
Project Number: 40240300

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-600	Aqueous	02/04/2022 1100	02/09/2022
002	MW-601	Aqueous	02/03/2022 1300	02/09/2022
003	MW-602	Aqueous	02/04/2022 1225	02/09/2022
004	MW-603	Aqueous	02/03/2022 1400	02/09/2022
005	MW-4	Aqueous	02/04/2022 1320	02/09/2022

(5 samples)

Detection Summary
Pace Analytical Services, LLC
Lot Number: XB09003
Project Name: 6255 S. MILWAUKEE
Project Number: 40240300

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-600	Aqueous	6:2 FTS	PFAS by ID	16		ng/L	6
001	MW-600	Aqueous	PFBA	PFAS by ID	4.8		ng/L	6
001	MW-600	Aqueous	PFPeA	PFAS by ID	0.47	J	ng/L	6
002	MW-601	Aqueous	6:2 FTS	PFAS by ID	2.9	J	ng/L	8
002	MW-601	Aqueous	PFBA	PFAS by ID	5.4		ng/L	8
003	MW-602	Aqueous	PFBS	PFAS by ID	3.0	J	ng/L	10
003	MW-602	Aqueous	PFBA	PFAS by ID	6.1		ng/L	10
003	MW-602	Aqueous	PFHpA	PFAS by ID	0.91	J	ng/L	10
003	MW-602	Aqueous	PFOA	PFAS by ID	0.78	J	ng/L	10
003	MW-602	Aqueous	PFPeA	PFAS by ID	1.3	J	ng/L	10
004	MW-603	Aqueous	6:2 FTS	PFAS by ID	2.9	J	ng/L	12
004	MW-603	Aqueous	PFBS	PFAS by ID	150		ng/L	12
004	MW-603	Aqueous	PFHpS	PFAS by ID	1.8	J	ng/L	12
004	MW-603	Aqueous	PFPeS	PFAS by ID	4.0		ng/L	12
004	MW-603	Aqueous	PFHxS	PFAS by ID	23		ng/L	12
004	MW-603	Aqueous	PFBA	PFAS by ID	180		ng/L	12
004	MW-603	Aqueous	PFDA	PFAS by ID	3.3	J	ng/L	12
004	MW-603	Aqueous	PFHpA	PFAS by ID	100		ng/L	12
004	MW-603	Aqueous	PFHxA	PFAS by ID	230		ng/L	12
004	MW-603	Aqueous	PFNA	PFAS by ID	7.8		ng/L	12
004	MW-603	Aqueous	PFOA	PFAS by ID	95		ng/L	12
004	MW-603	Aqueous	PFPeA	PFAS by ID	520		ng/L	12
004	MW-603	Aqueous	PFOS	PFAS by ID	59		ng/L	12
005	MW-4	Aqueous	PFBS	PFAS by ID	74		ng/L	14
005	MW-4	Aqueous	PFPeS	PFAS by ID	3.0	J	ng/L	14
005	MW-4	Aqueous	PFHxS	PFAS by ID	13		ng/L	14
005	MW-4	Aqueous	PFBA	PFAS by ID	62		ng/L	14
005	MW-4	Aqueous	PFDA	PFAS by ID	2.1	J	ng/L	14
005	MW-4	Aqueous	PFHpA	PFAS by ID	12		ng/L	14
005	MW-4	Aqueous	PFHxA	PFAS by ID	17		ng/L	14
005	MW-4	Aqueous	PFNA	PFAS by ID	3.4	J	ng/L	14
005	MW-4	Aqueous	PFOA	PFAS by ID	23		ng/L	14
005	MW-4	Aqueous	PFPeA	PFAS by ID	35		ng/L	14
005	MW-4	Aqueous	PFOS	PFAS by ID	40		ng/L	14

(34 detections)

PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-001**

Description: **MW-600** Matrix: **Aqueous**

Date Sampled: **02/04/2022 1100** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	02/25/2022 1522	JJG	02/24/2022 1719	32888

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		6.8	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**16**		**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-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.8	1.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.64	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.8	0.81	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.8	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		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	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	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	0.50	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**4.8**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	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	ND		3.4	0.38	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.4	0.70	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**0.47**	**J**	**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	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	151	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		94	25-150
13C3_PFHxS		96	25-150
13C3-HFPO-DA		108	25-150
13C4_PFBA		73	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: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-001**

Description: **MW-600** Matrix: **Aqueous**

Date Sampled: **02/04/2022 1100** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		97	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		89	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		97	25-150
13C8_PFOA		96	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		95	25-150
d-EtFOSA		84	10-150
d5-EtFOSAA		95	25-150
d9-EtFOSE		94	10-150
d-MeFOSA		98	10-150
d3-MeFOSAA		111	25-150
d7-MeFOSE		91	10-150

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

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-002**

Description: **MW-601** Matrix: **Aqueous**

Date Sampled: **02/03/2022 1300** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	02/25/2022 1533	JJG	02/24/2022 1719	32888

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-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**	**2.9**	**J**	**7.0**	**1.8**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.77	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	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.0	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.0	0.84	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.82	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.0	1.1	ng/L	1
Perfluoro-1-butanesulfonic 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	0.63	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
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.0	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**5.4**		**3.5**	**0.53**	**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 (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	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	0.61	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.73	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	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	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		134	25-150
13C2_6:2FTS		112	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		72	25-150
13C2_PFTeDA		46	25-150
13C3_PFBS		87	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		106	25-150
13C4_PFBA		69	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

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-002**

Description: **MW-601** Matrix: **Aqueous**

Date Sampled: **02/03/2022 1300** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		93	25-150
13C5_PFHxA		91	25-150
13C5_PFPeA		84	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		81	25-150
13C8_PFOA		92	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		90	25-150
d-EtFOSA		59	10-150
d5-EtFOSAA		84	25-150
d9-EtFOSE		62	10-150
d-MeFOSA		77	10-150
d3-MeFOSAA		95	25-150
d7-MeFOSE		69	10-150

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
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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-003**

Description: **MW-602** Matrix: **Aqueous**

Date Sampled: **02/04/2022 1225** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	02/25/2022 1544	JJG	02/24/2022 1719	32888

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		6.8	0.41	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		6.8	0.56	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		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		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-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		6.8	1.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		6.8	0.63	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		6.8	0.80	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		6.8	0.79	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		6.8	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**3.0**	**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	0.42	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.4	0.60	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	0.50	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		6.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.4	0.47	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**6.1**		**3.4**	**0.51**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.4	0.44	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	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**	**0.91**	**J**	**3.4**	**0.38**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.4	0.58	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.4	0.39	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**0.78**	**J**	**3.4**	**0.70**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.3**	**J**	**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	ND		3.4	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	188	25-150
13C2_6:2FTS		129	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		82	25-150
13C2_PFTeDA		63	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		101	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		69	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
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S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-003**

Description: **MW-602** Matrix: **Aqueous**

Date Sampled: **02/04/2022 1225** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		99	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		83	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		88	25-150
13C8_PFOA		96	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		109	10-150
13C9_PFNA		92	25-150
d-EtFOSA		72	10-150
d5-EtFOSAA		88	25-150
d9-EtFOSE		80	10-150
d-MeFOSA		93	10-150
d3-MeFOSAA		105	25-150
d7-MeFOSE		81	10-150

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
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P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-004**

Description: **MW-603** Matrix: **Aqueous**

Date Sampled: **02/03/2022 1400** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/02/2022 1341	JJG	03/01/2022 1232	33273

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	0.59	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**2.9**	**J**	**7.1**	**1.8**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	0.78	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	0.67	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	0.85	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	0.83	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**150**		**3.6**	**0.37**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.69	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**1.8**	**J**	**3.6**	**0.45**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.64	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**4.0**		**3.6**	**0.53**	**ng/L**	**1**
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**23**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**180**		**3.6**	**0.54**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**3.3**	**J**	**3.6**	**0.47**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**100**		**3.6**	**0.40**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**230**		**3.6**	**0.61**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**7.8**		**3.6**	**0.41**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**95**		**3.6**	**0.74**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**520**		**3.6**	**0.49**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**59**		**3.6**	**1.8**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		113	25-150
13C2_6:2FTS		88	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		71	25-150
13C2_PFTeDA		68	25-150
13C3_PFBS		80	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		87	25-150
13C4_PFBA		71	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

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PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-004**

Description: **MW-603** Matrix: **Aqueous**

Date Sampled: **02/03/2022 1400** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		78	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		72	25-150
13C6_PFDA		76	25-150
13C7_PFUdA		73	25-150
13C8_PFOA		79	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		78	10-150
13C9_PFNA		77	25-150
d-EtFOSA		67	10-150
d5-EtFOSAA		74	25-150
d9-EtFOSE		80	10-150
d-MeFOSA		76	10-150
d3-MeFOSAA		78	25-150
d7-MeFOSE		83	10-150

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

PFAS by LC/MS/MS

Client: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-005**

Description: **MW-4** Matrix: **Aqueous**

Date Sampled: **02/04/2022 1320** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	03/02/2022 2048	JJG	03/01/2022 1721	33372

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.46	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	Q	7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.7	1.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.7	0.92	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.7	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**74**		**3.8**	**0.40**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.8	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.8	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.8	0.68	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.8	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**3.0**	**J**	**3.8**	**0.57**	**ng/L**	**1**
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.7	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**13**		**3.8**	**0.53**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**62**		**3.8**	**0.58**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**2.1**	**J**	**3.8**	**0.50**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.8	0.45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**12**		**3.8**	**0.43**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**17**		**3.8**	**0.66**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**3.4**	**J**	**3.8**	**0.44**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**23**		**3.8**	**0.80**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**35**		**3.8**	**0.52**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.8	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.8	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.8	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**40**		**3.8**	**1.9**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	260	25-150
13C2_6:2FTS	N	203	25-150
13C2_8:2FTS		141	25-150
13C2_PFDoA		61	25-150
13C2_PFTeDA		41	25-150
13C3_PFBS		72	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		66	25-150
13C4_PFBA		35	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: **Pace Analytical Services, LLC** Laboratory ID: **XB09003-005**

Description: **MW-4** Matrix: **Aqueous**

Date Sampled: **02/04/2022 1320** Project Name: **6255 S. MILWAUKEE**

Date Received: **02/09/2022** Project Number: **40240300**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		72	25-150
13C5_PFHxA		65	25-150
13C5_PFPeA		48	25-150
13C6_PFDA		89	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		78	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		85	10-150
13C9_PFNA		87	25-150
d-EtFOSA		30	10-150
d5-EtFOSAA		75	25-150
d9-EtFOSE		44	10-150
d-MeFOSA		49	10-150
d3-MeFOSAA		93	25-150
d7-MeFOSE		54	10-150

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

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ32888-001
Batch: 32888
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/24/2022 1719

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	02/25/2022 1355
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	02/25/2022 1355
8:2 FTS	ND		1	8.0	1.6	ng/L	02/25/2022 1355
6:2 FTS	ND		1	8.0	2.0	ng/L	02/25/2022 1355
4:2 FTS	ND		1	8.0	0.87	ng/L	02/25/2022 1355
GenX	ND		1	8.0	2.1	ng/L	02/25/2022 1355
ADONA	ND		1	8.0	0.48	ng/L	02/25/2022 1355
EtFOSA	ND		1	8.0	1.4	ng/L	02/25/2022 1355
EtFOSAA	ND		1	8.0	0.75	ng/L	02/25/2022 1355
EtFOSE	ND		1	8.0	0.95	ng/L	02/25/2022 1355
MeFOSA	ND		1	16	1.3	ng/L	02/25/2022 1355
MeFOSAA	ND		1	8.0	0.93	ng/L	02/25/2022 1355
MeFOSE	ND		1	8.0	1.3	ng/L	02/25/2022 1355
PFBS	ND		1	4.0	0.41	ng/L	02/25/2022 1355
PFDS	ND		1	4.0	0.78	ng/L	02/25/2022 1355
PFHpS	ND		1	4.0	0.50	ng/L	02/25/2022 1355
PFNS	ND		1	4.0	0.71	ng/L	02/25/2022 1355
PFOSA	ND		1	4.0	0.61	ng/L	02/25/2022 1355
PFPeS	ND		1	4.0	0.59	ng/L	02/25/2022 1355
PFDOS	ND		1	8.0	1.0	ng/L	02/25/2022 1355
PFHxS	ND		1	4.0	0.55	ng/L	02/25/2022 1355
PFBA	ND		1	4.0	0.60	ng/L	02/25/2022 1355
PFDA	ND		1	4.0	0.52	ng/L	02/25/2022 1355
PFDoA	ND		1	4.0	0.47	ng/L	02/25/2022 1355
PFHpA	ND		1	4.0	0.45	ng/L	02/25/2022 1355
PFHxA	ND		1	4.0	0.69	ng/L	02/25/2022 1355
PFNA	ND		1	4.0	0.46	ng/L	02/25/2022 1355
PFOA	ND		1	4.0	0.83	ng/L	02/25/2022 1355
PFPeA	ND		1	4.0	0.54	ng/L	02/25/2022 1355
PFTeDA	ND		1	4.0	0.60	ng/L	02/25/2022 1355
PFTrDA	ND		1	4.0	0.53	ng/L	02/25/2022 1355
PFUdA	ND		1	4.0	0.63	ng/L	02/25/2022 1355
PFOS	ND		1	4.0	2.0	ng/L	02/25/2022 1355

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		117	25-150
13C2_6:2FTS		149	25-150
13C2_8:2FTS		116	25-150
13C2_PFDoA		94	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		96	25-150
13C3_PFHxS		95	25-150
13C3-HFPO-DA		118	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: XQ32888-001
Batch: 32888
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/24/2022 1719

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		109	25-150
13C4_PFHpA		108	25-150
13C5_PFHxA		101	25-150
13C5_PFPeA		102	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		96	25-150
13C8_PFOA		110	25-150
13C8_PFOS		104	25-150
13C8_PFOSA		112	10-150
13C9_PFNA		107	25-150
d-EtFOSA		84	10-150
d5-EtFOSAA		99	25-150
d9-EtFOSE		103	10-150
d-MeFOSA		99	10-150
d3-MeFOSAA		117	25-150
d7-MeFOSE		103	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: XQ32888-002
Batch: 32888
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/24/2022 1719

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	50-150	02/25/2022 1406
11Cl-PF3OUdS	15	13		1	84	50-150	02/25/2022 1406
8:2 FTS	15	13		1	87	50-150	02/25/2022 1406
6:2 FTS	15	14		1	92	50-150	02/25/2022 1406
4:2 FTS	15	13		1	84	50-150	02/25/2022 1406
GenX	32	30		1	95	50-150	02/25/2022 1406
ADONA	15	17		1	110	50-150	02/25/2022 1406
EtFOSA	16	16		1	98	50-150	02/25/2022 1406
EtFOSAA	16	15		1	93	50-150	02/25/2022 1406
EtFOSE	16	14		1	85	50-150	02/25/2022 1406
MeFOSA	16	14		1	88	50-150	02/25/2022 1406
MeFOSAA	16	12		1	75	50-150	02/25/2022 1406
MeFOSE	16	15		1	96	50-150	02/25/2022 1406
PFBS	14	14		1	99	50-150	02/25/2022 1406
PFDS	15	15		1	96	50-150	02/25/2022 1406
PFHpS	15	16		1	105	50-150	02/25/2022 1406
PFNS	15	14		1	94	50-150	02/25/2022 1406
PFOSA	16	13		1	84	50-150	02/25/2022 1406
PFPeS	15	14		1	94	50-150	02/25/2022 1406
PFDOS	15	13		1	85	50-150	02/25/2022 1406
PFHxS	15	14		1	96	50-150	02/25/2022 1406
PFBA	16	15		1	96	50-150	02/25/2022 1406
PFDA	16	15		1	95	50-150	02/25/2022 1406
PFDoA	16	15		1	93	50-150	02/25/2022 1406
PFHpA	16	16		1	97	50-150	02/25/2022 1406
PFHxA	16	15		1	92	50-150	02/25/2022 1406
PFNA	16	15		1	92	50-150	02/25/2022 1406
PFOA	16	14		1	90	50-150	02/25/2022 1406
PFPeA	16	15		1	93	50-150	02/25/2022 1406
PFTeDA	16	15		1	95	50-150	02/25/2022 1406
PFTrDA	16	14		1	90	50-150	02/25/2022 1406
PFUdA	16	15		1	91	50-150	02/25/2022 1406
PFOS	15	13		1	88	50-150	02/25/2022 1406

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		100	25-150
13C2_6:2FTS		114	25-150
13C2_8:2FTS		99	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		82	25-150
13C3_PFBS		90	25-150
13C3_PFHxS		91	25-150
13C3-HFPO-DA		113	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: XQ32888-002
Batch: 32888
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 02/24/2022 1719

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		98	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		93	25-150
13C5_PFPeA		96	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		91	25-150
13C8_PFOA		99	25-150
13C8_PFOS		99	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		96	25-150
d-EtFOSA		75	10-150
d5-EtFOSAA		92	25-150
d9-EtFOSE		94	10-150
d-MeFOSA		79	10-150
d3-MeFOSAA		106	25-150
d7-MeFOSE		94	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: XQ33273-001
Batch: 33273
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1232

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	03/02/2022 1309
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	03/02/2022 1309
8:2 FTS	ND		1	8.0	1.6	ng/L	03/02/2022 1309
6:2 FTS	ND		1	8.0	2.0	ng/L	03/02/2022 1309
4:2 FTS	ND		1	8.0	0.87	ng/L	03/02/2022 1309
GenX	ND		1	8.0	2.1	ng/L	03/02/2022 1309
ADONA	ND		1	8.0	0.48	ng/L	03/02/2022 1309
EtFOSA	ND		1	8.0	1.4	ng/L	03/02/2022 1309
EtFOSAA	ND		1	8.0	0.75	ng/L	03/02/2022 1309
EtFOSE	ND		1	8.0	0.95	ng/L	03/02/2022 1309
MeFOSA	ND		1	16	1.3	ng/L	03/02/2022 1309
MeFOSAA	ND		1	8.0	0.93	ng/L	03/02/2022 1309
MeFOSE	ND		1	8.0	1.3	ng/L	03/02/2022 1309
PFBS	ND		1	4.0	0.41	ng/L	03/02/2022 1309
PFDS	ND		1	4.0	0.78	ng/L	03/02/2022 1309
PFHpS	ND		1	4.0	0.50	ng/L	03/02/2022 1309
PFNS	ND		1	4.0	0.71	ng/L	03/02/2022 1309
PFOSA	ND		1	4.0	0.61	ng/L	03/02/2022 1309
PFPeS	ND		1	4.0	0.59	ng/L	03/02/2022 1309
PFDOS	ND		1	8.0	1.0	ng/L	03/02/2022 1309
PFHxS	ND		1	4.0	0.55	ng/L	03/02/2022 1309
PFBA	ND		1	4.0	0.60	ng/L	03/02/2022 1309
PFDA	ND		1	4.0	0.52	ng/L	03/02/2022 1309
PFDoA	ND		1	4.0	0.47	ng/L	03/02/2022 1309
PFHpA	ND		1	4.0	0.45	ng/L	03/02/2022 1309
PFHxA	ND		1	4.0	0.69	ng/L	03/02/2022 1309
PFNA	ND		1	4.0	0.46	ng/L	03/02/2022 1309
PFOA	ND		1	4.0	0.83	ng/L	03/02/2022 1309
PFPeA	ND		1	4.0	0.54	ng/L	03/02/2022 1309
PFTeDA	ND		1	4.0	0.60	ng/L	03/02/2022 1309
PFTrDA	ND		1	4.0	0.53	ng/L	03/02/2022 1309
PFUdA	ND		1	4.0	0.63	ng/L	03/02/2022 1309
PFOS	ND		1	4.0	2.0	ng/L	03/02/2022 1309

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	25-150
13C2_6:2FTS		90	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		78	25-150
13C2_PFTeDA		62	25-150
13C3_PFBS		86	25-150
13C3_PFHxS		85	25-150
13C3-HFPO-DA		98	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: XQ33273-001
Batch: 33273
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1232

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		81	25-150
13C4_PFHpA		82	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		87	25-150
13C6_PFDA		82	25-150
13C7_PFUdA		82	25-150
13C8_PFOA		85	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		83	25-150
d-EtFOSA		62	10-150
d5-EtFOSAA		84	25-150
d9-EtFOSE		96	10-150
d-MeFOSA		75	10-150
d3-MeFOSAA		86	25-150
d7-MeFOSE		95	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: XQ33273-002
Batch: 33273
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1232

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	108	50-150	03/02/2022 1320
11Cl-PF3OUdS	15	15		1	99	50-150	03/02/2022 1320
8:2 FTS	15	14		1	91	50-150	03/02/2022 1320
6:2 FTS	15	15		1	98	50-150	03/02/2022 1320
4:2 FTS	15	14		1	97	50-150	03/02/2022 1320
GenX	32	33		1	102	50-150	03/02/2022 1320
ADONA	15	16		1	107	50-150	03/02/2022 1320
EtFOSA	16	18		1	115	50-150	03/02/2022 1320
EtFOSAA	16	16		1	99	50-150	03/02/2022 1320
EtFOSE	16	15		1	92	50-150	03/02/2022 1320
MeFOSA	16	17		1	105	50-150	03/02/2022 1320
MeFOSAA	16	16		1	100	50-150	03/02/2022 1320
MeFOSE	16	15		1	97	50-150	03/02/2022 1320
PFBS	14	14		1	101	50-150	03/02/2022 1320
PFDS	15	16		1	105	50-150	03/02/2022 1320
PFHpS	15	19		1	123	50-150	03/02/2022 1320
PFNS	15	16		1	104	50-150	03/02/2022 1320
PFOSA	16	15		1	97	50-150	03/02/2022 1320
PFPeS	15	16		1	106	50-150	03/02/2022 1320
PFDOS	15	15		1	98	50-150	03/02/2022 1320
PFHxS	15	16		1	107	50-150	03/02/2022 1320
PFBA	16	17		1	107	50-150	03/02/2022 1320
PFDA	16	16		1	101	50-150	03/02/2022 1320
PFDoA	16	16		1	103	50-150	03/02/2022 1320
PFHpA	16	17		1	109	50-150	03/02/2022 1320
PFHxA	16	17		1	105	50-150	03/02/2022 1320
PFNA	16	17		1	104	50-150	03/02/2022 1320
PFOA	16	17		1	105	50-150	03/02/2022 1320
PFPeA	16	16		1	102	50-150	03/02/2022 1320
PFTeDA	16	17		1	106	50-150	03/02/2022 1320
PFTrDA	16	16		1	101	50-150	03/02/2022 1320
PFUdA	16	18		1	110	50-150	03/02/2022 1320
PFOS	15	16		1	107	50-150	03/02/2022 1320

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	25-150
13C2_6:2FTS		81	25-150
13C2_8:2FTS		92	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		73	25-150
13C3_PFBS		81	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		92	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: XQ33273-002
Batch: 33273
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1232

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		79	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		81	25-150
13C6_PFDA		79	25-150
13C7_PFUdA		74	25-150
13C8_PFOA		75	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		79	25-150
d-EtFOSA		55	10-150
d5-EtFOSAA		78	25-150
d9-EtFOSE		90	10-150
d-MeFOSA		63	10-150
d3-MeFOSAA		83	25-150
d7-MeFOSE		93	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCSD

Sample ID: XQ33273-003
Batch: 33273
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1232

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	15	17		1	111	3.4	50-150	30	03/02/2022 1331
11Cl-PF3OUdS	15	13		1	86	14	50-150	30	03/02/2022 1331
8:2 FTS	15	14		1	91	0.64	50-150	30	03/02/2022 1331
6:2 FTS	15	17		1	110	11	50-150	30	03/02/2022 1331
4:2 FTS	15	13		1	86	12	50-150	30	03/02/2022 1331
GenX	32	32		1	99	3.1	50-150	30	03/02/2022 1331
ADONA	15	15		1	103	4.1	50-150	30	03/02/2022 1331
EtFOSA	16	20		1	125	8.6	50-150	30	03/02/2022 1331
EtFOSAA	16	16		1	98	1.0	50-150	30	03/02/2022 1331
EtFOSE	16	15		1	94	2.2	50-150	30	03/02/2022 1331
MeFOSA	16	18		1	114	8.3	50-150	30	03/02/2022 1331
MeFOSAA	16	16		1	98	2.0	50-150	30	03/02/2022 1331
MeFOSE	16	14		1	90	6.9	50-150	30	03/02/2022 1331
PFBS	14	14		1	101	0.21	50-150	30	03/02/2022 1331
PFDS	15	16		1	101	4.8	50-150	30	03/02/2022 1331
PFHpS	15	16		1	105	5.2	50-150	30	03/02/2022 1331
PFNS	15	16		1	102	1.9	50-150	30	03/02/2022 1331
PFOSA	16	16		1	99	2.5	50-150	30	03/02/2022 1331
PFPeS	15	16		1	108	2.0	50-150	30	03/02/2022 1331
PFDOS	15	11	+	1	71	32	50-150	30	03/02/2022 1331
PFHxS	15	15		1	101	6.1	50-150	30	03/02/2022 1331
PFBA	16	17		1	106	1.3	50-150	30	03/02/2022 1331
PFDA	16	16		1	98	3.5	50-150	30	03/02/2022 1331
PFDoA	16	17		1	106	3.5	50-150	30	03/02/2022 1331
PFHpA	16	18		1	114	3.9	50-150	30	03/02/2022 1331
PFHxA	16	18		1	115	8.5	50-150	30	03/02/2022 1331
PFNA	16	17		1	109	4.3	50-150	30	03/02/2022 1331
PFOA	16	17		1	104	1.2	50-150	30	03/02/2022 1331
PFPeA	16	17		1	108	5.9	50-150	30	03/02/2022 1331
PFTeDA	16	17		1	104	2.3	50-150	30	03/02/2022 1331
PFTrDA	16	14		1	86	15	50-150	30	03/02/2022 1331
PFUdA	16	17		1	106	3.6	50-150	30	03/02/2022 1331
PFOS	15	16		1	107	0.36	50-150	30	03/02/2022 1331

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		100	25-150
13C2_6:2FTS		83	25-150
13C2_8:2FTS		86	25-150
13C2_PFDoA		69	25-150
13C2_PFTeDA		50	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		93	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCSD

Sample ID: XQ33273-003
Batch: 33273
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1232

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		77	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		78	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		76	25-150
13C8_PFOA		79	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		77	25-150
d-EtFOSA		67	10-150
d5-EtFOSAA		79	25-150
d9-EtFOSE		87	10-150
d-MeFOSA		79	10-150
d3-MeFOSAA		83	25-150
d7-MeFOSE		92	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: XQ33372-001
Batch: 33372
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1721

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	03/02/2022 1614
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	03/02/2022 1614
8:2 FTS	ND		1	8.0	1.6	ng/L	03/02/2022 1614
6:2 FTS	ND		1	8.0	2.0	ng/L	03/02/2022 1614
4:2 FTS	ND		1	8.0	0.87	ng/L	03/02/2022 1614
GenX	ND		1	8.0	2.1	ng/L	03/02/2022 1614
ADONA	ND		1	8.0	0.48	ng/L	03/02/2022 1614
EtFOSA	ND		1	8.0	1.4	ng/L	03/02/2022 1614
EtFOSAA	ND		1	8.0	0.75	ng/L	03/02/2022 1614
EtFOSE	ND		1	8.0	0.95	ng/L	03/02/2022 1614
MeFOSA	ND		1	16	1.3	ng/L	03/02/2022 1614
MeFOSAA	ND		1	8.0	0.93	ng/L	03/02/2022 1614
MeFOSE	ND		1	8.0	1.3	ng/L	03/02/2022 1614
PFBS	ND		1	4.0	0.41	ng/L	03/02/2022 1614
PFDS	ND		1	4.0	0.78	ng/L	03/02/2022 1614
PFHpS	ND		1	4.0	0.50	ng/L	03/02/2022 1614
PFNS	ND		1	4.0	0.71	ng/L	03/02/2022 1614
PFOSA	ND		1	4.0	0.61	ng/L	03/02/2022 1614
PFPeS	ND		1	4.0	0.59	ng/L	03/02/2022 1614
PFDOS	ND		1	8.0	1.0	ng/L	03/02/2022 1614
PFHxS	ND		1	4.0	0.55	ng/L	03/02/2022 1614
PFBA	ND		1	4.0	0.60	ng/L	03/02/2022 1614
PFDA	ND		1	4.0	0.52	ng/L	03/02/2022 1614
PFDoA	ND		1	4.0	0.47	ng/L	03/02/2022 1614
PFHpA	ND		1	4.0	0.45	ng/L	03/02/2022 1614
PFHxA	ND		1	4.0	0.69	ng/L	03/02/2022 1614
PFNA	ND		1	4.0	0.46	ng/L	03/02/2022 1614
PFOA	ND		1	4.0	0.83	ng/L	03/02/2022 1614
PFPeA	ND		1	4.0	0.54	ng/L	03/02/2022 1614
PFTeDA	ND		1	4.0	0.60	ng/L	03/02/2022 1614
PFTrDA	ND		1	4.0	0.53	ng/L	03/02/2022 1614
PFUdA	ND		1	4.0	0.63	ng/L	03/02/2022 1614
PFOS	ND		1	4.0	2.0	ng/L	03/02/2022 1614

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		85	25-150
13C2_6:2FTS		84	25-150
13C2_8:2FTS		78	25-150
13C2_PFDoA		66	25-150
13C2_PFTeDA		67	25-150
13C3_PFBS		74	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		88	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - MB

Sample ID: XQ33372-001
Batch: 33372
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1721

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		71	25-150
13C4_PFHpA		71	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		75	25-150
13C6_PFDA		75	25-150
13C7_PFUdA		68	25-150
13C8_PFOA		73	25-150
13C8_PFOS		74	25-150
13C8_PFOSA		75	10-150
13C9_PFNA		70	25-150
d-EtFOSA		65	10-150
d5-EtFOSAA		71	25-150
d9-EtFOSE		86	10-150
d-MeFOSA		76	10-150
d3-MeFOSAA		76	25-150
d7-MeFOSE		86	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: XQ33372-002
Batch: 33372
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1721

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	108	50-150	03/02/2022 1625
11Cl-PF3OUdS	15	14		1	95	50-150	03/02/2022 1625
8:2 FTS	15	14		1	91	50-150	03/02/2022 1625
6:2 FTS	15	18		1	116	50-150	03/02/2022 1625
4:2 FTS	15	14		1	91	50-150	03/02/2022 1625
GenX	32	35		1	108	50-150	03/02/2022 1625
ADONA	15	15		1	99	50-150	03/02/2022 1625
EtFOSA	16	16		1	97	50-150	03/02/2022 1625
EtFOSAA	16	16		1	97	50-150	03/02/2022 1625
EtFOSE	16	15		1	92	50-150	03/02/2022 1625
MeFOSA	16	16		1	102	50-150	03/02/2022 1625
MeFOSAA	16	16		1	98	50-150	03/02/2022 1625
MeFOSE	16	17		1	106	50-150	03/02/2022 1625
PFBS	14	15		1	106	50-150	03/02/2022 1625
PFDS	15	15		1	99	50-150	03/02/2022 1625
PFHpS	15	16		1	107	50-150	03/02/2022 1625
PFNS	15	18		1	116	50-150	03/02/2022 1625
PFOSA	16	16		1	99	50-150	03/02/2022 1625
PFPeS	15	18		1	122	50-150	03/02/2022 1625
PFDOS	15	16		1	103	50-150	03/02/2022 1625
PFHxS	15	15		1	106	50-150	03/02/2022 1625
PFBA	16	18		1	111	50-150	03/02/2022 1625
PFDA	16	16		1	103	50-150	03/02/2022 1625
PFDoA	16	18		1	111	50-150	03/02/2022 1625
PFHpA	16	18		1	111	50-150	03/02/2022 1625
PFHxA	16	17		1	107	50-150	03/02/2022 1625
PFNA	16	18		1	109	50-150	03/02/2022 1625
PFOA	16	16		1	101	50-150	03/02/2022 1625
PFPeA	16	18		1	110	50-150	03/02/2022 1625
PFTeDA	16	18		1	110	50-150	03/02/2022 1625
PFTrDA	16	17		1	107	50-150	03/02/2022 1625
PFUdA	16	17		1	107	50-150	03/02/2022 1625
PFOS	15	17		1	114	50-150	03/02/2022 1625

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	25-150
13C2_6:2FTS		87	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		68	25-150
13C2_PFTeDA		69	25-150
13C3_PFBS		74	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		83	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
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P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

PFAS by LC/MS/MS - LCS

Sample ID: XQ33372-002
Batch: 33372
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/01/2022 1721

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		70	25-150
13C4_PFHpA		74	25-150
13C5_PFHxA		75	25-150
13C5_PFPeA		71	25-150
13C6_PFDA		74	25-150
13C7_PFUdA		72	25-150
13C8_PFOA		75	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		77	10-150
13C9_PFNA		73	25-150
d-EtFOSA		54	10-150
d5-EtFOSAA		76	25-150
d9-EtFOSE		84	10-150
d-MeFOSA		62	10-150
d3-MeFOSAA		81	25-150
d7-MeFOSE		82	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

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

Chain of Custody
and
Miscellaneous Documents

Internal Transfer Chain of Custody

Pace Analytical®
www.pacelabs.com

☐ Samples Pre-Logged into eCOC.

State Of Origin: WI
Cert. Needed: [x] Yes ☐ No
Owner Received Date: 2/8/2022 Results Requested By: 3/1/2022

Workorder: 40240300 Workorder Name: 6255 S. MILWAUKEE

Report To	Subcontract To
Steven Mleczko Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace Analytical West Columbia 106 Vantage Point Drive West Columbia, SC 29172 Phone (803)791-9700

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	PFAS WI 33	LAB USE ONLY
	MW-300	PS	2/4/2022 11:00	40240300001	Water	2	X	
	MW-601	PS	2/3/2022 13:00	40240300002	Water	2	X	
	MW-602	PS	2/4/2022 12:25	40240300003	Water	2	X	
	MW-603	PS	2/3/2022 14:00	40240300004	Water	2	X	
	MW-4	PS	2/4/2022 13:20	40240300005	Water	2	X	

XB09003

Transfers	Released By	Date/Time	Received By	Date/Time
	[signature]	2/8/22 1600		
	UPS	2/9/22 0952	Mathews	2/9/22 0952

Comments
WI water samples
Need WI 33 compound list

Cooler Temperature on Receipt 2-3 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

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

PACE ANALYTICAL SERVICES, LLC

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: PACE Cooler Inspected by/date: MEH / 02/09/2022 Lot #: XB09003

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: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

2.3 / 2.3 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, 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?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (½"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote # _____

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

Sample(s) NA 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 ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: MEH Date: 02/09/2022

Comments:

APPENDIX C.1.F
EMERGING CONTAMINANT HISTORICAL USE RESEARCH

Re: [EXTERNAL] Information Request

Joe Knitter <knitter@smwi.org>

Tue 12/21/20211:56 PM

$ Milwaukee

To:Tom DePaul <depaul@daienv.com>;

Mr. DePaul:

Historically, the South Milwaukee Fire Department has maintained a minimal supply of firefighting foam for emergency response purposes at the Marshall Court fire station, always contained within the original product container (sealed, 5-gallon plastic pail) or in storage tanks on-board fire apparatus. These fire apparatus are subject to daily inspection by trained and certified operators and there have been no reports of leakage from any of the storage containers. In addition, there has been no release or discharge of this product to the ground surface at the fire station.

I hope this satisfies your request.

Joseph Knitter

Fire Chief

From: Tom DePaul <depaul@daienv.com>
Sent: Friday, December 10, 202110:40 AM
To: Joe Knitter
Subject: [EXTERNAL) Information Request

Chief Knitter:

We are the environmental consultants for the property owners of the Sunrise Shopping Center. We have identified PFAS contamination at the Site, and the WDNR has recently requested that we investigate potential sources of the observed PFAS contamination. Could you please tell me if fire suppressant foam was ever stored on-site at the Marshall Ct Fire Station, and whether there has ever been a release or discharge of the foam to the ground surface at the Fire Station?

Thank-you for your cooperation,

Tom DePaul

F. Thomas DePaul, Ph.D.

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APPENDIX C.1.G
LOW-FLOW DEVELOPMENT FIELD LOGS
(EMERGING CONTAMINANT SAMPLING, FEBRUARY 2022)

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-4	Site: S. Milwaukee		
Field Staff: MLn	Date: 2-4-22	Project #: 6255	
Well depth (ft bgs): 14.41	Purge equipment: Proactive FSP Mega typhoon	Diameter	Gal per ft
Depth to water (ft bTOC): 8.86		(2")	0.163
Water Column Depth (ft):	Pump Intake Depth: 10'	3"	0.367
Well Diameter (in): 2"		4"	0.653
Well Volume (gal):	Water quality meter: YSI 556	6"	1.469
Screened Interval (ft bgs): 5'-15'		8"	2.611

Field Parameters

Time	Depth to Water (ft bgs)	Flow Rate (mL/min)	Total Volume (gal)	Temp (deg C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTU)	Color/Odor
Stabilization	N/A	<300	N/A	+/- 0.1 deg C	+/-5 µS/cm if <1000 µS/cm; +/-10 µS/cm if >1000 µS/cm	+/- 0.2 mg/L	+/- 0.1	+/- 30 mV (optional)	<5 NTUs if metals not filtered; +/- 10% (recommended)	N/A
12:40	8.86	300		10.0	1.86	14.74	10.82	19.4	Clear	Petrol
12:45	8.99	300		10.0	1.94	11.92	10.90	20.3	"	"
12:50	9.07	300		9.9	1.98	10.69	10.97	21.6	"	"
12:55	9.20	250		10.3	2.03	9.98	11.29	22.5	"	"
1:00	9.35	200		10.3	2.03	9.48	11.36	23.0	"	"
1:05	9.82	300		10.4	2.05	9.82	11.37	24	"	"
1:10	10.02	300		10.4	2.07	9.89	11.37	24.	"	"
1:15	10.27	300		10.4	2.08	9.90	11.37	24.1	"	"

observed some Free Product odor

Comments

Sampling

Depth to Water Before Sampling: 8.86

Sample Methodology: Low Flow

Sample Name: MW-4

Sample Date/Time: 2-4-22 @ 1:20

Sampler: MLn

Filtered Metals Collected: Y/(N) Filter Size:

Sample Observations

Parameters:

PFAS

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-600	Site: S. Milwaukee		
Field Staff: MH	Date: 2.4.22	Project #: 6255	
Well depth (ft bgs): 14.73	Purge equipment: Proactive Megatyphoon	Diameter	Gal per ft
Depth to water (ft bTOC): 9.60		(2")	0.163
Water Column Depth (ft): 5.13	Pump Intake Depth: ~~12~~ 10'	3"	0.367
Well Diameter (in): 2"		4"	0.653
Well Volume (gal): 0.84	Water quality meter: YSI 556	6"	1.469
Screened Interval (ft bgs): 5-15' BGS		8"	2.611

Field Parameters

Time	Depth to Water (ft bgs)	Flow Rate (mL/min)	Total Volume (gal)	Temp (deg C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTU)	Color/Odor
Stabilization	N/A	<300	N/A	+/- 0.1 deg C	+/-5 µS/cm if <1000 µS/cm +/-10 µS/cm if >1000 µS/cm	+/- 0.2 mg/L	+/- 0.1	+/- 30 mV (optional)	<5 NTUs if metals not filtered +/- 10% (recommended)	N/A
10:30	8.96	300		9.8	4.44	16.73	7.37	29.7	—	~~Brown~~ Clear
10:35	9.43	300		10.2	6.37	11.69	7.43	29.4	—	Clear
10:40	9.72	300		11.7	6.74	7.85	7.47	26.6	—	"
10:45	9.78	250		11.8	6.82	6.90	7.49	25.1	—	"
10:50	9.80	250		11.7	6.84	6.95	7.54	25.8	—	"
10:55	9.83	250		11.8	6.85	6.96	7.57	25.7	—	"

Comments

Sampling

Depth to Water Before Sampling: 8.96
Sample Methodology: Low Flow
Sample Name: MW-600
Sample Date/Time: 2/4/22 10:00
Sampler: MH
Filtered Metals Collected: Y/N Filter Size:
Sample Observations
Parameters:

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-601	Site: South Milwaukee Sunrise Shopping Center		
Field Staff: Marcus Grieschner	Date: 2-3-22	Project #: 60253	
Well depth (ft bgs): 10.41	Purge equipment: Pro-active Mega typhoon	Diameter	Gal per ft
Depth to water (ft bTOC): 14.85		(2")	0.163
Water Column Depth (ft): 4.44	Pump Intake Depth: 10'	3"	0.367
Well Diameter (in): 2"		4"	0.653
Well Volume (gal): 0.72	Water quality meter: YSI 556	6"	1.469
Screened Interval (ft bgs): 5-15' BGS		8"	2.611

Field Parameters

Time	Depth to Water (ft bgs)	Flow Rate (mL/min)	Total Volume (gal)	Temp (deg C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTU)	Color/Odor
Stabilization	N/A	<300	N/A	+/- 0.1 deg C	+/-5 µS/cm if <1000 µS/cm; +/-10 µS/cm if >1000 µS/cm	+/- 0.2 mg/L	+/- 0.1	+/- 30 mV (optional)	<5 NTUs if metals not filtered; +/- 10% (recommended)	N/A
12:30	10.57	300		11.5	4.05	5.40	7.89	15.5	—	Brown
12:35	11.26	300		12.6	4.99	5.12	8.00	14.6	—	
12:40	11.45	300		11.8	3.63	4.41	5.17	13.2	—	
12:45	11.70	300		12.4	3.63	4.52	8.22	13.1	—	
12:50	11.79	250		12.8	3.37	4.50	8.43	13.1	—	
12:55	11.88	250		12.8	3.13	4.54	8.83	13.2	—	
1:00	11.96	250		12.9	3.14	4.38	8.85	13.2	—	

Comments

Sampling PFAS PAH

Depth to Water Before Sampling: 10.41

Sample Methodology: Low Flow

Sample Name: MW-601

Sample Date/Time: 2-3-22 1:00 PM

Sampler: MG

Filtered Metals Collected: Y/(N) Filter Size:

Sample Observations

Parameters: PFAS

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-602	Site: S. Milwaukee Sunrise Shopping Center		
Field Staff: Marcus Greschner	Date: ~~2-9-22~~ 2-4-22	Project #: 6255	
Well depth (ft bgs): ~~14.80~~ 14.80	Purge equipment: Proactive Mega typhoon	Diameter	Gal per ft
Depth to water (ft bTOC): 10.30		(2")	0.163
Water Column Depth (ft): 4.50	Pump Intake Depth: 10	3"	0.367
Well Diameter (in): 2"		4"	0.653
Well Volume (gal): 0.73	Water quality meter: YSI 556	6"	1.469
Screened Interval (ft bgs): 5-15' BGS		8"	2.611

Field Parameters

Time	Depth to Water (ft bgs)	Flow Rate (mL/min)	Total Volume (gal)	Temp (deg C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTU)	Color/Odor
Stabilization	N/A	<300	N/A	+/- 0.1 deg C	+/-5 µS/cm if <1000 µS/cm; +/-10 µS/cm if >1000 µS/cm	+/- 0.2 mg/L	+/- 0.1	+/- 30 mV (optional)	<5 NTUs if metals not filtered; +/- 10% (recommended)	N/A
11:45	4.52	300		10.8	4.55	27.19	6.86	29.2	—	Clear
11:50	5.03	300		12.00	5.49	12.50	7.11	30.9	—	"
11:55	5.10	250		12.80	5.57	12.19	7.18	32.4	—	"
12:00	5.25	250		12.8	5.64	10.44	7.20	32.5	—	"
12:05	5.33	300		12.8	5.54	10.69	7.23	32.3	—	"
12:10	6.00	300		13.0	5.71	10.97	7.24	33.3	—	"
12:15	6.33	300		13.2	5.74	10.77	7.21	34.4	—	"
12:20	7.02	300		13.3	5.77	10.74	7.20	35.0	—	"
12:25										
12:30										

Comments

Sampling

Depth to Water Before Sampling:	4.52
Sample Methodology:	Low Flow
Sample Name:	MW-602
Sample Date/Time:	2-4-22 12:25
Sampler:	ML
Filtered Metals Collected:	Y/(N) Filter Size:
Sample Observations	
Parameters:	

11:15

Low-Flow Groundwater Sampling: Field Data Sheet

Well Number: MW-603	Site: S. Milwaukee Sunrise Shopping Center		
Field Staff: Marcus Greschner	Date: 2.3.22	Project #: 6255	
Well depth (ft bgs): ~~6~~ 14.80	Purge equipment: Proactive Mega typhoon	Diameter	Gal per ft
Depth to water (ft bTOC): 6.54		(2")	0.163
Water Column Depth (ft): 8.26	Pump Intake Depth: 10'	3"	0.367
Well Diameter (in): 2"		4"	0.653
Well Volume (gal): 1.35	Water quality meter: YSI 556	6"	1.469
Screened Interval (ft bgs): 5'-15' BGS		8"	2.611

Field Parameters

Time	Depth to Water (ft bgs)	Flow Rate (mL/min)	Total Volume (gal)	Temp (deg C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH (SU)	ORP (mV)	Turbidity (NTU)	Color/Odor
Stabilization	N/A	<300	N/A	+/- 0.1 deg C	+/-5 µS/cm if <1000 µS/cm; +/-10 µS/cm if >1000 µS/cm	+/- 0.2 mg/L	+/- 0.1	+/- 30 mV (optional)	<5 NTUs if metals not filtered; +/- 10% (recommended)	N/A
1:35	6.69	250		8.4	2.94	16.76	8.55	7.3	—	clear
1:40	7.20	250		8.9	3.09	11.15	8.77	12.5	—	"
1:45	7.54	300		8.2	3.06	10.28	8.76	14.9	—	"
1:50	7.71	300		8.3	3.07	10.20	8.75	14.6	—	"
1:55	7.79	250		8.3	3.09	10.19	8.76	14.6	—	"
2:00										
2:05										

Comments

Sampling

Depth to Water Before Sampling: 6.69

Sample Methodology: Low Flow

Sample Name: MW

Sample Date/Time: 2.3.22 2:00 pm

Sampler: MW

Filtered Metals Collected: Y/(N) Filter Size:

Sample Observations

Parameters: PFAS

2:00 PM Sample