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October 20, 2022
File # 55929.007

PRIVILEGED & CONFIDENTAL

Ms. Candace Sykora
Bureau of Remediation and Redevelopment
Wisconsin Department of Natural Resources, WCR
1300 West Clairemont Avenue
Eau Claire, WI 54702-4001

Re: **PFAS Monitoring Report**
WRR Environmental Services
WDNR BRRTS No. 02-18-587957
WDNR FID No. 618 026 530
EPA ID No. WID 990 829 475

Dear Ms. Sykora:

On behalf of WRR Environmental Services Co. Inc. (WRR), the enclosed *PFAS Monitoring Report* summarizes PFAS groundwater monitoring activities conducted at its facility in Eau Claire through June 2022. The report includes the analytical results of samples collected from WRR's network of groundwater monitoring wells and piezometers and recovery wells to characterize the groundwater for treatment. The report also includes a work plan for continued PFAS monitoring activities and a signed copy of the engineer and hydrogeologist certification form, as required by NR 712.07(1) of the Wis. Adm. Code. A signed/stamped/dated certification page is attached.

An electronic copy of the report has been uploaded to the WDNR portal, and a hard copy is available upon request. Please review the report and let me know if you have any questions.

Sincerely,
GANNETT FLEMING, INC.

Anthony W. Miller, P.S.S.
Senior Environmental Scientist

AWM/jec/Enc.

ecc: Jim Hager, Bob Fuller, Becky Anderson (WRR)
Leah Ziemba (Michael Best)

ENGINEERING AND HYDROGEOLOGIST CERTIFICATIONS

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature Clifford C. Wright	Date 10/20/2022

P.E. Seal for E-31265:

I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature Clifford C. Wright	Date 10/20/2022

PFAS MONITORING REPORT

WRR Environmental Services Co. Inc.

Eau Claire, Wisconsin

October 2022

PRIVILEGED & CONFIDENTIAL – ATTORNEY/CLIENT WORK PRODUCT

GANNETT FLEMING PROJECT NO.: 055929.007
WDNR BRRTS No.: 02-18-587957

Prepared for:
WRR Environmental Services Co. Inc.

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LIST OF ACRONYMS AND ABBREVIATIONS

AFFF	aqueous film forming foam
DPE	dual-phase extraction
ES	Enforcement Standard (WAC NR 140)
GF	Gannett Fleming, Inc.
GW	groundwater
HI	health index
HQ	health quotient
MW	monitoring well
NRS	no recommended NR 140 ES or PAL standard
ng/ℓ	nanograms per liter
O&M	operation and maintenance
PAL	Preventive Action Limit (WAC NR 140)
PFAS	poly- and per-fluoroalkyl substances
PFAAs	perfluoroalkyl acids
PFCAs	perfluoroalkyl carboxylic acids and carboxylates
PFHxS	perfluorohexanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PFSAs	perfluoroalkane sulfonic acids and sulfonates
PW	private well or WRR's production well
RW	recovery well
SVE	soil vapor extraction
VOCs	volatile organic compounds
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WQP	Water quality parameters
WRR	WRR Environmental Services Co. Inc.

PFAS MONITORING REPORT

PFAS Sampling and Investigation
Eau Claire, Wisconsin

EXECUTIVE SUMMARY

Gannett Fleming, Inc. (GF) conducted a site investigation at the WRR Environmental Services, Inc., Co. (WRR) facility at 5700 Ryder Road in Eau Claire to determine the estimated extent of poly- and perfluoroalkyl substances (PFAS) in groundwater. Based on site history, the PFAS impacts resulted from the use of aqueous film forming foam (AFFF) to suppress fires at the WRR facility in 2007 and 2010. In addition to the current PFAS site investigation, WRR has been conducting various remedial activities at its facility to remove/degrade volatile organic compounds (VOCs) in the soil and groundwater since the 1980s.

This report supplements GF's March 2022 *PFAS Site Investigation Report* and summarizes PFAS monitoring activities through June 2022. Included with this report are the analytical results of PFAS samples collected in April through June 2022 from:

- Monitoring wells and piezometers installed as part of WRR's VOC investigation.
- Lowes Creek at five locations and a seep located along its eastern bank.
- The VOC treatment system and recovery wells. Samples from the treatment system and recovery wells were also analyzed for water quality parameters (WQP) to characterize the groundwater for a PFAS treatment system.

Based on the analytical results of samples collected from the existing VOC monitoring wells and treatment system, Lowes Creek, and Seep 2N through June 2022:

- PFAS impacts in the groundwater follow the same general flow path as the VOC plume.
- Several PFAS are present in on-site wells screened in the shallow and mid-depth aquifers at concentrations at or above one or more of the NR 140 enforcement standards (ESs) or preventive action limits (PALs) proposed by the Wisconsin Department of Health Services (WDHS) as part of Cycle 11.
- The operation of the groundwater recovery wells and WRR's production well create a cone of depression in the mid-depth and deep aquifers beneath the WRR facility that, combined with the mounding of groundwater in the shallow aquifer created by the discharge of treated water to the absorption pond located southwest of WRR, limits the off-site migration of VOCs and PFAS in the groundwater.
- One PFAS, perfluorohexanesulfonic acid (PFHxS), was measured in VOC treatment system samples in off-site wells at concentrations at or above a WDHS-recommended NR 140 ES.
- With minor exceptions, individual and total PFAS concentrations increased slightly between 2021 and 2022 in distal wells located along the downgradient perimeter of the off-site impacts.
- PFHxS was measured at 48 nanograms per liter (ng/L) in downgradient well MW-112A, screened in the mid-depth aquifer approximately 1,800 feet southwest of WRR, slightly above its proposed NR 140 ES of 40 ng/L.
- The PFAS and VOC emanating from WRR discharge to Lowes Creek, approximately 2,500 feet west of the WRR facility.

- There are other PFAS sources located 1) west of Lowes Creek and 2) upstream south of Deerfield Road, that are impacting Lowes Creek.
- The highest concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) measured in the surface water samples collected from Lowes Creek were 20 and 2.9 ng/L, below their proposed standards for non-drinking surface water of 95 and 8 ng/L, respectively. PFOA and PFOS are the only two PFAS compounds with surface water standards.

GF and WRR are evaluating options for retrofitting WRR's existing VOC treatment systems to remove/reduce PFAS concentrations before the treatment systems' effluent is discharged to an absorption pond located in Lowes County Park southwest of the WRR facility. As part of that evaluation, additional investigation is proposed to define the extent of elevated PFAS concentrations in the groundwater in the south-central portion of the WRR site where AFFF was used to suppress fires in 2007 and 2010. Additional monitoring of the groundwater is also proposed for the spring of 2023, and the results of those activities will be submitted to the WDNR.

1.0 PROJECT BACKGROUND

The WRR Environmental Services Co., Inc. (WRR) facility is located at 5200 Ryder Road in Eau Claire, Wisconsin, and is bordered by Ryder Road and State Highway 93 to the east, undeveloped land to the south, Lowes Creek County Park to the west, and Northwest Enterprises, Inc. to the north. Figure 1 is a site location map, and Figure 2 is an aerial photo showing the outline of the WRR facility.

Reclamation and recycling activities of solvents from off-site sources began at the WRR site in 1970. Releases of VOCs from facility operations resulted in investigation and remedial activities that continue to present. Remedial activities began in the 1980s and included pumping groundwater from recovery wells and removing VOCs using a turbo air stripper. Additional remedial activities included planting approximately 2,520 poplar, cottonwood, and willow trees between 2004 and 2007 on and downgradient of the WRR facility to provide phytoremediation of the shallow groundwater and installing and operating three air injection/soil vapor extraction (AI/SVE) systems between 2006 and 2013. A detailed summary of the VOC investigation and remedial work completed through March 2013 was included with GF's April 2013 *Corrective Action Plan* (CAP).

VOC-impacted soil and groundwater is currently being remediated by the operation of three SVE systems and the pumping of groundwater from five recovery wells (RW-6 and RW-10 through RW-13). Additionally, the operation of WRR's production well (PW-1) creates a cone of depression in the groundwater in the mid-depth and deep/bedrock aquifers. The cone of depression limits the off-site migration of VOCs and allows mid-depth recovery wells RW-12 and RW-13 to capture/remove the VOCs.

Water pumped from all recovery wells, except RW-11, is treated by the turbo air stripper to remove VOCs before being discharged to a 360,000-gallon aeration reservoir. Water pumped from RW-11 and PW-1 is currently used as process water for the facility before being discharged directly to the aeration reservoir. Water in the reservoir is aerated by aeration lines underwater and sprinklers above the reservoir and then discharged to an absorption pond located just southwest of the WRR facility. Figure 3 shows the locations of the SVE and recovery wells, turbo stripper building, 360,000-gallon aeration reservoir, and absorption pond. Additionally, between July 2018 and November 2021, reducing reagents have periodically been injected into the groundwater in the northern and southeastern portion of the site to facilitate the in-situ degradation of chlorinated VOCs (CVOCs). See GF's February 2022 *Annual Operations and Maintenance*

Report – December 2020 through November 2021 for a summary of VOC monitoring and remedial activities through November 2021.

Fires at the WRR facility in June 2007 and June 2010 were suppressed by the responding fire departments using AFFF that contained PFAS. The fires were primarily located in the south-central portion of the facility; however, fire department support vehicles that mixed and supplied the AFFF were located near the northeast and southeast entrances to the facility, away from the fires. In April and May 2021, samples were collected from WRR's VOC treatment system and groundwater monitoring wells in and downgradient of where AFFF was used to suppress the fires. The samples collected in April and May 2021 contained elevated PFAS concentrations. The WDNR was notified of the PFAS sample results and release in June 2021. Additional groundwater samples were collected for PFAS analysis from WRR's VOC monitoring well network and treatment systems in the fall of 2021 and spring of 2022. This report summarizes the results of GF's PFAS site investigation and monitoring activities through June 2022.

2.0 SUMMARY OF PREVIOUS SAMPLING ACTIVITIES – APRIL THROUGH NOVEMBER 2021

The following activities were conducted between April and November 2021 to determine the estimated extent of PFAS in the groundwater:

- In April 2021, groundwater samples were collected from WRR's production well (PW-1); a former air sparge well (AS-2) located in the area where AFFF was used to suppress fires; recovery wells RW-6, RW-11, and RW-12; and WRR's VOC treatment systems. See Figure 3 for the locations of samples collected in April 2021.

- In May 2021, surface and groundwater samples were collected from WRR's aeration reservoir, its drinking water well (DW-1) and well nests MW-112/A/B, MW-113A/B, MW-115A/B, and W-30A/B within and along the downgradient perimeter of WRR's VOC plume. See Figure 4 for the locations of samples collected in May 2021.

- From July through September 2021, survey questionnaires were sent to the owner(s) of record of 17 properties located west and south of the WRR facility with a request for approval to collect a water sample from their private wells for PFAS analyses. One property owner denied approval (PW-6) and one owner (PW-5) did not respond to multiple questionnaires. Water samples were collected from private wells:

  - PW-1, PW-3, PW-4, PW-7, PW-8, PW-14, and PW-15 on July 27th.
  - PW-2, PW-10, PW-11, PW-13, and PW-16 on August 13th.
  - PW-9, PW-12, and PW-17 on September 1st.

  See Figure 5 in GF's March 2022 *PFAS Site Investigation Report* for the locations of the private wells sampled in 2021.

- In October 2021, groundwater samples were collected from 36 monitoring and recovery wells during the semi-annual VOC groundwater sampling event.

- In November 2021, groundwater samples were collected from RW-10 and RW-13.

PFAS compounds were detected in 6 of the 15 water samples collected from private wells. However, none of the water samples collected from the private wells contained PFAS at concentrations at or above one or more of the NR 140 ESs or PALs proposed by the WDHS as part of Cycle 11 and summarized in the Wisconsin

Department of Natural Resources' (WDNR's) March 1, 2021, PFAS update. Additionally, of all the water samples collected from the six private wells that did contain PFAS, the health index (HI) of the compounds detected in each sample was below 0.034, significantly less than the WDHS proposed HI value of 1.0 used to assess the collective health effects of PFAS in drinking water. As discussed in WDHS' June 8, 2021, letter to the WDNR regarding the use of HI to assess the cumulative risk of PFAS compounds measured in a drinking supply: *"If the hazard index is less than 1.0, it is unlikely that significant additive or toxic interactions would occur; so no further evaluation is necessary."* Therefore, additional sampling of the private wells was not proposed for PFAS monitoring activities going forward. See GF's March 2022 *PFAS Site Investigation Report* for a summary of the sampling activities and results conducted in 2021 and the proposed work for 2022.

3.0 SUMMARY OF MONITORING ACTIVITIES – APRIL THROUGH JUNE 2022

The following activities were conducted between April and June 2022 to further define the estimated extent of PFAS in the groundwater and characterize it for treatment:

- On April 22nd, groundwater samples were collected from recovery wells RW-2, RW-4 through RW-7, and RW-10 though RW-13 and submitted to Eurofins/Test America in University Park, Illinois, for analysis of water quality parameters (WQP) to characterize the groundwater for treatment. A list of the WQP analyzed and the methods used to analyze each parameter is included with the Eurofins laboratory report in Appendix A.

  Additional samples were collected in April 2022 from RW-2, RW-4, RW-5, RW-7, and the turbo air stripper effluent and submitted to ALS Laboratory in Kelso, Washington for analysis of PFAS using Method 537 modified. Samples from RW-2, RW-5, and the turbo air stripper effluent were also analyzed by ALS-Kelso using the total oxidizable precursor assay (TOPA). Appendix A contains the laboratory reports for all samples collected from the recovery wells and turbo air stripper effluent in 2022.

- On May 31st through June 2nd, groundwater samples were collected from 24 monitoring wells and piezometers and submitted to ALS Laboratory in Holland, Michigan, for PFAS analysis using Method 537 modified. The samples were collected from wells that either had not been sampled in 2021 or from wells within and along the downgradient perimeter of WRR's VOC and PFAS off-site impacts. See Figure 4 for the locations of samples collected in May and June 2022. The depth to water was measured in all site wells prior to collecting the samples as part of the annual VOC groundwater monitoring event conducted in conjunction with the PFAS monitoring event.

- On June 1st, surface water samples were collected from one seep (Seep 2N) and at five locations along Lowes Creek upstream, within, and downstream of the area where WRR's VOC plume discharges to it. The surface water samples were also submitted to ALS in Holland, Michigan, for analysis of PFAS compounds using Method 537 modified.

See Figures 3 through 5 for the locations of the surface water and groundwater samples collected in 2022.

All samples were handled with new, disposable nitrile gloves. Surface water samples collected from Lowes Creek and groundwater samples collected from monitoring wells and piezometers were collected using new, disposable HPDE bailers and PFAS-free rope. Surface water samples collected from Lowes Creek were collected at mid-depth from the middle of the stream at each location. Groundwater samples collected from groundwater monitoring wells were collected from the top of the water table, whereas samples collected from piezometers were collected from the middle of the screened interval. All non-disposable

sampling equipment that contacted samples was decontaminated between each well and rinsed with PFAS-free water obtained from the laboratory.

All samples were collected directly into laboratory-supplied sample containers with Trizma or other preservatives, as appropriate, placed in a cooler with ice, and shipped via overnight delivery to the laboratories listed above for analysis. Copies of all laboratory reports for surface water and groundwater samples collected from monitoring wells in 2022 are included with this report as Appendix B.

4.0 ANALYTICAL RESULTS

4.1 Groundwater Elevations & Flow Direction

Table 1 provides groundwater elevations based on depth-to-water measurements recorded in 2022 as part of VOC and PFAS groundwater monitoring events. Figure 6 shows the groundwater surface contours measured in site wells in May/June 2022 with the recovery wells operating. As shown on Figure 6, there is a pronounced mounding effect in the shallow aquifer caused by the discharge of treated water from the aerated reservoir to the absorption pond located off the southwest corner of the WRR facility. That mounding effect combined with the pumping of groundwater from the on-site recovery and production wells creates a relatively steep downward vertical gradient on site. As shown on Figure 6, the mounding associated with the absorption pond and the pumping of groundwater by the recovery wells also creates a "trough" of relatively low groundwater elevations that runs southeast to northwest across the middle of the site. The combined effect of the mound, trough, and groundwater recovery helps keep VOCs in the shallow aquifer from migrating off site, as discussed in GF's February 2022 *Annual Operations and Maintenance Report – December 2020 – November 2021*. The groundwater flow direction in the off-site portion of the shallow aquifer, as well as the mid-depth and deep aquifers, is to the west toward Lowes Creek, approximately 2,500 feet west and downgradient of the WRR facility, as shown on Figures 7, 8, and 9, respectively. The May/June 2022 groundwater flow directions measured in the shallow, mid-depth and deep/bedrock aquifers are consistent with flow directions previously measured as part of the VOC monitoring program.

Table 2 summarizes the estimated vertical gradients within each of the on- and off-site well nests based on elevations measured in May and June 2022. In May/June 2022:

- Vertical gradients ranged from approximately:
  - 0.08 to 0.49 downward in on-site well nests W-1/A/D, W-2/B/A, W-3/B/A, and W-7/A. No vertical gradient was measured in well nest W-31A/B; however, those piezometers are screened in the mid-depth and deep aquifers and are located approximately 30 to 35 feet south of WRR's production well. WRR's production well pumps on demand up to 50 gallons per minute, as necessary, which has a significant and somewhat instantaneous effect on the groundwater elevations measured in W-31A and W-31B. Therefore, GF does not believe that the vertical gradient measured in the W-31A/B well nest is representative of the prevailing downward vertical gradient measured between the mid-depth and deep aquifers beneath the facility.
  - 0.09 to 0.87 downward were measured in mid-plume off-site well nests W-17/A/B, W-18/A, MW-104/A, and MW-106/A.
- The vertical gradients measured in off-site well nests closest to Lowes Creek were upward and ranged from 0.0094 to 0.0974 in MW-111/A/B, located east of Lowes Creek and closest to WRR, and 0.0032 to 0.0205 in MW-113/A/B, located west of Lowes Creek. The upward vertical gradients measured in the

MW-111 and MW-113 well nests are consistent with measurements previously observed during VOC groundwater monitoring events and indicate that the regional groundwater is discharging to Lowes Creek. See Table 2 for the vertical gradients measured in each well nest in May/June 2022.

4.2 Groundwater & VOC Treatment System Water Sample Results

4.2.1 Groundwater Sample Results

Table 3 lists the detected compounds in groundwater samples collected in 2021 and 2022 from monitoring wells and piezometers with their respective proposed NR 140 ESs and PALs recommended by the WDHS to WDNR as part of Cycle 11 on the top of the table and compounds that don't have WDHS-recommended NR 140 ESs or PALs listed below. Below is a table listing the highest concentrations from October 2021 through June 2022 of PFAS compounds measured in groundwater samples at or above a proposed NR 140 ES in on-site recovery well RW-5 (where the AFFF was used to cover tankers) and off-site wells .

PFAS Compound	On-Site			Off-Site			WDHS-Recommended NR 140	
	Well ID	Grid Coord	Concentration (ng/ℓ)	Well ID	Grid Coord	Concentration (ng/ℓ)	ES	PAL
PFOSA	RW-5	U7/ V7	**1000**	W-18	R10	*6.6*	**20[c]**	*2[c]*
NEtFOSA			**120**	ND	--	--		
NEtFOSAA			**3,700**	W-18	R10	*2.7*		
NEtFOSE			**16**	ND	--	--		
PFNA			**140**	RW-6	S9/10	*27*	**30**	*3*
PFHxS			**5,700**	W-19R	R/S9	**870**	**40**	*4*
PFBA			**16,000**	RW-6	S9/10	*6,300*	**10,000**	*2,000*

NOTES:

- Concentrations are in ng/ℓ. Detected concentrations at or above a WDHS-recommended NR 140 ES are in bold and those at or above a WDHS-recommended NR 140 PAL are in italics.
- ND – NEtFOSA and NEtFOSE were not detected in any off-site wells.
- The wells' alphanumeric grid coordinates are shown on Figure 4.
- c – The WDHS-recommended NR 140 ES and PAL are based on the combined concentrations of PFOSA, NEtFOSA, NEtFOSSA, and NEtFOSE.

As shown in the table above and in Table 3, PFHxS is the only compound measured at or above a WDHS-recommended NR 140 ES in off-site wells.

4.2.2 Recovery Well & VOC Treatment System Samples

Table 4 lists the compounds detected in the VOC treatment system samples collected in 2021 and 2022. As shown in Table 4, the only PFAS compound measured in the VOC treatment system samples at or above a proposed NR 140 ES was PFHxS.

Table 5 presents a summary of the PFAS detected in groundwater samples collected from RW-2, RW-4, RW-5, and RW-7 in April 2022 and includes the PFAS detected in other recovery wells previously sampled in 2021.

Table 6 presents the PFAS and pre- and post-TOPA results of samples collected from RW-2, RW-5, and the turbo air stripper effluent in April 2022. As shown in Table 6, oxidizing the samples (i.e., post-TOPA) increased the total and individual concentrations of the terminal PFAS compounds measured in the groundwater samples collected from the recovery wells but decreased the total PFAS concentration in the turbo stripper effluent sample, mostly because of the elevated detection limits in the effluent sample that had been oxidized.

Appendix A contains the laboratory reports for all samples collected from the recovery wells and turbo air stripper effluent in 2022.

4.3. Surface Water Sample Results

Table 7 lists a summary of the PFAS compounds detected in surface water samples collected from Lowes Creek and Seep S2N in June 2022. Also shown in Table 7 are the standards for non-drinking surface waters for PFOA and PFOS, the only two PFAS with surface water quality standards. The highest concentrations of PFOA (20 ng/L) and PFOS (2.9 ng/L) were measured in samples SW-3 and SW-5, respectively, below the surface water quality standards for non-drinking surface water of 95 ng/L for PFOA and 8 ng/L for PFOS.

Figure 5 shows the PFOA, PFOS, and total PFAS concentrations measured in each of the surface water samples in June 2022. As shown on Figure 5, total PFAS concentrations in Lowes Creek were:

- 25.3 ng/L in upstream sample SW-1 and 26.8 ng/L in sample SW-2 collected just upstream of where an unnamed creek/tributary flows into Lowes Creek. Based on those results, one or more PFAS sources are impacting Lowes Creek south of Deerfield Road, upstream from WRR's facility.

- 54.5 ng/L in sample SW-3, located approximately 400 feet downstream of Seep 2N where a total PFAS concentration of 43.5 ng/L was measured. Based on the overall results, GF believes that PFAS from WRR discharges to Lowes Creek in the same general location as its VOC plume.

Decreasing total PFAS concentrations in downstream samples SW-4 (38.9 ng/L) and SW-5 (35.0 ng/L) indicate that additional groundwater and surface water entering Lowes Creek is diluting PFAS concentrations as it flows north toward the Chippewa River.

5.0 DISCUSSION AND CONCLUSIONS

5.1 Estimated Extent of PFAS in Groundwater & Surface Water

The estimated extent of PFAS at concentrations at or above a WDHS-recommended NR 140 ES in the shallow aquifer beneath the WRR facility is shown on Figure 10. As shown on Figure 10 and the table included in Section 4.2.1, the highest PFAS concentrations were measured in the center of the facility by RW-5 where the AFFF was used to cover the tankers during the 2007 fire. For brevity, this area is referred to as the RW-5 source area in this report.

The estimated horizontal extents of PFAS at concentrations at or above a WDHS-recommended NR 140 ES in the shallow, mid-depth, and deep/bedrock aquifers are shown on Figures 11, 12, and 13, respectively. As shown on Figures 11 through 13, PFAS at concentrations at or above a proposed NR 140 ES do not extend

to Lowes Creek, the local and area groundwater discharge point. However, one PFAS (PFHxS) was measured at 48 ng/L, above the WDHS-recommended NR 140 ES of 40 ng/L, in the distal well MW-112A screened in the mid-depth aquifer.

The estimated vertical extent of PFAS at concentrations at or above a WDHS-recommended NR 140 ES is shown on:

- Drawing 1, Cross-Section A-A', running along WRR's southern property boundary from monitoring well W-4 west along the predominant groundwater flow direction to well nest MW-113/A/B, located west of Lowes Creek.
- Drawing 2, Cross-Section B-B', running from the W-3/A/B well nest northeast of WRR, through the RW-5 source area, southwest to the MW-112/A/B well nest.

The grid coordinates of the monitoring wells referenced above are shown on Figure 4 as follows:

- Well W-4 (X9)
- Well nest W-113/A/B (B10)
- Well nest W-3/A/B (W6)
- Well RW-5 (U/V7)
- Well nest MW-112/A/B (I13)

As shown in Table 7 and on Figure 5, PFAS detected in each of the surface water samples with the highest PFAS concentrations were measured in SW-3 and Seep 2N, located where WRR's VOC plume discharges to Lowes Creek. The relatively elevated PFAS concentrations measured in Seep 2N and SW-3, located approximately 400 feet downstream from where Seep 2N discharges to Lowes Creek, indicate that PFAS from WRR is discharging to Lowes Creek, similar to its VOC plume.

A total PFAS concentration of 25.3 ng/L was measured in sample SW-1, located approximately 1.4 miles south of SW-3 and far upstream of where GF and WRR believe the PFAS emanating from WRR would discharge to and impact Lowes Creek. The presence of PFAS compounds in SW-1 indicates there is a an upgradient source of PFAS located south of WRR and Deerfield Road impacting Lowes Creek. Figure 5 shows the location of Deerfield Road and SW-1.

As discussed in more detail in GF's March 2022 *PFAS Site Investigation Report*, based on the results of water samples collected from private wells along South Lowes Creek Road and from monitoring well nest MW-113/A/B located west of Lowes Creek, GF believes that there is one or more sources of PFAS located west of Lowes Creek and that/those source(s) are also discharging to and impacting Lowes Creek.

5.2 Composition of PFAS Emanating from WRR Facility

As shown on Figures 10 and 11, the highest concentration of detected PFAS was measured in RW-5, located in a loading area where foam was used to cover tankers during the 2007 fire. RW-5 operated as a groundwater recovery well from November 1985 to December 2003 when it was taken offline and has not operated as a groundwater recovery well since then. RW-5 was later converted to an SVE well in the late 2000s as part of the northern AI/SVE system. The northern AI/SVE system operated periodically until

February 2013 when it was permanently turned off. Since 2013, samples have periodically been collected from RW-5 to monitor VOC concentrations in the groundwater in that area of the site.

The table below lists the PFAS composition measured in RW-5, screened in the shallow aquifer, and downgradient on-site recovery wells RW-12 and RW-13, both screened in the mid-depth aquifer. As shown in the table below, the compounds with the highest concentrations in the source area are PFOA (37,000 ng/ℓ) and PFOS (39,000 ng/ℓ).

PFAS Group & Name	# of Carbon Atoms	Source Area Shallow Aquifer	Down-Gradient On-Site Mid-Depth Aquifer		WDHS-Recommended NR 140	
		RW-5	RW-12	RW-13	ES	PAL
		10/8/21	4/15/21	11/18/21		
Carboxylic Acids						
PFBA	4	**18,000**	*2,300*	*2,400*	**10,000**	*2,000*
PFPeA	5	6,700	1,600	1,100	NRS	NRS
PFHxA	6	5,200	5,300	4,100	**150,000**	*30,000*
PFHpA	7	1,800	2,600	1,300	NRS	NRS
PFOA	8	37,000	3,800	2,300	NRS	NRS
PFNA	9	**290**	*23*	*20*	**30**	*3*
Sulfonic Acids						
PFBS	4	11,000	1,200	690	**450,000**	*90,000*
PFPeS	5	1,700	240	170	NRS	NRS
PFHxS	6	**8,700**	**1,100**	**510**	**40**	*4*
PFHpS	7	2,200	96	58	NRS	NRS
PFOS	8	39,000	1,600	1,200	NRS	NRS
PFNS	9	260	<0.35	1.7	NRS	NRS
Sulfonamides, Sulfomodioacetic Acids, Sulfonamidoethanols						
PFOSA	8	**500**	**4.1**	*3.5*	**20c**	*2c*
NEtFOSA	10	170	<0.83	<1.3	NRS	NRS
NEtFOSAA	11	**3,400**	**160**	*8.9*	**20c**	*2c*

NOTES:

- Concentrations are in ng/ℓ. Only compounds measured at concentrations greater than 100 ng/ℓ in RW-5 are shown in the table above. Detected concentrations at or above a proposed NR 140 ES are in bold; those at or above a proposed NR 140 PAL are italicized.
- NRS = No WDHS-recommended standard in Cycle 11.
- See Table 5 for more details on the WDHS-recommended NR 140 ES and PAL for each compound.

5.3 PFAS Composition in Recovery Wells & VOC Treatment System

As shown in Table 5, two or more PFAS were measured at or above a WDHS-recommended NR 140 ES in on-site recovery wells RW-2, RW-4, RW-5, RW-10, RW-11 (screened in the shallow aquifer), and RW-12 (screened in the mid-depth aquifer immediately downgradient of the RW-5 source area in the south-central portion of the site). By the time the PFAS has migrated downgradient in the mid-depth aquifer to RW-13 (located in the southwestern corner of the WRR facility) and to RW-6 and RW-7 (located off site further downgradient) only one PFAS (PFHxS) was present at concentrations at or above a WDHS-recommended

NR 140 ES. PFHxS is also the only compound that was measured at or above a recommended NR 140 ES in each of VOC treatment system samples.

5.4 PFAS Composition in Off-Site Wells

As discussed in more detail in GF's March 2022 *PFAS Site Investigation Report*, the composition of the PFAS significantly changes by the time it migrates further downgradient in the shallow aquifer and into the mid-depth aquifer downgradient of the source area, with significantly lower concentrations of compounds with a chain length of 9 or more carbon atoms by the time it reaches RW-13 in the southwestern corner of the WRR facility. As discussed in Section 5 and shown in Tables 6, 7, and 8 of that March 2022 report, most compounds with 9 or more carbon atoms are either not detected or are measured at low concentrations (≤17 ng/ℓ) in off-site wells downgradient of WRR. In contrast, elevated concentrations (≥ 100 ng/ℓ) of most carboxylic and sulfonic acids (PFCAs and PFSAs) with 4 to 8 carbon atoms are present in the off-site and distal wells. This is perhaps best illustrated by looking at the table for Cross-Section A-A' where the PFCAs and PFSAs compounds are listed by the number of carbon compounds within each group in ascending order. As shown in that table, as the PFAS compounds migrate west from the WRR facility toward Seep 2N and Lowes Creek, the number and concentrations of PFAS compounds with nine or more carbons become less.

As shown in Table 3 and tables embedded on Figures 11 through 13 of this report, PFHxS is the only compound measured at or above a WDHS-recommended NR 140 ES in the off-site wells. That is likely due to its relatively low proposed NR 140 ES (40 ng/L) and its relatively low chain length (6 carbon atoms), which allows it to migrate further/faster in the aquifer than compounds with longer chain lengths.

6.0 WORK PLAN FOR PFAS MONITORING & REMEDIATION

WRR and GF propose to conduct the following monitoring and remedial activities in 2022-23.

6.1 Groundwater & Surface Water Sampling in 2023

To monitor the migration of PFAS compounds, groundwater samples will be collected from WRR's network of monitoring wells in the spring of 2023. Surface water samples will also be collected from Seep S2N and from the five surface water sample locations shown on Figure 5,

The number and frequency of wells sampled after 2023 will be dependent on the PFAS concentrations measured in each of the wells and whether there has been an unexpected increase in their concentrations. Wells that are outside the estimated extent of PFAS at or above proposed NR 140 ES will be either not sampled or sampled biennially; whereas distal wells and wells within the heart of the PFAS impacts will be sampled annually.

6.2 Geoprobe Investigation 2022-23

GF proposes to conduct a limited Geoprobe investigation to determine if and where elevated PFAS concentrations in the soil may be contributing to PFAS impacts to the groundwater. The Geoprobe investigation would also be conducted to better define the extent of elevated PFAS concentrations in the groundwater near the RW-5 source area where soil flushing combined with in-situ fractionation may be appropriate for removing PFAS from that area.

The Geoprobe investigation would be conducted in the fall of 2022 or spring of 2023 and consist of collecting soil and groundwater samples from up to 10 borings. Figure 14 shows the proposed locations of six borings; step-out borings would be added, as necessary.

6.3 Preparation of Conceptual Design for PFAS Treatment System - 2023

A conceptual design for a PFAS treatment system will be developed using the analytical results of samples collected from the recovery wells and VOC treatment system, along with any supplemental samples collected during the Geoprobe investigation discussed above. The conceptual design will be used to prepare a remedial action plan and cost estimate for the construction of the PFAS remediation system, which may entail retrofitting some of the existing VOC treatment system and replacing or redeveloping some of the currently unused recovery wells (RW-2, RW-4, RW-5 and RW-7).

6.4 Schedule & Reporting

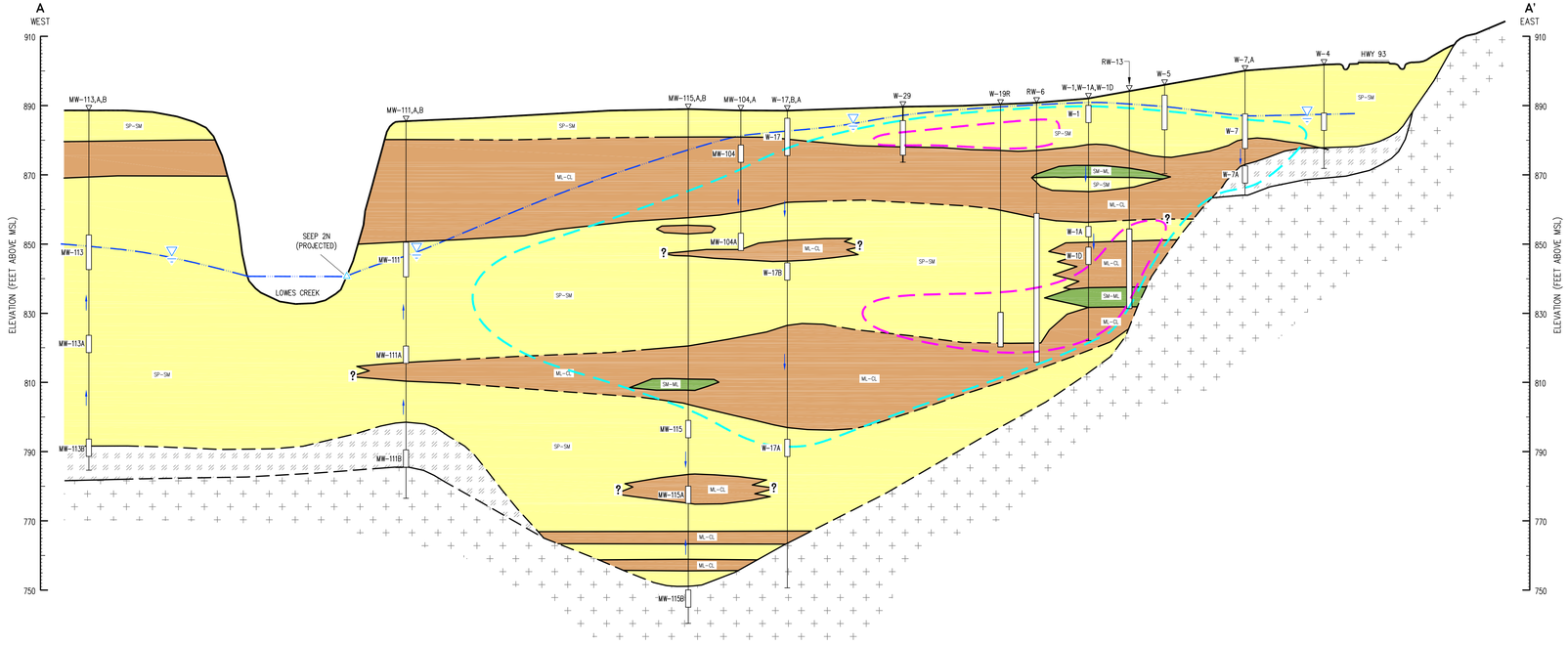
The groundwater and surface water samples will be collected in spring 2023 in conjunction with the annual VOC groundwater monitoring event. All samples will be collected using PFAS-free sampling equipment into laboratory-supplied containers with Trizma preservative, placed in a cooler with ice, and shipped to a Wisconsin-Certified laboratory and analyzed for PFAS using Method 537 modified.

After the Geoprobe investigation results have been received, a conceptual design of the PFAS treatment system will be prepared that may include retrofitting WRR's existing VOC treatment systems to remove/reduce PFAS concentrations before their effluent is discharged to the absorption pond.

Following receipt and evaluation of the analytical results collected in 2023, GF will prepare a report summarizing the results of the PFAS monitoring for submittal to the WDNR. That report will include a work plan for further supplemental monitoring and/or investigation, as/if appropriate.

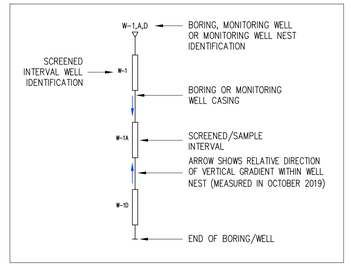
FIGURES/DRAWINGS

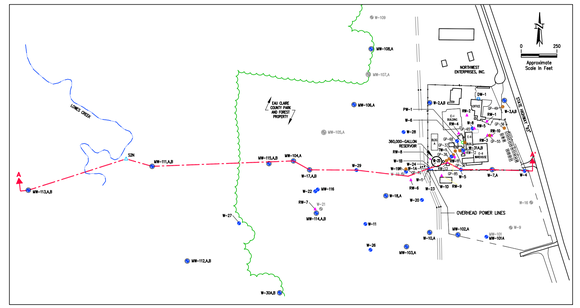
GANNETT FLEMING



LEGEND

- SM-ML — PREDOMINANTLY A MIXTURE OF SILT AND VERY FINE SANDS, OFTEN LAMINATED, WITH VARYING AMOUNTS OF CLAY
- SP-SM — PREDOMINANTLY POOR-GRADED SANDS AND SILTY SAND WITH OCCASIONAL SILT OR CLAY LAYERS
- ML-CL — PREDOMINANTLY SILT AND CLAYS WITH VARYING AMOUNTS OF VERY FINE SAND
- WEATHERED SANDSTONE
- SANDSTONE
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE AN ORDER OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- GEOLOGIC CONTACT (DASHED WHERE INFERRED)
- WATER TABLE





CROSS SECTION A-A'

HORIZONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" =20'
VERTICAL EXAGGERATION: 10X

CROSS-SECTION A-A'

Parameter	Sample ID & Date Collected																							NR 140 PAL	NR 140 ES
	Seep 2N	MW-111	MW-111A	MW-111B	MW-115	MW-115A	MW-115B	MW-104	MW-104A	W-17	W-17B	W-17A	W-29	W-19R	RW-6	Abs. Pond	W-1	W-1A	W-1D	RW-13	W-5	W-7	W-7A	W-4		
	6/1/22	5/31/22	5/31/22	5/31/22	5/31/22	5/31/22	5/1/21	5/31/22	5/31/22	5/31/22	5/31/22	5/31/22	10/6/21	10/8/21	4/15/21	4/15/21	10/8/21	10/8/21	10/8/21	11/18/21	10/8/21	10/8/21	10/8/21	10/8/21		
Carboxylic Acids																									
PFBA	12	6.3	790	20	1,900	970	4.5	120	300	630	490	450	910	2,500	*6,300*	1,300	970	1,200	1,600	*2,400*	330	190	85	100	*2,000*	**10,000**
PFPeA	5.3	4.6	510	7.3	280	410	3.5	91	140	590	560	320	640	940	3,300	780	570	770	1,000	1,100	600	200	130	130	NRS	NRS
PFHxA	6.2	5.3	630	7.8	390	660	5.2	120	110	740	490	470	1,000	1,200	3,600	1,400	1,100	960	1,000	4,100	340	220	170	160	*30,000*	**150,000**
PFHpA			190		200	210	0.61	20	18	240	130	630	330	380	780	340	400	330	260	1,300	210	64	43	89	NRS	NRS
PFOA	11	10	480	11	5,000	260		41	91	610	1,000	11,000	720	2,900	2,500	640	510	950	770	2,300	120	490	510	88	NRS	NRS
PFNA										*6.1*	2.6		*11*	*13*	*27*	*6.8*	*6.3*	*9.0*	*14*	*20*	**30**	2.7		*3.1*	*3*	**30**
PFDA													2.0	1.3	0.97	1.8	2.4	2.4	4.0	5.4	*75*			2.2	*60*	**300**
PFUnA																	1.2				1.9				*600*	**3,000**
Sulfonic Acids																										
PFBS	8.0	5.0	9.7	1.1	890	2,300	1.9	64	110	410	360	160	500	1,100	1,400	310	400	430	420	690	34	500	140	130	*90,000*	**450,000**
PFPeS	1.0	0.69	3.9		17	67	3	11	11	87	110	23	130	340	440	80	78	120	110	170	4.6	11	5.9	2.3	NRS	NRS
PFHxS		0.95	*10*	1.1	*35*	*29*	*11*	*20*	*17*	**220**	**250**	**44**	**420**	**870**	**1,000**	**250**	**220**	**290**	**260**	**510**	*25*	**110**	**70**	*28*	*4*	**40**
PFHpS					0.66	1.6			0.59	14	11		18	110	63	12	17	13	34	58	1.5	6.2	13	3.3	NRS	NRS
PFOS						3.0		1.6	13	570	75	1.1	860	270	1,300	310	340	580	570	1,200	140	400	130	120	NRS	NRS
PFNS																	0.82			1.7	1.2			0.9	NRS	NRS
PFDS																0.88	9.6				8.1				NRS	NRS
4:2 FTS											2.2		1.8		1.4	1.7	1	2.3	1.9	1.6					NRS	NRS
6:2 FTS						4.3				320	280		190	35	160	140	97	310	160	170	110		1.5		NRS	NRS
8:2 FTS															3.1	0.47	3.2	41	6.5	9.2	42				NRS	NRS
Sulfonamides, Sulfomodioacetic Acids, Sulfonamidoethanols																										
PFOSA													1.3			5.4	**76**	**24**	8.2	3.5				1.1	*2* [c]	**20** [c]
NMeFOSAA											1.3		0.89			2.3	14	6.9	7.9	2.9					NRS	NRS
NEtFOSAA													3.4			2.1	**9.4**	**1.1**	0.88	8.9	0.92	0.95		14	*2* [c]	**20** [c]
Replacement Chemicals																										
HFPO-DA			2.8			3.6					4.3	3.3	6.6	7.5	2.7	1.7	5.7	4.6	2.5		3.5	1.2	1.7		*30*	**300**

NOTES:
Concentrations are in nanograms per liter (ng/l) equivalent to parts per trillion (ppt).
All samples analyzed using Method 537 Modified. Only compounds detected in one or more samples are shown in table. All other compounds not listed were not detected in the samples shown in table. .
Detected concentrations at or above the Wisconsin Department of Health Services (WIDHS) Cycle 11 recommended NR 140 PAL but less than an ES are *italicized*; those at or above a recommended NR 140 ES are **bold**.
c = DHS recommended a combined ES of 20 ng/l and a combined PAL of 2 ng/l for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.
#C – number of carbon atoms in compound.
NRS = No recommended Cycle 11 standard.

NOTE

THE EXTENT OF VARIOUS SOIL TYPES IS BASED ON BORING LOGS AND WELL CONSTRUCTION DIAGRAMS PREPARED BY PREVIOUS CONSULTANTS AND GANNETT FLEMING. HOWEVER, THE TYPE AND EXTENT OF VARIOUS GEOLOGIC FORMATIONS HAD TO BE ASSUMED IN AREAS WHERE DATA WAS EITHER UNAVAILABLE OR WHERE DIFFERENT CONSULTANTS HAD DESCRIBED WHAT WAS LIKELY THE SAME GEOLOGIC FORMATION DIFFERENTLY. FOR SIMPLICITY, AREAS WHERE SEVERAL THIN LAYERS OF DIFFERENT SOIL TYPES WERE PRESENT WERE COMBINED INTO THE DOMINANT SOIL TYPE FOR THAT STRATUM. THEREFORE, IT IS POSSIBLE THAT SOME SOIL LAYERS ARE SHOWN AS CONTIGUOUS WHEN THEY ARE NOT, AND VICE VERSA. GANNETT FLEMING USED ITS PROFESSIONAL JUDGMENT IN PRESENTING THE GEOLOGICAL FORMATIONS SHOWN ON THIS DRAWING.

ENGINEER

NO	REVISION NOTES	DATE	REVIEWED

DRAWN: CJP
DESIGNED: AWM
APPROVED: AWM
SCALE: AS NOTED
JOB No.: 55929-007
DATE: SEPT. 2022

Gannett Fleming
HARRISBURG, PENNSYLVANIA MADISON, WISCONSIN

PROJECT
WRR ENVIRONMENTAL SERVICES, INC.
EAU CLAIRE, WISCONSIN

TITLE
CROSS SECTION A-A' WITH ESTIMATED VERTICAL EXTENT OF PFAS APRIL-JUNE 2022

DRAWING No.
1

PLOT SCALE=1 09/22
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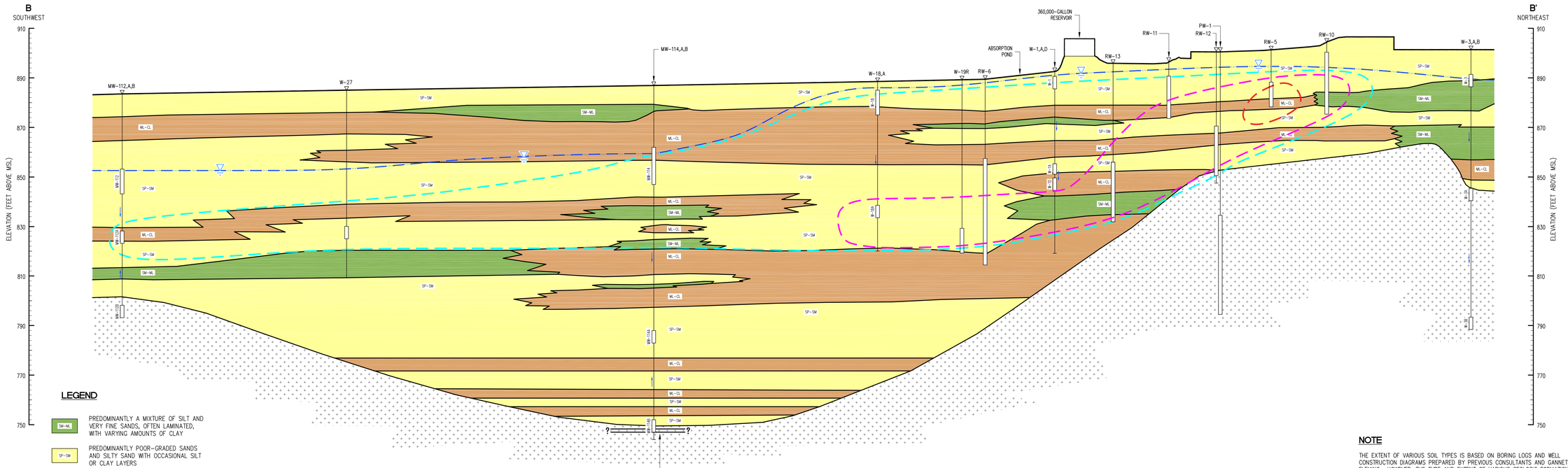


NOTE: A THIN LAYER OF GRAY SHALE WAS ENCOUNTERED IN BORING FOR MW-114B FROM 137 TO 138.5 FEET BGS. TOTAL BORING DEPTH 140 FEET BGS.

LEGEND

- SM-ML — PREDOMINANTLY A MIXTURE OF SILT AND VERY FINE SANDS, OFTEN LAMINATED, WITH VARYING AMOUNTS OF CLAY
- SP-SM — PREDOMINANTLY POOR-GRADED SANDS AND SILTY SAND WITH OCCASIONAL SILT OR CLAY LAYERS
- ML-CL — PREDOMINANTLY SILT AND CLAYS WITH VARYING AMOUNTS OF VERY FINE SAND
- WEATHERED SANDSTONE
- SANDSTONE
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE AN ORDER OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE TWO ORDERS OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- GEOLOGIC CONTACT (DASHED WHERE INFERRED)
- WATER TABLE

CROSS SECTION B-B'

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" =20'
VERTICAL EXAGGERATION: 5X

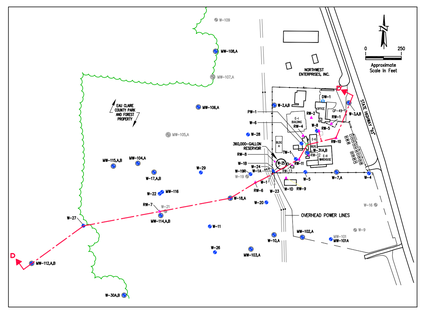
NOTE

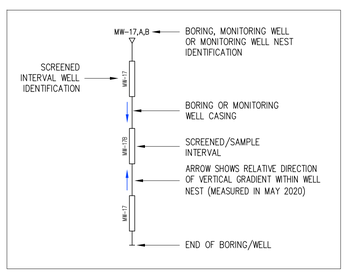
THE EXTENT OF VARIOUS SOIL TYPES IS BASED ON BORING LOGS AND WELL CONSTRUCTION DIAGRAMS PREPARED BY PREVIOUS CONSULTANTS AND GANNETT FLEMING. HOWEVER, THE TYPE AND EXTENT OF VARIOUS GEOLOGIC FORMATIONS HAD TO BE ASSUMED IN AREAS WHERE DATA WAS EITHER UNAVAILABLE OR WHERE DIFFERENT CONSULTANTS HAD DESCRIBED WHAT WAS LIKELY THE SAME GEOLOGIC FORMATION DIFFERENTLY. FOR SIMPLICITY, AREAS WHERE SEVERAL THIN LAYERS OF DIFFERENT SOIL TYPES WERE PRESENT WERE COMBINED INTO THE DOMINANT SOIL TYPE FOR THAT STRATUM. THEREFORE, IT IS POSSIBLE THAT SOME SOIL LAYERS ARE SHOWN AS CONTIGUOUS WHEN THEY ARE NOT, AND VICE VERSA. GANNETT FLEMING USED ITS PROFESSIONAL JUDGMENT IN PRESENTING THE GEOLOGICAL FORMATIONS SHOWN ON THIS DRAWING.

CROSS-SECTION B-B'

Parameter	C#	Sample ID & Date Collected																							NR 140 PAL	NR 140 ES
		MW-112 5/31/22	MW-112A 5/31/22	MW-112B 5/31/22	W-27 10/8/21	MW-114 6/1/22	MW-114A 6/21/22	MW-114B 10/6/21	W-18 10/6/21	W-18A 10/8/21	W-19R 10/8/21	RW-6 4/15/21	W-1 10/8/21	W-1A 10/8/21	W-1D 10/8/21	RW-13 11/18/21	RW-11 4/15/21	W-31A 6/2/22	W-31B 6/2/22	RW-12 4/15/21	PW-1 4/15/21	RW-5 4/22/22	RW-10 11/18/21	W-3 10/6/21	W-3A 10/6/21	W-3B 10/6/21		
Carboxylic Acids																										
PFBA	4	3.4	180	1,800	540	1,300	63	3.8	490	690	*2,500*	*6,300*	970	1,200	1,600	*2,400*	940	140	8.8	*2,300*	7.9	**16,000**	1,000	13	3.5		*2,000*	**10,000**
PFPeA	5	1.8	110	280	500	810	35	14	360	600	940	3,300	570	770	1,000	1,100	1,200	200	12	1,600	3.3	6,200	550	20	3.0		NRS	NRS
PFHxA	6	1.9	88	200	390	630	34	7.6	410	610	1,200	3,600	1,100	960	1,000	4,100	1,500	87	8.2	5,300	4.6	5,900	610	12			*30,000*	**150,000**
PFHpA	7		25	34	150	120	6.0	1.6	240	210	380	780	400	330	260	1,300	**480**	31	2.1	2,600	1.1	1,400	420	5.6	0.42		NRS	NRS
PFOA	8	4.4	150	33	1,400	200	32	5.7	470	1,100	2,900	2,500	510	950	770	2,300	1,100	520	11	3,800	5.0	14,000	2,500	3.8	1.2		NRS	NRS
PFNA	9				1.6	*5.6*			*8.9*	*15*	*13*	*27*	*6.3*	*9.0*	*14*	*20*	*29*			*23*		**140**	*3.5*	1.6			*3*	**30**
PFDA	10							1.5	2.4	2.6	1.3	0.97	2.4	2.4	4.0	5.4	20			7.2		20					*60*	**300**
PFUnA	11												1.2				1.8										*600*	**3,000**
Sulfonic Acids																										
PFBS	4	5.6	180	69	390	430	47	1.5	260	330	1,100	1,400	400	430	420	690	600	150	7.6	1,200	5.0	20,000	1,100	18		1.5	*90,000*	**450,000**
PFPeS	5		19	10	110	54	23		97	88	340	440	78	120	110	170	120	11	1.1	240	1.0	2,400	68	0.83			NRS	NRS
PFHxS	6	1.0	**48**	*8.4*	**230**	**63**	*32*	1.9	**400**	**420**	**870**	**1,000**	**220**	**290**	**260**	**510**	**620**	**120**	*24*	**1,100**	*15*	**5,700**	**460**				*4*	**40**
PFHpS	7		1.7		5.3	6.8	0.74		15	32	110	63	17	13	34	58	**40**	22	6.2	96	2.1	750	22				NRS	NRS
PFOS	8		20	1.6	5.1	44	24	13	470	280	270	1,300	340	580	570	1,200	2,300	70	60	1,600	24	27,000	220	19			NRS	NRS
PFNS	9															1.7	1.3										NRS	NRS
PFDS	10								4.8				9.6				1.3										NRS	NRS
4:2 FTS	6				1.8					1.1		1.4	1.0	2.3	1.9	1.6	*2.2*			8.5			3.3				NRS	NRS
6:2 FTS	8				15	2.8	6.5	2.3	40	480	35	160	97	310	160	170	520	10		180		200	310	2.5		2.6	NRS	NRS
8:2 FTS	10											3.1	3.2	41	6.5	9.2	22			12		3.3					NRS	NRS
Sulfonamides, Sulfomodioacetic Acids, Sulfonamidoethanols																										
PFOSA	8						*1.2*	0.77	*6.6*	0.90			**76**	**24**	*8.2*	*3.5*	**55**			**4.1**		**1,000**	**1.4**				*2 c*	**20 c**
NMeFOSA	9																					1.5					NRS	NRS
NEtFOSA	10						*1.7*															**120**	**5.0**				*2 c*	**20 c**
NMeFOSAA	11							1.2	2.2				14	6.9	7.9	2.9	37			3.2		67	0.80				NRS	NRS
NEtFOSAA	12								*2.7*				**9.4**	**1.1**	*0.88*	*8.9*	**120**	*2.1*		**16**		**3,700**	**150**				*2 c*	**20 c**
NMeFOSE	11																		3.9								NRS	NRS
NEtFOSE	12																**2.7**					**16**	**44**				*2 c*	**20 c**
Replacement Chemicals																										
HFPO-DA	6	1.5	2.1		2.1	3.3	4.9		4.2	4.3	7.5	2.7	5.7	4.6	2.5		2.2			1.6		14	3.8		4.6		*30*	**300**

NOTES:
Concentrations are in nanograms per liter (ng/ℓ) equivalent to parts per trillion (ppt).
All samples analyzed using Method 537 Modified. Only compounds detected in one or more samples are shown in table. All other compounds not listed were not detected in the samples shown in table. .
Detected concentrations at or above the Wisconsin Department of Health Services (WI DHS) Cycle 11 recommended NR 140 PAL but less than an ES are *italicized*; those at or above a recommended NR 140 ES are **bold**.
c = DHS recommended a combined ES of 20 ng/ℓ and a combined PAL of 2 ng/ℓ for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.
#C – number of carbon atoms in compound.
NRS = No recommended Cycle 11 standard.





ENGINEER

NO	REVISION NOTES	DATE	REVIEWED

DRAWN MCM | SCALE AS NOTED
DESIGNED AWM | JOB No. 55929.007
APPROVED AWM | DATE SEPT. 2022

Gannett Fleming
HARRISBURG, PENNSYLVANIA MADISON, WISCONSIN

PROJECT
WRR ENVIRONMENTAL SERVICES, INC.
EAU CLAIRE, WISCONSIN

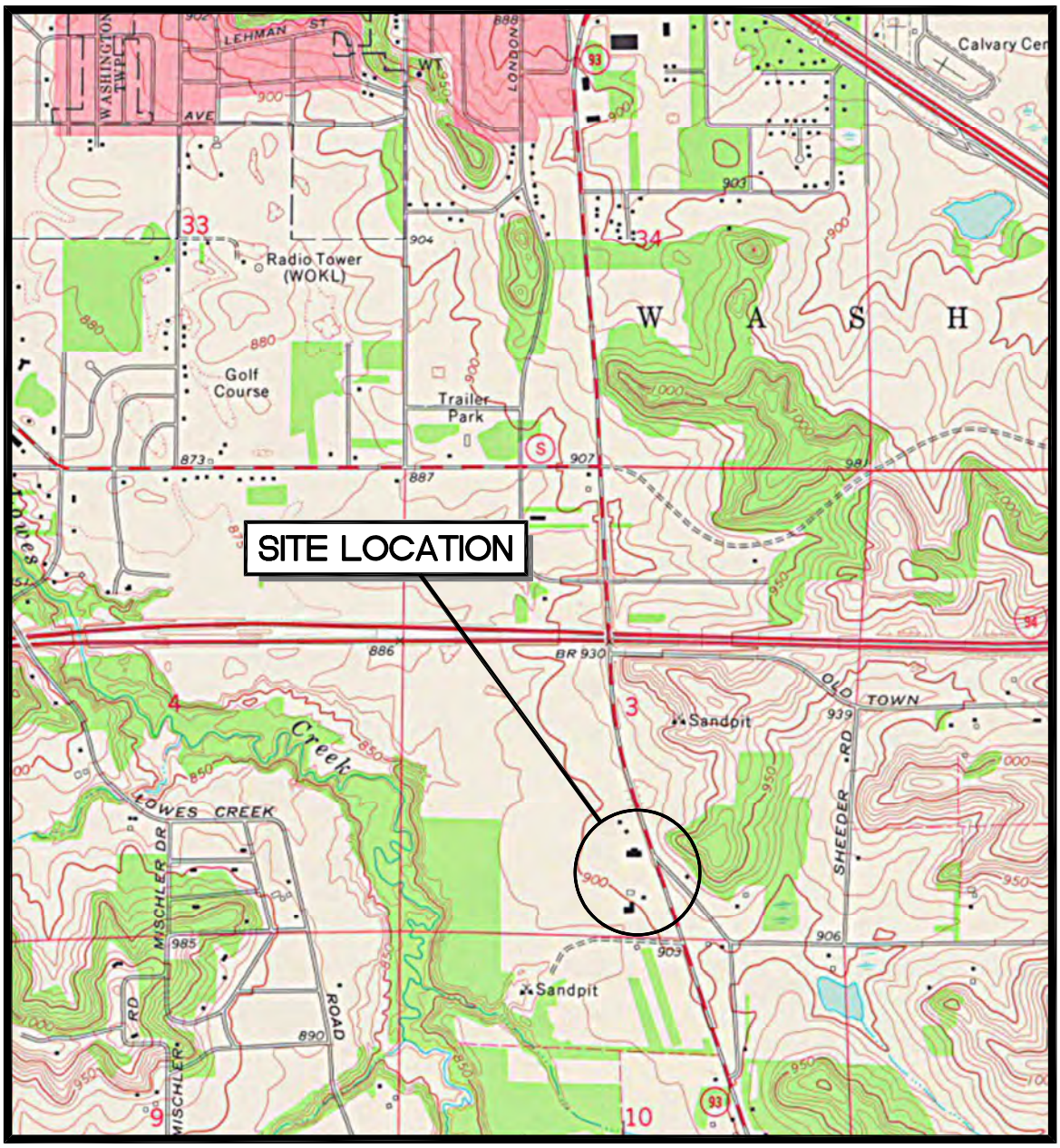
TITLE
CROSS SECTION B-B' WITH ESTIMATED VERTICAL EXTENT OF PFAS APRIL-JUNE 2022

DRAWING No.
2

09/22 CHECKED BY AWM 09 3/15/21
wwn_55929-007_2022_GWR_002

Gannett Fleming

FIGURE 1



APPROX. SCALE: 1 INCH = 2,150 FEET

7.5 MIN TOPOGRAPHIC MAP
EAU CLAIRE EAST, WISCONSIN
1972

LOCATION MAP

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

063022
awm_R55929-007_2022_01MR_F01

Gannett Fleming

FIGURE 2

APPROX. SCALE: 1 INCH = 330 FEET

GOOGLE EARTH IMAGERY (04/17)

N

AERIAL PHOTO OF SITE

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

063022
gwm_R55929-007_2022_01MR_F02

Gannett Fleming

FIGURE 3

0 80

Approximate Scale In Feet

NORTHWEST ENTERPRISES, INC.

SCALE

STATE HIGHWAY "93"

W-2,A,B

W-3,A,B

W-28

SVE-6

W-32

W-34

DW-1

OFFICE

SVE-7

SVE-4

RW-2

E-I BUILDING

RW-1

NORTHERN AI/SVE SYSTEM

W-33

W-8 (SVE WELL)

RW-5

BULK LOADING AND UNLOADING AREA CANOPY

RW-4

RW-3

RW-10

DRUM AND TOTE STORAGE SHEDS (1-17)

SVE-5

BUILDING A

W-6

PW-1

SVE-2

AS-1

E-II BLDG.

MP-1

MIDDLE AI/SVE SYSTEM

W-31A,B

CC-7

RW-12

RW-11 BLDG.

TW-1

E-II WAREHOUSE

W-35

FUELS BLDG.

RW-8

360,000-GAL. RESERVOIR

NON-TS EFF.

RW-13

TURBO-STRIPPER INF.

SOUTHERN AI/SVE SYSTEM

SVE WELL

W-1B (AI WELL)

W-24

W-1A

W-25

AERATION RES. EFF.

TURBO STRIPPER BLDG.

W-5

W-7,A

W-4

W-1D

W-1

W-23

DUMPSTER SHELTER

W-19

W-19R

RW-6

ABSORP. POND

ABSORPTION POND

RW-9

RESCO BUILDING

OVERHEAD POWER LINES

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. SHADED WELLS ARE ABANDONED.
4. THE LOCATIONS OF STORAGE TANKS ARE APPROXIMATE.

LEGEND

- PFAS GRAB SAMPLE LOCATION
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- PRODUCTION WELL
- AIR SPARGE WELL
- DRINKING WATER WELL
- 1-INCH-DIAMETER MONITORING POINT
- ABOVEGROUND STORAGE TANK (APPROXIMATE LOCATION)
- POWER POLE
- LIGHT POLE
- FENCE
- SURFACE WATER DRAINAGE DITCH

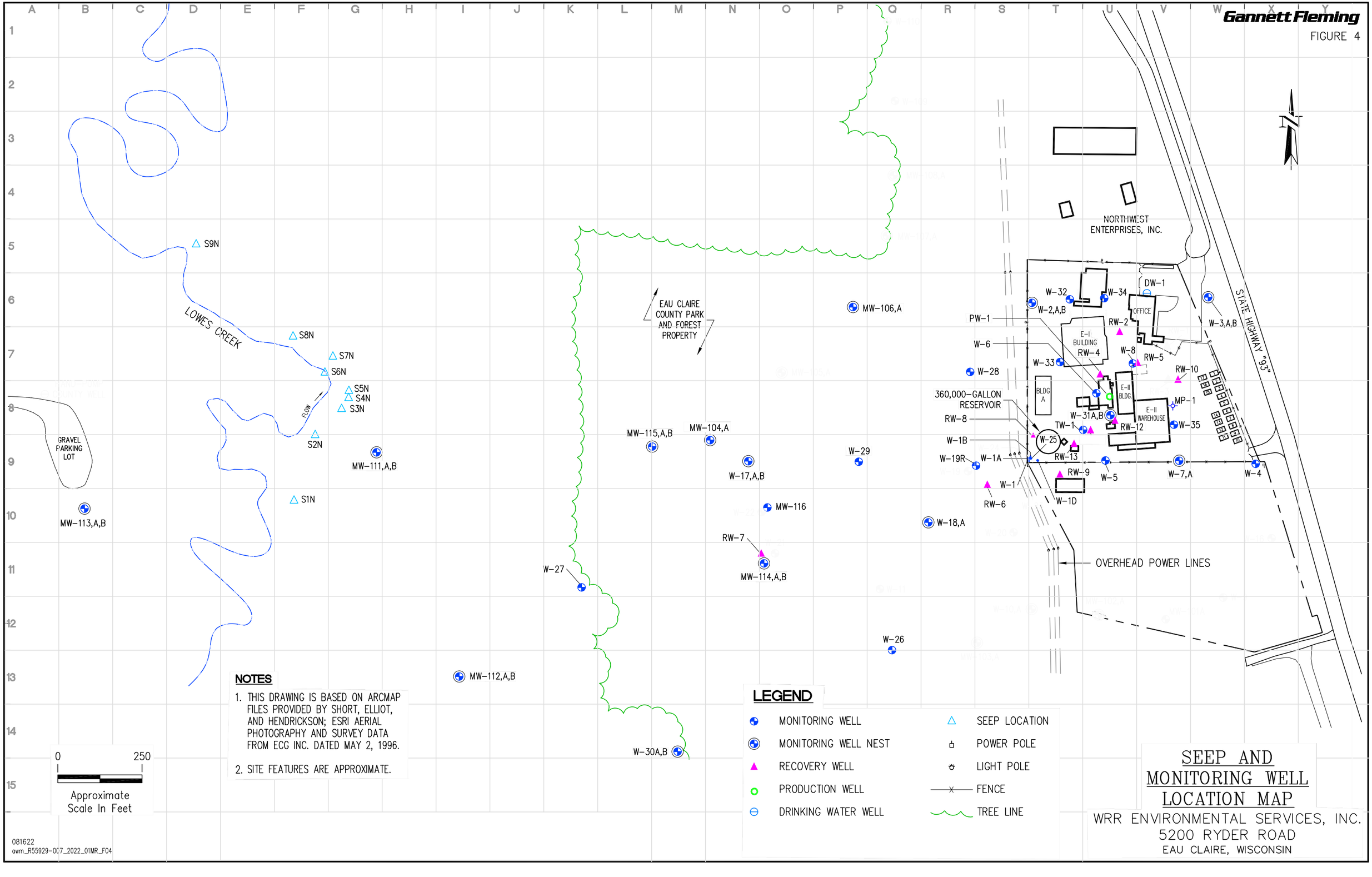
VOC TREATMENT SYSTEM PFAS SAMPLE LOCATIONS

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

062922
awm_R55929-007_2022_01MR_F03

Gannett Fleming

FIGURE 4



NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.

0 250

Approximate Scale In Feet

LEGEND

- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- PRODUCTION WELL
- DRINKING WATER WELL
- SEEP LOCATION
- POWER POLE
- LIGHT POLE
- FENCE
- TREE LINE

SEEP AND MONITORING WELL LOCATION MAP

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

081622
awm_R55929-007_2022_01MR_F04

Gannett Fleming

FIGURE 5

APPROX. SCALE: 1 INCH ~ 2,000 FEET

Google Earth 04/17

PFAS CONCENTRATIONS MEASURED IN SURFACE WATER SAMPLES JUNE 2022

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

△ SW-1 SURFACE WATER SAMPLE LOCATION

NOTE:
PFAS compound concentrations are in nanograms per liter (ng/l).

091222
awm_R55929-007_2022_01MR_F05

Gannett Fleming

FIGURE 6

0 80

Approximate Scale In Feet

NORTHWEST ENTERPRISES, INC.

STATE HIGHWAY "93"

SCALE

OFFICE

E-I BUILDING

E-II BLDG.

E-II WAREHOUSE

BUILDING A

CC-7 BLDG.

FUELS BLDG.

360,000-GAL. RESERVOIR

TURBO STRIPPER BLDG.

RESCO BUILDING

ABSORPTION POND

BULK LOADING AND UNLOADING AREA CANOPY

DRUM AND TOTE STORAGE SHEDS (1-17)

DUMPSTER SHELTER

NORTHERN AI/SVE SYSTEM

MIDDLE AI/SVE SYSTEM

SOUTHERN AI/SVE SYSTEM

SVE WELL

W-1B (AI WELL)

OVERHEAD POWER LINES

#1 #2 #3 #4 #5 #6

(885.00) (886.00) (887.00) (888.00) (889.00) (890.00)

(888.84)

W-2,A,B (887.13)

W-28 (887.81)

W-32 (884.46)

W-34 (885.52)

W-3,A,B (890.32)

W-33 (889.70)

W-6 (887.48)

W-31A,B

W-35 (886.35)

W-5 (889.65)

W-7,A (887.07)

W-4 (887.50)

W-1 (891.07)

W-19R

W-1A

W-1D

W-25

SVE-4

SVE-5 (NM)

RW-2 (NM)

RW-4 (NM)

RW-5 (886.15)

W-8 (SVE WELL) (NM)

RW-8 (NM)

RW-9 (NM)

RW-10

RW-11

RW-12

RW-13

TW-1 (NM)

PW-1

DW-1

MP-1 (NM)

LEGEND

- GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- (889.62) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- PRODUCTION WELL
- DRINKING WATER WELL
- 1-INCH-DIAMETER MONITORING POINT
- ABOVEGROUND STORAGE TANK (APPROXIMATE LOCATION)
- POWER POLE
- LIGHT POLE
- FENCE
- SURFACE WATER DRAINAGE DITCH
- #2 SOLID WASTE MANAGEMENT UNITS

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. THE LOCATIONS OF STORAGE TANKS ARE APPROXIMATE
4. GROUNDWATER ELEVATIONS MEASURED IN UNDERLINED WELLS ON MAY 31 AND JUNE 1 WITH RW-6, RW-11, RW-12, RW-13 & WRR'S PRODUCTION WELL OPERATING.

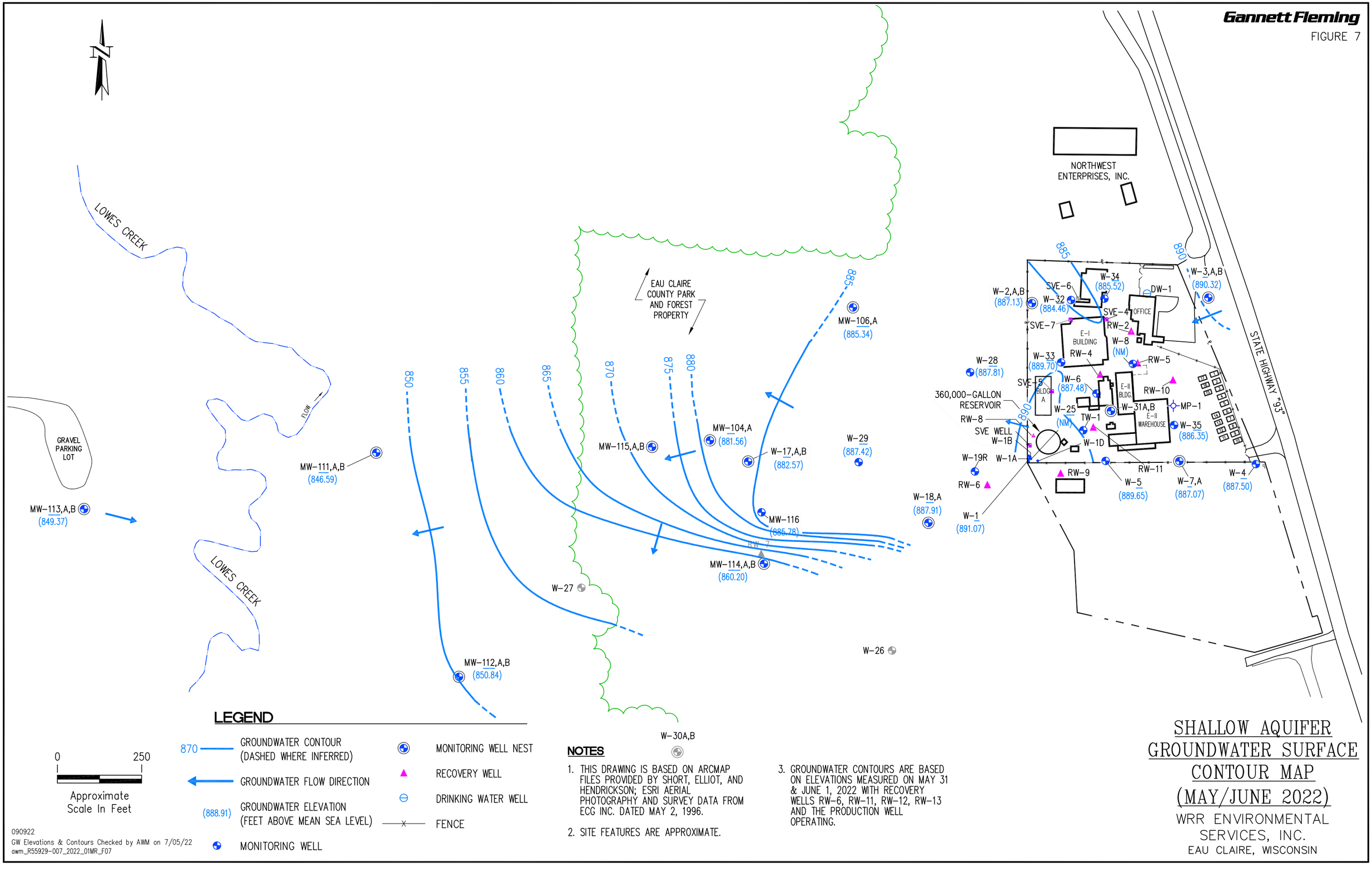
SHALLOW AQUIFER GROUNDWATER SURFACE CONTOUR MAP WITH RECOVERY WELLS OPERATING (MAY 2022)

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

090922
GW Elevations & Contours Checked by AWM on 07/05/22
awm_R55929-007_2022_01MR_F06

Gannett Fleming

FIGURE 7



LEGEND

- 870 — GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- (888.91) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- DRINKING WATER WELL
- FENCE

0 — 250

Approximate Scale In Feet

090922

GW Elevations & Contours Checked by AWM on 7/05/22

awm_R55929-007_2022_01MR_F07

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. GROUNDWATER CONTOURS ARE BASED ON ELEVATIONS MEASURED ON MAY 31 & JUNE 1, 2022 WITH RECOVERY WELLS RW-6, RW-11, RW-12, RW-13 AND THE PRODUCTION WELL OPERATING.

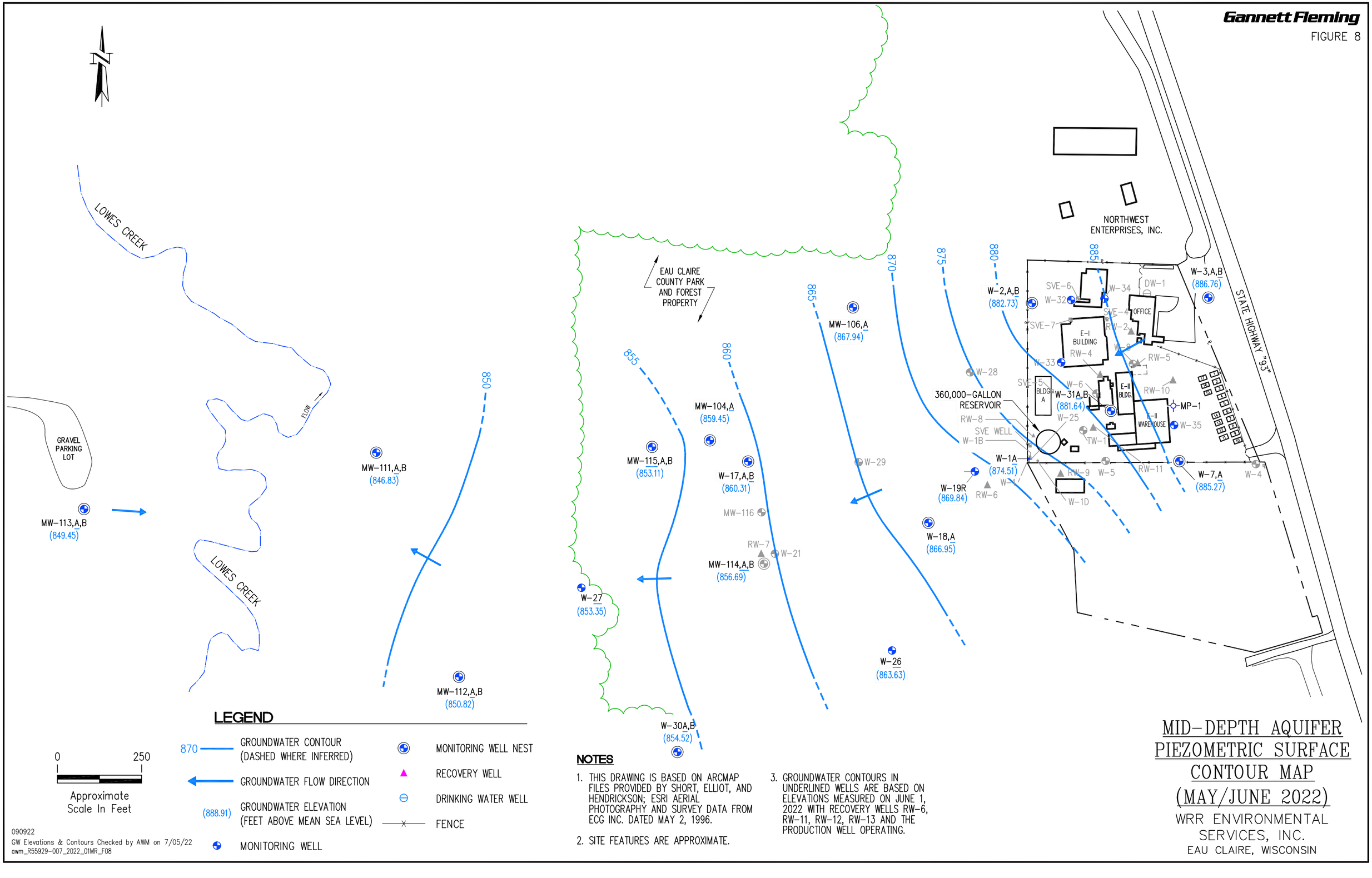
SHALLOW AQUIFER GROUNDWATER SURFACE CONTOUR MAP (MAY/JUNE 2022)

WRR ENVIRONMENTAL SERVICES, INC.

EAU CLAIRE, WISCONSIN

Gannett Fleming

FIGURE 8



LEGEND

- 870 — GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- (888.91) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- DRINKING WATER WELL
- FENCE

0 250

Approximate Scale In Feet

090922

GW Elevations & Contours Checked by AWM on 7/05/22

awm_R55929-007_2022_01MR_F08

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. GROUNDWATER CONTOURS IN UNDERLINED WELLS ARE BASED ON ELEVATIONS MEASURED ON JUNE 1, 2022 WITH RECOVERY WELLS RW-6, RW-11, RW-12, RW-13 AND THE PRODUCTION WELL OPERATING.

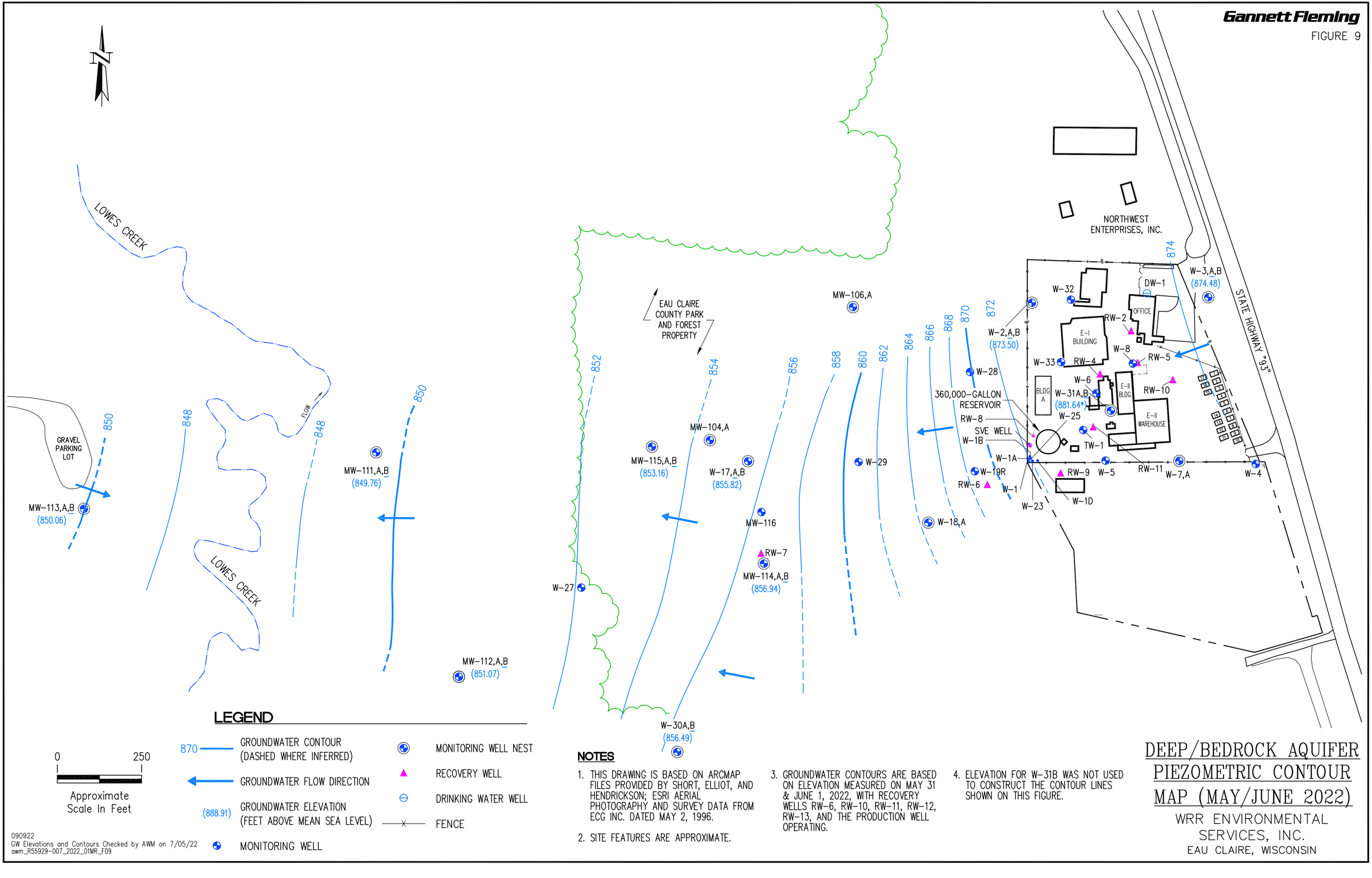
MID-DEPTH AQUIFER PIEZOMETRIC SURFACE CONTOUR MAP (MAY/JUNE 2022)

WRR ENVIRONMENTAL SERVICES, INC.

EAU CLAIRE, WISCONSIN

Gannett Fleming

FIGURE 9



LEGEND

- 870 — GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- (888.91) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- DRINKING WATER WELL
- FENCE

0 250

Approximate Scale In Feet

090922
GW Elevations and Contours Checked by AWM on 7/05/22
awm_R55929-007_2022_01MR_F09

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. GROUNDWATER CONTOURS ARE BASED ON ELEVATION MEASURED ON MAY 31 & JUNE 1, 2022, WITH RECOVERY WELLS RW-6, RW-10, RW-11, RW-12, RW-13, AND THE PRODUCTION WELL OPERATING.
4. ELEVATION FOR W-31B WAS NOT USED TO CONSTRUCT THE CONTOUR LINES SHOWN ON THIS FIGURE.

DEEP/BEDROCK AQUIFER PIEZOMETRIC CONTOUR MAP (MAY/JUNE 2022)

WRR ENVIRONMENTAL SERVICES, INC.
EAU CLAIRE, WISCONSIN

Gannett Fleming

FIGURE 10

NORTHWEST ENTERPRISES, INC.

SCALE

0 80

Approximate Scale In Feet

SEE FIGURE 11 FOR TABLE SUMMARIZING PFAS EXCEEDANCES

STATE HIGHWAY "93"

W-2,A,B

W-3,A,B

W-28

W-19R

SVE-6

W-32

W-34

DW-1

OFFICE

#2

#3

#5

SVE-7

SVE-4

RW-2

E-I BUILDING

NORTHERN AI/SVE SYSTEM

W-33

W-8 (SVE WELL)

RW-5

BULK LOADING AND UNLOADING AREA CANOPY

RW-4

RW-10

DRUM AND TOTE STORAGE SHEDS (1-17)

SVE-5

BUILDING A

W-6

PW-1

E-II BLDG.

MP-1

MIDDLE AI/SVE SYSTEM

W-31A,B

RW-12

CC-7 BLDG.

RW-11

TW-1

E-II WAREHOUSE

W-35

RW-8

360,000-GAL. RESERVOIR

RW-13

FUELS BLDG.

SOUTHERN AI/SVE SYSTEM

SVE WELL

W-1B (AI WELL)

W-25

TURBO STRIPPER BLDG.

W-1A

W-1

W-1D

#4

#6

#1

W-7,A

W-5

W-4

DUMPSTER SHELTER

RW-9

RW-6

RESCO BUILDING

OVERHEAD POWER LINES

LEGEND

- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE TWO ORDERS OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE ONE ORDER OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE THE RECOMMENDED NR 140 ES
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- DUAL PHASE WELL
- PRODUCTION WELL
- DRINKING WATER WELL
- 1-INCH-DIAMETER MONITORING POINT
- ABOVEGROUND STORAGE TANK (APPROXIMATE LOCATION)
- POWER POLE
- LIGHT POLE
- FENCE
- SURFACE WATER DRAINAGE DITCH
- #2 SOLID WASTE MANAGEMENT UNITS

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. THE LOCATIONS OF STORAGE TANKS ARE APPROXIMATE.
4. ESTIMATED EXTENT OF PFAS AT CONCENTRATIONS AT OR ABOVE AN NR 140 ES IS BASED ON RESULTS OF SAMPLES COLLECTED FROM UNDERLINED WELLS IN OCTOBER 2021 OR MAY/JUNE 2022 UNLESS OTHERWISE NOTED ON FIGURE 11.

ESTIMATED EXTENT OF PFAS IN SHALLOW AQUIFER ON SITE (2021/2022)

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

TABLE AND FIGURE CHECKED BY AWM ON 7/07/22
102022
awm_R55929-007_2022_01MR_F10

Gannett Fleming

FIGURE 11

EXTENT OF VOCS IN SHALLOW AQUIFER

Well ID	AS-1	W-1	W-2	W-4	W-5	W-6	W-7	W-17	W-18	W-28	W-29	W-32	W-33	W-34	W-35	MW-104	MW-114	MW-116	RW-2	RW-4	RW-5	RW-10	RW-11	WI DHS Recommended PFAS Standard (ng/l)	
Sample Date	4/15/21	10/8/21	10/7/21	10/8/21	10/8/21	10/8/21	10/8/21	5/31/22	10/6/21	10/6/21	10/6/21	6/1/22	6/1/22	6/1/22	6/1/22	5/31/22	6/1/22	10/6/21	4/22/22	4/22/22	4/22/22	11/18/21	4/15/21	NR 140 ES	NR 140 PAL
PFAS Compounds with Recommended Standards																									
Perfluorooctanesulfonamide (PFOSA)	**72**	**76**		*1.1*		**9.3**			*6.6*		*1.3*		**12**							*5.0*	**1,000**	**1.4**	**55**		
NEtFOSA	**34**																				**120**	**5.0**			
NEtFOSAA	**710**	**9.4**		*14*		**39**			*2.7*		*3.4*		**14**							*5.8*	**3,700**	**150**	**120**	**20**[C]	*2*[C]
NEtFOSE																					**16**	**44**	**2.7**		
Perfluorononanoic acid (PFNA)	*22*	*6.3*		*3.1*	**30**	*11*		*9.7*	*8.9*	*4.8*	*11*		*7.7*				*5.6*	*6.8*		**31**	**140**	*3.5*	*29*	**30**	*3*
Perfluorohexanesulfonic acid (PFHxS)	**350**	**220**	*28*	*28*	*25*	**450**	**110**	**260**	**400**	*20*	**420**	**120**	**540**	**230**	**110**	*20*	**63**	**150**	**8,600**	**4,300**	**5,700**	**460**	**620**	**40**	*4*
Perfluorodecanoic acid (PFDA)					*75*																			**300**	*60*
HFPO-DA (GenX)													**33**											**300**	*30*
Perfluorobutanoic acid (PFBA)												*2,300*		*7,200*					*4,500*	*2,100*	**16,000**			**10,000**	*2,000*
Total PFAS Concentrations	9,897	4,832	763	872	2,078	7,635	2,196	4,437	3,284	936	5,745	16,608	9,500	24,425	4,336	489	3,670	2,456	55,400	28,390	104,634	7,472	9,715	NRS	NRS

NOTES:

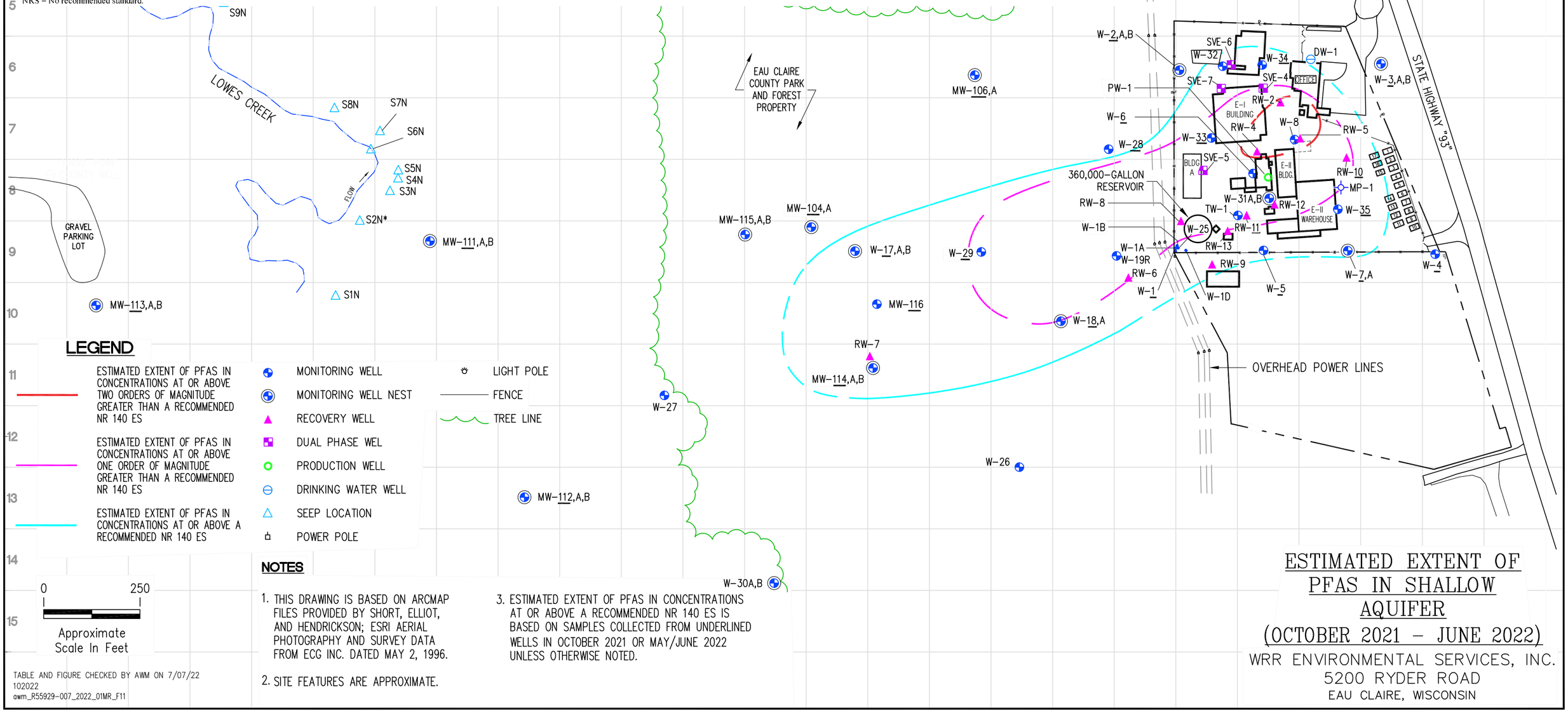
Only wells with one or more PFAS at concentrations exceeding a recommended Enforcement Standard (ES) or Preventative Action Limit (PAL) are shown on this table.

Concentrations are in nanograms per liter (ng/L), equivalent to parts per trillion (ppt), and only concentrations above a recommended NR 140 Preventive Action Limits (PAL) are shown.

Concentrations at or above a recommended NR 140 PAL are italicized; those at or above a recommended NR 140 ES are in bold.

c = DHS recommended a combined ES of 20 ng/l and a combined PAL of 2 ng/l for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.

NRS = No recommended standard.



LEGEND

- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE TWO ORDERS OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE ONE ORDER OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE A RECOMMENDED NR 140 ES
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- DUAL PHASE WEL
- PRODUCTION WELL
- DRINKING WATER WELL
- SEEP LOCATION
- POWER POLE
- LIGHT POLE
- FENCE
- TREE LINE

0 250

Approximate Scale In Feet

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE A RECOMMENDED NR 140 ES IS BASED ON SAMPLES COLLECTED FROM UNDERLINED WELLS IN OCTOBER 2021 OR MAY/JUNE 2022 UNLESS OTHERWISE NOTED.

TABLE AND FIGURE CHECKED BY AWM ON 7/07/22
102022
awm_R55929-007_2022_01MR_F11

ESTIMATED EXTENT OF PFAS IN SHALLOW AQUIFER (OCTOBER 2021 – JUNE 2022)

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

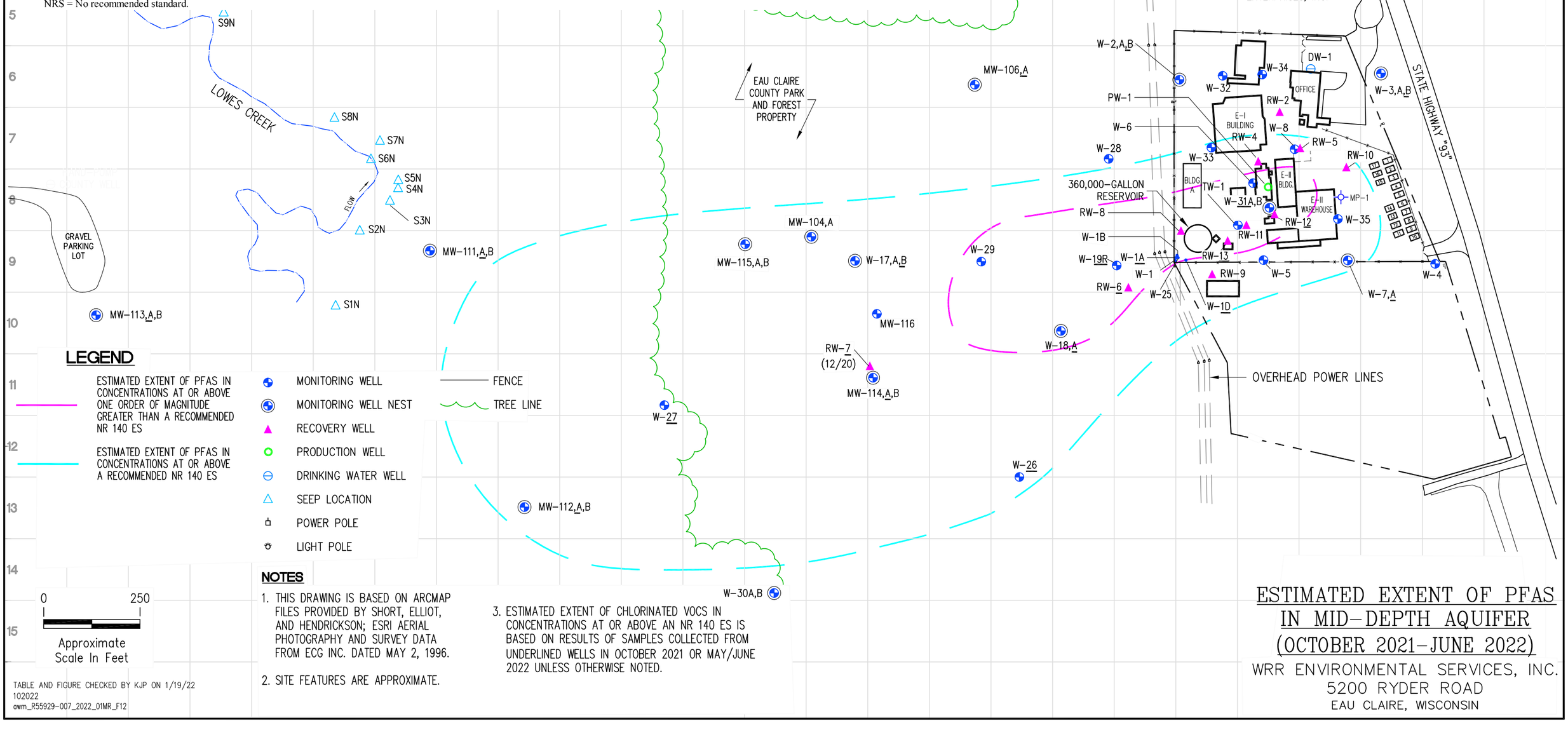
Gannett Fleming

FIGURE 12

EXTENT OF PFAS IN THE MID-DEPTH AQUIFER

Well ID	W-1A	W-1D	W-7A	W-17B	W-18A	W-19R	W-26	W-27	W-31A	MW-111A	MW-112A	RW-6	RW-12	RW-13	WI DHS Recommended PFAS Standard (ng/ℓ)	
Sample Date	10/8/21	10/8/21	10/8/21	05/31/22	10/8/21	10/8/21	05/31/22	10/8/21	6/2/22	05/31/22	05/31/22	4/15/21	4/15/21	11/18/21	**NR 140 ES**	**NR 140 PAL**
PFAS Compounds with Recommended Standards																
Perfluorooctanesulfonamide (PFOSA)	**24**	*8.2*											**4.1**	*3.5*	**20**[C]	*2*[C]
NEtFOSAA	**1.1**	*0.88*							*2.1*				**16**	*8.9*		
Perfluorononanoic acid (PFNA)	*9.0*	*14*			*15*	*13*						*27*	*23*	*20*	**30**	*3*
Perfluorohexanesulfonic acid (PFHxS)	**290**	**260**	**70**	**250**	**420**	**870**	**59**	**230**	**120**	*10*	**48**	**1,000**	**1,100**	**510**	**40**	*4*
Perfluorobutanoic acid (PFBA)						*2,500*	*5,400*					*6,300*	*2,300*	*2,400*	**10,000**	*2,000*
Total	6,044	6,230	1,300	3,767	4,864	10,667	6,688	3,741	1,363	2,626	824	20,878	20,092	14,051	NRS	NRS

NOTES:
Only wells with one or more PFAS at concentrations exceeding a recommended Enforcement Standard (ES) or Preventative Action Limit (PAL) are shown on this table.
Concentrations are in nanograms per liter (ng/L), equivalent to parts per trillion (ppb), and only concentrations above a recommended NR 140 Preventive Action Limits (PAL) are shown.
Concentrations at or above a recommended NR 140 PAL are italicized; those at or above a recommended NR 140 ES are in bold.
c = DHS recommended a combined ES of 20 ng/ℓ and a combined PAL of 2 ng/ℓ for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.
NRS = No recommended standard.



LEGEND

- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE ONE ORDER OF MAGNITUDE GREATER THAN A RECOMMENDED NR 140 ES
- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE A RECOMMENDED NR 140 ES
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- PRODUCTION WELL
- DRINKING WATER WELL
- SEEP LOCATION
- POWER POLE
- LIGHT POLE
- FENCE
- TREE LINE

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. ESTIMATED EXTENT OF CHLORINATED VOCS IN CONCENTRATIONS AT OR ABOVE AN NR 140 ES IS BASED ON RESULTS OF SAMPLES COLLECTED FROM UNDERLINED WELLS IN OCTOBER 2021 OR MAY/JUNE 2022 UNLESS OTHERWISE NOTED.

TABLE AND FIGURE CHECKED BY KJP ON 1/19/22
102022
awm_R55929-007_2022_01MR_F12

ESTIMATED EXTENT OF PFAS IN MID-DEPTH AQUIFER (OCTOBER 2021-JUNE 2022)

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

Gannett Fleming

FIGURE 13

EXTENT OF PFAS IN THE DEEP/BEDROCK AQUIFER							
Well ID	**PW-1**	**W-17A**	**MW-115**	**MW-115A**	**MW-115B**	**WI DHS Recommended PFAS Standard (ng/l)**	
Sample Date	04/15/21	10/08/21	5/31/22	5/31/22	10/8/21	**NR 140 ES**	**NR 140 PAL**
PFAS Compounds with Recommended Standards							
Perfluorohexanesulfonic acid (PFHxS)	*15*	**44**	*35*	*29*	*18*	**40**	*4*
Total	69	13,101	8,713	4,919	6,375	NRS	NRS

NOTES:

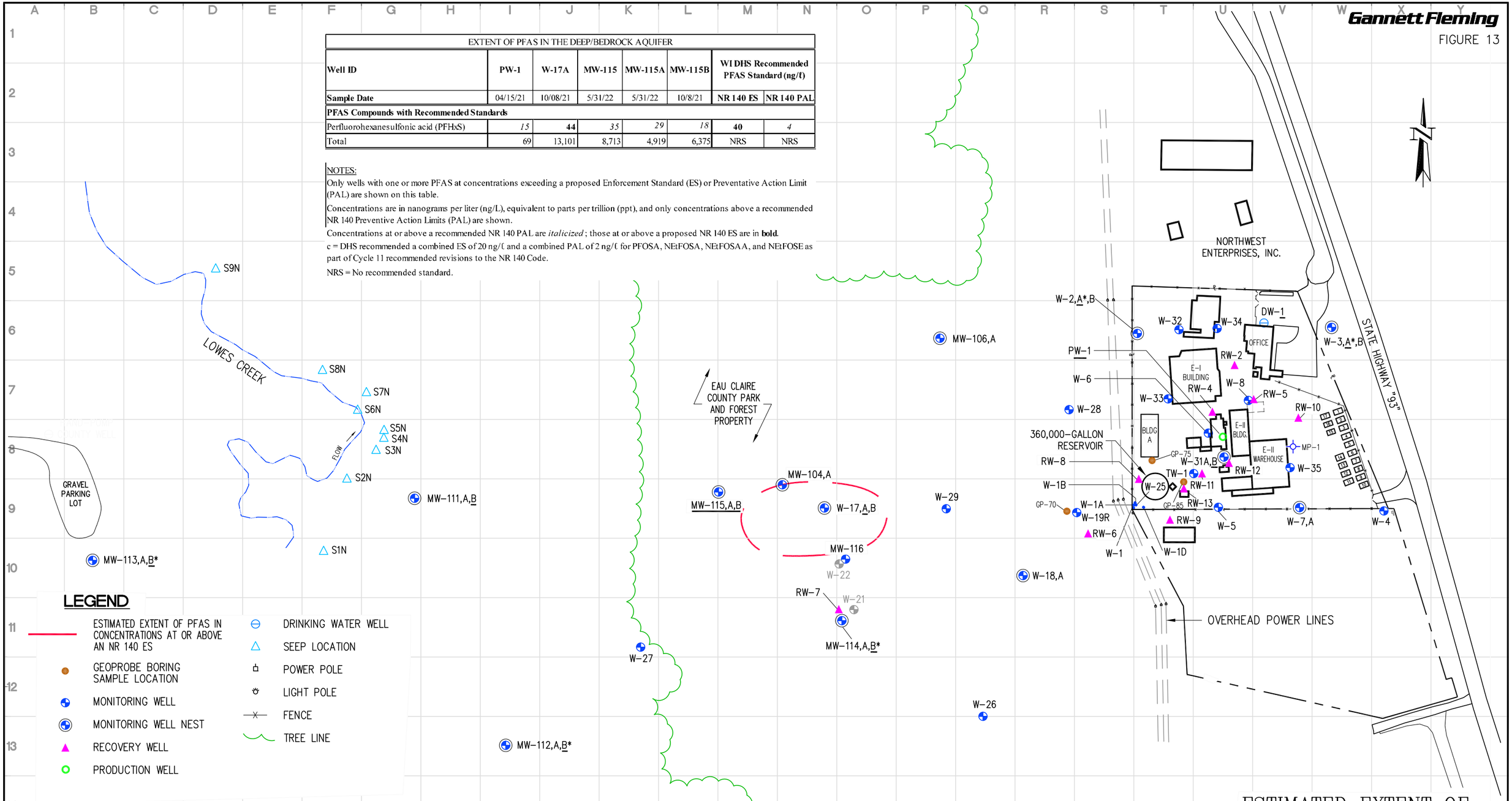
Only wells with one or more PFAS at concentrations exceeding a proposed Enforcement Standard (ES) or Preventative Action Limit (PAL) are shown on this table.

Concentrations are in nanograms per liter (ng/L), equivalent to parts per trillion (ppt), and only concentrations above a recommended NR 140 Preventive Action Limits (PAL) are shown.

Concentrations at or above a recommended NR 140 PAL are *italicized*; those at or above a proposed NR 140 ES are in **bold**.

c = DHS recommended a combined ES of 20 ng/l and a combined PAL of 2 ng/l for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.

NRS = No recommended standard.



LEGEND

- ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE AN NR 140 ES
- GEOPROBE BORING SAMPLE LOCATION
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- PRODUCTION WELL
- DRINKING WATER WELL
- SEEP LOCATION
- POWER POLE
- LIGHT POLE
- FENCE
- TREE LINE

0 250

Approximate Scale In Feet

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. ESTIMATED EXTENT OF PFAS IN CONCENTRATIONS AT OR ABOVE AN NR 140 ES IS BASED ON RESULTS OF SAMPLES COLLECTED FROM UNDERLINED WELLS IN OCTOBER 2021 OR MAY/JUNE 2022 UNLESS OTHERWISE NOTED.

TABLE AND FIGURE CHECKED BY AWM ON 08/23/22
102022
awm_R55929-007_2022_01MR_F13

ESTIMATED EXTENT OF PFAS IN DEEP/BEDROCK AQUIFER (OCTOBER 2021–JUNE 2022)

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

Gannett Fleming

FIGURE 14

0 80

Approximate Scale In Feet

NORTHWEST ENTERPRISES, INC.

SCALE

STATE HIGHWAY "93"

W-2,A,B

W-3,A,B

W-28

SVE-6

W-32

W-34

DW-1

OFFICE

SVE-7

SVE-4

RW-2

E-I BUILDING

NORTHERN AI/SVE SYSTEM

W-33

W-8 (SVE WELL)

RW-5

BULK LOADING AND UNLOADING AREA CANOPY

RW-4

RW-10

DRUM AND TOTE STORAGE SHEDS (1-17)

SVE-5

BUILDING A

W-6

PW-1

SVE-2

AS-1

E-II BLDG.

MP-1

MIDDLE AI/SVE SYSTEM

W-31A,B

CC-7

RW-12

RW-11 BLDG.

TW-1

E-II WAREHOUSE

W-35

FUELS BLDG.

RW-8

360,000-GAL. RESERVOIR

NON-TS EFF.

RW-13

TURBO-STRIPPER INF.

SOUTHERN AI/SVE SYSTEM

SVE WELL

W-1B (AI WELL)

W-25

AERATION RES. EFF.

TURBO STRIPPER BLDG.

W-5

W-7,A

W-4

W-1A

W-1D

W-1

DUMPSTER SHELTER

W-19R

RW-6

ABSORP. POND

ABSORPTION POND

RW-9

RESCO BUILDING

OVERHEAD POWER LINES

LEGEND

- PROPOSED BORING LOCATION
- PFAS GRAB SAMPLE LOCATION
- MONITORING WELL
- MONITORING WELL NEST
- RECOVERY WELL
- PRODUCTION WELL
- AIR SPARGE WELL
- DRINKING WATER WELL
- 1-INCH-DIAMETER MONITORING POINT
- ABOVEGROUND STORAGE TANK (APPROXIMATE LOCATION)
- POWER POLE
- LIGHT POLE
- FENCE
- SURFACE WATER DRAINAGE DITCH

NOTES

1. THIS DRAWING IS BASED ON ARCMAP FILES PROVIDED BY SHORT, ELLIOT, AND HENDRICKSON; ESRI AERIAL PHOTOGRAPHY AND SURVEY DATA FROM ECG INC. DATED MAY 2, 1996.
2. SITE FEATURES ARE APPROXIMATE.
3. THE LOCATIONS OF STORAGE TANKS ARE APPROXIMATE.

PROPOSED GEOPROBE SAMPLE LOCATIONS

WRR ENVIRONMENTAL SERVICES, INC.
5200 RYDER ROAD
EAU CLAIRE, WISCONSIN

083022
awm_R55929-007_2022_01MR_F14

TABLES

GANNETT FLEMING

WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 1

GROUNDWATER ELEVATIONS (JUNE 2021-JUNE 2022)

Well ID	WDNR Well ID	Reference Elevation (ft MSL)	June 1, 2021		October 6, 2021		May 31/June 1, 2022	
			Depth to Water (ft)	GW Elevation (ft MSL)	Depth to Water (ft)	GW Elevation (ft MSL)	Depth to Water (ft)	GW Elevation (ft MSL)
W-1	100	893.58	2.69	890.89	2.20	891.38	2.51	891.07
W-1A	103	893.68	21.33	872.35	19.82	873.86	19.17	874.51
W-1D	109	895.00	22.46	872.54	20.75	874.25	20.70	874.30
W-2	112	899.21	13.68	885.53	12.46	886.75	12.08	887.13
W-2A	115	900.17	27.18	872.99	26.70	873.47	26.67	873.50
W-2B	118	900.03	18.33	881.70	16.69	883.34	17.30	882.73
W-3	121	902.22	13.50	888.72	12.86	889.36	11.90	890.32
W-3A	124	903.79	29.47	874.32	29.34	874.45	29.31	874.48
W-3B	127	904.14	18.30	885.84	16.96	887.18	17.38	886.76
W-4	130	903.20	16.83	886.37	15.52	887.68	15.70	887.50
W-5	133	899.47	10.46	889.01	10.19	889.28	9.82	889.65
W-6	136	900.88	14.20	886.68	13.25	887.63	13.40	887.48
W-7	139	904.18	18.39	885.79	16.93	887.25	17.11	887.07
W-7A	142	905.33	22.20	883.13	19.69	885.64	20.06	885.27
W-8	145	905.89	NM	NM	NM	NM	NM	NM
W-17	169	891.97	14.15	877.82	11.65	880.32	9.40	882.57
W-17A	172	890.11	34.77	855.34	34.76	855.35	34.29	855.82
W-17B	175	890.38	30.89	859.49	30.95	859.43	30.07	860.31
W-18	178	890.69	2.67	888.02	4.98	885.71	2.78	887.91
W-18A	181	890.82	24.96	865.86	24.64	866.18	23.87	866.95
W-19R	185	892.30	23.59	868.71	23.00	869.30	22.46	869.84
W-25	202	895.08	NM	NM	NM	NM	NM	NM
W-26	205	892.37	29.91	862.46	30.20	862.17	28.74	863.63
W-27	208	888.86	36.27	852.59	36.35	852.51	35.51	853.35
W-28	211	893.36	7.31	886.05	6.85	886.51	5.55	887.81
W-29	214	892.26	6.78	885.48	6.84	885.42	4.84	887.42
W-30A	217	875.57	NM	NM	21.66	853.91	21.05	854.52
W-30B	220	876.33	NM	NM	20.41	855.92	19.84	856.49
W-31A	223	902.86	22.64	880.22	NM	NM	21.22	881.64
W-31B	226	902.94	29.93	873.01	NM	NM	21.30	881.64
W-32	788	899.36	15.79	883.57	14.60	884.76	14.90	884.46
W-33	787	901.26	12.40	888.86	11.68	889.58	11.56	889.70
W-34	592	904.41	19.18	885.23	17.98	886.43	18.89	885.52

GANNETT FLEMING

TABLE 1

GROUNDWATER ELEVATIONS (JUNE 2021-JUNE 2022)

Well ID	WDNR Well ID	Reference Elevation (ft MSL)	June 1, 2021		October 6, 2021		May 31/June 1, 2022	
			Depth to Water (ft)	GW Elevation (ft MSL)	Depth to Water (ft)	GW Elevation (ft MSL)	Depth to Water (ft)	GW Elevation (ft MSL)
W-35	NA	904.19	18.38	885.81	17.29	886.90	17.84	886.35
MW-104	318	890.46	12.19	878.27	10.92	879.54	8.90	881.56
MW-104A	321	890.74	32.71	858.03	32.35	858.39	31.29	859.45
MW-106	330	892.88	9.76	883.12	9.24	883.64	7.54	885.34
MW-106A	333	892.89	26.35	866.54	25.68	867.21	24.95	867.94
MW-111	357	888.11	41.65	846.46	42.25	845.86	41.52	846.59
MW-111A	360	888.24	41.50	846.74	41.50	846.74	41.41	846.83
MW-111B	363	888.07	38.50	849.57	38.76	849.31	38.31	849.76
MW-112	366	886.26	35.71	850.55	35.95	850.31	35.42	850.84
MW-112A	369	886.08	35.51	850.57	35.79	850.29	35.26	850.82
MW-112B	372	886.29	35.50	850.79	35.74	850.55	35.22	851.07
MW-113	375	890.59	41.28	849.31	41.75	848.84	41.22	849.37
MW-113A	378	890.83	41.46	849.37	41.90	848.93	41.38	849.45
MW-113B	381	890.81	40.86	849.95	41.23	849.58	40.75	850.06
MW-114	384	890.15	30.81	859.34	30.66	859.49	29.95	860.20
MW-114A	387	889.95	33.67	856.28	33.72	856.23	33.26	856.69
MW-114B	390	890.01	33.35	856.66	33.38	856.63	33.07	856.94
MW-115	393	889.14	36.57	852.57	36.60	852.54	36.03	853.11
MW-115A	396	888.42	35.78	852.64	35.95	852.47	35.39	853.03
MW-115B	399	888.54	35.71	852.83	35.86	852.68	35.38	853.16
MW-116	402	889.80	7.19	882.61	6.47	883.33	4.02	885.78
RW-2	NA	905.31	18.31	887.00	18.61	886.70	NM	NM
RW-5	512	903.75	17.94	885.81	16.92	886.83	17.60	886.15
TW-1	NA	899.14	11.28	887.86	10.72	888.42	10.30	888.84

NOTES:

Site datum = Mean sea level (MSL).

NA = Not applicable.

NM = Not measured.

GANNETT FLEMING

WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 2

MEASURED VERTICAL GROUNDWATER GRADIENTS (JUNE 2021 - MAY/JUNE 2022)

Well ID	WDNR Well ID	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screened Interval (ft MSL)	Bottom of Screened Interval (ft MSL)	June 1, 2021			October 1, 2021			May/June 2022		
						Depth to Water (ft)	GW Elevation (ft MSL)	Vertical Gradient (ft/ft)	Depth to Water (ft)	GW Elevation (ft MSL)	Vertical Gradient (ft/ft)	Depth to Water (ft)	GW Elevation (ft MSL)	Vertical Gradient (ft/ft)
W-1	100	892.24	893.58	890.24	885.24	2.69	890.89		2.20	891.38		2.51	891.07	
W-1A	103	892.64	893.68	855.64	852.64	21.33	872.35	(0.5518)	19.82	873.86	(0.5214)	19.17	874.51	(0.4929)
W-1D	109	892.64	895.00	849.64	844.64	22.46	872.54	(0.4520)	20.75	874.25	(0.4219)	20.70	874.30	(0.4131)
W-2	112	898.52	899.21	889.52	884.52	13.68	885.53		12.46	886.75		12.08	887.13	
W-2B	118	897.92	900.03	847.92	842.92	18.33	881.70	(0.0967)	16.69	883.34	(0.0848)	17.30	882.73	(0.1089)
W-2A	115	898.02	900.17	793.02	788.02	27.18	872.99	(0.1587)	26.70	873.47	(0.1798)	26.67	873.50	(0.1681)
W-3	121	901.66	902.22	891.66	886.66	13.50	888.72		12.86	889.36		11.90	890.32	
W-3B	127	902.16	904.14	846.16	841.16	18.30	885.84	(0.0654)	16.96	887.18	(0.0492)	17.38	886.76	(0.0794)
W-3A	124	902.86	903.79	794.86	789.86	29.47	874.32	(0.2246)	29.34	874.45	(0.2481)	29.31	874.48	(0.2394)
W-7	139	900.53	904.18	888.03	878.03	18.39	885.79		16.93	887.25		17.11	887.07	
W-7A	142	900.53	905.33	873.03	868.03	22.20	883.13	(0.2337)	19.69	885.64	(0.1329)	20.06	885.27	(0.1498)
W-17	169	888.32	891.97	886.12	875.32	14.15	877.82		11.65	880.32		9.40	882.57	
W-17B	175	888.32	890.38	844.32	839.32	30.89	859.49	(0.5275)	30.95	859.43	(0.5803)	30.07	860.31	(0.5996)
W-17A	172	888.32	890.11	793.32	788.32	34.77	855.34	(0.0814)	34.76	855.35	(0.0800)	34.29	855.82	(0.0880)
W-18	178	888.24	890.69	884.74	874.74	2.67	888.02		4.98	885.71		2.78	887.91	
W-18A	181	888.24	890.82	838.24	833.24	24.96	865.86	(0.5036)	24.64	866.18	(0.4439)	23.87	866.95	(0.4764)
W-30A	217	872.07	875.57	762.07	757.07	NM	NM		21.66	853.91		21.05	854.52	
W-30B	220	872.83	876.33	749.33	744.33	NM	NM	NM	20.41	855.92	0.1578	19.84	856.49	0.1546
W-31A	223	900.37	902.86	860.16	855.16	22.64	880.22		NM	NM		21.22	881.64	
W-31B	226	900.37	902.94	839.64	834.64	29.93	873.01	(0.3514)	NM	NM	NM	21.30	881.64	0.0000
MW-104	318	888.68	890.46	878.68	873.68	12.19	878.27		10.92	879.54		8.90	881.56	
MW-104A	321	888.68	890.74	853.18	848.18	32.71	858.03	(0.8002)	32.35	858.39	(0.8294)	31.29	859.45	(0.8671)
MW-106	330	890.96	892.88	880.96	875.96	9.76	883.12		9.24	883.64		7.54	885.34	
MW-106A	333	890.96	892.89	853.96	848.96	26.35	866.54	(0.6141)	25.68	867.21	(0.6085)	24.95	867.94	(0.6444)
MW-111	357	885.59	888.11	850.59	840.59	41.65	846.46		42.25	845.86		41.52	846.59	
MW-111A	360	885.59	888.24	820.59	815.59	41.50	846.74	0.0110	41.50	846.74	0.0350	41.41	846.83	0.0094
MW-111B	363	885.51	888.07	790.51	785.51	38.50	849.57	0.0941	38.76	849.31	0.0854	38.31	849.76	0.0974

GANNETT FLEMING

TABLE 2

MEASURED VERTICAL GROUNDWATER GRADIENTS (JUNE 2021 - MAY/JUNE 2022)

Well ID	WDNR Well ID	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screened Interval (ft MSL)	Bottom of Screened Interval (ft MSL)	June 1, 2021			October 1, 2021			May/June 2022		
						Depth to Water (ft)	GW Elevation (ft MSL)	Vertical Gradient (ft/ft)	Depth to Water (ft)	GW Elevation (ft MSL)	Vertical Gradient (ft/ft)	Depth to Water (ft)	GW Elevation (ft MSL)	Vertical Gradient (ft/ft)
MW-112	366	883.88	886.26	853.88	843.88	35.71	850.55		35.95	850.31		35.42	850.84	
MW-112A	369	883.43	886.08	828.43	823.43	35.51	850.57	0.0009	35.79	850.29	(0.0009)	35.26	850.82	(0.0009)
MW-112B	372	883.87	886.29	798.87	793.87	35.50	850.79	0.0074	35.74	850.55	0.0088	35.22	851.07	0.0085
MW-113	375	888.21	890.59	852.21	842.21	41.28	849.31		41.75	848.84		41.22	849.37	
MW-113A	378	888.14	890.83	823.14	818.14	41.46	849.37	0.0024	41.90	848.93	0.0036	41.38	849.45	0.0032
MW-113B	381	888.36	890.81	793.36	788.36	40.86	849.95	0.0195	41.23	849.58	0.0218	40.75	850.06	0.0205
MW-114	384	886.65	890.15	861.70	846.70	30.81	859.34		30.66	859.49		29.95	860.20	
MW-114A	387	886.45	889.95	787.25	782.25	33.67	856.28	(0.0448)	33.72	856.23	(0.0477)	33.26	856.69	(0.0511)
MW-114B	390	886.51	890.01	751.51	746.51	33.35	856.66	0.0106	33.38	856.63	0.0112	33.07	856.94	0.0070
MW-115	393	885.64	889.14	795.44	790.44	36.57	852.57		36.60	852.54		36.03	853.11	
MW-115A	396	884.92	888.42	775.80	770.80	35.78	852.64	0.0036	35.95	852.47	(0.0036)	35.39	853.03	(0.0041)
MW-115B	399	885.04	888.54	745.94	740.94	35.71	852.83	0.0064	35.86	852.68	0.0070	35.38	853.16	0.0044

NOTES:

Site datum = feet above mean sea level (ft MSL).

Negative/downward calculated vertical gradients are enclosed in parenthesis and (red).

Top of casing & ground surface elevations for W-1 thru W-29 and MW-101 thru MW-110 taken from ECG Inc.'s 05/02/96 "Site Plan-Waste Research and Reclamation" showing revised monitoring well elevations.

Top of casing elevation for W-30A, W-30B, MW-103, and MW-103A from WRR level survey conducted 9/19/07.

Top of casing and ground surface elevations for W-111 through MW-113B based on table with groundwater monitoring well information prepared by SEH dated Jan 14, 2005.

Top of casing elevations for well nests MW-113 through MW-115 and well MW-116 based on SEH survey conducted in May 2010.

Ground surface elevations were not surveyed for W-30A&B, MW-114A&B, and MW-115A&B. The ground surface elevations were derived by subtracting 3.5 ft from top of casing elevations (TOC - 3.5).

NM = Not measured.

GANNETT FLEMING

WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		PW-1	DW-1	W-1	W-1A	W-1D	W-2	W-2A	W-2B
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**4/15/21**	**5/1/21**	**10/8/21**	**10/8/21**	**10/8/21**	**10/7/21**	**10/7/21**	**10/7/21**
PFAS Compounds with Recommended Standards											
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2*[C]	<0.96	1.1 J	**76**	**24**	*8.2*	<0.72	<0.70	<0.67
NEtFOSA	4151-50-2			<0.85	<0.81	<1.2	<1.1	<1.2	<1.2	<1.1	<1.1
NEtFOSAA	2991-50-6			<1.3	<1.2	**9.4**	**1.1** J	*0.88* J	<0.63	<0.62	<0.59
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	<0.26	<0.25	*6.3*	*9.0*	*14*	<0.88	<0.86	<0.82
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	*15*	<0.53	**220**	**290**	**260**	*28*	<0.36	**53**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	<0.3	<0.29	2.4 J	2.4 J	4.0 J	<1.3	<1.2	<1.2
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.5	<1.4	5.7	4.6 J	2.5 J	<1.2	<1.2	<1.1
Perfluoroundecanoic acid (PFUnA)	2058-94-8	**3,000**	*600*	<1.1	<1.0	1.2 J	<0.93	<0.99	<0.99	<0.96	<0.92
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	7.9	<2.2	970	1,200	1,600	120	4.1 J	54
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	4.6	0.57 J	1,100	960	1,000	93	3.5 J	13
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	5.0	<0.19	400	430	420	270	0.69 J	19
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				32.5	1.67	2,791	2,921	3,310	511	8.29	139
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	5.0	<0.79	510	950	770	42	1.8 J	17
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	24	<0.51	340	580	570	38	2.0 J	4.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	3.3	<0.46	570	770	1,000	140	6.6	10
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	1.1 J	<0.23	400	330	260	27	1.3 J	5.5
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	1.0 J	<0.28	78	120	110	3.2 J	<0.55	4.9
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	2.1	<0.18	17	13	34	1.3 J	<0.56	4.7
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	<0.36	<0.35	0.82 J	<0.48	<0.51	<0.50	<0.49	<0.47
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	<0.31	<0.30	9.6	<1.3	<1.4	<1.4	<1.3	<1.3
4:2 FTS	757124-72-4	NRS	NRS	<0.23	<0.22	1.0 J	2.3 J	1.9 J	<0.95	<0.92	<0.89
6:2 FTS	27619-97-2	NRS	NRS	<2.4	<2.3	97	310	160	<0.67	<0.65	<0.63
8:2 FTS	39108-34-4	NRS	NRS	<0.45	<0.43	3.20 J	41	6.5	<1.1	<1.1	<1.1
NMeFOSAA	2355-31-9	NRS	NRS	<1.2	<1.1	14	6.9	7.9	<0.65	<0.63	<0.61
Total Concentration of Detected PFAS Compounds without Pending NR 140 ES				36.5	0.0	2,041	3,123	2,920	252	11.7	46.2
Total Concentration of All Detected PFAS Compounds				69	1.67	4,832	6,044	6,230	763	20.0	185

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		W-3	W-3A	W-3B	W-4	W-5	W-6	W-7	W-7A
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**10/6/21**	**10/6/21**	**10/6/21**	**10/8/21**	**10/8/21**	**10/8/21**	**10/8/21**	**10/8/21**
PFAS Compounds with Recommended Standards											
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2*[C]	<0.82	<0.67	<0.67	*1.1* J	<0.73	**9.3**	<0.73	<0.68
NEtFOSAA	2991-50-6			<0.72	<0.59	<0.59	*14*	0.92 J	**39**	0.95 J	<0.60
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	1.6 J	<0.82	<0.82	*3.1* J	**30**	*11*	2.7 J	<0.83
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	<0.43	<0.35	<0.35	*28*	*25*	**450**	**110**	**70**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	<1.4	<1.2	<1.2	2.2 J	*75*	36	<1.3	<1.2
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.3	4.6 J	<1.1	<1.2	3.5 J	8.3	1.2 J	1.7 J
Perfluoroundecanoic acid (PFUnA)	2058-94-8	**3,000**	*600*	<1.1	<0.92	<0.92	<1.0	1.9 J	2.2 J	<1.00	<0.93
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	13	3.5 J	<2.4	100	330	380	190	85
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	12	<1.1	<1.1	160	340	390	220	170
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	18	<0.33	1.5 J	130	34	370	500	140
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				44.6	8.1	1.5	438	840	1,696	1,025	467
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	3.8	1.2 J	<0.59	88	120	240	490	510
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	19	<0.84	<0.84	120	140	4,000	400	130
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	20	3.0 J	<1.2	130	600	670	200	130
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	5.6 J	0.42 J	<0.41	89	210	180	64	43
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	0.83 J	<0.52	<0.52	2.3 J	4.6 J	130	11	5.9
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	<0.65	<0.53	<0.53	3.3 J	1.5 J	38	6.2	13
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	<0.57	<0.47	<0.47	0.90 J	1.2 J	26	<0.51	<0.47
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	<1.6	<1.3	<1.3	<1.5	8.1	3.3 J	<1.4	<1.3
4:2 FTS	757124-72-4	NRS	NRS	<1.1	<0.88	<0.88	<1.00	<0.96	1.6 J	<0.96	<0.89
6:2 FTS	27619-97-2	NRS	NRS	2.5 J	<0.62	2.6 J	<0.71	110	530	<0.68	1.5 J
8:2 FTS	39108-34-4	NRS	NRS	<1.3	<1.1	<1.1	<1.2	42	100	<1.2	<1.1
NMeFOSAA	2355-31-9	NRS	NRS	<0.74	<0.61	<0.61	<0.69	<0.66	20	<0.66	<0.61
Total Concentration of Detected PFAS Compounds without Pending NR 140 ES				51.7	4.62	2.6	434	1,237	5,939	1,171	833
Total Concentration of All Detected PFAS Compounds				96.3	12.7	4.1	872	2,078	7,635	2,196	1,300

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		W-17		W-17A		W-17B		W-18	W-18A
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**10/6/2021**	**5/31/2022**	**10/8/2021**	**5/31/2022**	**10/8/2021**	**5/31/2022**	**10/6/2021**	**10/8/2021**
PFAS Compounds with Recommended Standards											
Perfluorooctanesulfonamide (PFOSA)	754-91-6	20[C]	2[C]	<0.66	<0.79	<0.68	<0.72	<0.72	<0.75	*6.6*	0.9 J
NEtFOSAA	2991-50-6			<0.58	<1.7	0.64 J	<1.6	<0.63	<1.6	*2.7* J	<0.65
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	*9.7*	*6.1*	<0.83	<0.88	*7.1*	2.6 J	*8.9*	*15*
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	**260**	**220**	**48**	**44**	**270**	**250**	**400**	**420**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	<1.2	<1.4	<1.2	<1.2	<1.3	<1.3	2.4 J	2.6 J
HFPO-DA (GenX)	13252-13-6	**300**	*30*	3.3 J	<1.3	<1.1	3.3 J	2.6 J	4.3 J	4.2 J	4.3 J
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	780	630	400	450	660	490	490	690
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	1,100	740	520	470	540	490	410	610
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	410	410	150	160	410	360	260	330
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				2,563	2,006	1,119	1,127	1,890	1,597	1,585	2,073
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	590	610	9,400	11,000	1,700	1,000	470	1,100
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	240	570	7.3	1.1 J	34	75	470	280
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	740	590	340	320	700	560	360	600
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	400	240	510	630	140	130	240	210
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	86	87	27	23	130	110	97	88
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	9.9	14	<0.54	<0.57	14	11	15	32
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	<1.3	<1.5	<1.3	<1.4	<1.4	<1.4	4.80 J	<1.4
4:2 FTS	757124-72-4	NRS	NRS	3.6 J	<1.0	<0.90	<0.94	2.10 J	2.2 J	<0.92	1.10 J
6:2 FTS	27619-97-2	NRS	NRS	450	320	2.0 J	<1.9	210	280	40	480
NMeFOSAA	2355-31-9	NRS	NRS	<0.60	<0.71	<0.62	<0.65	<0.65	1.3 J	2.20 J	<0.66
Total Concentration of Detected PFAS Compounds without Pending NR 140 ES				2,520	2,431	10,286	11,974	2,930	2,170	1,699	2,791
Total Concentration of All Detected PFAS Compounds				5,083	4,437	11,405	13,101	4,820	3,766	3,284	4,864

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		W-19R	W-26		W-27	W-28	W-29	W-30A	
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**10/08/21**	**10/08/21**	**05/31/22**	**10/08/21**	**10/06/21**	**10/06/21**	**05/01/21**	**05/31/22**
PFAS Compounds with Recommended Standards											
Perfluorooctanesulfonamide (PFOSA)	754-91-6	20[C]	2[C]	<0.70	<0.67	<0.73	<0.76	<0.64	*1.3* J	<0.93	<0.73
NEtFOSAA	2991-50-6			<0.62	<0.59	<1.6	<0.67	<0.57	*3.4* J	<1.2	<1.6
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	*13*	<0.82	<0.89	1.6 J	*4.8*	*11*	<0.26	<0.89
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	**870**	**79**	**59**	**230**	*20*	**420**	<0.54	0.93 J
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	1.3 J	<1.2	<1.3	<1.3	2.9 J	2.0 J	<0.29	<1.3
HFPO-DA (GenX)	13252-13-6	**300**	*30*	7.5	3.6 J	3.5 J	2.1 J	<1.1	6.6	<1.4	<1.2
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	*2,500*	*5,800*	*5,400*	540	38	910	<2.3	<2.7
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	1,200	300	260	390	22	1000	0.61 J	<1.2
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	1100	320	320	390	230	500	0.22 J	<0.36
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				5,692	6,503	6,043	1,554	318	2,854	0.83	0.93
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	2,900	310	240	1400	38	720	<0.81	<0.64
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	270	3.4	3.4	5.1	520	860	1.1 JI	<0.91
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	940	260	260	500	40	640	0.8 J	<1.3
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	380	110	110	150	12	330	0.29 J	<1.8
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	340	38	25	110	5.3	130	<0.29	<0.57
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	110	1.9 J	1.6 J	5.3	0.91 J	18	<0.18	<0.58
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	<0.49	<0.47	<0.51	<0.53	0.7 J	<0.47	<0.35	<0.51
4:2 FTS	757124-72-4	NRS	NRS	<0.93	<0.88	<0.96	1.8 J	<0.85	1.8 J	<0.23	<0.96
6:2 FTS	27619-97-2	NRS	NRS	35	4.9	5.8	15	1.3 J	190	<2.4	<2.0
NMeFOSAA	2355-31-9	NRS	NRS	<0.64	<0.61	<0.66	<0.69	<0.58	0.89 J	<1.1	<0.66
Total Concentration of Detected PFAS Compounds without Pending NR 140 ES				4,975	728	646	2,187	618	2,891	2.19	0.0
Total Concentration of All Detected PFAS Compounds				10,667	7,231	6,688	3,741	936	5,745	3.02	0.93

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		W-30B		W-31A	W-31B	W-32	W-33	W-34	W-35
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**05/02/21**	**05/31/22**	**06/02/22**	**06/02/22**	**06/01/22**	**06/01/22**	**06/01/22**	**06/01/22**
PFAS Compounds with Recommended Standards											
Perfluorooctanesulfonamide (PFOSA)	754-91-6	20[C]	2[C]	<0.94	<0.71	<0.74	<0.71	<3.6	**12**	<0.71	<0.78
NEtFOSAA	2991-50-6			<1.2	<1.5	*2.1* J	<1.5	<7.7	**14**	<1.6	<1.7
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	<0.26	<0.87	<0.90	<0.86	<4.3	*7.7*	2.7 J	1.1 J
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	<0.55	<0.90	**120**	*24*	**120**	**540**	**230**	**110**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	0.32 J	<1.2	<1.3	<1.2	<6.2	24	<1.2	<1.4
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.4	<1.2	<1.2	<1.2	<5.8	*33*	23	<1.3
Perfluoroundecanoic acid (PFUnA)	2058-94-8	**3,000**	*600*	<1.1	<0.97	<1.0	<0.97	6.5 J	<0.94	<0.98	<1.1
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	<2.3	<2.6	140	8.8	*2,300*	870	*7,200*	250
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	1.3 J	1.3 J	87	8.2	1,400	1,300	670	250
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	0.46 J	0.41 J	150	7.6	4,000	830	12,000	230
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				2.08	1.71	499	48.6	7,827	3,631	20,126	841
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	1.5 J	1.2 J	520	11	7,500	1,400	1,900	1,400
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	1.8 JI	2.0	70	60	24	1,600	590	41
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	1.4 J	1.6 J	200	12	460	1,500	1,000	660
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	0.27 J	<1.7	31	2.1 J	600	550	300	83
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	<0.29	<0.56	11	1.1 J	170	85	450	5.1 J
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	<0.18	<0.57	22	6.2	14 J	23	24	88
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	<0.35	<0.50	<0.52	<0.49	<2.5	2.7 J	3.1 J	<0.54
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	<0.31	<1.4	<1.4	<1.4	<6.8	4.4 J	<1.4	<1.5
4:2 FTS	757124-72-4	NRS	NRS	<0.23	<0.94	<0.97	<0.93	<4.7	4.1 J	0.98 J	18
6:2 FTS	27619-97-2	NRS	NRS	3.8 J	2.3 J	10	<1.9	13 J	660	27	1,200
8:2 FTS	39108-34-4	NRS	NRS	<0.44	<1.1	<1.2	<1.1	<5.6	29	<1.1	<1.2
NMeFOSAA	2355-31-9	NRS	NRS	<1.1	<0.64	<0.67	<0.64	<3.2	11	<0.65	<0.70
NMeFOSE	24448-09-7	NRS	NRS	<1.3	<1.5	<1.6	3.9 J	<7.5	<1.5	4.2 J	<1.6
Total Concentration of Detected PFAS Compounds without Pending NR 140 ES				8.77	7.1	864	96.3	8,781	5,869	4,299	3,495
Total Concentration of All Detected PFAS Compounds				10.9	8.81	1,363	145	16,608	9,500	24,425	4,336

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		MW-104		MW-104A		MW-106	MW-106A	MW-111	
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**10/06/21**	**05/31/22**	**10/06/21**	**05/31/22**	**10/06/21**	**10/06/21**	**10/06/21**	**05/31/22**
PFAS Compounds with Recommended Standards											
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	*26*	*20*	*9.3*	*17*	1.5 J	*7.7*	<0.36	0.95 J
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	<1.2	<1.3	<1.2	<1.3	<1.1	<1.2	<1.2	<1.3
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	52	120	190	300	34	110	<2.5	6.3
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	96	120	48	110	3 J	16	<1.2	5.3
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	37	64	57	110	4.8	6.5	<0.34	5.0 J
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				211	324	304	537	43.3	140	0.0	17.6
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	43	41	80	91	1.4 J	3.1	2.1	10
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	1.2 J	1.6 J	10	13	1.2 J	1.1 J	<0.86	<0.92
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	53	91	75	140	2.7 J	25	<1.2	4.6 J
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	22	20	7.7	18	0.49 J	2.6 J	<0.43	<1.8
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	5.1	11	7.2	11	1.0 J	4.0 J	<0.54	0.69 J
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	<0.55	<0.59	0.72 J	0.59 J	<0.52	<0.53	<0.55	<0.58
6:2 FTS	27619-97-2	NRS	NRS	<0.64	<2.0	<0.64	<2.0	13	2.2 J	0.73 J	<2.0
Total Concentration of Detected PFAS Compounds without Pending NR 140 ES				124	165	181	274	19.8	38.0	2.83	15.3
Total Concentration of All Detected PFAS Compounds				335	489	485	811	63.1	178	2.83	32.8

GANNETT FLEMING

TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		MW-111A		MW-111B		MW-112		MW-112A	
PFAS Compound		NR 140 ES	NR140 PAL	10/06/21	05/31/22	10/06/21	05/31/22	05/01/21	05/31/22	05/01/21	05/31/22
PFAS Compounds with Recommended Standards											
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2*[C]	<0.68	<0.81	<0.66	<0.68	1.5 J	<0.70	<0.91	<0.73
NEtFOSAA	2991-50-6			<0.60	<1.8	0.6 J	<1.5	<1.3	<1.5	<1.2	<1.6
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	<0.84	<0.99	0.95 J	<0.84	<0.26	<0.86	2.6	<0.89
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	*6.2*	*10*	2.7 J	1.1 J	<0.56	1.0 J	*25*	**48**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	<1.2	<1.4	2.1 J	<1.2	0.31 J	<1.2	0.39 J	<1.3
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.1	2.8 J	<1.1	<1.1	<1.5	1.5 J	<1.4	2.1 J
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	430	790	140	20	<2.3	3.4 J	140	180
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	280	630	81	7.8	<0.57	1.9 J	51	88
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	6.1	9.7	4.6 J	1.1 J	0.19 JI	5.6	44	180
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				722	1443	232	30.0	2.00	13.4	263	498
PFAS Compounds without Recommended Standards											
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	510	480	51	11	<0.83	4.4	110	150
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	<0.86	<1.0	7.1	<0.86	<0.53	<0.88	16 I	20
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	240	510	76	7.3	<0.48	1.8 J	79	110
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	78	190	14	<1.7	<0.24	<1.7	14	25
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	3.6 J	3.9 J	1.2 J	<0.54	<0.29	<0.55	10	19
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	<0.54	<0.65	<0.53	<0.54	<0.19	<0.56	0.91 JI	1.7 J
6:2 FTS	27619-97-2	NRS	NRS	0.7 J	<2.2	22	<1.8	<2.4	<1.9	2.8 J	<2.0
NMeFOSAA	2355-31-9	NRS	NRS	<0.62	<0.73	1.6 J	<0.62	<1.2	<0.64	<1.1	<0.66
Total Concentration of Detected PFAS Compounds without a Pending NR 140 ES				832	1,184	173	18.3	0.0	6.2	233	326
Total Concentration of All Detected PFAS Compounds				1,555	2,626	405	48.3	2.00	19.6	496	824

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		MW-112B		MW-113	MW-113A	MW-113B	MW-114		MW-114A	
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**05/01/21**	**05/31/22**	**05/01/21**	**05/01/21**	**05/01/21**	**10/06/21**	**06/01/22**	**10/06/21**	**06/01/22**
PFAS Compounds with Recommended Standards												
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2* [C]	<0.92	<0.70	<0.91	<0.91	<0.92	<0.66	<0.72	<0.67	1.2 J
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	<0.25	<0.86	<0.25	<0.25	<0.25	*17*	*5.6*	1.2 J	<0.88
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	*8.1* I	*8.4*	<0.53	*4.0*	1.5 J	**48**	**63**	*26*	*32*
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	0.4 J	<1.2	<0.29	0.32 J	0.31 J	<1.2	<1.3	1.7 J	<1.3
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.4	<1.2	<1.4	<1.4	<1.4	1.8 J	3.3 J	6.2	4.9 J
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	1,800	1,800	<2.2	<2.2	<2.3	980	1,300	52	63
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	150	200	<0.54	0.57 JI	2.0	410	630	31	34
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	62	69	<0.19	1.7 J	0.78 J	310	430	40	47
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				2,021	2,077	0.0	6.59	4.59	1,767	2,432	158	182
PFAS Compounds without Recommended Standards												
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	38	33	<0.79	32	4.4	220	200	33	32
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	3.6 I	1.6 J	<0.50	<27 G	<3.2 G	38	44	28	24
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	270	280	<0.45	1.5 J	7.8	640	810	34	35
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	27	34	<0.23	0.49 JI	0.68 J	64	120	5.5	6.0
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	9.2 I	10	<0.28	<0.28	<0.28	67	54	22	23
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	<0.18	<0.56	<0.18	2.6	<0.18	10	6.8	<0.54	0.74 J
6:2 FTS	27619-97-2	NRS	NRS	<2.3	<1.9	<2.3	<2.3	4.4 J	4.0 J	2.8 J	6.5	6.5
NMeFOSAA	2355-31-9	NRS	NRS	<1.1	<0.64	<1.1	<1.1	<1.1	<0.60	<0.66	0.7 J	1.7 J
Total Concentration of Detected PFAS Compounds without a Pending NR 140 ES				348	359	0.0	36.6	17.3	1,043	1,238	130	129
Total Concentration of All Detected PFAS Compounds				2,368	2,436	0.0	43.2	21.9	2,810	3,670	288	311

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TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		MW-114B	MW-115			MW-115A			MW-115B	
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**10/06/21**	**05/01/21**	**10/08/21**	**05/31/22**	**05/01/21**	**10/08/21**	**05/31/22**	**05/01/21**	**10/08/21**
PFAS Compounds with Recommended Standards												
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2* [C]	0.77 J	<0.90	<0.75	<0.70	<18	<0.68	<0.69	<0.93	<0.68
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	1.9 J	*29*	*33*	*35*	*37*	*18*	*29*	*11*	*18*
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	1.50 J	<0.29	<1.3	<1.2	<5.7	<1.2	<1.2	<0.30	<1.2
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.1	<1.4	<1.2	<1.2	<28	3.5 J	3.6 J	<1.4	3.5 J
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	3.8 J	1,400	1,700	1,900	1,600	1,400	970	4.5 J	1,400
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	7.6	250	390	390	1,000	900	660	5.2	900
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	1.5 J	610 I	620	890	3,400 I	3,000	2,300	1.9	3,000
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				17.1	2,289	2,743	3,215	6,037	5,322	3,963	22.6	5,322
PFAS Compounds without Recommended Standards												
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	5.7	4,400	5,600	5,000	230	210	260	<0.81	210
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	13	<0.50	2.0 J	<0.88 J	<10	4.3	3.0	<0.51	4.3
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	14	240	300	280	670	590	410	3.5	590
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	1.6 J	180	230	200	190	190	210	0.61 J	190
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	<0.52	18 I	19	17	71 I	55	67	3.0	55
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	<0.53	<0.18	<0.59	0.66 J	<3.5	1.50 J	1.6 J	<0.18	1.5 J
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	<0.46	<0.34	0.65 J	<0.49	<6.9	<0.48	<0.48	<0.35	<0.48
6:2 FTS	27619-97-2	NRS	NRS	2.3 J	<2.3	1.6 J	<1.9 J	<46	3.1 J	4.3 J	<2.4	3.1 J
NMeFOSAA	2355-31-9	NRS	NRS	1.2 J	<1.1	<0.68	<0.64	<22	<0.62	<0.62	<1.1	<0.62
Total Concentration of Detected PFAS Compounds without a Pending NR 140 ES				37.8	4,838	6,153.3	5,497.7	1,161	1,053.9	955.9	7.11	1054
Total Concentration of All Detected PFAS Compounds				54.9	7,127	8,896.3	8,712.7	7,198	6,375.4	4,918.5	29.7	6375

TABLE 3

SUMMARY OF PFAS COMPOUNDS DETECTED IN GROUNDWATER SAMPLES (APRIL 2021 - JUNE 2022)

Grouping / PFAS Compound	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ) NR 140 ES	NR140 PAL	MW-116 10/6/21	AS-1 4/15/21
PFAS Compounds with Recommended Standards					
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2*[C]	<0.67	**72**
NEtFOSA	4151-50-2			<1.1	**34**
NEtFOSAA	2991-50-6			<0.59	**710**
NEtFOSE	1691-99-2			<0.49	<0.83
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	*6.8*	*22*
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	**150**	**350**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	<1.2	29
HFPO-DA (GenX)	13252-13-6	**300**	*30*	<1.1	*1.6* I
Perfluoroundecanoic acid (PFUnA)	2058-94-8	**3,000**	*600*	<0.92	1.9
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	300	620
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	390	500
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	190	4,400
Total Concentration of Detected PFAS Compounds with a Pending NR 140 ES				1,037	6,741
PFAS Compounds without Recommended Standards					
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	350	310
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	390	1,400 I
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	320	1,000
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	120	150
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	43	42
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	6.4	16
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	<0.47	1.8 JI
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	<1.3	<0.31
4:2 FTS	757124-72-4	NRS	NRS	<0.88	0.62 J
6:2 FTS	27619-97-2	NRS	NRS	190	200
8:2 FTS	39108-34-4	NRS	NRS	<1.1	20.0
NMeFOSA	31506-32-8	NRS	NRS	<0.75	<0.42
NMeFOSAA	2355-31-9	NRS	NRS	<0.61	16
Total Concentration of Detected PFAS Compounds without a Pending NR 140 ES				1,419	3,156
Total Concentration of All Detected PFAS Compounds				2,456	9,897

NOTES:

Concentrations are in nanograms per liter (ng/ℓ) equivalent to parts per trillion (ppt).

Detected concentrations at or above a recommended NR 140 PAL are italicized; those at or above a recommended NR 140 ES are bold.

All samples analyzed using Method 537 Modified. Only compounds detected in one or more samples within each section of table are shown. All other compounds not listed in each section were not detected in those samples.

c = DHS recommended a combined ES of 20 ng/ℓ and a combined PAL of 2 ng/ℓ for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.

G = The reported quantification limit has been raised due to an exhibited elevated noise or matrix interference.

I = Value is EMPC (estimated maximum possible concentration).

J = Result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL), and the concentration is an approximate value.

NRS = No recommended standard in Cycle 11.

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WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 4

SUMMARY OF PFAS COMPOUNDS DETECTED IN VOC TREATMENT SYSTEM SAMPLES (APRIL 2021 - APRIL 2022)

Grouping	CAS Number	WDHS Recommended PFAS Standard (ng/ℓ)		Turbo Stripper		Non-TS Effluent	Aeration Reservoir Effluent		Absorption Pond
				Influent	Effluent				
PFAS Compound		**ES**	**PAL**	**(Apr/21)**	**(Apr/22)**	**(Apr/21)**	**(Apr/21)**	**(May/21)**	**(Apr/21)**
PFAS Compounds with Recommended Standards									
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2*[C]	*2.9*	<1,000	*1.4* J	*8.2*	*6.6*	*5.4*
NEtFOSAA	2991-50-6			*4.8* J	<1,000	*4.3* J	*3.5* J	*3.7* J	*2.1* J
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	*18*	<1,000	2.7	*5.1*	*4.8*	*6.8*
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	**820**	**1,700**	**94**	**240**	**250**	**250**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	3.9	<1,000	1.5 J	1.6 J	1.2 J	1.8 J
HFPO-DA (GenX)	13252-13-6	**300**	*30*	1.6 J	<1,000	<1.4	1.6 J	<0.51	1.7 J
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	*3,000*	*2,100*	140	1,300	1,500	1,300
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	4,900	3,100	190	1,300	1,500	1,400
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	1,100	<1,000	71	340	350	310
PFAS Compounds without Recommended Standards									
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	2,700	6,200	120	600	590	640
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	1,200 I	6,300	180	290 I	260 I	310 I
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	1,900	1,400	180	730	950	780
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	1,600	1,700	57	330	400	340
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	250	<1,000	11	76	77	80
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	62 I	<1,000	5.2	9.4 I	10 I	12 I
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	<0.31	<1,000	<0.3	<0.31	<0.30	0.88 J
4:2 FTS	757124-72-4	NRS	NRS	5.2	<1,000	0.30 J	1.6 J	1.6 JI	1.7 J
6:2 FTS	27619-97-2	NRS	NRS	150	1,300	56	230	42	140
8:2 FTS	39108-34-4	NRS	NRS	<9	<1,000	1.5 J	1.7 J	<0.43	0.47 J
NMeFOSA	31506-32-8	NRS	NRS	<0.42	<1,000	<0.4	2.2	0.59 J	<0.41
NMeFOSAA	2355-31-9	NRS	NRS	1.9 J	<1,000	1.5 J	7.7	7.5	2.3 J
NMeFOSE	24448-09-7	NRS	NRS	<1.3	<1.3	<1.3	<1.4		<1.3
F-53B Major	756426-58-1	NRS	NRS	<0.23	<0.23	<0.22	<0.24		<0.22
F-53B Minor	763051-92-9	NRS	NRS	<0.31	<0.31	<0.30	<0.31		<0.3
Total Concentration of All Detected PFAS Compounds				17,720	23,800	1,117	5,479	5,955	5,585

NOTES:

Concentrations are in nanograms per liter (ng/ℓ) equivalent to parts per trillion (ppt).

Detected concentrations at or above a recommended NR 140 PAL are italicized; those at or above a recommended NR 140 ES are bold.

All samples analyzed using Method 537 Modified. Only compounds detected in one or more samples are shown in this table.

c = DHS recommended a combined ES of 20 ng/ℓ and a combined PAL of 2 ng/ℓ for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.

I = Value is EMPC (estimated maximum possible concentration).

J = Result is less than the RL but greater than or equal to the MDL, and the concentration is an approximate value.

Non-TS Effluent = Non-Turbo Stripper effluent (eff).

NRS = No recommended standard in Cycle 11.

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WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 5

SUMMARY OF PFAS COMPOUNDS DETECTED IN RECOVERY WELL SAMPLES (APRIL 2021 - APRIL 2022)

Grouping	CAS Number	WI DHS Recommended PFAS Standard (ng/ℓ)		RW-2		RW-4	RW-5		RW-6	RW-7	RW-10	RW-11	RW-12	RW-13
PFAS Compound		**NR 140 ES**	**NR140 PAL**	**10/8/21**	**4/22/22**	**4/22/22**	**10/8/21**	**4/22/22**	**4/15/21**	**4/22/22**	**11/18/21**	**4/15/21**	**4/15/21**	**11/18/21**
PFAS Compounds with Recommended Standards														
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**20**[C]	*2*[C]	*1.5* J	<1,000	*5.0* J	**500**	**1,000**	<0.93	<4.4	**1.4** J	**55**	**4.1**	*3.5* J
NEtFOSA	4151-50-2			<1.1	<1,000	<25	**170**	**120**	<0.82	<4.4	**5.0**	<0.82	<0.83	<1.3
NEtFOSAA	2991-50-6			*0.74* J	<1,000	<25	**3,400**	**3,700**	<1.2	*16*	**150**	**120**	**16**	*8.9*
NEtFOSE	1691-99-2			*1.0* J	<1,000	<25	**20**	**16**	<0.81	<4.4	**44**	**2.7**	<0.81	<0.56
Perfluorononanoic acid (PFNA)	375-95-1	**30**	*3*	**38**	<1,000	**31**	**290**	**140**	*27*	*29*	*3.5* J	*29*	*23*	*20*
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	**40**	*4*	**4,500**	**8,600**	**4,300**	**8,700**	**5,700**	**1,000**	**1,300**	**460**	**620**	**1,100**	**510**
Perfluorodecanoic acid (PFDA)	335-76-2	**300**	*60*	6.3	<1,000	7.3 J	27	20	0.97 J	<1.2	<1.2	20	7.2	5.4 J
HFPO-DA (GenX)	13252-13-6	**300**	*30*	7.6	<1,000	2.8 J	*41*	14	2.7 J	1.5 J	3.8 J	2.2 J	1.6 J	<1.3
Perfluoroundecanoic acid (PFUnA)	2058-94-8	**3,000**	*600*	<0.94	<1,000	<7.5	1.0 J	<1.5	<1.0	<1.5	<0.96	1.8 J	<1.0	<1.1
Perfluorobutanoic acid (PFBA)	375-22-4	**10,000**	*2,000*	*2,000*	*4,500*	*2,100*	**18,000**	**16,000**	*6,300*	1,400	1,000	940	*2,300*	*2,400*
Perfluorohexanoic acid (PFHxA)	307-24-4	**150,000**	*30,000*	2,400	5,500	1,500	5,200	5,900	3,600	990	610	1,500	5,300	4,100
Perfluorobutanesulfonic acid (PFBS)	375-73-5	**450,000**	*90,000*	1,800	3,600	8,100	11,000	20,000	1,400	430	1,100	600	1,200	690
PFAS Compounds without Recommended Standards														
Perfluorooctanoic acid (PFOA)	335-67-1	NRS	NRS	8,800	16,000	3,600	37,000	14,000	2,500	1,000	2,500	1,100	3,800	2,300
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	NRS	NRS	2,800	8,600	3,600	39,000	27,000	1,300 I	130	220	2,300	1,600 I	1,200
Perfluoropentanoic acid (PFPeA)	2706-90-3	NRS	NRS	1,400	3,700	1,100	6,700	6,200	3,300	1,200	550	1,200	1,600	1,100
Perfluoroheptanoic acid (PFHpA)	375-85-9	NRS	NRS	1,800	3,000	870	1,800	1,400	780	200	420	480	2,600	1,300
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NRS	NRS	760	1,900	2,700	1,700	2,400	440	360	68	120	240 I	170
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NRS	NRS	260	<1,000	190	2,200	750	63 I	21 J	22	40	96 I	58
Perfluorononanesulfonic acid (PFNS)	68259-12-1	NRS	NRS	18	<1,000	<15	260	<59	<0.35	<0.59	<0.49	1.3 JI	<0.35	1.7 J
Perfluorodecanesulfonic acid (PFDS)	335-77-3	NRS	NRS	24	<1,000	<7.5	12	<30	<0.3	<0.30	<1.3	1.3 JI	<0.3	<1.5
4:2 FTS	757124-72-4	NRS	NRS	1.7 J	<1,000	NA	<0.99	<0.81	1.4 J	<4.1	3.3 J	2.2 I	8.5	1.6 J
6:2 FTS	27619-97-2	NRS	NRS	15	<1,000	260	250	200	160	400	310	520	180	170
8:2 FTS	39108-34-4	NRS	NRS	1.2 J	<1,000	12 J	2.2 J	3.3 J	3.1	<0.15	<1.1	22	12	9.2
NMeFOSA	31506-32-8	NRS	NRS	2.8 J	<1,000	<2.3	<0.84	1.5 J	<0.41	<0.46	<0.78	<0.41	<0.41	<0.87
NMeFOSAA	2355-31-9	NRS	NRS	<0.62	<1,000	5.8 J	62	67	<1.1	<1.4	0.80 J	37	3.2 J	2.9 J
Total Concentration of All Detected PFAS Compounds				26,638	55,400	28,384	136,335	104,632	20,878	7,478	7,472	9,715	20,092	14,051

NOTES:

Concentrations are in nanograms per liter (ng/ℓ) equivalent to parts per trillion (ppt).

Detected concentrations at or above a recommended NR 140 PAL are italicized; those at or above a recommended NR 140 ES are bold.

All samples analyzed using Method 537 Modified. Only compounds detected in one or more samples are shown in this table.

c = DHS recommended a combined ES of 20 ng/ℓ and a combined PAL of 2 ng/ℓ for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.

I = Value is EMPC (estimated maximum possible concentration).

J = Result is less than the RL but greater than or equal to the MDL, and the concentration is an approximate value.

NRS = No recommended standard in Cycle 11.

GANNETT FLEMING

WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 6

SUMMARY OF PFAS COMPOUNDS DETECTED IN TOP ASSAY OF RECOVERY WELL & TURBO AIR STRIPPER EFFLUENT SAMPLES (APRIL 2022)

Grouping	CAS Number	# of Carbon Atoms	WI DHS Recommended PFAS Standard (ng/ℓ)		Sample ID & Type of Analysis					
					RW-2		RW-5		Turbo Stripper Effluent	
PFAS Compound			**NR 140 ES**	**NR140 PAL**	**Pre-TOPA**	**Post-TOPA**	**Pre-TOPA**	**Post-TOPA**	**Pre-TOPA**	**Post-TOPA**
Carboxylic Acids										
Perfluorobutanoic acid (PFBA)	375-22-4	4	**10,000**	*2,000*	*4,500*	*6,700*	**16,000**	**39,000**	*2,100*	*5,700*
Perfluoropentanoic acid (PFPeA)	2706-90-3	5	NRS	NRS	3,700	5,500	6,200	10,000	1,400	<3,000
Perfluorohexanoic acid (PFHxA)	307-24-4	6	**150,000**	*30,000*	5,500	7,500	5,900	9,900	3,100	5,300
Perfluoroheptanoic acid (PFHpA)	375-85-9	7	NRS	NRS	3,000	4,000	1,400	3,400	1,700	1,800
Perfluorooctanoic acid (PFOA)	335-67-1	8	NRS	NRS	16,000	18,000	14,000	49,000	6,200	3,100
Perfluorononanoic acid (PFNA)	375-95-1	9	**30**	*3*	<1000	<600	**140**	<600	<1000	<600
Perfluorodecanoic acid (PFDA)	335-76-2	10	**300**	*60*	<1000	<600	20	<600	<1000	<600
Sulfonic Acids										
Perfluorobutanesulfonic acid (PFBS)	375-73-5	4	**450,000**	*90,000*	3,600	5,500	20,000	30,000	<1000	990
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	5	NRS	NRS	1,900	3,800	2,400	4,000	<1000	<600
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	6	**40**	*4*	**8,600**	**8,500**	**5,700**	**7,500**	**1,700**	**950**
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	7	NRS	NRS	<1000	<600	750	1,700	<1000	<600
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	8	NRS	NRS	8,600	12,000	27,000	100,000	6,300	3,500
6:2 FTS	27619-97-2	8	NRS	NRS	<1000	<600	200	<600	1,300	<600
8:2 FTS	39108-34-4	10	NRS	NRS	<1000	<600	3.3 J	<600	<1000	<600
Sulfonamides, Sulfomidoacetic Acids, Sulfonamidoethanols										
Perfluorooctanesulfonamide (PFOSA)	754-91-6	8	**20**[C]	*2*[C]	<1000	<600	**1,000**	<600	<1000	<600
NMeFOSA	31506-32-8	9	NRS	NRS	<1000	<600	1.5 J	<600	<1000	<600
NEtFOSA	4151-50-2	10	**20**[C]	*2*[C]	<1000	<600	**120**	<600	<1000	<600
NMeFOSAA	2355-31-9	11	NRS	NRS	<1000	<600	67	<600	<1000	<600
NEtFOSAA	2991-50-6	12	**20**[C]	*2*[C]	<1000	<600	**3,700**	<600	<1000	<600
NEtFOSE	1691-99-2	12	**20**[C]	*2*[C]	<1000	<600	*16*	<600	<1000	<600
Replacement Chemicals										
HFPO-DA (GenX)	13252-13-6	6	**300**	*30*	<1000	<600	14	<600	<1000	<600
Total Detected PFAS Compounds					55,400	71,500	104,632	254,500	23,800	21,340

NOTES:
Concentrations are in nanograms per liter (ng/ℓ) equivalent to parts per trillion (ppt).
Detected concentrations at or above a recommended NR 140 PAL are italicized; those at or above a recommended NR 140 ES are bold.
All samples analyzed using Method 537 Modified and ALS Laboratory of Kelso, Washington Standard Operating Procedure for Total Oxidizable Precursor Assay (TOPA).
Only compounds detected in one or more samples are shown in this table.
c = DHS recommended a combined ES of 20 ng/ℓ and a combined PAL of 2 ng/ℓ for PFOSA, NEtFOSA, NEtFOSAA, and NEtFOSE as part of Cycle 11 recommended revisions to the NR 140 Code.
J = Result is less than the RL but greater than or equal to the MDL, and the concentration is an approximate value.
NRS = No recommended standard in Cycle 11.

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WRR ENVIRONMENTAL SERVICES CO., INC.
EAU CLAIRE, WISCONSIN

TABLE 7

SUMMARY OF PFAS COMPOUNDS DETECTED IN SURFACE WATER SAMPLES (JUNE 2022)

Grouping PFAS Compound	CAS Number	# of Carbon Atoms	Seep 2N 6/1/22	SW-1 6/1/22	SW-2 6/1/22	SW-3 6/1/22	SW-4 6/1/22	SW-5 6/1/22	Non-Drinking Surface Water Standard (ng/ℓ)
Carboxylic Acids (PFCA)									
Perfluorobutanoic acid (PFBA)	375-22-4	4	12	5.5	5.5	13	9.0	8.8	No recommended surface water standard
Perfluoropentanoic acid (PFPeA)	2706-90-3	5	5.3	1.8 J	2.6 J	4.9 J	3.2 J	3.3 J	"
Perfluorohexanoic acid (PFHxA)	307-24-4	6	6.2	2.1 J	2.0 J	5.4	3.6 J	3.2 J	"
Perfluoroheptanoic acid (PFHpA)	375-85-9	7	<1.8	2.8 J	2.5 J	3.4 J	3.8 J	3.2 J	"
Perfluorooctanoic acid (PFOA)	335-67-1	8	11	8.9	9.3	20	12	10	95
Total Concentration of Detected PFCA			34.5	21.1	21.9	46.7	31.6	28.5	No recommended surface water standard
Sulfonic Acids (PFSA)									
Perfluorobutanesulfonic acid (PFBS)	375-73-5	4	8.0	1.0 J	1.2 J	2.7 J	2.2 J	2.0 J	No recommended surface water standard
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	5	1.0 J	<0.58	<0.54	0.93 J	<0.62	<0.55	"
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	6	<0.92	1.4 J	1.3 J	2.0 J	2.7 J	1.6 J	"
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	8	<0.91	1.8 J	2.4	2.2	2.4	2.9	8
Total Concentration of Detected PFSA			9.0	4.2	4.9	7.8	7.3	6.5	No recommended surface water standard
Total Concentration of Detected PFAS Compounds			43.5	25.3	26.8	54.5	38.9	35.0	"

NOTES:

Concentrations are in nanograms per liter (ng/ℓ) equivalent to parts per trillion (ppt).

All samples analyzed for PFAS using Method 537 modified. Only compounds detected in one or more samples are shown on this table.

Recommended non-drinking surface water standards taken from Wisconsin Natural Resources Board Order No. WY-23-19 approved on 1/22/20.

J = Result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL), and the concentration is an approximate value.

APPENDIX A

LABORATORY REPORTS FOR RECOVERY WELL & VOC TREATMENT SYSTEM SAMPLES

(APRIL 2022)

GANNETT FLEMING

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-215605-1
Client Project/Site: Water Quality Parameters (WQP) 55929.007

For:
Gannett Fleming
8040 Excelsior Dr
Suite 303
Madison, Wisconsin 53717-1338

Attn: Anthony W Miller

Authorized for release by:
5/19/2022 8:31:51 AM

Sandie Fredrick, Project Manager II
(920)261-1660
Sandra.Fredrick@et.eurofinsus.com

The analytical & QA/QC results in the attached laboratory report have been reviewed and approved by AWM on 05/19/22

Table of Contents

Case Narrative

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Job ID: 500-215605-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-215605-1

Comments
No additional comments.

Receipt
The samples were received on 4/26/2022 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1º C and 1.2º C.

Receipt Exceptions

The following sample(s) was received outside of holding time for Turbidity, Anions, and pH.

Metals
Method 200.8: The following sample was diluted due to the nature of the sample matrix: RW-4 (500-215605-2).

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

General Chemistry
Method SM 5310C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 500-655557 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 300.0: The following samples was received outside of holding time for analytes Nitrate as N, Nitrite as N and Orthophosphate as P: RW-2 (500-215605-1), RW-4 (500-215605-2), RW-5 (500-215605-3), RW-6 (500-215605-4), RW-7 (500-215605-5), RW-10 (500-215605-6), RW-11 (500-215605-7), RW-12 (500-215605-8) and RW-13 (500-215605-9).

Method 300.0: The following samples was diluted due to the abundance of non-target analytes: RW-2 (500-215605-1), RW-4 (500-215605-2), RW-5 (500-215605-3) and RW-6 (500-215605-4). Elevated reporting limits (RLs) are provided.

Method 300.0: The following samples was diluted due to the abundance of non-target analytes: RW-7 (500-215605-5), RW-10 (500-215605-6), RW-11 (500-215605-7), RW-12 (500-215605-8) and RW-13 (500-215605-9). Elevated reporting limits (RLs) are provided.

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

Detection Summary

Client: Gannett Fleming
Project/Site: Water Quality Parameters (WQP) 55929.007

Job ID: 500-215605-1

Client Sample ID: RW-2 — Lab Sample ID: 500-215605-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	550		1.0	0.46	mg/L	10		200.7 Rev 4.4	Total Recoverable
Iron	750		1.0	0.60	mg/L	10		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	1.1		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Aluminum	0.38	J	0.50	0.29	mg/L	5		200.8	Total/NA
Arsenic	0.022		0.0050	0.00076	mg/L	5		200.8	Total/NA
Manganese	22		0.25	0.11	mg/L	100		200.8	Total/NA
Hardness as calcium carbonate	1400		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	80	H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	1300		100	85	mg/L	500		300.0	Total/NA
Sulfate	1.7		0.20	0.095	mg/L	1		300.0	Total/NA
Ammonia	0.37		0.20	0.10	mg/L	1		350.1	Total/NA
Alkalinity	420		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	5200		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	3700		25	11	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	660		170	64	mg/L	1		SM 2540D	Total/NA
pH	5.2	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	750	F1	20	9.4	mg/L	20		SM 5310C	Total/NA

Client Sample ID: RW-4 — Lab Sample ID: 500-215605-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	180	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	1100		1.0	0.60	mg/L	10		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	1.1		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Arsenic	0.0034	J	0.0050	0.00076	mg/L	5		200.8	Total/NA
Manganese	26		0.25	0.11	mg/L	100		200.8	Total/NA
Hardness as calcium carbonate	470		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	60	H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	1900		100	85	mg/L	500		300.0	Total/NA
Ammonia	2.2		0.40	0.20	mg/L	2		350.1	Total/NA
Specific Conductance (25C)	5300		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	3000		25	11	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	530		170	64	mg/L	1		SM 2540D	Total/NA
pH	3.8	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	4.8		1.0	0.47	mg/L	1		SM 5310C	Total/NA

Client Sample ID: RW-5 — Lab Sample ID: 500-215605-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	120	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	6.8		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	13		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Arsenic	0.00092	J	0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	5.7		0.025	0.011	mg/L	10		200.8	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Detection Summary

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-5 (Continued) — Lab Sample ID: 500-215605-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	360		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	1.0	H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	860		100	85	mg/L	500		300.0	Total/NA
Nitrate as N	27	H3	2.0	0.68	mg/L	10		300.0	Total/NA
Sulfate	67		2.0	0.95	mg/L	10		300.0	Total/NA
Ammonia	2.4		0.40	0.20	mg/L	2		350.1	Total/NA
Alkalinity	130		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	3300		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	1900		10	4.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	23		13	4.8	mg/L	1		SM 2540D	Total/NA
pH	6.8	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	3.7		1.0	0.47	mg/L	1		SM 5310C	Total/NA

Client Sample ID: RW-6 — Lab Sample ID: 500-215605-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	120	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	11		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	25		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Arsenic	0.0030		0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	1.7		0.0025	0.0011	mg/L	1		200.8	Total/NA
Hardness as calcium carbonate	550		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	0.90	J H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	450		20	17	mg/L	100		300.0	Total/NA
Sulfate	17		1.0	0.48	mg/L	5		300.0	Total/NA
Ammonia	0.27		0.20	0.10	mg/L	1		350.1	Total/NA
Alkalinity	310		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	1700		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	1000		10	4.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	21		13	4.8	mg/L	1		SM 2540D	Total/NA
pH	6.9	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	20		4.0	1.9	mg/L	4		SM 5310C	Total/NA

Client Sample ID: RW-7 — Lab Sample ID: 500-215605-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	86	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	53		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	42		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Aluminum	0.53		0.10	0.058	mg/L	1		200.8	Total/NA
Arsenic	0.027		0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	1.0		0.0025	0.0011	mg/L	1		200.8	Total/NA
Hardness as calcium carbonate	360		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	22	H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	130		10	8.5	mg/L	50		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RW-7 (Continued) — Lab Sample ID: 500-215605-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	0.76	H3	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	15		1.0	0.48	mg/L	5		300.0	Total/NA
Ammonia	1.4		0.20	0.10	mg/L	1		350.1	Total/NA
Alkalinity	190		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	790		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	500		10	4.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	90		17	6.4	mg/L	1		SM 2540D	Total/NA
pH	7.4	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	2.6		1.0	0.47	mg/L	1		SM 5310C	Total/NA

Client Sample ID: RW-10 — Lab Sample ID: 500-215605-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	210	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	76		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	29		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Aluminum	3.0		0.10	0.058	mg/L	1		200.8	Total/NA
Arsenic	0.052		0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	4.3		0.0025	0.0011	mg/L	1		200.8	Total/NA
Hardness as calcium carbonate	660		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	130	H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	4100		200	170	mg/L	1000		300.0	Total/NA
Orthophosphate as P	0.083	J H3	0.20	0.065	mg/L	1		300.0	Total/NA
Ammonia	3.2		0.40	0.20	mg/L	2		350.1	Total/NA
Alkalinity	230		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	10000		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	6800		100	43	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	860		250	97	mg/L	1		SM 2540D	Total/NA
pH	6.2	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	230		20	9.4	mg/L	20		SM 5310C	Total/NA

Client Sample ID: RW-11 — Lab Sample ID: 500-215605-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	45	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	31		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	13		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Arsenic	0.0081		0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	2.3		0.0025	0.0011	mg/L	1		200.8	Total/NA
Hardness as calcium carbonate	160		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	0.65	J H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	280		20	17	mg/L	100		300.0	Total/NA
Sulfate	8.7		0.20	0.095	mg/L	1		300.0	Total/NA
Ammonia	2.5		0.40	0.20	mg/L	2		350.1	Total/NA
Alkalinity	140		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	1100		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-11 (Continued) — Lab Sample ID: 500-215605-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	630		10	4.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	22		5.0	1.9	mg/L	1		SM 2540D	Total/NA
pH	6.8	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	15		5.0	2.4	mg/L	5		SM 5310C	Total/NA

Client Sample ID: RW-12 — Lab Sample ID: 500-215605-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	120	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	71		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	38		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Arsenic	0.0077		0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	17		0.025	0.011	mg/L	10		200.8	Total/NA
Hardness as calcium carbonate	470		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Turbidity	0.65	J H	1.0	0.50	NTU	1		180.1	Total/NA
Chloride	600		40	34	mg/L	200		300.0	Total/NA
Sulfate	12		0.40	0.19	mg/L	2		300.0	Total/NA
Ammonia	0.24		0.20	0.10	mg/L	1		350.1	Total/NA
Alkalinity	200		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	2400		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	1500		10	4.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	39		13	4.8	mg/L	1		SM 2540D	Total/NA
pH	6.0	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	390		20	9.4	mg/L	20		SM 5310C	Total/NA

Client Sample ID: RW-13 — Lab Sample ID: 500-215605-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	95	B	0.10	0.046	mg/L	1		200.7 Rev 4.4	Total Recoverable
Iron	37		0.10	0.060	mg/L	1		200.7 Rev 4.4	Total Recoverable
SiO2, Silica	36		0.22	0.11	mg/L	1		200.7 Rev 4.4	Total Recoverable
Arsenic	0.021		0.0010	0.00015	mg/L	1		200.8	Total/NA
Manganese	4.8		0.0025	0.0011	mg/L	1		200.8	Total/NA
Hardness as calcium carbonate	400		0.91	0.46	mg/L	2		SM 2340B	Total Recoverable
Chloride	350		20	17	mg/L	100		300.0	Total/NA
Sulfate	7.7		0.20	0.095	mg/L	1		300.0	Total/NA
Alkalinity	170		5.0	3.7	mg/L	1		SM 2320B	Total/NA
Specific Conductance (25C)	1400		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	830		10	4.3	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	74		13	4.8	mg/L	1		SM 2540D	Total/NA
pH	6.5	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA
TOC Dup	40		5.0	2.4	mg/L	5		SM 5310C	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CHI
200.8	Metals (ICP/MS)	EPA	TAL CHI
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL CHI
180.1	Turbidity, Nephelometric	MCAWW	TAL CHI
300.0	Anions, Ion Chromatography	MCAWW	TAL CHI
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
SM 2320B	Alkalinity	SM	TAL CHI
SM 2510B	Conductivity, Specific Conductance	SM	TAL CHI
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CHI
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CHI
SM 4500 H+ B	pH	SM	TAL CHI
SM 5310C	TOC	SM	TAL CHI
200.7	Preparation, Total Recoverable Metals	EPA	TAL CHI
200.8	Preparation, Total Metals	EPA	TAL CHI
Distill/Ammonia	Distillation, Ammonia	None	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-215605-1	RW-2	Water	04/22/22 15:40	04/26/22 10:20
500-215605-2	RW-4	Water	04/22/22 16:10	04/26/22 10:20
500-215605-3	RW-5	Water	04/22/22 15:55	04/26/22 10:20
500-215605-4	RW-6	Water	04/22/22 14:30	04/26/22 10:20
500-215605-5	RW-7	Water	04/22/22 12:15	04/26/22 10:20
500-215605-6	RW-10	Water	04/22/22 16:55	04/26/22 10:20
500-215605-7	RW-11	Water	04/22/22 14:45	04/26/22 10:20
500-215605-8	RW-12	Water	04/22/22 15:00	04/26/22 10:20
500-215605-9	RW-13	Water	04/22/22 14:00	04/26/22 10:20

Client Sample Results

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-2
Lab Sample ID: 500-215605-1
Date Collected: 04/22/22 15:40
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	550		1.0	0.46	mg/L		04/28/22 08:25	05/03/22 12:40	10
Iron	750		1.0	0.60	mg/L		04/28/22 08:25	05/03/22 12:40	10
SiO2, Silica	1.1		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:12	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.38	J	0.50	0.29	mg/L		04/29/22 08:03	04/29/22 20:36	5
Arsenic	0.022		0.0050	0.00076	mg/L		04/29/22 08:03	04/29/22 20:36	5
Manganese	22		0.25	0.11	mg/L		04/29/22 08:03	05/02/22 13:07	100

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	1400		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:38	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	80	H	1.0	0.50	NTU			05/10/22 16:54	1
Chloride	1300		100	85	mg/L			05/08/22 14:18	500
Nitrate as N	<34	H3	100	34	mg/L			05/08/22 14:18	500
Nitrite as N	<25	H3	100	25	mg/L			05/08/22 14:18	500
Sulfate	1.7		0.20	0.095	mg/L			05/06/22 22:42	1
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/06/22 22:42	1
Ammonia	0.37		0.20	0.10	mg/L		05/17/22 05:30	05/17/22 08:59	1
Alkalinity	420		5.0	3.7	mg/L			05/02/22 10:42	1
Specific Conductance (25C)	5200		1.0	1.0	umhos/cm			04/29/22 13:02	1
Total Dissolved Solids	3700		25	11	mg/L			04/28/22 04:24	1
Total Suspended Solids	660		170	64	mg/L			04/26/22 15:12	1
pH	5.2	HF	0.2	0.2	SU			04/28/22 16:17	1
TOC Dup	750	F1	20	9.4	mg/L			05/06/22 04:10	20

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-4
Lab Sample ID: 500-215605-2
Date Collected: 04/22/22 16:10
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	180	B	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:25	1
Iron	1100		1.0	0.60	mg/L		04/28/22 08:25	05/03/22 12:53	10
SiO2, Silica	1.1		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:25	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.29		0.50	0.29	mg/L		04/29/22 08:03	05/02/22 13:10	5
Arsenic	0.0034	J	0.0050	0.00076	mg/L		04/29/22 08:03	05/02/22 13:10	5
Manganese	26		0.25	0.11	mg/L		04/29/22 08:03	05/02/22 13:13	100

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	470		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:38	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	60	H	1.0	0.50	NTU			05/10/22 16:56	1
Chloride	1900		100	85	mg/L			05/08/22 14:32	500
Nitrate as N	<34	H3	100	34	mg/L			05/08/22 14:32	500
Nitrite as N	<25	H3	100	25	mg/L			05/08/22 14:32	500
Sulfate	<0.095		0.20	0.095	mg/L			05/06/22 22:56	1
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/06/22 22:56	1
Ammonia	2.2		0.40	0.20	mg/L		05/18/22 07:00	05/18/22 11:15	2
Alkalinity	<3.7		5.0	3.7	mg/L			05/02/22 10:53	1
Specific Conductance (25C)	5300		1.0	1.0	umhos/cm			04/29/22 13:04	1
Total Dissolved Solids	3000		25	11	mg/L			04/28/22 04:27	1
Total Suspended Solids	530		170	64	mg/L			04/26/22 15:13	1
pH	3.8	HF	0.2	0.2	SU			04/28/22 16:21	1
TOC Dup	4.8		1.0	0.47	mg/L			05/04/22 06:16	1

Client Sample Results

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-5
Lab Sample ID: 500-215605-3
Date Collected: 04/22/22 15:55
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**120**	**B**	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:39	1
Iron	**6.8**		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:39	1
SiO2, Silica	**13**		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:39	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.058		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 20:43	1
Arsenic	**0.00092**	**J**	0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 20:43	1
Manganese	**5.7**		0.025	0.011	mg/L		04/29/22 08:03	05/02/22 13:17	10

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**360**		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:38	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	**1.0**	**H**	1.0	0.50	NTU			05/10/22 16:43	1
Chloride	**860**		100	85	mg/L			05/08/22 15:12	500
Nitrate as N	**27**	**H3**	2.0	0.68	mg/L			05/08/22 14:59	10
Nitrite as N	<0.50	H3	2.0	0.50	mg/L			05/08/22 14:59	10
Sulfate	**67**		2.0	0.95	mg/L			05/08/22 14:59	10
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/08/22 14:45	1
Ammonia	**2.4**		0.40	0.20	mg/L		05/18/22 07:00	05/18/22 11:47	2
Alkalinity	**130**		5.0	3.7	mg/L			05/02/22 16:06	1
Specific Conductance (25C)	**3300**		1.0	1.0	umhos/cm			04/29/22 13:08	1
Total Dissolved Solids	**1900**		10	4.3	mg/L			04/28/22 04:29	1
Total Suspended Solids	**23**		13	4.8	mg/L			04/26/22 15:15	1
pH	**6.8**	**HF**	0.2	0.2	SU			04/28/22 16:24	1
TOC Dup	**3.7**		1.0	0.47	mg/L			05/04/22 06:44	1

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-6
Lab Sample ID: 500-215605-4
Date Collected: 04/22/22 14:30
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120	B	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:42	1
Iron	11		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:42	1
SiO2, Silica	25		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:42	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.058		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 20:47	1
Arsenic	0.0030		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 20:47	1
Manganese	1.7		0.0025	0.0011	mg/L		04/29/22 08:03	04/29/22 20:47	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	550		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:38	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	0.90	J H	1.0	0.50	NTU			05/10/22 16:44	1
Chloride	450		20	17	mg/L			05/08/22 15:53	100
Nitrate as N	<0.068	H3	0.20	0.068	mg/L			05/06/22 23:50	1
Nitrite as N	<0.25	H3	1.0	0.25	mg/L			05/08/22 15:40	5
Sulfate	17		1.0	0.48	mg/L			05/08/22 15:40	5
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/08/22 15:26	1
Ammonia	0.27		0.20	0.10	mg/L		05/17/22 05:30	05/17/22 09:07	1
Alkalinity	310		5.0	3.7	mg/L			05/02/22 12:14	1
Specific Conductance (25C)	1700		1.0	1.0	umhos/cm			04/29/22 12:30	1
Total Dissolved Solids	1000		10	4.3	mg/L			04/28/22 04:32	1
Total Suspended Solids	21		13	4.8	mg/L			04/26/22 15:16	1
pH	6.9	HF	0.2	0.2	SU			04/29/22 14:45	1
TOC Dup	20		4.0	1.9	mg/L			05/04/22 07:12	4

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-7
Lab Sample ID: 500-215605-5
Date Collected: 04/22/22 12:15
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	86	B	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:46	1
Iron	53		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:46	1
SiO2, Silica	42		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:46	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	0.53		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 20:50	1
Arsenic	0.027		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 20:50	1
Manganese	1.0		0.0025	0.0011	mg/L		04/29/22 08:03	04/29/22 20:50	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	360		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:38	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	22	H	1.0	0.50	NTU			05/10/22 16:57	1
Chloride	130		10	8.5	mg/L			05/08/22 17:01	50
Nitrate as N	0.76	H3	0.20	0.068	mg/L			05/07/22 00:04	1
Nitrite as N	<2.5	H3	10	2.5	mg/L			05/10/22 11:16	50
Sulfate	15		1.0	0.48	mg/L			05/08/22 16:48	5
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/08/22 16:34	1
Ammonia	1.4		0.20	0.10	mg/L		05/17/22 05:30	05/17/22 09:26	1
Alkalinity	190		5.0	3.7	mg/L			05/02/22 12:06	1
Specific Conductance (25C)	790		1.0	1.0	umhos/cm			04/29/22 12:08	1
Total Dissolved Solids	500		10	4.3	mg/L			04/28/22 04:34	1
Total Suspended Solids	90		17	6.4	mg/L			04/26/22 15:18	1
pH	7.4	HF	0.2	0.2	SU			04/29/22 14:49	1
TOC Dup	2.6		1.0	0.47	mg/L			05/04/22 07:40	1

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-10
Lab Sample ID: 500-215605-6
Date Collected: 04/22/22 16:55
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	210	B	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:49	1
Iron	76		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:49	1
SiO2, Silica	29		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:49	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3.0		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 21:01	1
Arsenic	0.052		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 21:01	1
Manganese	4.3		0.0025	0.0011	mg/L		04/29/22 08:03	04/29/22 21:01	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	660		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:50	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	130	H	1.0	0.50	NTU			05/10/22 16:58	1
Chloride	4100		200	170	mg/L			05/08/22 17:28	1000
Nitrate as N	<68	H3	200	68	mg/L			05/08/22 17:28	1000
Nitrite as N	<50	H3	200	50	mg/L			05/10/22 11:30	1000
Sulfate	<0.095		0.20	0.095	mg/L			05/07/22 00:18	1
Orthophosphate as P	0.083	J H3	0.20	0.065	mg/L			05/08/22 17:15	1
Ammonia	3.2		0.40	0.20	mg/L		05/18/22 07:00	05/18/22 11:34	2
Alkalinity	230		5.0	3.7	mg/L			05/02/22 10:49	1
Specific Conductance (25C)	10000		1.0	1.0	umhos/cm			04/29/22 13:10	1
Total Dissolved Solids	6800		100	43	mg/L			04/28/22 04:37	1
Total Suspended Solids	860		250	97	mg/L			04/26/22 15:19	1
pH	6.2	HF	0.2	0.2	SU			04/29/22 14:54	1
TOC Dup	230		20	9.4	mg/L			05/04/22 08:08	20

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-11
Lab Sample ID: 500-215605-7
Date Collected: 04/22/22 14:45
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	45	B	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:52	1
Iron	31		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:52	1
SiO2, Silica	13		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:52	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.058		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 21:04	1
Arsenic	0.0081		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 21:04	1
Manganese	2.3		0.0025	0.0011	mg/L		04/29/22 08:03	04/29/22 21:04	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	160		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:50	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	0.65	J H	1.0	0.50	NTU			05/10/22 16:45	1
Chloride	280		20	17	mg/L			05/08/22 17:56	100
Nitrate as N	<0.068	H3	0.20	0.068	mg/L			05/07/22 00:31	1
Nitrite as N	<5.0	H3	20	5.0	mg/L			05/10/22 11:43	100
Sulfate	8.7		0.20	0.095	mg/L			05/07/22 00:31	1
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/08/22 17:42	1
Ammonia	2.5		0.40	0.20	mg/L		05/18/22 07:00	05/18/22 11:55	2
Alkalinity	140		5.0	3.7	mg/L			05/02/22 11:43	1
Specific Conductance (25C)	1100		1.0	1.0	umhos/cm			04/29/22 12:32	1
Total Dissolved Solids	630		10	4.3	mg/L			04/28/22 06:01	1
Total Suspended Solids	22		5.0	1.9	mg/L			04/26/22 15:20	1
pH	6.8	HF	0.2	0.2	SU			04/29/22 14:58	1
TOC Dup	15		5.0	2.4	mg/L			05/04/22 08:59	5

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-12
Lab Sample ID: 500-215605-8
Date Collected: 04/22/22 15:00
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	120	B	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:56	1
Iron	71		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:56	1
SiO2, Silica	38		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:56	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.058		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 21:08	1
Arsenic	0.0077		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 21:08	1
Manganese	17		0.025	0.011	mg/L		04/29/22 08:03	05/02/22 13:20	10

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	470		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:50	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	0.65	J H	1.0	0.50	NTU			05/10/22 16:46	1
Chloride	600		40	34	mg/L			05/08/22 18:36	200
Nitrate as N	<0.068	H3	0.20	0.068	mg/L			05/07/22 00:45	1
Nitrite as N	<10	H3	40	10	mg/L			05/10/22 11:57	200
Sulfate	12		0.40	0.19	mg/L			05/08/22 18:23	2
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/08/22 18:09	1
Ammonia	0.24		0.20	0.10	mg/L		05/17/22 05:30	05/17/22 09:36	1
Alkalinity	200		5.0	3.7	mg/L			05/02/22 11:01	1
Specific Conductance (25C)	2400		1.0	1.0	umhos/cm			04/29/22 13:12	1
Total Dissolved Solids	1500		10	4.3	mg/L			04/28/22 06:08	1
Total Suspended Solids	39		13	4.8	mg/L			04/26/22 15:22	1
pH	6.0	HF	0.2	0.2	SU			04/29/22 15:05	1
TOC Dup	390		20	9.4	mg/L			05/06/22 05:01	20

Client Sample Results

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-13
Lab Sample ID: 500-215605-9
Date Collected: 04/22/22 14:00
Matrix: Water
Date Received: 04/26/22 10:20

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**95**	**B**	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:59	1
Iron	**37**		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:59	1
SiO2, Silica	**36**		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:59	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.058		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 21:11	1
Arsenic	**0.021**		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 21:11	1
Manganese	**4.8**		0.0025	0.0011	mg/L		04/29/22 08:03	04/29/22 21:11	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**400**		0.91	0.46	mg/L		04/28/22 08:25	05/03/22 14:51	2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	<0.50	H	1.0	0.50	NTU			05/10/22 16:47	1
Chloride	**350**		20	17	mg/L			05/08/22 19:31	100
Nitrate as N	<0.068	H3	0.20	0.068	mg/L			05/07/22 00:58	1
Nitrite as N	<5.0	H3	20	5.0	mg/L			05/10/22 12:11	100
Sulfate	**7.7**		0.20	0.095	mg/L			05/07/22 00:58	1
Orthophosphate as P	<0.065	H3	0.20	0.065	mg/L			05/08/22 19:17	1
Ammonia	<0.10		0.20	0.10	mg/L		05/17/22 05:30	05/17/22 09:39	1
Alkalinity	**170**		5.0	3.7	mg/L			05/02/22 11:50	1
Specific Conductance (25C)	**1400**		1.0	1.0	umhos/cm			04/29/22 12:34	1
Total Dissolved Solids	**830**		10	4.3	mg/L			04/28/22 06:14	1
Total Suspended Solids	**74**		13	4.8	mg/L			04/26/22 15:23	1
pH	**6.5**	**HF**	0.2	0.2	SU			04/29/22 15:10	1
TOC Dup	**40**		5.0	2.4	mg/L			05/04/22 09:55	5

Definitions/Glossary

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
H3	Sample was received and analyzed past holding time.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Metals

Prep Batch: 653811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total Recoverable	Water	200.7	
500-215605-2	RW-4	Total Recoverable	Water	200.7	
500-215605-3	RW-5	Total Recoverable	Water	200.7	
500-215605-4	RW-6	Total Recoverable	Water	200.7	
500-215605-5	RW-7	Total Recoverable	Water	200.7	
500-215605-6	RW-10	Total Recoverable	Water	200.7	
500-215605-7	RW-11	Total Recoverable	Water	200.7	
500-215605-8	RW-12	Total Recoverable	Water	200.7	
500-215605-9	RW-13	Total Recoverable	Water	200.7	
MB 500-653811/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 500-653811/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
500-215605-1 MS	RW-2	Total Recoverable	Water	200.7	
500-215605-1 DU	RW-2	Total Recoverable	Water	200.7	

Prep Batch: 653962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	200.8	
500-215605-2	RW-4	Total/NA	Water	200.8	
500-215605-3	RW-5	Total/NA	Water	200.8	
500-215605-4	RW-6	Total/NA	Water	200.8	
500-215605-5	RW-7	Total/NA	Water	200.8	
500-215605-6	RW-10	Total/NA	Water	200.8	
500-215605-7	RW-11	Total/NA	Water	200.8	
500-215605-8	RW-12	Total/NA	Water	200.8	
500-215605-9	RW-13	Total/NA	Water	200.8	
MB 500-653962/1-A	Method Blank	Total/NA	Water	200.8	
LCS 500-653962/2-A	Lab Control Sample	Total/NA	Water	200.8	

Analysis Batch: 654332

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	200.8	653962
500-215605-3	RW-5	Total/NA	Water	200.8	653962
500-215605-4	RW-6	Total/NA	Water	200.8	653962
500-215605-5	RW-7	Total/NA	Water	200.8	653962
500-215605-6	RW-10	Total/NA	Water	200.8	653962
500-215605-7	RW-11	Total/NA	Water	200.8	653962
500-215605-8	RW-12	Total/NA	Water	200.8	653962
500-215605-9	RW-13	Total/NA	Water	200.8	653962
MB 500-653962/1-A	Method Blank	Total/NA	Water	200.8	653962
LCS 500-653962/2-A	Lab Control Sample	Total/NA	Water	200.8	653962

Analysis Batch: 654392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	200.8	653962
500-215605-2	RW-4	Total/NA	Water	200.8	653962
500-215605-2	RW-4	Total/NA	Water	200.8	653962
500-215605-3	RW-5	Total/NA	Water	200.8	653962
500-215605-8	RW-12	Total/NA	Water	200.8	653962

Metals

Analysis Batch: 654462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-2	RW-4	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-3	RW-5	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-4	RW-6	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-5	RW-7	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-6	RW-10	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-7	RW-11	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-8	RW-12	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-9	RW-13	Total Recoverable	Water	200.7 Rev 4.4	653811
MB 500-653811/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	653811
LCS 500-653811/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-1 MS	RW-2	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-1 DU	RW-2	Total Recoverable	Water	200.7 Rev 4.4	653811

Analysis Batch: 654616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-2	RW-4	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-1 MS	RW-2	Total Recoverable	Water	200.7 Rev 4.4	653811
500-215605-1 DU	RW-2	Total Recoverable	Water	200.7 Rev 4.4	653811

Analysis Batch: 654624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total Recoverable	Water	SM 2340B	653811
500-215605-2	RW-4	Total Recoverable	Water	SM 2340B	653811
500-215605-3	RW-5	Total Recoverable	Water	SM 2340B	653811
500-215605-4	RW-6	Total Recoverable	Water	SM 2340B	653811
500-215605-5	RW-7	Total Recoverable	Water	SM 2340B	653811
500-215605-6	RW-10	Total Recoverable	Water	SM 2340B	653811
500-215605-7	RW-11	Total Recoverable	Water	SM 2340B	653811
500-215605-8	RW-12	Total Recoverable	Water	SM 2340B	653811
500-215605-9	RW-13	Total Recoverable	Water	SM 2340B	653811

General Chemistry

Leach Batch: 625904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-625904/1-B	Method Blank	Total/NA	Water	D3987-85	

Prep Batch: 626341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	Distill/Ammonia	
500-215605-4	RW-6	Total/NA	Water	Distill/Ammonia	
MB 480-625904/1-B	Method Blank	Total/NA	Water	Distill/Ammonia	625904

Prep Batch: 626344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-5	RW-7	Total/NA	Water	Distill/Ammonia	
500-215605-8	RW-12	Total/NA	Water	Distill/Ammonia	
500-215605-9	RW-13	Total/NA	Water	Distill/Ammonia	
500-215605-5 MS	RW-7	Total/NA	Water	Distill/Ammonia	

General Chemistry

Analysis Batch: 626409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	350.1	626341
500-215605-4	RW-6	Total/NA	Water	350.1	626341
500-215605-5	RW-7	Total/NA	Water	350.1	626344
500-215605-8	RW-12	Total/NA	Water	350.1	626344
500-215605-9	RW-13	Total/NA	Water	350.1	626344
MB 480-625904/1-B	Method Blank	Total/NA	Water	350.1	626341
MB 480-626409/45	Method Blank	Total/NA	Water	350.1	
MB 480-626409/73	Method Blank	Total/NA	Water	350.1	
LCS 480-626409/46	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-626409/74	Lab Control Sample	Total/NA	Water	350.1	
500-215605-5 MS	RW-7	Total/NA	Water	350.1	626344

Prep Batch: 626529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-2	RW-4	Total/NA	Water	Distill/Ammonia	
500-215605-3	RW-5	Total/NA	Water	Distill/Ammonia	
500-215605-6	RW-10	Total/NA	Water	Distill/Ammonia	
500-215605-7	RW-11	Total/NA	Water	Distill/Ammonia	
500-215605-2 MS	RW-4	Total/NA	Water	Distill/Ammonia	
500-215605-3 MS	RW-5	Total/NA	Water	Distill/Ammonia	
500-215605-3 DU	RW-5	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 626630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-2	RW-4	Total/NA	Water	350.1	626529
500-215605-3	RW-5	Total/NA	Water	350.1	626529
500-215605-6	RW-10	Total/NA	Water	350.1	626529
500-215605-7	RW-11	Total/NA	Water	350.1	626529
MB 480-626630/45	Method Blank	Total/NA	Water	350.1	
LCS 480-626630/46	Lab Control Sample	Total/NA	Water	350.1	
500-215605-2 MS	RW-4	Total/NA	Water	350.1	626529
500-215605-3 MS	RW-5	Total/NA	Water	350.1	626529
500-215605-3 DU	RW-5	Total/NA	Water	350.1	626529

Analysis Batch: 653498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	SM 2540D	
500-215605-2	RW-4	Total/NA	Water	SM 2540D	
500-215605-3	RW-5	Total/NA	Water	SM 2540D	
500-215605-4	RW-6	Total/NA	Water	SM 2540D	
500-215605-5	RW-7	Total/NA	Water	SM 2540D	
500-215605-6	RW-10	Total/NA	Water	SM 2540D	
500-215605-7	RW-11	Total/NA	Water	SM 2540D	
500-215605-8	RW-12	Total/NA	Water	SM 2540D	
500-215605-9	RW-13	Total/NA	Water	SM 2540D	
MB 500-653498/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-653498/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 653753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 653753 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-2	RW-4	Total/NA	Water	SM 2540C	
500-215605-3	RW-5	Total/NA	Water	SM 2540C	
500-215605-4	RW-6	Total/NA	Water	SM 2540C	
500-215605-5	RW-7	Total/NA	Water	SM 2540C	
500-215605-6	RW-10	Total/NA	Water	SM 2540C	
MB 500-653753/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-653753/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 653754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-7	RW-11	Total/NA	Water	SM 2540C	
500-215605-8	RW-12	Total/NA	Water	SM 2540C	
500-215605-9	RW-13	Total/NA	Water	SM 2540C	
MB 500-653754/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-653754/2	Lab Control Sample	Total/NA	Water	SM 2540C	
500-215605-7 MS	RW-11	Total/NA	Water	SM 2540C	
500-215605-7 DU	RW-11	Total/NA	Water	SM 2540C	
500-215605-8 DU	RW-12	Total/NA	Water	SM 2540C	

Analysis Batch: 653830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	SM 4500 H+ B	
500-215605-2	RW-4	Total/NA	Water	SM 4500 H+ B	
500-215605-3	RW-5	Total/NA	Water	SM 4500 H+ B	
LCS 500-653830/5	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCSD 500-653830/6	Lab Control Sample Dup	Total/NA	Water	SM 4500 H+ B	
500-215605-1 DU	RW-2	Total/NA	Water	SM 4500 H+ B	
500-215605-2 DU	RW-4	Total/NA	Water	SM 4500 H+ B	
500-215605-3 DU	RW-5	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 653995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-4	RW-6	Total/NA	Water	SM 4500 H+ B	
500-215605-5	RW-7	Total/NA	Water	SM 4500 H+ B	
500-215605-6	RW-10	Total/NA	Water	SM 4500 H+ B	
500-215605-7	RW-11	Total/NA	Water	SM 4500 H+ B	
500-215605-8	RW-12	Total/NA	Water	SM 4500 H+ B	
500-215605-9	RW-13	Total/NA	Water	SM 4500 H+ B	
LCS 500-653995/5	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCSD 500-653995/6	Lab Control Sample Dup	Total/NA	Water	SM 4500 H+ B	
500-215605-4 DU	RW-6	Total/NA	Water	SM 4500 H+ B	
500-215605-5 DU	RW-7	Total/NA	Water	SM 4500 H+ B	
500-215605-6 DU	RW-10	Total/NA	Water	SM 4500 H+ B	
500-215605-7 DU	RW-11	Total/NA	Water	SM 4500 H+ B	
500-215605-8 DU	RW-12	Total/NA	Water	SM 4500 H+ B	
500-215605-9 DU	RW-13	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 654073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	SM 2510B	
500-215605-2	RW-4	Total/NA	Water	SM 2510B	

General Chemistry (Continued)

Analysis Batch: 654073 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-3	RW-5	Total/NA	Water	SM 2510B	
500-215605-4	RW-6	Total/NA	Water	SM 2510B	
500-215605-5	RW-7	Total/NA	Water	SM 2510B	
500-215605-6	RW-10	Total/NA	Water	SM 2510B	
500-215605-7	RW-11	Total/NA	Water	SM 2510B	
500-215605-8	RW-12	Total/NA	Water	SM 2510B	
500-215605-9	RW-13	Total/NA	Water	SM 2510B	
LCS 500-654073/13	Lab Control Sample	Total/NA	Water	SM 2510B	
LCS 500-654073/24	Lab Control Sample	Total/NA	Water	SM 2510B	
LCS 500-654073/4	Lab Control Sample	Total/NA	Water	SM 2510B	
500-215605-5 DU	RW-7	Total/NA	Water	SM 2510B	

Analysis Batch: 654449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	SM 2320B	
500-215605-2	RW-4	Total/NA	Water	SM 2320B	
500-215605-3	RW-5	Total/NA	Water	SM 2320B	
500-215605-4	RW-6	Total/NA	Water	SM 2320B	
500-215605-5	RW-7	Total/NA	Water	SM 2320B	
500-215605-6	RW-10	Total/NA	Water	SM 2320B	
500-215605-7	RW-11	Total/NA	Water	SM 2320B	
500-215605-8	RW-12	Total/NA	Water	SM 2320B	
500-215605-9	RW-13	Total/NA	Water	SM 2320B	
MB 500-654449/28	Method Blank	Total/NA	Water	SM 2320B	
MB 500-654449/3	Method Blank	Total/NA	Water	SM 2320B	
LCS 500-654449/29	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 500-654449/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 654890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-2	RW-4	Total/NA	Water	SM 5310C	
500-215605-3	RW-5	Total/NA	Water	SM 5310C	
500-215605-4	RW-6	Total/NA	Water	SM 5310C	
500-215605-5	RW-7	Total/NA	Water	SM 5310C	
500-215605-6	RW-10	Total/NA	Water	SM 5310C	
500-215605-7	RW-11	Total/NA	Water	SM 5310C	
500-215605-9	RW-13	Total/NA	Water	SM 5310C	
MB 500-654890/7	Method Blank	Total/NA	Water	SM 5310C	
LCS 500-654890/8	Lab Control Sample	Total/NA	Water	SM 5310C	

Analysis Batch: 655338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	300.0	
500-215605-2	RW-4	Total/NA	Water	300.0	
500-215605-4	RW-6	Total/NA	Water	300.0	
500-215605-5	RW-7	Total/NA	Water	300.0	
500-215605-6	RW-10	Total/NA	Water	300.0	
500-215605-7	RW-11	Total/NA	Water	300.0	
500-215605-8	RW-12	Total/NA	Water	300.0	
500-215605-9	RW-13	Total/NA	Water	300.0	
MB 500-655338/3	Method Blank	Total/NA	Water	300.0	

General Chemistry (Continued)

Analysis Batch: 655338 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-655338/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 655411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	300.0	
500-215605-2	RW-4	Total/NA	Water	300.0	
500-215605-3	RW-5	Total/NA	Water	300.0	
500-215605-3	RW-5	Total/NA	Water	300.0	
500-215605-3	RW-5	Total/NA	Water	300.0	
500-215605-4	RW-6	Total/NA	Water	300.0	
500-215605-4	RW-6	Total/NA	Water	300.0	
500-215605-4	RW-6	Total/NA	Water	300.0	
500-215605-5	RW-7	Total/NA	Water	300.0	
500-215605-5	RW-7	Total/NA	Water	300.0	
500-215605-5	RW-7	Total/NA	Water	300.0	
500-215605-6	RW-10	Total/NA	Water	300.0	
500-215605-6	RW-10	Total/NA	Water	300.0	
500-215605-7	RW-11	Total/NA	Water	300.0	
500-215605-7	RW-11	Total/NA	Water	300.0	
500-215605-8	RW-12	Total/NA	Water	300.0	
500-215605-8	RW-12	Total/NA	Water	300.0	
500-215605-8	RW-12	Total/NA	Water	300.0	
500-215605-9	RW-13	Total/NA	Water	300.0	
500-215605-9	RW-13	Total/NA	Water	300.0	
MB 500-655411/3	Method Blank	Total/NA	Water	300.0	
LCS 500-655411/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 655557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	SM 5310C	
500-215605-8	RW-12	Total/NA	Water	SM 5310C	
MB 500-655557/22	Method Blank	Total/NA	Water	SM 5310C	
LCS 500-655557/23	Lab Control Sample	Total/NA	Water	SM 5310C	
500-215605-1 MS	RW-2	Total/NA	Water	SM 5310C	
500-215605-1 MSD	RW-2	Total/NA	Water	SM 5310C	

Analysis Batch: 655767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-5	RW-7	Total/NA	Water	300.0	
500-215605-6	RW-10	Total/NA	Water	300.0	
500-215605-7	RW-11	Total/NA	Water	300.0	
500-215605-8	RW-12	Total/NA	Water	300.0	
500-215605-9	RW-13	Total/NA	Water	300.0	
MB 500-655767/3	Method Blank	Total/NA	Water	300.0	
LCS 500-655767/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 655850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-1	RW-2	Total/NA	Water	180.1	
500-215605-2	RW-4	Total/NA	Water	180.1	
500-215605-3	RW-5	Total/NA	Water	180.1	

General Chemistry (Continued)

Analysis Batch: 655850 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-215605-4	RW-6	Total/NA	Water	180.1	
500-215605-5	RW-7	Total/NA	Water	180.1	
500-215605-6	RW-10	Total/NA	Water	180.1	
500-215605-7	RW-11	Total/NA	Water	180.1	
500-215605-8	RW-12	Total/NA	Water	180.1	
500-215605-9	RW-13	Total/NA	Water	180.1	
LCS 500-655850/27	Lab Control Sample	Total/NA	Water	180.1	
LCS 500-655850/4	Lab Control Sample	Total/NA	Water	180.1	
500-215605-1 DU	RW-2	Total/NA	Water	180.1	

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 500-653811/1-A
Matrix: Water
Analysis Batch: 654462

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 653811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	0.0537	J	0.10	0.046	mg/L		04/28/22 08:25	05/02/22 16:05	1
Iron	<0.060		0.10	0.060	mg/L		04/28/22 08:25	05/02/22 16:05	1
SiO2, Silica	<0.11		0.22	0.11	mg/L		04/28/22 08:25	05/02/22 16:05	1

Lab Sample ID: LCS 500-653811/2-A
Matrix: Water
Analysis Batch: 654462

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 653811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	5.00	4.95		mg/L		99	85 - 115
Iron	0.500	0.526		mg/L		105	85 - 115

Lab Sample ID: 500-215605-1 MS
Matrix: Water
Analysis Batch: 654616

Client Sample ID: RW-2
Prep Type: Total Recoverable
Prep Batch: 653811

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	550		5.00	594	4	mg/L		920	70 - 130
Iron	750		0.500	793	4	mg/L		8228	70 - 130

Lab Sample ID: 500-215605-1 DU
Matrix: Water
Analysis Batch: 654462

Client Sample ID: RW-2
Prep Type: Total Recoverable
Prep Batch: 653811

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
SiO2, Silica	1.1		1.07		mg/L		5	20

Lab Sample ID: 500-215605-1 DU
Matrix: Water
Analysis Batch: 654616

Client Sample ID: RW-2
Prep Type: Total Recoverable
Prep Batch: 653811

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	550		570		mg/L		4	20
Iron	750		777		mg/L		3	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 500-653962/1-A
Matrix: Water
Analysis Batch: 654332

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 653962

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.058		0.10	0.058	mg/L		04/29/22 08:03	04/29/22 20:18	1
Arsenic	<0.00015		0.0010	0.00015	mg/L		04/29/22 08:03	04/29/22 20:18	1
Manganese	<0.0011		0.0025	0.0011	mg/L		04/29/22 08:03	04/29/22 20:18	1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 500-653962/2-A
Matrix: Water
Analysis Batch: 654332

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 653962

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	2.00	2.04		mg/L		102	85 - 115
Arsenic	0.100	0.0989		mg/L		99	85 - 115
Manganese	0.500	0.519		mg/L		104	85 - 115

Method: 180.1 - Turbidity, Nephelometric

Lab Sample ID: LCS 500-655850/27
Matrix: Water
Analysis Batch: 655850

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	80.0	85		NTU		108	90 - 110

Lab Sample ID: LCS 500-655850/4
Matrix: Water
Analysis Batch: 655850

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Turbidity	1.00	1.0		NTU		98	90 - 110

Lab Sample ID: 500-215605-1 DU
Matrix: Water
Analysis Batch: 655850

Client Sample ID: RW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Turbidity	80	H	75		NTU		2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 500-655338/3
Matrix: Water
Analysis Batch: 655338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.068		0.20	0.068	mg/L			05/06/22 18:10	1
Sulfate	<0.095		0.20	0.095	mg/L			05/06/22 18:10	1
Orthophosphate as P	<0.065		0.20	0.065	mg/L			05/06/22 18:10	1

Lab Sample ID: LCS 500-655338/4
Matrix: Water
Analysis Batch: 655338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.00	2.01		mg/L		101	90 - 110
Sulfate	5.00	4.73		mg/L		95	90 - 110
Orthophosphate as P	2.00	1.96		mg/L		98	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 500-655411/3
Matrix: Water
Analysis Batch: 655411

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			05/08/22 13:51	1
Nitrate as N	<0.068		0.20	0.068	mg/L			05/08/22 13:51	1
Nitrite as N	<0.050		0.20	0.050	mg/L			05/08/22 13:51	1
Sulfate	<0.095		0.20	0.095	mg/L			05/08/22 13:51	1
Orthophosphate as P	<0.065		0.20	0.065	mg/L			05/08/22 13:51	1

Lab Sample ID: LCS 500-655411/4
Matrix: Water
Analysis Batch: 655411

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	3.06		mg/L		102	90 - 110
Nitrate as N	2.00	2.14		mg/L		107	90 - 110
Nitrite as N	2.00	2.16		mg/L		108	90 - 110
Sulfate	5.00	5.01		mg/L		100	90 - 110
Orthophosphate as P	2.00	2.00		mg/L		100	90 - 110

Lab Sample ID: MB 500-655767/3
Matrix: Water
Analysis Batch: 655767

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			05/10/22 10:49	1
Nitrite as N	<0.050		0.20	0.050	mg/L			05/10/22 10:49	1
Sulfate	<0.095		0.20	0.095	mg/L			05/10/22 10:49	1

Lab Sample ID: LCS 500-655767/4
Matrix: Water
Analysis Batch: 655767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	3.02		mg/L		101	90 - 110
Nitrite as N	2.00	2.13		mg/L		107	90 - 110
Sulfate	5.00	4.95		mg/L		99	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-625904/1-B
Matrix: Water
Analysis Batch: 626409

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 626341

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<2.0		4.0	2.0	mg/L		05/17/22 05:30	05/17/22 08:30	1

Lab Sample ID: 500-215605-5 MS
Matrix: Water
Analysis Batch: 626409

Client Sample ID: RW-7
Prep Type: Total/NA
Prep Batch: 626344

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	1.4		0.200	1.58	4	mg/L		102	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-626409/45
Matrix: Water
Analysis Batch: 626409
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.10		0.20	0.10	mg/L			05/17/22 08:06	1

Lab Sample ID: MB 480-626409/73
Matrix: Water
Analysis Batch: 626409
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.10		0.20	0.10	mg/L			05/17/22 09:20	1

Lab Sample ID: LCS 480-626409/46
Matrix: Water
Analysis Batch: 626409
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia			1.00	0.976		mg/L		98	90 - 110		

Lab Sample ID: LCS 480-626409/74
Matrix: Water
Analysis Batch: 626409
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia			1.00	0.992		mg/L		99	90 - 110		

Lab Sample ID: 500-215605-2 MS
Matrix: Water
Analysis Batch: 626630
Client Sample ID: RW-4
Prep Type: Total/NA
Prep Batch: 626529

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia	2.2		0.400	2.63	4	mg/L		97	90 - 110		

Lab Sample ID: 500-215605-3 MS
Matrix: Water
Analysis Batch: 626630
Client Sample ID: RW-5
Prep Type: Total/NA
Prep Batch: 626529

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia	2.4		0.400	2.74	4	mg/L		94	90 - 110		

Lab Sample ID: 500-215605-3 DU
Matrix: Water
Analysis Batch: 626630
Client Sample ID: RW-5
Prep Type: Total/NA
Prep Batch: 626529

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ammonia	2.4			2.30		mg/L				3	20

Lab Sample ID: MB 480-626630/45
Matrix: Water
Analysis Batch: 626630
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.10		0.20	0.10	mg/L			05/18/22 11:10	1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: LCS 480-626630/46
Matrix: Water
Analysis Batch: 626630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	1.00	1.00		mg/L		100	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 500-654449/28
Matrix: Water
Analysis Batch: 654449

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			05/02/22 13:27	1

Lab Sample ID: MB 500-654449/3
Matrix: Water
Analysis Batch: 654449

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			05/02/22 10:28	1

Lab Sample ID: LCS 500-654449/29
Matrix: Water
Analysis Batch: 654449

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	100	107		mg/L		107	90 - 110

Lab Sample ID: LCS 500-654449/4
Matrix: Water
Analysis Batch: 654449

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	100	102		mg/L		102	90 - 110

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: 500-215605-5 DU
Matrix: Water
Analysis Batch: 654073

Client Sample ID: RW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance (25C)	790		790		umhos/cm		0.3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 500-653753/1
Matrix: Water
Analysis Batch: 653753

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<4.3		10	4.3	mg/L			04/28/22 03:38	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 500-653753/2
Matrix: Water
Analysis Batch: 653753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			250	264		mg/L		106	80 - 120		

Lab Sample ID: MB 500-653754/1
Matrix: Water
Analysis Batch: 653754

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<4.3		10	4.3	mg/L			04/28/22 05:56	1

Lab Sample ID: LCS 500-653754/2
Matrix: Water
Analysis Batch: 653754

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			250	254		mg/L		102	80 - 120		

Lab Sample ID: 500-215605-7 MS
Matrix: Water
Analysis Batch: 653754

Client Sample ID: RW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids	630		250	928		mg/L		118	75 - 125		

Lab Sample ID: 500-215605-7 DU
Matrix: Water
Analysis Batch: 653754

Client Sample ID: RW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	630			628		mg/L				0.6	5

Lab Sample ID: 500-215605-8 DU
Matrix: Water
Analysis Batch: 653754

Client Sample ID: RW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1500			1630		mg/L				5	5

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-653498/1
Matrix: Water
Analysis Batch: 653498

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.9		5.0	1.9	mg/L			04/26/22 14:50	1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 500-653498/2
Matrix: Water
Analysis Batch: 653498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids			200	178		mg/L		89	80 - 120		

Method: SM 4500 H+ B - pH

Lab Sample ID: 500-215605-1 DU
Matrix: Water
Analysis Batch: 653830

Client Sample ID: RW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	5.2	HF		5.2		SU				0	

Lab Sample ID: 500-215605-2 DU
Matrix: Water
Analysis Batch: 653830

Client Sample ID: RW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	3.8	HF		3.8		SU				0.3	

Lab Sample ID: 500-215605-3 DU
Matrix: Water
Analysis Batch: 653830

Client Sample ID: RW-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.8	HF		6.8		SU				0.1	

Lab Sample ID: 500-215605-4 DU
Matrix: Water
Analysis Batch: 653995

Client Sample ID: RW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.9	HF		7.0		SU				0.3	

Lab Sample ID: 500-215605-5 DU
Matrix: Water
Analysis Batch: 653995

Client Sample ID: RW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.4	HF		7.4		SU				0.3	

Lab Sample ID: 500-215605-6 DU
Matrix: Water
Analysis Batch: 653995

Client Sample ID: RW-10
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.2	HF		6.2		SU				0.2	

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 500-215605-7 DU
Matrix: Water
Analysis Batch: 653995

Client Sample ID: RW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.8	HF		6.8		SU				0	

Lab Sample ID: 500-215605-8 DU
Matrix: Water
Analysis Batch: 653995

Client Sample ID: RW-12
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.0	HF		6.0		SU				0.2	

Lab Sample ID: 500-215605-9 DU
Matrix: Water
Analysis Batch: 653995

Client Sample ID: RW-13
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	6.5	HF		6.5		SU				0.2	

Method: SM 5310C - TOC

Lab Sample ID: MB 500-654890/7
Matrix: Water
Analysis Batch: 654890

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Dup	<0.47		1.0	0.47	mg/L			05/03/22 23:41	1

Lab Sample ID: LCS 500-654890/8
Matrix: Water
Analysis Batch: 654890

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TOC Dup			10.0	10.6		mg/L		106	86 - 116		

Lab Sample ID: MB 500-655557/22
Matrix: Water
Analysis Batch: 655557

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Dup	<0.47		1.0	0.47	mg/L			05/06/22 02:42	1

Lab Sample ID: LCS 500-655557/23
Matrix: Water
Analysis Batch: 655557

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TOC Dup			10.0	10.4		mg/L		104	86 - 116		

Client: Gannett Fleming
Project/Site: Water Quality Parameters (WQP) 55929.007

Job ID: 500-215605-1

Method: SM 5310C - TOC (Continued)

Lab Sample ID: 500-215605-1 MS
Matrix: Water
Analysis Batch: 655557

Client Sample ID: RW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
TOC Dup	750	F1	200	865	F1	mg/L		57	75 - 125		

Lab Sample ID: 500-215605-1 MSD
Matrix: Water
Analysis Batch: 655557

Client Sample ID: RW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TOC Dup	750	F1	200	861	F1	mg/L		55	75 - 125	0	20

Client Sample ID: RW-2
Lab Sample ID: 500-215605-1

Date Collected: 04/22/22 15:40
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		10	654616	05/03/22 12:40	JJB	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:12	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		5	654332	04/29/22 20:36	FXG	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		100	654392	05/02/22 13:07	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:38	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:54	FXG	TAL CHI
Total/NA	Analysis	300.0		500	655411	05/08/22 14:18	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/06/22 22:42	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626341	05/17/22 05:30	CLT	TAL BUF
Total/NA	Analysis	350.1		1	626409	05/17/22 08:59	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 10:42	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 13:02		
					(End)	04/29/22 13:04		
Total/NA	Analysis	SM 2540C		1	653753	04/28/22 04:24	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:12		
					(End)	04/26/22 15:13		
Total/NA	Analysis	SM 4500 H+ B		1	653830		SMO	TAL CHI
					(Start)	04/28/22 16:17		
					(End)	04/28/22 16:19		
Total/NA	Analysis	SM 5310C		20	655557	05/06/22 04:10	TMS	TAL CHI

Client Sample ID: RW-4
Lab Sample ID: 500-215605-2

Date Collected: 04/22/22 16:10
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		10	654616	05/03/22 12:53	JJB	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:25	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		5	654392	05/02/22 13:10	FXG	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		100	654392	05/02/22 13:13	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:38	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:56	FXG	TAL CHI

Client Sample ID: RW-4
Lab Sample ID: 500-215605-2
Date Collected: 04/22/22 16:10
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500	655411	05/08/22 14:32	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/06/22 22:56	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626529	05/18/22 07:00	CLT	TAL BUF
Total/NA	Analysis	350.1		2	626630	05/18/22 11:15	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 10:53	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 13:04		
					(End)	04/29/22 13:06		
Total/NA	Analysis	SM 2540C		1	653753	04/28/22 04:27	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:13		
					(End)	04/26/22 15:15		
Total/NA	Analysis	SM 4500 H+ B		1	653830		SMO	TAL CHI
					(Start)	04/28/22 16:21		
					(End)	04/28/22 16:22		
Total/NA	Analysis	SM 5310C		1	654890	05/04/22 06:16	TMS	TAL CHI

Client Sample ID: RW-5
Lab Sample ID: 500-215605-3
Date Collected: 04/22/22 15:55
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:39	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 20:43	FXG	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		10	654392	05/02/22 13:17	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:38	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:43	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 14:45	EAT	TAL CHI
Total/NA	Analysis	300.0		10	655411	05/08/22 14:59	EAT	TAL CHI
Total/NA	Analysis	300.0		500	655411	05/08/22 15:12	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626529	05/18/22 07:00	CLT	TAL BUF
Total/NA	Analysis	350.1		2	626630	05/18/22 11:47	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 16:06	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 13:08		
					(End)	04/29/22 13:10		
Total/NA	Analysis	SM 2540C		1	653753	04/28/22 04:29	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:15		
					(End)	04/26/22 15:16		

Client Sample ID: RW-5
Lab Sample ID: 500-215605-3

Date Collected: 04/22/22 15:55
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 H+ B		1	653830		SMO	TAL CHI
Total/NA	Analysis	SM 5310C		1	654890	05/04/22 06:44	TMS	TAL CHI

Client Sample ID: RW-6
Lab Sample ID: 500-215605-4

Date Collected: 04/22/22 14:30
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:42	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 20:47	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:38	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:44	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 15:26	EAT	TAL CHI
Total/NA	Analysis	300.0		5	655411	05/08/22 15:40	EAT	TAL CHI
Total/NA	Analysis	300.0		100	655411	05/08/22 15:53	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/06/22 23:50	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626341	05/17/22 05:30	CLT	TAL BUF
Total/NA	Analysis	350.1		1	626409	05/17/22 09:07	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 12:14	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 12:30		
					(End)	04/29/22 12:32		
Total/NA	Analysis	SM 2540C		1	653753	04/28/22 04:32	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:16		
					(End)	04/26/22 15:18		
Total/NA	Analysis	SM 4500 H+ B		1	653995		SMO	TAL CHI
					(Start)	04/29/22 14:45		
					(End)	04/29/22 14:47		
Total/NA	Analysis	SM 5310C		4	654890	05/04/22 07:12	TMS	TAL CHI

Client Sample ID: RW-7
Lab Sample ID: 500-215605-5

Date Collected: 04/22/22 12:15
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:46	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 20:50	FXG	TAL CHI

Client Sample ID: RW-7
Lab Sample ID: 500-215605-5

Date Collected: 04/22/22 12:15
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:38	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:57	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 16:34	EAT	TAL CHI
Total/NA	Analysis	300.0		5	655411	05/08/22 16:48	EAT	TAL CHI
Total/NA	Analysis	300.0		50	655411	05/08/22 17:01	EAT	TAL CHI
Total/NA	Analysis	300.0		50	655767	05/10/22 11:16	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/07/22 00:04	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626344	05/17/22 05:30	CLT	TAL BUF
Total/NA	Analysis	350.1		1	626409	05/17/22 09:26	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 12:06	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 12:08		
					(End)	04/29/22 12:10		
Total/NA	Analysis	SM 2540C		1	653753	04/28/22 04:34	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:18		
					(End)	04/26/22 15:19		
Total/NA	Analysis	SM 4500 H+ B		1	653995		SMO	TAL CHI
					(Start)	04/29/22 14:49		
					(End)	04/29/22 14:52		
Total/NA	Analysis	SM 5310C		1	654890	05/04/22 07:40	TMS	TAL CHI

Client Sample ID: RW-10
Lab Sample ID: 500-215605-6

Date Collected: 04/22/22 16:55
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:49	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 21:01	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:50	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:58	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 17:15	EAT	TAL CHI
Total/NA	Analysis	300.0		1000	655411	05/08/22 17:28	EAT	TAL CHI
Total/NA	Analysis	300.0		1000	655767	05/10/22 11:30	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/07/22 00:18	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626529	05/18/22 07:00	CLT	TAL BUF
Total/NA	Analysis	350.1		2	626630	05/18/22 11:34	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 10:49	SMO	TAL CHI

Lab Chronicle

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-10
Lab Sample ID: 500-215605-6
Date Collected: 04/22/22 16:55
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
Total/NA	Analysis	SM 2540C		1	653753	04/28/22 04:37	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:19		
					(End)	04/26/22 15:20		
Total/NA	Analysis	SM 4500 H+ B		1	653995		SMO	TAL CHI
					(Start)	04/29/22 14:54		
					(End)	04/29/22 14:56		
Total/NA	Analysis	SM 5310C		20	654890	05/04/22 08:08	TMS	TAL CHI

Client Sample ID: RW-11
Lab Sample ID: 500-215605-7
Date Collected: 04/22/22 14:45
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:52	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 21:04	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:50	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:45	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 17:42	EAT	TAL CHI
Total/NA	Analysis	300.0		100	655411	05/08/22 17:56	EAT	TAL CHI
Total/NA	Analysis	300.0		100	655767	05/10/22 11:43	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/07/22 00:31	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626529	05/18/22 07:00	CLT	TAL BUF
Total/NA	Analysis	350.1		2	626630	05/18/22 11:55	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 11:43	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 12:32		
					(End)	04/29/22 12:34		
Total/NA	Analysis	SM 2540C		1	653754	04/28/22 06:01	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:20		
					(End)	04/26/22 15:22		
Total/NA	Analysis	SM 4500 H+ B		1	653995		SMO	TAL CHI
					(Start)	04/29/22 14:58		
					(End)	04/29/22 15:01		
Total/NA	Analysis	SM 5310C		5	654890	05/04/22 08:59	TMS	TAL CHI

Client Sample ID: RW-12
Lab Sample ID: 500-215605-8
Date Collected: 04/22/22 15:00
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:56	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 21:08	FXG	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		10	654392	05/02/22 13:20	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:50	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:46	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 18:09	EAT	TAL CHI
Total/NA	Analysis	300.0		2	655411	05/08/22 18:23	EAT	TAL CHI
Total/NA	Analysis	300.0		200	655411	05/08/22 18:36	EAT	TAL CHI
Total/NA	Analysis	300.0		200	655767	05/10/22 11:57	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/07/22 00:45	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626344	05/17/22 05:30	CLT	TAL BUF
Total/NA	Analysis	350.1		1	626409	05/17/22 09:36	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 11:01	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 13:12		
					(End)	04/29/22 13:14		
Total/NA	Analysis	SM 2540C		1	653754	04/28/22 06:08	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:22		
					(End)	04/26/22 15:23		
Total/NA	Analysis	SM 4500 H+ B		1	653995		SMO	TAL CHI
					(Start)	04/29/22 15:05		
					(End)	04/29/22 15:07		
Total/NA	Analysis	SM 5310C		20	655557	05/06/22 05:01	TMS	TAL CHI

Client Sample ID: RW-13
Lab Sample ID: 500-215605-9
Date Collected: 04/22/22 14:00
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	200.7 Rev 4.4		1	654462	05/02/22 16:59	JJB	TAL CHI
Total/NA	Prep	200.8			653962	04/29/22 08:03	BDE	TAL CHI
Total/NA	Analysis	200.8		1	654332	04/29/22 21:11	FXG	TAL CHI
Total Recoverable	Prep	200.7			653811	04/28/22 08:25	BDE	TAL CHI
Total Recoverable	Analysis	SM 2340B		2	654624	05/03/22 14:51	JJB	TAL CHI
Total/NA	Analysis	180.1		1	655850	05/10/22 16:47	FXG	TAL CHI
Total/NA	Analysis	300.0		1	655411	05/08/22 19:17	EAT	TAL CHI
Total/NA	Analysis	300.0		100	655411	05/08/22 19:31	EAT	TAL CHI

Lab Chronicle

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Client Sample ID: RW-13
Lab Sample ID: 500-215605-9
Date Collected: 04/22/22 14:00
Matrix: Water
Date Received: 04/26/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100	655767	05/10/22 12:11	EAT	TAL CHI
Total/NA	Analysis	300.0		1	655338	05/07/22 00:58	EAT	TAL CHI
Total/NA	Prep	Distill/Ammonia			626344	05/17/22 05:30	CLT	TAL BUF
Total/NA	Analysis	350.1		1	626409	05/17/22 09:39	CLT	TAL BUF
Total/NA	Analysis	SM 2320B		1	654449	05/02/22 11:50	SMO	TAL CHI
Total/NA	Analysis	SM 2510B		1	654073		PFK	TAL CHI
					(Start)	04/29/22 12:34		
					(End)	04/29/22 12:36		
Total/NA	Analysis	SM 2540C		1	653754	04/28/22 06:14	CLB	TAL CHI
Total/NA	Analysis	SM 2540D		1	653498		SMO	TAL CHI
					(Start)	04/26/22 15:23		
					(End)	04/26/22 15:25		
Total/NA	Analysis	SM 4500 H+ B		1	653995		SMO	TAL CHI
					(Start)	04/29/22 15:10		
					(End)	04/29/22 15:12		
Total/NA	Analysis	SM 5310C		5	654890	05/04/22 09:55	TMS	TAL CHI

Laboratory References:

TAL BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Gannett Fleming
Job ID: 500-215605-1
Project/Site: Water Quality Parameters (WQP) 55929.007

Laboratory: Eurofins Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-22

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998310390	08-31-22

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Phone (708) 534-5211

Chain of Custody Record

eurofins Environment Testing Amer ca

Client Information	Sampler: Chelsea Payne	Lab PM: Fredrick Sandie	Carrier Tracking No(s):	COC No.: 500-100764-43878 1
Client Contact: Anthony Miller	Phone: 608 286-5491	E-Mail: Sandra Fredrick@et eurofinsus com	State of Origin: WI	Page: Page 1 of 1
Company: Gannett Fleming	PWSID:			Job #: 500-215605
Address: 8040 Excelsior Dr Suite 303	Due Date Requested:			
City: Madison	TAT Requested (days): Standard			
State, Zip: WI, 53717-1338	Compliance Project: X Yes △ No			
Phone: 608-327-5050	PO #: Purchase Order not required 55929.007			
Email: awmiller@gfnet.com	WO #: —			
Project Name: Water Quality Parameters (WQP)	Project #: 50020114 (Eurofins Quote# 500210404-0)			
Site: WRR	SSOW#:			

500-215605 COC

Analysis Requested

Preservation Codes

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B, 2510B, 2540C, 2540D, SM4500_H+ (Alkalinity, TSS, TDS, pH)	180.1, 300 (Turbidity, Anions)	200.7, 200.8, SM2340B (Hardness, Metals)	SM4500NH3_G - Ammonia	5310C - TOC	Total Number of containers	Special Instructions/Note
			Preservation Code				N	N	D	S	S		
1 RW-2	4/22/22	15:40	G	Water	N	N	X	X	X	X	X		See attached "Revised
2 RW-4		16:10		Water			X	X	X	X	X		List of Water Quality
3 RW-5		15:55		Water			X	X	X	X	X		Parameters 04/22/22"
4 RW-6		14:30		Water			X	X	X	X	X		
5 RW-7		12:15		Water			X	X	X	X	X		
6 RW-10		16:55		Water			X	X	X	X	X		
7 RW-11		14:45		Water			X	X	X	X	X		
8 RW-12		15:00		Water			X	X	X	X	X		
9 RW-13		14:00		Water			X	X	X	X	X		
				Water									

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological
May contain PFAS

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I II III IV, Other (specify) ## II

Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date	Time	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Kristen Fischer	4/25/22 1600	GF	[signature]	4/26/22 1020	BETA
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact. △ Yes △ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 1.6→1.6, 2.6→1.2

Attach to Eurofins Chicago COC

Revised List of Water Quality Parameters – WRR – April 22, 2022

- General Water Quality Parameters
  - Hardness
  - Alkalinity
  - pH
  - Conductivity
  - Total Suspended Solids (TSS)
  - Turbidity
  - Total Dissolved Solids (TDS)
- IOCs in general, and especially:
  - Sulfate
  - Nitrite
  - Nitrate
  - Phosphate
  - Iron
  - Manganese
  - Chloride
  - Silica
  - Ammonia
  - Calcium
  - Aluminum
  - Arsenic
- Organics
  - Total Organic Carbon (TOC)

ORIGIN ID:RRLA (715) 834-9624
CHELSEA PAYNE C/O MARK GASSER
WRR ENVIRONMENTAL SERVICES
5200 RYDER RD

EAU CLAIRE, WI 54701
UNITED STATES US

SHIP DATE: 19APR22
ACTWGT: .25 00 LB MAN
CAD 0269688/CAFE3511

TO SAMPLE RECEIPT
EUROFINS
2417 BOND ST.

UNIVERSITY PARK IL 60484

(262) 202-6965 REF

INV
PO DEPT

RMA

500-215605 Wayb

FedEx Express

FedEx
TRK# 0221 5632 2369 7368

79 JOTA

TUE - 26 APR 10:30A
PRIORITY OVERNIGHT

60484
IL-US ORD

#2641531 04/25 5712/BDF9/FE4H

#3D0297-43E-8RRD EXP 03/23

ORIGIN ID:RRLA (715) 834-9624
CHELSEA PAYNE C/O MARK GASSER
WRR ENVIRONMENTAL SERVICES
5200 RYDER RD

EAU CLAIRE, WI 54701
UNITED STATES US

SHIP DATE: 19APR22
ACTWGT: 25 00 LB MAN
CAD 0269688/CAFE3511

TO SAMPLE RECEIPT
EUROFINS
2417 BOND ST.

UNIVERSITY PARK IL 60484

(262) 202 5965 REF

INV
PO DEPT

RT 519
ST 18

5
10:30
A
7357
04.26

#2641531 04/25 5712/BDF9/FE4H

FedEx
TRK# 0221 5632 2369 7357

79 JOTA

TUE - 26 APR 10:30A
PRIORITY OVERNIGHT

60484
IL-US ORD

#3D0297-43E-8RRD EXP 03/23

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-160439.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sandra.Fredrick@et.eurofinsus.com	State of Origin: Wisconsin	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Wisconsin		Job #: 500-215605-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 5/9/2022			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298	PO #:			
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	WO #:			
Email:	Project #: 50020114			
Project Name: Water Quality Parameters (WQP) 55929.007	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1/Distill_Ammonia (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
RW-2 (500-215605-1)	4/22/22	15:40 Central		Water			X	1	
RW-4 (500-215605-2)	4/22/22	16:10 Central		Water			X	1	
RW-5 (500-215605-3)	4/22/22	15:55 Central		Water			X	1	
RW-6 (500-215605-4)	4/22/22	14:30 Central		Water			X	1	
RW-7 (500-215605-5)	4/22/22	12:15 Central		Water			X	1	
RW-10 (500-215605-6)	4/22/22	16:55 Central		Water			X	1	
RW-11 (500-215605-7)	4/22/22	14:45 Central		Water			X	1	
RW-12 (500-215605-8)	4/22/22	15:00 Central		Water			X	1	
RW-13 (500-215605-9)	4/22/22	14:00 Central		Water			X	1	

Page 47 of 49

Note: Since laboratory accreditations are subject to change, Eurofins Chicago places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Chicago laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Chicago attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Chicago.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 5/11/22 1400	Company: EETA	Received by: / Date/Time: / Company
Relinquished by:	Date/Time:	Company	Received by: / Date/Time: / Company
Relinquished by:	Date/Time:	Company	Received by: / Date/Time: 5/14/22 1000 / Company: TAB

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.8 #1 ICE

5/19/2022

Login Sample Receipt Checklist

Client: Gannett Fleming

Job Number: 500-215605-1

Login Number: 215605
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1,1.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Gannett Fleming

Job Number: 500-215605-1

Login Number: 215605
List Number: 2
Creator: Sabuda, Brendan D

List Source: Eurofins Buffalo
List Creation: 05/16/22 11:27 AM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8 #1 ICE
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

June 23, 2022 Service Request No:K2204370

Anthony Miller
Gannett Fleming, Incorporated
8040 Excelsior Drive, Ste 303
Madison, WI 53717

Laboratory Results for: WRR

Dear Anthony,

Enclosed are the results of the sample(s) submitted to our laboratory April 26, 2022
For your reference, these analyses have been assigned our service request number **K2204370.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3260. You may also contact me via email at Luke.Rahn@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Luke Rahn
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Gannett Fleming, Incorporated
Project: WRR
Sample Matrix: Ground Water

Service Request: K2204370
Date Received: 04/26/2022

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier I level requested by the client.

Sample Receipt:

Five ground water samples were received for analysis at ALS Environmental on 04/26/2022. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Organic LC:

The detection limits were elevated for all samples due to less than optimal sample volume extracted for analysis. The samples were highly colored and viscous, which indicated a need to reduce the initial volume, as well as known high levels of target compounds based on the PFC analysis also performed on these samples. The reporting limits were elevated to reflect the lower initial volume.

Method ALS SOP, 05/26/2022: The analysis of all samples was initially performed past the recommended holding time. The samples were initially oxidized at the target initial volume within holding time, but this process contaminated the surrounding areas of the lab with target compounds. The PFC analysis was underway, and lab personnel waited to know the results for the PFC analysis in order to perform an appropriate reduction in sample volume for the TOPA analysis. Efforts were made to analyze the samples as soon as the data became available. The data was flagged to indicate the holding time violation.

Method ALS SOP, 05/26/2022: The upper control criterion was exceeded for N-Methylperfluorooctane sulfonamide (MeFOSA) in Continuing Calibration Verification (CCV) KQ2209589-01. The field samples analyzed in this sequence did not contain the analyte in question. Since the apparent problem indicated a potential high bias, the data quality was not affected. No further corrective action was required.

Method ALS SOP, 05/26/2022: The recovery of one or more isotopes in Method Blank (MB) KQ2207679-01 and all samples was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

Method ALS SOP, 05/26/2022: Sample RW-5 required dilution due to the presence of elevated levels of Perfluorooctane sulfonic acid (PFOA). The reporting limits are adjusted to reflect the dilution.

Method PFC/537M, 05/04/2022:The recovery of one or more surrogates in samples Turbo Stripper Eff, Method Blank KQ2206909-03, andLab Control Sample KQ2206909-02 was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

Method PFC/537M, 05/04/2022:The upper control criterion was exceeded for one or more surrogates in samples RW-4, RW-7, and RW-5 due to matrix interferences. Due to the presence of elevated levels of target analytes that affected resolution of the surrogates, accurate quantitation was not optimal. Assuming the associated native analytes performed similar to the labeled analogs, the effect on the reported results was minimal. A re-analysis of the sample was performed, but produced similar results. No further corrective action was taken.

Method PFC/537M, 05/04/2022:Samples RW-4 and RW-5 required dilution due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

Approved by  Date 06/23/2022

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: RW-2	Lab ID: K2204370-001					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	3600			1000	ng/L	PFC/537M
Perfluorobutane sulfonic acid (PFBS)	5500			600	ng/L	ALS SOP
Perfluoropentane sulfonic acid (PFPeS)	1900			1000	ng/L	PFC/537M
Perfluoropentane sulfonic acid (PFPeS)	3800			600	ng/L	ALS SOP
Perfluorohexane sulfonic acid (PFHxS)	8600			1000	ng/L	PFC/537M
Perfluorohexane sulfonic acid (PFHxS)	8500			600	ng/L	ALS SOP
Perfluorooctane sulfonic acid (PFOS)	8600			500	ng/L	PFC/537M
Perfluorooctane sulfonic acid (PFOS)	12000			600	ng/L	ALS SOP
Perfluorobutanoic acid (PFBA)	4500			1000	ng/L	PFC/537M
Perfluorobutanoic acid (PFBA)	6700			3000	ng/L	ALS SOP
Perfluoropentanoic acid (PFPeA)	3700			1000	ng/L	PFC/537M
Perfluoropentanoic acid (PFPeA)	5500			3000	ng/L	ALS SOP
Perfluorohexanoic acid (PFHxA)	5500			1000	ng/L	PFC/537M
Perfluorohexanoic acid (PFHxA)	7500			3000	ng/L	ALS SOP
Perfluoroheptanoic acid (PFHpA)	3000			1000	ng/L	PFC/537M
Perfluoroheptanoic acid (PFHpA)	4000			600	ng/L	ALS SOP
Perfluorooctanoic acid (PFOA)	16000			500	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	18000			600	ng/L	ALS SOP

CLIENT ID: RW-4	Lab ID: K2204370-002					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	8100		7.0	130	ng/L	PFC/537M
Perfluorohexane sulfonic acid (PFHxS)	4300		33	130	ng/L	PFC/537M
Perfluoroheptane sulfonic acid (PFHpS)	260		2.2	25	ng/L	PFC/537M
Perfluorooctane sulfonic acid (PFOS)	3600		11	130	ng/L	PFC/537M
Perfluorodecane sulfonic acid (PFDS)	6.1	J	1.5	25	ng/L	PFC/537M
Perfluorobutanoic acid (PFBA)	2100		2.0	25	ng/L	PFC/537M
Perfluoropentanoic acid (PFPeA)	1100		8.5	25	ng/L	PFC/537M
Perfluorohexanoic acid (PFHxA)	1500		44	50	ng/L	PFC/537M
Perfluoroheptanoic acid (PFHpA)	870		3.2	25	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	3600		8.8	50	ng/L	PFC/537M
Perfluorononanoic acid (PFNA)	31		5.5	25	ng/L	PFC/537M
Perfluorodecanoic acid (PFDA)	7.3	J	6.0	25	ng/L	PFC/537M
Perfluorooctane sulfonamide (PFOSAm)	5.0	J	2.6	25	ng/L	PFC/537M
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	260		2.8	25	ng/L	PFC/537M
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	12	J	0.75	25	ng/L	PFC/537M

CLIENT ID: RW-5	Lab ID: K2204370-003					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	20000		28	420	ng/L	PFC/537M

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: RW-5			Lab ID: K2204370-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	30000			600	ng/L	ALS SOP
Perfluoropentane sulfonic acid (PFPeS)	4000			600	ng/L	ALS SOP
Perfluorohexane sulfonic acid (PFHxS)	5700		26	85	ng/L	PFC/537M
Perfluorohexane sulfonic acid (PFHxS)	7500			600	ng/L	ALS SOP
Perfluoroheptane sulfonic acid (PFHpS)	750		8.8	85	ng/L	PFC/537M
Perfluoroheptane sulfonic acid (PFHpS)	1700			600	ng/L	ALS SOP
Perfluorooctane sulfonic acid (PFOS)	100000			6000	ng/L	ALS SOP
Perfluorooctane sulfonic acid (PFOS)	27000		44	420	ng/L	PFC/537M
Perfluorodecane sulfonic acid (PFDS)	2.0	J	0.30	4.2	ng/L	PFC/537M
Perfluorobutanoic acid (PFBA)	16000		40	420	ng/L	PFC/537M
Perfluorobutanoic acid (PFBA)	39000			3000	ng/L	ALS SOP
Perfluoropentanoic acid (PFPeA)	6200		34	85	ng/L	PFC/537M
Perfluoropentanoic acid (PFPeA)	10000			3000	ng/L	ALS SOP
Perfluorohexanoic acid (PFHxA)	5900		180	180	ng/L	PFC/537M
Perfluorohexanoic acid (PFHxA)	9900			3000	ng/L	ALS SOP
Perfluoroheptanoic acid (PFHpA)	1400		13	85	ng/L	PFC/537M
Perfluoroheptanoic acid (PFHpA)	3400			600	ng/L	ALS SOP
Perfluorooctanoic acid (PFOA)	14000		35	170	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	49000			600	ng/L	ALS SOP
Perfluorononanoic acid (PFNA)	140		1.1	4.2	ng/L	PFC/537M
Perfluorodecanoic acid (PFDA)	20		1.2	4.2	ng/L	PFC/537M
Perfluorooctane sulfonamide (PFOSAm)	1000		11	85	ng/L	PFC/537M
N-Methylperfluorooctane sulfonamide (MeFOSA)	1.5	J	0.46	4.2	ng/L	PFC/537M
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	120		0.27	4.2	ng/L	PFC/537M
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	16		0.13	4.2	ng/L	PFC/537M
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	200		0.55	4.2	ng/L	PFC/537M
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	3.3	J	0.15	4.2	ng/L	PFC/537M

CLIENT ID: RW-7			Lab ID: K2204370-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	430		0.28	4.4	ng/L	PFC/537M
Perfluorohexane sulfonic acid (PFHxS)	1300		6.5	22	ng/L	PFC/537M
Perfluoroheptane sulfonic acid (PFHpS)	22		0.44	4.4	ng/L	PFC/537M
Perfluorooctane sulfonic acid (PFOS)	130		0.44	4.4	ng/L	PFC/537M
Perfluorobutanoic acid (PFBA)	1400		2.0	22	ng/L	PFC/537M
Perfluoropentanoic acid (PFPeA)	1200		8.5	22	ng/L	PFC/537M
Perfluorohexanoic acid (PFHxA)	990		44	46	ng/L	PFC/537M
Perfluoroheptanoic acid (PFHpA)	200		0.63	4.4	ng/L	PFC/537M

SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: RW-7			Lab ID: K2204370-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorooctanoic acid (PFOA)	1000		1.8	8.8	ng/L	PFC/537M
Perfluorononanoic acid (PFNA)	29		1.1	4.4	ng/L	PFC/537M
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	400		2.8	22	ng/L	PFC/537M

CLIENT ID: Turbo Stripper Eff			Lab ID: K2204370-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Perfluorobutane sulfonic acid (PFBS)	990			600	ng/L	ALS SOP
Perfluorohexane sulfonic acid (PFHxS)	1700			1000	ng/L	PFC/537M
Perfluorohexane sulfonic acid (PFHxS)	950			600	ng/L	ALS SOP
Perfluorooctane sulfonic acid (PFOS)	6300			500	ng/L	PFC/537M
Perfluorooctane sulfonic acid (PFOS)	3500			600	ng/L	ALS SOP
Perfluorobutanoic acid (PFBA)	2100			1000	ng/L	PFC/537M
Perfluorobutanoic acid (PFBA)	5700			3000	ng/L	ALS SOP
Perfluoropentanoic acid (PFPeA)	1400			1000	ng/L	PFC/537M
Perfluorohexanoic acid (PFHxA)	3100			1000	ng/L	PFC/537M
Perfluorohexanoic acid (PFHxA)	5300			3000	ng/L	ALS SOP
Perfluoroheptanoic acid (PFHpA)	1700			1000	ng/L	PFC/537M
Perfluoroheptanoic acid (PFHpA)	1800			600	ng/L	ALS SOP
Perfluorooctanoic acid (PFOA)	6200			500	ng/L	PFC/537M
Perfluorooctanoic acid (PFOA)	3100			600	ng/L	ALS SOP
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	1300			1000	ng/L	PFC/537M

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Gannett Fleming, Incorporated **Service Request:**K2204370
Project: WRR/55929.007

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K2204370-001	RW-2	4/22/2022	1630
K2204370-002	RW-4	4/22/2022	1610
K2204370-003	RW-5	4/22/2022	1555
K2204370-004	RW-7	4/22/2022	1215
K2204370-005	Turbo Stripper Eff	4/22/2022	1515

ALS Environmental

Quote #: 51643

CHAIN OF CUSTODY
123368

001

SR# K2201870

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: WHR	Project Number: 55929.007
Project Manager: Anthony Miller	
Company: Gannett Fleming	
Address: 8040 Excelsior Pl. St. 303	
Phone #: 608-327-5050	email: awmiller@gfnet.com
Sampler Signature: Kristin Fischer	Sampler Printed Name: Kristin Fischer

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	14D: ALS SOP / PFAS_TOPA	14D: PFC/537M / PFAS	1	2	3	4	5	Remarks
1. RW-2		4/22	16:30	GW	3	X							
2. RW-4		4/22	16:10	GW	2		X						
3. RW-5		4/22	15:55	GW	3	X							
4. RW-7		4/22	12:15	GW	2		X						
5. Turbo Stripper EFF.		4/22	15:15	GW	5	X	X						
6.													
7.													
8.													
9.													
10.													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

X II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 55929.007

Bill To: Gannett Fleming

8040 Excelsior Dr St. 303

Madison, WI 53717

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Kristin Fischer	Signature: Naomi Peckskey	Signature	Signature	Signature	Signature
Printed Name: Kristin Fischer	Printed Name: NS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Gannett Fleming	Firm:	Firm	Firm	Firm	Firm
Date/Time: 4/25 1630	Date/Time: 4/26/22 0955	Date/Time	Date/Time	Date/Time	Date/Time

PM UR

Cooler Receipt and Preservation Form

Client Gannett Fleming Service Request K22 OC9370

Received: 4/26/22 Opened: 4/26/22 By: NP Unloaded: 4/26/22 By: NP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Back
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
3.5	—	IR01	1233688	—	—	272399599556	

4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Under filled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007

Sample Name: RW-2 **Date Collected:** 04/22/22
Lab Code: K2204370-001 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	LILLIANSMITH	CCONOVER
PFC/537M	AMOORE	MSESSIONS

Sample Name: RW-2 **Date Collected:** 04/22/22
Lab Code: K2204370-001.R01 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	LILLIANSMITH	CCONOVER

Sample Name: RW-4 **Date Collected:** 04/22/22
Lab Code: K2204370-002 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Sample Name: RW-4 **Date Collected:** 04/22/22
Lab Code: K2204370-002.R01 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	UAMADIOHA

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007		

Sample Name:	RW-5	**Date Collected:**	04/22/22
Lab Code:	K2204370-003	**Date Received:**	04/26/22
Sample Matrix:	Ground Water		

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	LILLIANSMITH	CCONOVER
PFC/537M	AMOORE	MSESSIONS

Sample Name:	RW-5	**Date Collected:**	04/22/22
Lab Code:	K2204370-003.R01	**Date Received:**	04/26/22
Sample Matrix:	Ground Water		

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	LILLIANSMITH	CCONOVER
PFC/537M	AMOORE	UAMADIOHA

Sample Name:	RW-5	**Date Collected:**	04/22/22
Lab Code:	K2204370-003.R02	**Date Received:**	04/26/22
Sample Matrix:	Ground Water		

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Sample Name:	RW-5	**Date Collected:**	04/22/22
Lab Code:	K2204370-003.R03	**Date Received:**	04/26/22
Sample Matrix:	Ground Water		

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007

Sample Name: RW-5 **Date Collected:** 04/22/22
Lab Code: K2204370-003.R04 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Sample Name: RW-7 **Date Collected:** 04/22/22
Lab Code: K2204370-004 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Sample Name: RW-7 **Date Collected:** 04/22/22
Lab Code: K2204370-004.R01 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	UAMADIOHA

Sample Name: RW-7 **Date Collected:** 04/22/22
Lab Code: K2204370-004.R02 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Sample Name: RW-7 **Date Collected:** 04/22/22
Lab Code: K2204370-004.R03 **Date Received:** 04/26/22
Sample Matrix: Ground Water

Analysis Method	Extracted/Digested By	Analyzed By
PFC/537M	AMOORE	MSESSIONS

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007		

Sample Name:	Turbo Stripper Eff	**Date Collected:**	04/22/22
Lab Code:	K2204370-005	**Date Received:**	04/26/22
Sample Matrix:	Ground Water		

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	LILLIANSMITH	CCONOVER
PFC/537M	AMOORE	MSESSIONS

Sample Name:	Turbo Stripper Eff	**Date Collected:**	04/22/22
Lab Code:	K2204370-005.R01	**Date Received:**	04/26/22
Sample Matrix:	Ground Water		

Analysis Method	Extracted/Digested By	Analyzed By
ALS SOP	LILLIANSMITH	CCONOVER

Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Organic Compounds by HPLC/MS/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 16:30
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-2	**Units:**	ng/L
Lab Code:	K2204370-001	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	**5500**	600	-	1	06/16/22 11:48	5/19/22	*
Perfluoropentane sulfonic acid (PFPeS)	**3800**	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorohexane sulfonic acid (PFHxS)	**8500**	600	-	1	06/16/22 11:48	5/19/22	*
Perfluoroheptane sulfonic acid (PFHpS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorooctane sulfonic acid (PFOS)	**12000**	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorononane sulfonic acid (PFNS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorodecane sulfonic acid (PFDS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	**6700**	3000	-	1	06/16/22 11:48	5/19/22	*
Perfluoropentanoic acid (PFPeA)	**5500**	3000	-	1	06/16/22 11:48	5/19/22	*
Perfluorohexanoic acid (PFHxA)	**7500**	3000	-	1	06/16/22 11:48	5/19/22	*
Perfluoroheptanoic acid (PFHpA)	**4000**	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorooctanoic acid (PFOA)	**18000**	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorononanoic acid (PFNA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorodecanoic acid (PFDA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluoroundecanoic acid (PFUnDA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorododecanoic acid (PFDOA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorotridecanoic acid (PFTrDA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluorotetradecanoic acid (PFTDA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	600	-	1	06/16/22 11:48	5/19/22	**
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	600	-	1	06/16/22 11:48	5/19/22	*

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 16:30
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-2	**Units:**	ng/L
Lab Code:	K2204370-001	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	600	-	1	06/16/22 11:48	5/19/22	*
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	600	-	1	06/16/22 11:48	5/19/22	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	61	70 - 130	06/16/22 11:48	*
18O2-PFHxS	78	70 - 130	06/16/22 11:48	
13C4-PFOS	80	70 - 130	06/16/22 11:48	
13C4-PFBA	79	70 - 130	06/16/22 11:48	
13C5-PFPeA	76	70 - 130	06/16/22 11:48	
13C2-PFHxA	79	70 - 130	06/16/22 11:48	
13C4-PFHpA	86	70 - 130	06/16/22 11:48	
13C4-PFOA	77	70 - 130	06/16/22 11:48	
13C5-PFNA	77	70 - 130	06/16/22 11:48	
13C2-PFDA	87	70 - 130	06/16/22 11:48	
13C2-PFUnDA	80	70 - 130	06/16/22 11:48	
13C2-PFDoDA	81	70 - 130	06/16/22 11:48	
13C2-PFTeDA	78	70 - 130	06/16/22 11:48	
13C8-FOSA	64	70 - 130	06/16/22 11:48	*
D3-MeFOSA	37	70 - 130	06/16/22 11:48	*
D5-EtFOSA	55	70 - 130	06/16/22 11:48	*
D7-MeFOSE	61	70 - 130	06/16/22 11:48	*
D9-EtFOSE	63	70 - 130	06/16/22 11:48	*
D3-MeFOSAA	95	70 - 130	06/16/22 11:48	
D5-EtFOSAA	87	70 - 130	06/16/22 11:48	
13C2-4:2 FTS	98	70 - 130	06/16/22 11:48	
13C2-6:2 FTS	2	0 - 10	06/16/22 11:48	
13C2-8:2 FTS	100	70 - 130	06/16/22 11:48	
13C3-HFPO-DA	91	70 - 130	06/16/22 11:48	

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:55
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-5	**Units:**	ng/L
Lab Code:	K2204370-003	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	**30000**	600	-	1	06/16/22 11:59	5/19/22	*
Perfluoropentane sulfonic acid (PFPeS)	**4000**	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorohexane sulfonic acid (PFHxS)	**7500**	600	-	1	06/16/22 11:59	5/19/22	*
Perfluoroheptane sulfonic acid (PFHpS)	**1700**	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorooctane sulfonic acid (PFOS)	**100000**	6000	-	10	05/26/22 05:47	5/19/22	*
Perfluorononane sulfonic acid (PFNS)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorodecane sulfonic acid (PFDS)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	**39000**	3000	-	1	06/16/22 11:59	5/19/22	*
Perfluoropentanoic acid (PFPeA)	**10000**	3000	-	1	06/16/22 11:59	5/19/22	*
Perfluorohexanoic acid (PFHxA)	**9900**	3000	-	1	06/16/22 11:59	5/19/22	*
Perfluoroheptanoic acid (PFHpA)	**3400**	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorooctanoic acid (PFOA)	**49000**	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorononanoic acid (PFNA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorodecanoic acid (PFDA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluoroundecanoic acid (PFUnDA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorododecanoic acid (PFDOA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorotridecanoic acid (PFTrDA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluorotetradecanoic acid (PFTDA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	600	-	1	06/16/22 11:59	5/19/22	**
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	600	-	1	06/16/22 11:59	5/19/22	*

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:55
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-5	**Units:**	ng/L
Lab Code:	K2204370-003	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	600	-	1	06/16/22 11:59	5/19/22	*
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	600	-	1	06/16/22 11:59	5/19/22	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	59	70 - 130	06/16/22 11:59	*
18O2-PFHxS	80	70 - 130	06/16/22 11:59	
13C4-PFOS	80	70 - 130	05/26/22 05:47	
13C4-PFBA	79	70 - 130	06/16/22 11:59	
13C5-PFPeA	81	70 - 130	06/16/22 11:59	
13C2-PFHxA	78	70 - 130	06/16/22 11:59	
13C4-PFHpA	83	70 - 130	06/16/22 11:59	
13C4-PFOA	84	70 - 130	06/16/22 11:59	
13C5-PFNA	85	70 - 130	06/16/22 11:59	
13C2-PFDA	98	70 - 130	06/16/22 11:59	
13C2-PFUnDA	81	70 - 130	06/16/22 11:59	
13C2-PFDoDA	74	70 - 130	06/16/22 11:59	
13C2-PFTeDA	81	70 - 130	06/16/22 11:59	
13C8-FOSA	66	70 - 130	06/16/22 11:59	*
D3-MeFOSA	35	70 - 130	06/16/22 11:59	*
D5-EtFOSA	58	70 - 130	06/16/22 11:59	*
D7-MeFOSE	59	70 - 130	06/16/22 11:59	*
D9-EtFOSE	60	70 - 130	06/16/22 11:59	*
D3-MeFOSAA	87	70 - 130	06/16/22 11:59	
D5-EtFOSAA	84	70 - 130	06/16/22 11:59	
13C2-4:2 FTS	96	70 - 130	06/16/22 11:59	
13C2-6:2 FTS	1	0 - 10	06/16/22 11:59	
13C2-8:2 FTS	135	70 - 130	06/16/22 11:59	*
13C3-HFPO-DA	90	70 - 130	06/16/22 11:59	

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:15
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	Turbo Stripper Eff	**Units:**	ng/L
Lab Code:	K2204370-005	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	**990**	600	-	1	06/16/22 12:09	5/19/22	*
Perfluoropentane sulfonic acid (PFPeS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorohexane sulfonic acid (PFHxS)	**950**	600	-	1	06/16/22 12:09	5/19/22	*
Perfluoroheptane sulfonic acid (PFHpS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorooctane sulfonic acid (PFOS)	**3500**	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorononane sulfonic acid (PFNS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorodecane sulfonic acid (PFDS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	**5700**	3000	-	1	06/16/22 12:09	5/19/22	*
Perfluoropentanoic acid (PFPeA)	ND U	3000	-	1	06/16/22 12:09	5/19/22	*
Perfluorohexanoic acid (PFHxA)	**5300**	3000	-	1	06/16/22 12:09	5/19/22	*
Perfluoroheptanoic acid (PFHpA)	**1800**	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorooctanoic acid (PFOA)	**3100**	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorononanoic acid (PFNA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorodecanoic acid (PFDA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluoroundecanoic acid (PFUnDA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorododecanoic acid (PFDOA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorotridecanoic acid (PFTrDA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluorotetradecanoic acid (PFTDA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	600	-	1	06/16/22 12:09	5/19/22	**
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	600	-	1	06/16/22 12:09	5/19/22	*

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:15
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	Turbo Stripper Eff	**Units:**	ng/L
Lab Code:	K2204370-005	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	600	-	1	06/16/22 12:09	5/19/22	*
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	600	-	1	06/16/22 12:09	5/19/22	*

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	67	70 - 130	06/16/22 12:09	*
18O2-PFHxS	66	70 - 130	06/16/22 12:09	*
13C4-PFOS	83	70 - 130	06/16/22 12:09	
13C4-PFBA	80	70 - 130	06/16/22 12:09	
13C5-PFPeA	89	70 - 130	06/16/22 12:09	
13C2-PFHxA	80	70 - 130	06/16/22 12:09	
13C4-PFHpA	85	70 - 130	06/16/22 12:09	
13C4-PFOA	87	70 - 130	06/16/22 12:09	
13C5-PFNA	86	70 - 130	06/16/22 12:09	
13C2-PFDA	90	70 - 130	06/16/22 12:09	
13C2-PFUnDA	75	70 - 130	06/16/22 12:09	
13C2-PFDoDA	71	70 - 130	06/16/22 12:09	
13C2-PFTeDA	71	70 - 130	06/16/22 12:09	
13C8-FOSA	68	70 - 130	06/16/22 12:09	*
D3-MeFOSA	35	70 - 130	06/16/22 12:09	*
D5-EtFOSA	64	70 - 130	06/16/22 12:09	*
D7-MeFOSE	68	70 - 130	06/16/22 12:09	*
D9-EtFOSE	66	70 - 130	06/16/22 12:09	*
D3-MeFOSAA	92	70 - 130	06/16/22 12:09	
D5-EtFOSAA	94	70 - 130	06/16/22 12:09	
13C2-4:2 FTS	104	70 - 130	06/16/22 12:09	
13C2-6:2 FTS	1	0 - 10	06/16/22 12:09	
13C2-8:2 FTS	115	70 - 130	06/16/22 12:09	
13C3-HFPO-DA	97	70 - 130	06/16/22 12:09	

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 16:10
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-4	**Units:**	ng/L
Lab Code:	K2204370-002	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)								
Perfluorobutane sulfonic acid (PFBS)	**8100**		130	7.0	5	05/06/22 12:47	5/3/22	
Perfluorohexane sulfonic acid (PFHxS)	**4300**		130	33	5	05/06/22 12:47	5/3/22	
Perfluoroheptane sulfonic acid (PFHpS)	**260**		25	2.2	1	05/04/22 18:43	5/3/22	
Perfluorooctane sulfonic acid (PFOS)	**3600**		130	11	5	05/06/22 12:47	5/3/22	
Perfluorodecane sulfonic acid (PFDS)	**6.1**	**J**	25	1.5	1	05/04/22 18:43	5/3/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)								
Perfluorobutanoic acid (PFBA)	**2100**		25	2.0	1	05/04/22 18:43	5/3/22	
Perfluoropentanoic acid (PFPeA)	**1100**		25	8.5	1	05/04/22 18:43	5/3/22	
Perfluorohexanoic acid (PFHxA)	**1500**		50	44	1	05/04/22 18:43	5/3/22	
Perfluoroheptanoic acid (PFHpA)	**870**		25	3.2	1	05/04/22 18:43	5/3/22	
Perfluorooctanoic acid (PFOA)	**3600**		50	8.8	5	05/06/22 12:47	5/3/22	
Perfluorononanoic acid (PFNA)	**31**		25	5.5	1	05/04/22 18:43	5/3/22	
Perfluorodecanoic acid (PFDA)	**7.3**	**J**	25	6.0	1	05/04/22 18:43	5/3/22	
Perfluoroundecanoic acid (PFUnDA)	ND	U	25	7.5	1	05/04/22 18:43	5/3/22	
Perfluorododecanoic acid (PFDOA)	ND	U	25	6.5	1	05/04/22 18:43	5/3/22	
Perfluorotridecanoic acid (PFTrDA)	ND	U	25	6.5	1	05/04/22 18:43	5/3/22	
Perfluorotetradecanoic acid (PFTDA)	ND	U	25	10	1	05/04/22 18:43	5/3/22	
Perfluoroalkyl Sulfonamido Substances								
Perfluorooctane sulfonamide (PFOSAm)	**5.0**	**J**	25	2.6	1	05/04/22 18:43	5/3/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND	U	25	2.3	1	05/04/22 18:43	5/3/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND	U	25	1.4	1	05/04/22 18:43	5/3/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND	U	25	1.5	1	05/04/22 18:43	5/3/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND	U	25	0.65	1	05/04/22 18:43	5/3/22	
Fluorotelomer Sulfonic Acids (FTSAs)								
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	**260**		25	2.8	1	05/04/22 18:43	5/3/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	**12**	**J**	25	0.75	1	05/04/22 18:43	5/3/22	

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 16:10
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-4	**Units:**	ng/L
Lab Code:	K2204370-002	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	68	20 - 109	05/06/22 12:47	
18O2-PFHxS	75	26 - 122	05/06/22 12:47	
13C4-PFOS	63	25 - 121	05/06/22 12:47	
13C4-PFBA	84	27 - 124	05/04/22 18:43	
13C5-PFPeA	77	27 - 138	05/04/22 18:43	
13C2-PFHxA	88	28 - 132	05/04/22 18:43	
13C4-PFHpA	85	19 - 139	05/04/22 18:43	
13C4-PFOA	97	22 - 130	05/06/22 12:47	
13C5-PFNA	95	20 - 127	05/04/22 18:43	
13C2-PFDA	99	24 - 125	05/04/22 18:43	
13C2-PFUnDA	95	22 - 125	05/04/22 18:43	
13C2-PFDoDA	81	19 - 122	05/04/22 18:43	
13C2-PFTeDA	93	13 - 124	05/04/22 18:43	
13C8-FOSA	58	18 - 109	05/04/22 18:43	
D3-MeFOSA	63	15 - 153	05/04/22 18:43	
D5-EtFOSA	78	25 - 107	05/04/22 18:43	
D7-MeFOSE	55	24 - 112	05/04/22 18:43	
D9-EtFOSE	82	19 - 109	05/04/22 18:43	
13C2-6:2 FTS	557	10 - 226	05/04/22 18:43	*
13C2-8:2 FTS	705	10 - 202	05/04/22 18:43	*

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:55
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-5	**Units:**	ng/L
Lab Code:	K2204370-003	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)								
Perfluorobutane sulfonic acid (PFBS)	**20000**		420	28	100	05/06/22 14:56	5/3/22	
Perfluorohexane sulfonic acid (PFHxS)	**5700**		85	26	20	05/06/22 12:58	5/3/22	
Perfluoroheptane sulfonic acid (PFHpS)	**750**		85	8.8	20	05/06/22 12:58	5/3/22	
Perfluorooctane sulfonic acid (PFOS)	**27000**		420	44	100	05/11/22 18:28	5/3/22	
Perfluorodecane sulfonic acid (PFDS)	**2.0**	**J**	4.2	0.30	1	05/04/22 18:53	5/3/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)								
Perfluorobutanoic acid (PFBA)	**16000**		420	40	100	05/06/22 14:56	5/3/22	
Perfluoropentanoic acid (PFPeA)	**6200**		85	34	20	05/06/22 12:58	5/3/22	
Perfluorohexanoic acid (PFHxA)	**5900**		180	180	20	05/06/22 12:58	5/3/22	
Perfluoroheptanoic acid (PFHpA)	**1400**		85	13	20	05/06/22 12:58	5/3/22	
Perfluorooctanoic acid (PFOA)	**14000**		170	35	100	05/06/22 14:56	5/3/22	
Perfluorononanoic acid (PFNA)	**140**		4.2	1.1	1	05/04/22 18:53	5/3/22	
Perfluorodecanoic acid (PFDA)	**20**		4.2	1.2	1	05/04/22 18:53	5/3/22	
Perfluoroundecanoic acid (PFUnDA)	ND	U	4.2	1.5	1	05/04/22 18:53	5/3/22	
Perfluorododecanoic acid (PFDOA)	ND	U	4.2	1.3	1	05/04/22 18:53	5/3/22	
Perfluorotridecanoic acid (PFTrDA)	ND	U	4.2	1.3	1	05/04/22 18:53	5/3/22	
Perfluorotetradecanoic acid (PFTDA)	ND	U	4.2	2.0	1	05/04/22 18:53	5/3/22	
Perfluoroalkyl Sulfonamido Substances								
Perfluorooctane sulfonamide (PFOSAm)	**1000**		85	11	20	05/06/22 12:58	5/3/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	**1.5**	**J**	4.2	0.46	1	05/04/22 18:53	5/3/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	**120**		4.2	0.27	1	05/04/22 18:53	5/3/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND	U	4.2	0.30	1	05/04/22 18:53	5/3/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	**16**		4.2	0.13	1	05/04/22 18:53	5/3/22	
Fluorotelomer Sulfonic Acids (FTSAs)								
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	**200**		4.2	0.55	1	05/04/22 18:53	5/3/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	**3.3**	**J**	4.2	0.15	1	05/04/22 18:53	5/3/22	

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:55
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-5	**Units:**	ng/L
Lab Code:	K2204370-003	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	94	20 - 109	05/06/22 14:56	
18O2-PFHxS	103	26 - 122	05/06/22 12:58	
13C4-PFOS	88	25 - 121	05/11/22 18:28	
13C4-PFBA	119	27 - 124	05/06/22 14:56	
13C5-PFPeA	83	27 - 138	05/06/22 12:58	
13C2-PFHxA	95	28 - 132	05/06/22 12:58	
13C4-PFHpA	87	19 - 139	05/06/22 12:58	
13C4-PFOA	118	22 - 130	05/06/22 14:56	
13C5-PFNA	37	20 - 127	05/04/22 18:53	
13C2-PFDA	97	24 - 125	05/04/22 18:53	
13C2-PFUnDA	100	22 - 125	05/04/22 18:53	
13C2-PFDoDA	107	19 - 122	05/04/22 18:53	
13C2-PFTeDA	93	13 - 124	05/04/22 18:53	
13C8-FOSA	83	18 - 109	05/06/22 12:58	
D3-MeFOSA	63	15 - 153	05/04/22 18:53	
D5-EtFOSA	67	25 - 107	05/04/22 18:53	
D7-MeFOSE	66	24 - 112	05/04/22 18:53	
D9-EtFOSE	76	19 - 109	05/04/22 18:53	
13C2-6:2 FTS	80	10 - 226	05/04/22 18:53	
13C2-8:2 FTS	292	10 - 202	05/04/22 18:53	*

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 12:15
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-7	**Units:**	ng/L
Lab Code:	K2204370-004	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	**430**	4.4	0.28	1	05/04/22 19:04	5/3/22	
Perfluorohexane sulfonic acid (PFHxS)	**1300**	22	6.5	5	05/06/22 15:07	5/3/22	
Perfluoroheptane sulfonic acid (PFHpS)	**22**	4.4	0.44	1	05/04/22 19:04	5/3/22	
Perfluorooctane sulfonic acid (PFOS)	**130**	4.4	0.44	1	05/04/22 19:04	5/3/22	
Perfluorodecane sulfonic acid (PFDS)	ND	4.4	0.30	1	05/04/22 19:04	5/3/22	U
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	**1400**	22	2.0	5	05/06/22 15:07	5/3/22	
Perfluoropentanoic acid (PFPeA)	**1200**	22	8.5	5	05/06/22 15:07	5/3/22	
Perfluorohexanoic acid (PFHxA)	**990**	46	44	5	05/06/22 15:07	5/3/22	
Perfluoroheptanoic acid (PFHpA)	**200**	4.4	0.63	1	05/04/22 19:04	5/3/22	
Perfluorooctanoic acid (PFOA)	**1000**	8.8	1.8	5	05/06/22 15:07	5/3/22	
Perfluorononanoic acid (PFNA)	**29**	4.4	1.1	1	05/04/22 19:04	5/3/22	
Perfluorodecanoic acid (PFDA)	ND	4.4	1.2	1	05/04/22 19:04	5/3/22	U
Perfluoroundecanoic acid (PFUnDA)	ND	4.4	1.5	1	05/04/22 19:04	5/3/22	U
Perfluorododecanoic acid (PFDOA)	ND	4.4	1.3	1	05/04/22 19:04	5/3/22	U
Perfluorotridecanoic acid (PFTrDA)	ND	4.4	1.3	1	05/04/22 19:04	5/3/22	U
Perfluorotetradecanoic acid (PFTDA)	ND	4.4	2.0	1	05/04/22 19:04	5/3/22	U
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND	4.4	0.52	1	05/04/22 19:04	5/3/22	U
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND	4.4	0.46	1	05/04/22 19:04	5/3/22	U
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND	4.4	0.27	1	05/04/22 19:04	5/3/22	U
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND	4.4	0.30	1	05/04/22 19:04	5/3/22	U
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND	4.4	0.13	1	05/04/22 19:04	5/3/22	U
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	**400**	22	2.8	5	05/06/22 15:07	5/3/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND	4.4	0.15	1	05/04/22 19:04	5/3/22	U

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 12:15
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-7	**Units:**	ng/L
Lab Code:	K2204370-004	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	70	20 - 109	05/04/22 19:04	
18O2-PFHxS	81	26 - 122	05/06/22 15:07	
13C4-PFOS	74	25 - 121	05/04/22 19:04	
13C4-PFBA	86	27 - 124	05/06/22 15:07	
13C5-PFPeA	93	27 - 138	05/06/22 15:07	
13C2-PFHxA	91	28 - 132	05/06/22 15:07	
13C4-PFHpA	94	19 - 139	05/04/22 19:04	
13C4-PFOA	91	22 - 130	05/06/22 15:07	
13C5-PFNA	102	20 - 127	05/04/22 19:04	
13C2-PFDA	96	24 - 125	05/04/22 19:04	
13C2-PFUnDA	94	22 - 125	05/04/22 19:04	
13C2-PFDoDA	98	19 - 122	05/04/22 19:04	
13C2-PFTeDA	87	13 - 124	05/04/22 19:04	
13C8-FOSA	70	18 - 109	05/04/22 19:04	
D3-MeFOSA	68	15 - 153	05/04/22 19:04	
D5-EtFOSA	77	25 - 107	05/04/22 19:04	
D7-MeFOSE	72	24 - 112	05/04/22 19:04	
D9-EtFOSE	82	19 - 109	05/04/22 19:04	
13C2-6:2 FTS	132	10 - 226	05/06/22 15:07	
13C2-8:2 FTS	141	10 - 202	05/04/22 19:04	

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 16:30
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-2	**Units:**	ng/L
Lab Code:	K2204370-001	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	**3600**	1000	1	05/04/22 16:27	5/2/22	
Perfluoropentane sulfonic acid (PFPeS)	**1900**	1000	1	05/04/22 16:27	5/2/22	
Perfluorohexane sulfonic acid (PFHxS)	**8600**	1000	1	05/04/22 16:27	5/2/22	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluorooctane sulfonic acid (PFOS)	**8600**	500	1	05/04/22 16:27	5/2/22	
Perfluorononane sulfonic acid (PFNS)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluorodecane sulfonic acid (PFDS)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	**4500**	1000	1	05/04/22 16:27	5/2/22	
Perfluoropentanoic acid (PFPeA)	**3700**	1000	1	05/04/22 16:27	5/2/22	
Perfluorohexanoic acid (PFHxA)	**5500**	1000	1	05/04/22 16:27	5/2/22	
Perfluoroheptanoic acid (PFHpA)	**3000**	1000	1	05/04/22 16:27	5/2/22	
Perfluorooctanoic acid (PFOA)	**16000**	500	1	05/04/22 16:27	5/2/22	
Perfluorononanoic acid (PFNA)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluorodecanoic acid (PFDA)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluoroundecanoic acid (PFUnDA)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluorododecanoic acid (PFDOA)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluorotridecanoic acid (PFTrDA)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluorotetradecanoic acid (PFTDA)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	1000	1	05/04/22 16:27	5/2/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1000	1	05/04/22 16:27	5/2/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1000	1	05/04/22 16:27	5/2/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1000	1	05/04/22 16:27	5/2/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1000	1	05/04/22 16:27	5/2/22	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	1000	1	05/04/22 16:27	5/2/22	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	1000	1	05/04/22 16:27	5/2/22	

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 16:30
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	RW-2	**Units:**	ng/L
Lab Code:	K2204370-001	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1000	1	05/04/22 16:27	5/2/22	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1000	1	05/04/22 16:27	5/2/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1000	1	05/04/22 16:27	5/2/22	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1000	1	05/04/22 16:27	5/2/22	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1000	1	05/04/22 16:27	5/2/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	78	70 - 130	05/04/22 16:27	
18O2-PFHxS	82	70 - 130	05/04/22 16:27	
13C4-PFOS	98	70 - 130	05/04/22 16:27	
13C4-PFBA	94	70 - 130	05/04/22 16:27	
13C5-PFPeA	85	70 - 130	05/04/22 16:27	
13C2-PFHxA	102	70 - 130	05/04/22 16:27	
13C4-PFHpA	129	70 - 130	05/04/22 16:27	
13C4-PFOA	98	70 - 130	05/04/22 16:27	
13C5-PFNA	106	70 - 130	05/04/22 16:27	
13C2-PFDA	109	70 - 130	05/04/22 16:27	
13C2-PFUnDA	101	70 - 130	05/04/22 16:27	
13C2-PFDoDA	107	70 - 130	05/04/22 16:27	
13C2-PFTeDA	123	70 - 130	05/04/22 16:27	
13C8-FOSA	96	70 - 130	05/04/22 16:27	
D3-MeFOSA	94	70 - 130	05/04/22 16:27	
D5-EtFOSA	112	70 - 130	05/04/22 16:27	
D7-MeFOSE	105	70 - 130	05/04/22 16:27	
D9-EtFOSE	112	70 - 130	05/04/22 16:27	
D3-MeFOSAA	125	70 - 130	05/04/22 16:27	
D5-EtFOSAA	118	70 - 130	05/04/22 16:27	
13C2-4:2 FTS	118	70 - 130	05/04/22 16:27	
13C2-6:2 FTS	106	70 - 130	05/04/22 16:27	
13C2-8:2 FTS	118	70 - 130	05/04/22 16:27	
13C3-HFPO-DA	113	70 - 130	05/04/22 16:27	

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:15
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	Turbo Stripper Eff	**Units:**	ng/L
Lab Code:	K2204370-005	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorohexane sulfonic acid (PFHxS)	**1700**	1000	1	05/04/22 16:47	5/2/22	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorooctane sulfonic acid (PFOS)	**6300**	500	1	05/04/22 16:47	5/2/22	
Perfluorononane sulfonic acid (PFNS)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorodecane sulfonic acid (PFDS)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	**2100**	1000	1	05/04/22 16:47	5/2/22	
Perfluoropentanoic acid (PFPeA)	**1400**	1000	1	05/04/22 16:47	5/2/22	
Perfluorohexanoic acid (PFHxA)	**3100**	1000	1	05/04/22 16:47	5/2/22	
Perfluoroheptanoic acid (PFHpA)	**1700**	1000	1	05/04/22 16:47	5/2/22	
Perfluorooctanoic acid (PFOA)	**6200**	500	1	05/04/22 16:47	5/2/22	
Perfluorononanoic acid (PFNA)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorodecanoic acid (PFDA)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluoroundecanoic acid (PFUnDA)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorododecanoic acid (PFDOA)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorotridecanoic acid (PFTrDA)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluorotetradecanoic acid (PFTDA)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	1000	1	05/04/22 16:47	5/2/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1000	1	05/04/22 16:47	5/2/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1000	1	05/04/22 16:47	5/2/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1000	1	05/04/22 16:47	5/2/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1000	1	05/04/22 16:47	5/2/22	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	1000	1	05/04/22 16:47	5/2/22	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	1000	1	05/04/22 16:47	5/2/22	

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	04/22/22 15:15
Sample Matrix:	Ground Water	**Date Received:**	04/26/22 09:55
Sample Name:	Turbo Stripper Eff	**Units:**	ng/L
Lab Code:	K2204370-005	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1000	1	05/04/22 16:47	5/2/22	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	**1300**	1000	1	05/04/22 16:47	5/2/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1000	1	05/04/22 16:47	5/2/22	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1000	1	05/04/22 16:47	5/2/22	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1000	1	05/04/22 16:47	5/2/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	69	70 - 130	05/04/22 16:47	*
18O2-PFHxS	89	70 - 130	05/04/22 16:47	
13C4-PFOS	91	70 - 130	05/04/22 16:47	
13C4-PFBA	89	70 - 130	05/04/22 16:47	
13C5-PFPeA	77	70 - 130	05/04/22 16:47	
13C2-PFHxA	101	70 - 130	05/04/22 16:47	
13C4-PFHpA	107	70 - 130	05/04/22 16:47	
13C4-PFOA	92	70 - 130	05/04/22 16:47	
13C5-PFNA	93	70 - 130	05/04/22 16:47	
13C2-PFDA	104	70 - 130	05/04/22 16:47	
13C2-PFUnDA	101	70 - 130	05/04/22 16:47	
13C2-PFDoDA	106	70 - 130	05/04/22 16:47	
13C2-PFTeDA	124	70 - 130	05/04/22 16:47	
13C8-FOSA	97	70 - 130	05/04/22 16:47	
D3-MeFOSA	93	70 - 130	05/04/22 16:47	
D5-EtFOSA	109	70 - 130	05/04/22 16:47	
D7-MeFOSE	103	70 - 130	05/04/22 16:47	
D9-EtFOSE	113	70 - 130	05/04/22 16:47	
D3-MeFOSAA	123	70 - 130	05/04/22 16:47	
D5-EtFOSAA	123	70 - 130	05/04/22 16:47	
13C2-4:2 FTS	106	70 - 130	05/04/22 16:47	
13C2-6:2 FTS	92	70 - 130	05/04/22 16:47	
13C2-8:2 FTS	95	70 - 130	05/04/22 16:47	
13C3-HFPO-DA	112	70 - 130	05/04/22 16:47	

QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Organic Compounds by HPLC/MS/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Extraction Method: ALS SOP

Surrogate	Control Limits	RW-2 K2204370-001	RW-5 K2204370-003	Turbo Stripper Eff K2204370-005
13C3-PFBS	70-130	61*	59*	67*
18O2-PFHxS	70-130	78	80	66*
13C4-PFOS	70-130	80	80	83
13C4-PFBA	70-130	79	79	80
13C5-PFPeA	70-130	76	81	89
13C2-PFHxA	70-130	79	78	80
13C4-PFHpA	70-130	86	83	85
13C4-PFOA	70-130	77	84	87
13C5-PFNA	70-130	77	85	86
13C2-PFDA	70-130	87	98	90
13C2-PFUnDA	70-130	80	81	75
13C2-PFDoDA	70-130	81	74	71
13C2-PFTeDA	70-130	78	81	71
13C8-FOSA	70-130	64*	66*	68*
D3-MeFOSA	70-130	37*	35*	35*
D5-EtFOSA	70-130	55*	58*	64*
D7-MeFOSE	70-130	61*	59*	68*
D9-EtFOSE	70-130	63*	60*	66*
D3-MeFOSAA	70-130	95	87	92
D5-EtFOSAA	70-130	87	84	94
13C2-4:2 FTS	70-130	98	96	104
13C2-6:2 FTS	0-10	2	1	1
13C2-8:2 FTS	70-130	100	135*	115
13C3-HFPO-DA	70-130	91	90	97

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Extraction Method: ALS SOP

Surrogate	Control Limits	Method Blank KQ2207679-01
13C3-PFBS	70-130	77
18O2-PFHxS	70-130	76
13C4-PFOS	70-130	103
13C4-PFBA	70-130	88
13C5-PFPeA	70-130	99
13C2-PFHxA	70-130	89
13C4-PFHpA	70-130	84
13C4-PFOA	70-130	90
13C5-PFNA	70-130	91
13C2-PFDA	70-130	91
13C2-PFUnDA	70-130	80
13C2-PFDoDA	70-130	84
13C2-PFTeDA	70-130	93
13C8-FOSA	70-130	72
D3-MeFOSA	70-130	40*
D5-EtFOSA	70-130	66*
D7-MeFOSE	70-130	71
D9-EtFOSE	70-130	71
D3-MeFOSAA	70-130	100
D5-EtFOSAA	70-130	110
13C2-4:2 FTS	70-130	117
13C2-6:2 FTS	0-10	1
13C2-8:2 FTS	70-130	107
13C3-HFPO-DA	70-130	103

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2207679-01	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluoropentane sulfonic acid (PFPeS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorohexane sulfonic acid (PFHxS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorooctane sulfonic acid (PFOS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorononane sulfonic acid (PFNS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorodecane sulfonic acid (PFDS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	3000	-	1	06/16/22 11:38	5/19/22	
Perfluoropentanoic acid (PFPeA)	ND U	3000	-	1	06/16/22 11:38	5/19/22	
Perfluorohexanoic acid (PFHxA)	ND U	3000	-	1	06/16/22 11:38	5/19/22	
Perfluoroheptanoic acid (PFHpA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorooctanoic acid (PFOA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorononanoic acid (PFNA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorodecanoic acid (PFDA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluoroundecanoic acid (PFUnDA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorododecanoic acid (PFDOA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorotridecanoic acid (PFTrDA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluorotetradecanoic acid (PFTDA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	600	-	1	06/16/22 11:38	5/19/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	600	-	1	06/16/22 11:38	5/19/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	600	-	1	06/16/22 11:38	5/19/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	600	-	1	06/16/22 11:38	5/19/22	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	600	-	1	06/16/22 11:38	5/19/22	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	600	-	1	06/16/22 11:38	5/19/22	

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2207679-01	**Basis:**	NA

Total Oxidizable Precursor Assay (TOPA) of Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: ALS SOP
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	600	-	1	06/16/22 11:38	5/19/22	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)							
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	600	-	1	06/16/22 11:38	5/19/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	77	70 - 130	06/16/22 11:38	
18O2-PFHxS	76	70 - 130	06/16/22 11:38	
13C4-PFOS	103	70 - 130	06/16/22 11:38	
13C4-PFBA	88	70 - 130	06/16/22 11:38	
13C5-PFPeA	99	70 - 130	06/16/22 11:38	
13C2-PFHxA	89	70 - 130	06/16/22 11:38	
13C4-PFHpA	84	70 - 130	06/16/22 11:38	
13C4-PFOA	90	70 - 130	06/16/22 11:38	
13C5-PFNA	91	70 - 130	06/16/22 11:38	
13C2-PFDA	91	70 - 130	06/16/22 11:38	
13C2-PFUnDA	80	70 - 130	06/16/22 11:38	
13C2-PFDoDA	84	70 - 130	06/16/22 11:38	
13C2-PFTeDA	93	70 - 130	06/16/22 11:38	
13C8-FOSA	72	70 - 130	06/16/22 11:38	
D3-MeFOSA	40	70 - 130	06/16/22 11:38	*
D5-EtFOSA	66	70 - 130	06/16/22 11:38	*
D7-MeFOSE	71	70 - 130	06/16/22 11:38	
D9-EtFOSE	71	70 - 130	06/16/22 11:38	
D3-MeFOSAA	100	70 - 130	06/16/22 11:38	
D5-EtFOSAA	110	70 - 130	06/16/22 11:38	
13C2-4:2 FTS	117	70 - 130	06/16/22 11:38	
13C2-6:2 FTS	1	0 - 10	06/16/22 11:38	
13C2-8:2 FTS	107	70 - 130	06/16/22 11:38	
13C3-HFPO-DA	103	70 - 130	06/16/22 11:38	

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	RW-4 K2204370-002	RW-5 K2204370-003	RW-7 K2204370-004
13C3-PFBS	20-109	68	94	70
18O2-PFHxS	26-122	75	103	81
13C4-PFOS	25-121	63	88	74
13C4-PFBA	27-124	84	119	86
13C5-PFPeA	27-138	77	83	93
13C2-PFHxA	28-132	88	95	91
13C4-PFHpA	19-139	85	87	94
13C4-PFOA	22-130	97	118	91
13C5-PFNA	20-127	95	37	102
13C2-PFDA	24-125	99	97	96
13C2-PFUnDA	22-125	95	100	94
13C2-PFDoDA	19-122	81	107	98
13C2-PFTeDA	13-124	93	93	87
13C8-FOSA	18-109	58	83	70
D3-MeFOSA	15-153	63	63	68
D5-EtFOSA	25-107	78	67	77
D7-MeFOSE	24-112	55	66	72
D9-EtFOSE	19-109	82	76	82
13C2-6:2 FTS	10-226	557*	80	132
13C2-8:2 FTS	10-202	705*	292*	141

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	Method Blank KQ2206933-03	Lab Control Sample KQ2206933-01	Duplicate Lab Control Sample KQ2206933-02
13C3-PFBS	20-109	67	70	69
18O2-PFHxS	26-122	71	86	75
13C4-PFOS	25-121	84	93	82
13C4-PFBA	27-124	84	97	85
13C5-PFPeA	27-138	76	76	75
13C2-PFHxA	28-132	88	104	93
13C4-PFHpA	19-139	109	103	108
13C4-PFOA	22-130	84	96	85
13C5-PFNA	20-127	86	95	86
13C2-PFDA	24-125	90	107	93
13C2-PFUnDA	22-125	85	105	87
13C2-PFDoDA	19-122	80	119	102
13C2-PFTeDA	13-124	104	110	106
13C8-FOSA	18-109	71	77	75
D3-MeFOSA	15-153	66	71	68
D5-EtFOSA	25-107	81	83	83
D7-MeFOSE	24-112	78	83	85
D9-EtFOSE	19-109	83	88	88
13C2-6:2 FTS	10-226	82	87	84
13C2-8:2 FTS	10-202	98	95	94

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2206933-03	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)							
Perfluorobutane sulfonic acid (PFBS)	ND U	5.0	0.28	1	05/04/22 17:19	5/3/22	
Perfluorohexane sulfonic acid (PFHxS)	ND U	5.0	1.3	1	05/04/22 17:19	5/3/22	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	5.0	0.44	1	05/04/22 17:19	5/3/22	
Perfluorooctane sulfonic acid (PFOS)	ND U	5.0	0.44	1	05/04/22 17:19	5/3/22	
Perfluorodecane sulfonic acid (PFDS)	ND U	5.0	0.30	1	05/04/22 17:19	5/3/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ND U	5.0	0.40	1	05/04/22 17:19	5/3/22	
Perfluoropentanoic acid (PFPeA)	ND U	5.0	1.7	1	05/04/22 17:19	5/3/22	
Perfluorohexanoic acid (PFHxA)	ND U	10	8.8	1	05/04/22 17:19	5/3/22	
Perfluoroheptanoic acid (PFHpA)	ND U	5.0	0.63	1	05/04/22 17:19	5/3/22	
Perfluorooctanoic acid (PFOA)	ND U	2.0	0.35	1	05/04/22 17:19	5/3/22	
Perfluorononanoic acid (PFNA)	ND U	5.0	1.1	1	05/04/22 17:19	5/3/22	
Perfluorodecanoic acid (PFDA)	ND U	5.0	1.2	1	05/04/22 17:19	5/3/22	
Perfluoroundecanoic acid (PFUnDA)	ND U	5.0	1.5	1	05/04/22 17:19	5/3/22	
Perfluorododecanoic acid (PFDOA)	ND U	5.0	1.3	1	05/04/22 17:19	5/3/22	
Perfluorotridecanoic acid (PFTrDA)	ND U	5.0	1.3	1	05/04/22 17:19	5/3/22	
Perfluorotetradecanoic acid (PFTDA)	ND U	5.0	2.0	1	05/04/22 17:19	5/3/22	
Perfluoroalkyl Sulfonamido Substances							
Perfluorooctane sulfonamide (PFOSAm)	ND U	5.0	0.52	1	05/04/22 17:19	5/3/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	5.0	0.46	1	05/04/22 17:19	5/3/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	**0.49 J**	5.0	0.27	1	05/04/22 17:19	5/3/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	5.0	0.30	1	05/04/22 17:19	5/3/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	**0.28 J**	5.0	0.13	1	05/04/22 17:19	5/3/22	
Fluorotelomer Sulfonic Acids (FTSAs)							
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	5.0	0.55	1	05/04/22 17:19	5/3/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	5.0	0.15	1	05/04/22 17:19	5/3/22	

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2206933-03	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	67	20 - 109	05/04/22 17:19	
18O2-PFHxS	71	26 - 122	05/04/22 17:19	
13C4-PFOS	84	25 - 121	05/04/22 17:19	
13C4-PFBA	84	27 - 124	05/04/22 17:19	
13C5-PFPeA	76	27 - 138	05/04/22 17:19	
13C2-PFHxA	88	28 - 132	05/04/22 17:19	
13C4-PFHpA	109	19 - 139	05/04/22 17:19	
13C4-PFOA	84	22 - 130	05/04/22 17:19	
13C5-PFNA	86	20 - 127	05/04/22 17:19	
13C2-PFDA	90	24 - 125	05/04/22 17:19	
13C2-PFUnDA	85	22 - 125	05/04/22 17:19	
13C2-PFDoDA	80	19 - 122	05/04/22 17:19	
13C2-PFTeDA	104	13 - 124	05/04/22 17:19	
13C8-FOSA	71	18 - 109	05/04/22 17:19	
D3-MeFOSA	66	15 - 153	05/04/22 17:19	
D5-EtFOSA	81	25 - 107	05/04/22 17:19	
D7-MeFOSE	78	24 - 112	05/04/22 17:19	
D9-EtFOSE	83	19 - 109	05/04/22 17:19	
13C2-6:2 FTS	82	10 - 226	05/04/22 17:19	
13C2-8:2 FTS	98	10 - 202	05/04/22 17:19	

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	RW-2 K2204370-001	Turbo Stripper Eff K2204370-005	RW-2 KQ2206909-01
13C3-PFBS	70-130	78	69*	71
18O2-PFHxS	70-130	82	89	83
13C4-PFOS	70-130	98	91	84
13C4-PFBA	70-130	94	89	87
13C5-PFPeA	70-130	85	77	78
13C2-PFHxA	70-130	102	101	97
13C4-PFHpA	70-130	129	107	100
13C4-PFOA	70-130	98	92	92
13C5-PFNA	70-130	106	93	87
13C2-PFDA	70-130	109	104	98
13C2-PFUnDA	70-130	101	101	97
13C2-PFDoDA	70-130	107	106	101
13C2-PFTeDA	70-130	123	124	120
13C8-FOSA	70-130	96	97	86
D3-MeFOSA	70-130	94	93	85
D5-EtFOSA	70-130	112	109	102
D7-MeFOSE	70-130	105	103	93
D9-EtFOSE	70-130	112	113	103
D3-MeFOSAA	70-130	125	123	112
D5-EtFOSAA	70-130	118	123	116
13C2-4:2 FTS	70-130	118	106	107
13C2-6:2 FTS	70-130	106	92	96
13C2-8:2 FTS	70-130	118	95	107
13C3-HFPO-DA	70-130	113	112	102

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Gannett Fleming, Incorporated **Service Request:** K2204370
Project: WRR/55929.007
Sample Matrix: Ground Water

SURROGATE RECOVERY SUMMARY
Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Extraction Method: ALS SOP

Surrogate	Control Limits	Method Blank KQ2206909-03	Lab Control Sample KQ2206909-02
13C3-PFBS	70-130	98	97
18O2-PFHxS	70-130	87	97
13C4-PFOS	70-130	93	91
13C4-PFBA	70-130	94	95
13C5-PFPeA	70-130	96	97
13C2-PFHxA	70-130	99	101
13C4-PFHpA	70-130	120	108
13C4-PFOA	70-130	92	96
13C5-PFNA	70-130	90	89
13C2-PFDA	70-130	105	103
13C2-PFUnDA	70-130	98	99
13C2-PFDoDA	70-130	115	105
13C2-PFTeDA	70-130	127	128
13C8-FOSA	70-130	101	102
D3-MeFOSA	70-130	92	91
D5-EtFOSA	70-130	114	115
D7-MeFOSE	70-130	97	104
D9-EtFOSE	70-130	115	117
D3-MeFOSAA	70-130	133*	131*
D5-EtFOSAA	70-130	138*	130
13C2-4:2 FTS	70-130	92	93
13C2-6:2 FTS	70-130	87	86
13C2-8:2 FTS	70-130	96	93
13C3-HFPO-DA	70-130	110	116

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2206909-03	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkyl Sulfonic Acids (PFSAs)						
Perfluorobutane sulfonic acid (PFBS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoropentane sulfonic acid (PFPeS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorohexane sulfonic acid (PFHxS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorooctane sulfonic acid (PFOS)	ND U	500	1	05/04/22 16:06	5/2/22	
Perfluorononane sulfonic acid (PFNS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorodecane sulfonic acid (PFDS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoroalkyl Carboxylic Acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoropentanoic acid (PFPeA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorohexanoic acid (PFHxA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoroheptanoic acid (PFHpA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorooctanoic acid (PFOA)	ND U	500	1	05/04/22 16:06	5/2/22	
Perfluorononanoic acid (PFNA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorodecanoic acid (PFDA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoroundecanoic acid (PFUnDA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorododecanoic acid (PFDOA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorotridecanoic acid (PFTrDA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluorotetradecanoic acid (PFTDA)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoroalkyl Sulfonamido Substances						
Perfluorooctane sulfonamide (PFOSAm)	ND U	1000	1	05/04/22 16:06	5/2/22	
N-Methylperfluorooctane sulfonamide (MeFOSA)	ND U	1000	1	05/04/22 16:06	5/2/22	
N-Ethylperfluorooctane sulfonamide (EtFOSAm)	ND U	1000	1	05/04/22 16:06	5/2/22	
N-Methylperfluorooctane sulfonamido ethanol (MeFOSE)	ND U	1000	1	05/04/22 16:06	5/2/22	
N-Ethylperfluorooctane sulfonamido ethanol (EtFOSE)	ND U	1000	1	05/04/22 16:06	5/2/22	
N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND U	1000	1	05/04/22 16:06	5/2/22	
N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND U	1000	1	05/04/22 16:06	5/2/22	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Gannett Fleming, Incorporated	**Service Request:**	K2204370
Project:	WRR/55929.007	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ2206909-03	**Basis:**	NA

Per- and Polyfluoroalkyl Substances (PFAS) by LC/MS/MS

Analysis Method: PFC/537M
Prep Method: ALS SOP

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Fluorotelomer Sulfonic Acids (FTSAs)						
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND U	1000	1	05/04/22 16:06	5/2/22	
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND U	1000	1	05/04/22 16:06	5/2/22	
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND U	1000	1	05/04/22 16:06	5/2/22	
1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND U	1000	1	05/04/22 16:06	5/2/22	
Perfluoroalkyl Ether Carboxylic Acids (PFECAs)						
Hexafluoropropyleneoxide dimer acid (HFPO-DA) (GenX)	ND U	1000	1	05/04/22 16:06	5/2/22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	98	70 - 130	05/04/22 16:06	
18O2-PFHxS	87	70 - 130	05/04/22 16:06	
13C4-PFOS	93	70 - 130	05/04/22 16:06	
13C4-PFBA	94	70 - 130	05/04/22 16:06	
13C5-PFPeA	96	70 - 130	05/04/22 16:06	
13C2-PFHxA	99	70 - 130	05/04/22 16:06	
13C4-PFHpA	120	70 - 130	05/04/22 16:06	
13C4-PFOA	92	70 - 130	05/04/22 16:06	
13C5-PFNA	90	70 - 130	05/04/22 16:06	
13C2-PFDA	105	70 - 130	05/04/22 16:06	
13C2-PFUnDA	98	70 - 130	05/04/22 16:06	
13C2-PFDoDA	115	70 - 130	05/04/22 16:06	
13C2-PFTeDA	127	70 - 130	05/04/22 16:06	
13C8-FOSA	101	70 - 130	05/04/22 16:06	
D3-MeFOSA	92	70 - 130	05/04/22 16:06	
D5-EtFOSA	114	70 - 130	05/04/22 16:06	
D7-MeFOSE	97	70 - 130	05/04/22 16:06	
D9-EtFOSE	115	70 - 130	05/04/22 16:06	
D3-MeFOSAA	133	70 - 130	05/04/22 16:06	*
D5-EtFOSAA	138	70 - 130	05/04/22 16:06	*
13C2-4:2 FTS	92	70 - 130	05/04/22 16:06	
13C2-6:2 FTS	87	70 - 130	05/04/22 16:06	
13C2-8:2 FTS	96	70 - 130	05/04/22 16:06	
13C3-HFPO-DA	110	70 - 130	05/04/22 16:06	

APPENDIX B

PFAS LABORATORY REPORTS FOR GROUNDWATER & SURFACE WATER SAMPLES

(MAY & JUNE 2022)

GANNETT FLEMING

06-Sep-2022

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR - PFAS**

Work Order: **22060450**

Dear Anthony,

Revision: **2**

ALS Environmental received 28 samples on 04-Jun-2022 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 103.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Jodi Blouw

Jodi Blouw

ALS Group, USA

Date: 06-Sep-22

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Work Order: **22060450**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22060450-01	MW-104	Groundwater		5/31/2022 16:15	6/4/2022 10:00	☐
22060450-02	W-30A	Groundwater		5/31/2022 14:00	6/4/2022 10:00	☐
22060450-03	W-30B	Groundwater		5/31/2022 14:05	6/4/2022 10:00	☐
22060450-04	MW-111	Groundwater		5/31/2022 13:00	6/4/2022 10:00	☐
22060450-05	MW-111A	Groundwater		5/31/2022 13:05	6/4/2022 10:00	☐
22060450-06	MW-112B	Groundwater		5/31/2022 14:40	6/4/2022 10:00	☐
22060450-07	W-17A	Groundwater		5/31/2022 16:55	6/4/2022 10:00	☐
22060450-08	MW-115A	Groundwater		5/31/2022 11:45	6/4/2022 10:00	☐
22060450-09	MW-104A	Groundwater		5/31/2022 16:20	6/4/2022 10:00	☐
22060450-10	MW-112A	Groundwater		5/31/2022 14:35	6/4/2022 10:00	☐
22060450-11	MW-112	Groundwater		5/31/2022 14:30	6/4/2022 10:00	☐
22060450-12	MW-111B	Groundwater		5/31/2022 13:10	6/4/2022 10:00	☐
22060450-13	W-34	Groundwater		6/1/2022 11:30	6/4/2022 10:00	☐
22060450-14	W-26	Groundwater		5/31/2022 15:40	6/4/2022 10:00	☐
22060450-15	W-33	Groundwater		6/1/2022 09:45	6/4/2022 10:00	☐
22060450-16	W-17B	Groundwater		5/31/2022 17:00	6/4/2022 10:00	☐
22060450-17	MW-114	Groundwater		6/1/2022 07:40	6/4/2022 10:00	☐
22060450-18	MW-114A	Groundwater		6/1/2022 07:45	6/4/2022 10:00	☐
22060450-19	MW-115	Groundwater		5/31/2022 11:40	6/4/2022 10:00	☐
22060450-20	W-17	Groundwater		5/31/2022 16:50	6/4/2022 10:00	☐
22060450-21	Seep 2N	Surface Water		6/1/2022 11:20	6/4/2022 10:00	☐
22060450-22	SW-1	Surface Water		6/1/2022 13:35	6/4/2022 10:00	☐
22060450-23	SW-2	Surface Water		6/1/2022 13:15	6/4/2022 10:00	☐
22060450-24	SW-3	Surface Water		6/1/2022 11:25	6/4/2022 10:00	☐
22060450-25	SW-4	Surface Water		6/1/2022 15:00	6/4/2022 10:00	☐
22060450-26	SW-5	Surface Water		6/1/2022 14:30	6/4/2022 10:00	☐
22060450-27	FIELD BLANK	Water		6/1/2022 16:10	6/4/2022 10:00	☐
22060450-28	EQUIP. BLANK	Water		6/1/2022 16:15	6/4/2022 10:00	☐

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
WorkOrder: **22060450**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Work Order: 22060450

Case Narrative

Samples for the above noted Work Order were received on 06/04/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, sample condition, preservation, and temperature compliance.
In order to ensure compliance with NR 149 criteria, please note the following report format:
(1) The Limit of Detection (LOD) is reported as the MDL (Method Detection Limit)
(2) The Limit of Quantitation (LOQ) is reported as the PQL (Practical Quantitation Limit)
(3) All reported concentrations, including those for the LOD and LOQ, are adjusted for any required dilutions
(4) All reported concentrations, including those for the LOD and LOQ, are adjusted for moisture content when samples are reported on a dry weight basis.

Samples were analyzed according to the analytical methodology previously documented in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Detail as to the associated samples can be found at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, acronyms, and units utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics
Batch 197590, Method E537 Mod, Sample MW-112A (22060450-10A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFHpA

Batch 197590, Method E537 Mod, Sample MW-104 (22060450-01A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample W-30B (22060450-03A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample W-30B (22060450-03A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 8:2

Batch 197590, Method E537 Mod, Sample MW-111 (22060450-04A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample MW-111A (22060450-05A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample MW-112B (22060450-06A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample MW-112B (22060450-06A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-FOSA_IS

Batch 197590, Method E537 Mod, Sample MW-112B (22060450-06A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report

Batch 197590, Method E537 Mod, Sample W-17A (22060450-07A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample W-17A (22060450-07A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d5-NEtFOSA_IS, d3-NMeFOSA_IS, 13C2-PFHxDA_IS

Batch 197590, Method E537 Mod, Sample W-17A (22060450-07A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS

Batch 197590, Method E537 Mod, Sample W-17A (22060450-07A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See

attached QC report

Batch 197590, Method E537 Mod, Sample W-17A (22060450-07A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 4:2

Batch 197590, Method E537 Mod, Sample MW-115A (22060450-08A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample MW-115A (22060450-08A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-8_2-FTS_IS

Batch 197590, Method E537 Mod, Sample MW-115A (22060450-08A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFBA, 13C4-PFHpA, 13C8-FOSA

Batch 197590, Method E537 Mod, Sample MW-115A (22060450-08A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 8:2

Batch 197590, Method E537 Mod, Sample MW-104A (22060450-09A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample MW-112 (22060450-11A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197590, Method E537 Mod, Sample MW-112 (22060450-11A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFHpA

Batch 197590, Method E537 Mod, Sample MW-112 (22060450-11A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 8:2

Batch 197666, Method E537 Mod, Sample MW-111B (22060450-12A): The Continuing

Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197666, Method E537 Mod, Sample MW-111B (22060450-12A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report

Batch 197666, Method E537 Mod, Sample W-34 (22060450-13A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197666, Method E537 Mod, Sample W-34 (22060450-13A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFBA_IS, 13C-PFBS_IS

Batch 197666, Method E537 Mod, Sample W-34 (22060450-13A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS, 13C-8_2-FTS_IS

Batch 197666, Method E537 Mod, Sample W-34 (22060450-13A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report

Batch 197666, Method E537 Mod, Sample W-34 (22060450-13A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 4:2

Batch 197666, Method E537 Mod, Sample W-26 (22060450-14A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197666, Method E537 Mod, Sample W-26 (22060450-14A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFBA

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA, 18O2-PFHxS (surrogate failed in CCV, corresponding target passes in CCV)

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFHpA_IS, 13C-FOSA_IS

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS, 13C-8_2-FTS_IS

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): Surrogate high due to matrix interference. 13C2-FtS 6:2, 13C2-FtS 8:2

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. See attached QC report

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 4:2

Batch 197746, Method E537 Mod, Sample MW-115 (22060450-19A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-8_2-FTS_IS

Batch 197746, Method E537 Mod, Sample MW-115 (22060450-19A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample MW-115 (22060450-19A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS

Batch 197746, Method E537 Mod, Sample MW-115 (22060450-19A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d7-N-MeFOSE

Batch 197746, Method E537 Mod, Sample W-17 (22060450-20A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample Seep 2N (22060450-21A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample SW-1 (22060450-22A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample SW-2 (22060450-23A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample SW-2 (22060450-23A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d5-N-EtFOSAA

Batch 197746, Method E537 Mod, Sample SW-3 (22060450-24A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample SW-4 (22060450-25A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample SW-4 (22060450-25A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFHpA, 13C8-FOSA, 18O2-PFHxS, d5-N-EtFOSA, d9-N-EtFOSE

Batch 197746, Method E537 Mod, Sample SW-5 (22060450-26A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample SW-5 (22060450-26A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSA, d3-N-MeFOSAA

Batch 197746, Method E537 Mod, Sample FIELD BLANK (22060450-27A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: PFTriA, 13C2-PFDoA, 13C8-FOSA, 18O2-PFHxS, d9-N-EtFOSE surrogates failed in CCV (corresponding target passes in CCV).

Batch 197746, Method E537 Mod, Sample FIELD BLANK (22060450-27A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-NMeFOSA_IS

Batch 197746, Method E537 Mod, Sample FIELD BLANK (22060450-27A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSA, d3-N-MeFOSAA, d5-N-EtFOSA

Batch 197910, Method E537 Mod, Sample EQUIP. BLANK (22060450-28A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOS (target passes in CCV)

Batch 197590, Method E537 Mod, Sample 22060450-10A DUP: The RPD between the sample and its duplicate was out of control. The corresponding sample result should be considered estimated for this analyte. PFBS, PFPeS, see attached QC report

Batch 197910, Method E537 Mod, Sample 22060450-28A DUP: The RPD between the sample and its duplicate was out of control. The corresponding sample result should be considered estimated for this analyte. 13C4-PFHpA, 18O2-PFHxS

Batch 197910, Method E537 Mod, Sample 22060450-28A DUP: The RPD between the sample and its duplicate was out of control. The corresponding sample result should be considered estimated for this analyte. 13C5-PFNA

Batch 197666, Method E537 Mod, Sample LCS-197666: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: PFHpS, PFPeS

Batch 197590, Method E537 Mod, Sample 22060450-02A MS: The MS recovery was above the upper control limit. The corresponding result in the parent sample was non-detect, therefore no qualification is necessary: DONA

Batch 197666, Method E537 Mod, Sample W-34 (22060450-13A): Sediment present in sample. Liquid poured off into a 250 mL bottle. Required additional acid to reach required pH of 3.

Batch 197666, Method E537 Mod, Sample W-33 (22060450-15A): Sediment present in sample. Liquid poured off into a 250 mL bottle.

Batch 197746, Method E537 Mod, Sample W-17 (22060450-20A): Sediment present in sample. Liquid poured off into a 250 mL bottle.

* rev1 - revised to include CAS numbers *

rev2 - revised to remove analytes not required for Wisconsin reporting

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-104
Collection Date: 5/31/2022 04:15 PM

Work Order: 22060450
Lab ID: 22060450-01
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.98	5.2	ng/L	1	6/9/2022 22:31
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.2	ng/L	1	6/9/2022 22:31
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.2	ng/L	1	6/9/2022 22:31
Perfluorobutanesulfonic Acid	375-73-5	**64**		**0.37**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluorobutanoic Acid (PFBA	375-22-4	**120**		**2.7**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.2	ng/L	1	6/9/2022 22:31
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.2	ng/L	1	6/9/2022 22:31
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.65	5.2	ng/L	1	6/9/2022 22:31
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.72	5.2	ng/L	1	6/9/2022 22:31
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.59	5.2	ng/L	1	6/9/2022 22:31
Perfluoroheptanoic Acid (PFH	375-85-9	**20**		**1.8**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**20**		**0.94**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluorohexanoic Acid (PFHx	307-24-4	**120**		**1.3**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.52	5.2	ng/L	1	6/9/2022 22:31
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.91	5.2	ng/L	1	6/9/2022 22:31
Perfluorooctanesulfonamide (PF	754-91-6	U		0.74	5.2	ng/L	1	6/9/2022 22:31
Perfluorooctanesulfonic Acid	1763-23-1	**1.6**	J	**0.93**	**2.1**	**ng/L**	1	6/9/2022 22:31
Perfluorooctanoic Acid (PFOA	335-67-1	**41**		**0.66**	**2.1**	**ng/L**	1	6/9/2022 22:31
Perfluoropentanesulfonic Acic (PFPeS)	2706-91-4	**11**		**0.58**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluoropentanoic Acid (PFP	2706-90-3	**91**		**1.3**	**5.2**	**ng/L**	1	6/9/2022 22:31
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.8	5.2	ng/L	1	6/9/2022 22:31
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.2	ng/L	1	6/9/2022 22:31
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.2	ng/L	1	6/9/2022 22:31
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.2	ng/L	1	6/9/2022 22:31
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.2	ng/L	1	6/9/2022 22:31
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.2	ng/L	1	6/9/2022 22:31
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.83	5.2	ng/L	1	6/9/2022 22:31
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.67	5.2	ng/L	1	6/9/2022 22:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-104
Collection Date: 5/31/2022 04:15 PM

Work Order: 22060450
Lab ID: 22060450-01
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.6	5.2	ng/L	1	6/9/2022 22:31
Hexafluoropropylene oxide dimer (HFPO-DA)	13252-13-6	U		1.2	5.2	ng/L	1	6/9/2022 22:31
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.59	5.2	ng/L	1	6/9/2022 22:31
11Cl-Pf3OUdS	763051-92-9	U		0.49	5.2	ng/L	1	6/9/2022 22:31
9Cl-PF3ONS	756426-58-1	U		0.47	5.2	ng/L	1	6/9/2022 22:31
Surr: 13C2-FtS 4:2	PAMN-1492	*77.4*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-FtS 6:2	M2-6-2FTS	*92.7*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-FtS 8:2	M2-8-2FTS	*116*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-PFDA	STL00996	*82.8*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-PFDoA	STL00998	*79.1*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-PFHxA	STL00993	*73.0*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*62.4*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-PFTeA	13C2-PFTeA	*66.0*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C2-PFUnA	STL00997	*73.7*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C3-HFPO-DA	STL02255	*62.4*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C3-PFBS	STL02337	*77.0*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C4-PFBA	STL00992	*71.5*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C4-PFHpA	STL01892	*74.7*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C4-PFOA	STL00990	*92.2*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C4-PFOS	PAMN-1458	*82.4*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C5-PFNA	STL00995	*91.2*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C5-PFPeA	STL01893	*73.6*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 13C8-FOSA	STL01056	*64.9*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: 18O2-PFHxS	STL00994	*91.6*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: d5-N-EtFOSA	STL02117	*69.5*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*71.0*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*71.6*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*69.5*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: d3-N-MeFOSAA	PAMN-1460	*71.8*			*50-150*	*%REC*	1	6/9/2022 22:31
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*63.6*			*50-150*	*%REC*	1	6/9/2022 22:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-30A
Collection Date: 5/31/2022 02:00 PM

Work Order: 22060450
Lab ID: 22060450-02
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.96	5.1	ng/L	1	6/9/2022 21:00
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.1	ng/L	1	6/9/2022 21:00
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.1	ng/L	1	6/9/2022 21:00
Perfluorobutanesulfonic Acid (PF	375-73-5	U		0.36	5.1	ng/L	1	6/9/2022 21:00
Perfluorobutanoic Acid (PFBA)	375-22-4	U		2.7	5.1	ng/L	1	6/9/2022 21:00
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.1	ng/L	1	6/9/2022 21:00
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.1	ng/L	1	6/9/2022 21:00
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.64	5.1	ng/L	1	6/9/2022 21:00
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.71	5.1	ng/L	1	6/9/2022 21:00
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.58	5.1	ng/L	1	6/9/2022 21:00
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.8	5.1	ng/L	1	6/9/2022 21:00
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**0.93**	J	**0.92**	**5.1**	**ng/L**	1	6/9/2022 21:00
Perfluorohexanoic Acid (PFHxA)	307-24-4	U		1.2	5.1	ng/L	1	6/9/2022 21:00
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.51	5.1	ng/L	1	6/9/2022 21:00
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.89	5.1	ng/L	1	6/9/2022 21:00
Perfluorooctanesulfonamide (PF	754-91-6	U		0.73	5.1	ng/L	1	6/9/2022 21:00
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.91	2.0	ng/L	1	6/9/2022 21:00
Perfluorooctanoic Acid (PFOA)	335-67-1	U		0.64	2.0	ng/L	1	6/9/2022 21:00
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.57	5.1	ng/L	1	6/9/2022 21:00
Perfluoropentanoic Acid (PFPeA	2706-90-3	U		1.3	5.1	ng/L	1	6/9/2022 21:00
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/9/2022 21:00
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/9/2022 21:00
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.1	ng/L	1	6/9/2022 21:00
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/9/2022 21:00
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.1	ng/L	1	6/9/2022 21:00
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/9/2022 21:00
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/9/2022 21:00
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.66	5.1	ng/L	1	6/9/2022 21:00
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/9/2022 21:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-30A
Collection Date: 5/31/2022 02:00 PM

Work Order: 22060450
Lab ID: 22060450-02
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.2	5.1	ng/L	1	6/9/2022 21:00
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.57	5.1	ng/L	1	6/9/2022 21:00
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.1	ng/L	1	6/9/2022 21:00
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/9/2022 21:00
Surr: 13C2-FtS 4:2	PAMN-1492	*64.0*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-FtS 6:2	M2-6-2FTS	*53.0*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-FtS 8:2	M2-8-2FTS	*95.3*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-PFDA	STL00996	*98.6*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-PFDoA	STL00998	*66.3*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-PFHxA	STL00993	*80.0*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*74.5*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-PFTeA	13C2-PFTeA	*83.8*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C2-PFUnA	STL00997	*90.8*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C3-HFPO-DA	STL02255	*77.0*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C3-PFBS	STL02337	*68.1*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C4-PFBA	STL00992	*75.6*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C4-PFHpA	STL01892	*58.5*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C4-PFOA	STL00990	*85.6*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C4-PFOS	PAMN-1458	*68.7*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C5-PFNA	STL00995	*84.9*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C5-PFPeA	STL01893	*70.5*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 13C8-FOSA	STL01056	*72.3*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: 18O2-PFHxS	STL00994	*69.5*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: d5-N-EtFOSA	STL02117	*66.1*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*74.2*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*69.3*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*61.1*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: d3-N-MeFOSAA	PAMN-1460	*61.3*			*50-150*	*%REC*	1	6/9/2022 21:00
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*64.6*			*50-150*	*%REC*	1	6/9/2022 21:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-30B
Collection Date: 5/31/2022 02:05 PM

Work Order: 22060450
Lab ID: 22060450-03
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.94	5.0	ng/L	1	6/9/2022 22:39
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**2.3**	J	**1.9**	**5.0**	**ng/L**	1	6/9/2022 22:39
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	5.0	ng/L	1	6/9/2022 22:39
Perfluorobutanesulfonic Acid	375-73-5	**0.41**	J	**0.35**	**5.0**	**ng/L**	1	6/9/2022 22:39
Perfluorobutanoic Acid (PFBA)	375-22-4	U		2.6	5.0	ng/L	1	6/9/2022 22:39
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.0	ng/L	1	6/9/2022 22:39
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	5.0	ng/L	1	6/9/2022 22:39
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.62	5.0	ng/L	1	6/9/2022 22:39
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.69	5.0	ng/L	1	6/9/2022 22:39
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.57	5.0	ng/L	1	6/9/2022 22:39
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.7	5.0	ng/L	1	6/9/2022 22:39
Perfluorohexanesulfonic Acid (P	355-46-4	U		0.90	5.0	ng/L	1	6/9/2022 22:39
Perfluorohexanoic Acid (PFHx	307-24-4	**1.3**	J	**1.2**	**5.0**	**ng/L**	1	6/9/2022 22:39
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.50	5.0	ng/L	1	6/9/2022 22:39
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.87	5.0	ng/L	1	6/9/2022 22:39
Perfluorooctanesulfonamide (PF	754-91-6	U		0.71	5.0	ng/L	1	6/9/2022 22:39
Perfluorooctanesulfonic Acid	1763-23-1	**2.0**		**0.89**	**2.0**	**ng/L**	1	6/9/2022 22:39
Perfluorooctanoic Acid (PFOA	335-67-1	**1.2**	J	**0.63**	**2.0**	**ng/L**	1	6/9/2022 22:39
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.56	5.0	ng/L	1	6/9/2022 22:39
Perfluoropentanoic Acid (PFP(	2706-90-3	**1.6**	J	**1.3**	**5.0**	**ng/L**	1	6/9/2022 22:39
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.6	5.0	ng/L	1	6/9/2022 22:39
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	5.0	ng/L	1	6/9/2022 22:39
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.97	5.0	ng/L	1	6/9/2022 22:39
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	5.0	ng/L	1	6/9/2022 22:39
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	5.0	ng/L	1	6/9/2022 22:39
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	5.0	ng/L	1	6/9/2022 22:39
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.79	5.0	ng/L	1	6/9/2022 22:39
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.64	5.0	ng/L	1	6/9/2022 22:39
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.0	ng/L	1	6/9/2022 22:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-30B
Collection Date: 5/31/2022 02:05 PM

Work Order: 22060450
Lab ID: 22060450-03
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.2	5.0	ng/L	1	6/9/2022 22:39
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.56	5.0	ng/L	1	6/9/2022 22:39
11Cl-Pf3OUdS	763051-92-9	U		0.47	5.0	ng/L	1	6/9/2022 22:39
9Cl-PF3ONS	756426-58-1	U		0.45	5.0	ng/L	1	6/9/2022 22:39
Surr: 13C2-FtS 4:2	PAMN-1492	*73.3*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-FtS 6:2	M2-6-2FTS	*70.6*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-FtS 8:2	M2-8-2FTS	*179*	S		*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-PFDA	STL00996	*111*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-PFDoA	STL00998	*68.0*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-PFHxA	STL00993	*80.8*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*74.0*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-PFTeA	13C2-PFTeA	*83.0*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C2-PFUnA	STL00997	*92.1*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C3-HFPO-DA	STL02255	*80.9*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C3-PFBS	STL02337	*76.0*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C4-PFBA	STL00992	*69.4*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C4-PFHpA	STL01892	*58.1*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C4-PFOA	STL00990	*104*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C4-PFOS	PAMN-1458	*74.0*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C5-PFNA	STL00995	*109*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C5-PFPeA	STL01893	*75.7*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 13C8-FOSA	STL01056	*64.1*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: 18O2-PFHxS	STL00994	*81.3*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: d5-N-EtFOSA	STL02117	*60.3*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*89.4*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*57.8*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*58.3*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: d3-N-MeFOSAA	PAMN-1460	*71.8*			*50-150*	*%REC*	1	6/9/2022 22:39
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*56.0*			*50-150*	*%REC*	1	6/9/2022 22:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-111
Collection Date: 5/31/2022 01:00 PM

Work Order: 22060450
Lab ID: 22060450-04
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.97	5.2	ng/L	1	6/9/2022 22:48
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.2	ng/L	1	6/9/2022 22:48
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.2	ng/L	1	6/9/2022 22:48
Perfluorobutanesulfonic Acid	375-73-5	**5.0**	J	**0.36**	**5.2**	**ng/L**	1	6/9/2022 22:48
Perfluorobutanoic Acid (PFBA	375-22-4	**6.3**		**2.7**	**5.2**	**ng/L**	1	6/9/2022 22:48
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.2	ng/L	1	6/9/2022 22:48
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.2	ng/L	1	6/9/2022 22:48
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.64	5.2	ng/L	1	6/9/2022 22:48
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.71	5.2	ng/L	1	6/9/2022 22:48
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.58	5.2	ng/L	1	6/9/2022 22:48
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.8	5.2	ng/L	1	6/9/2022 22:48
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**0.95**	J	**0.93**	**5.2**	**ng/L**	1	6/9/2022 22:48
Perfluorohexanoic Acid (PFHx	307-24-4	**5.3**		**1.2**	**5.2**	**ng/L**	1	6/9/2022 22:48
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.51	5.2	ng/L	1	6/9/2022 22:48
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.90	5.2	ng/L	1	6/9/2022 22:48
Perfluorooctanesulfonamide (PF	754-91-6	U		0.73	5.2	ng/L	1	6/9/2022 22:48
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.92	2.1	ng/L	1	6/9/2022 22:48
Perfluorooctanoic Acid (PFOA	335-67-1	**10**		**0.65**	**2.1**	**ng/L**	1	6/9/2022 22:48
Perfluoropentanesulfonic Acic (PFPeS)	2706-91-4	**0.69**	J	**0.57**	**5.2**	**ng/L**	1	6/9/2022 22:48
Perfluoropentanoic Acid (PFP	2706-90-3	**4.6**	J	**1.3**	**5.2**	**ng/L**	1	6/9/2022 22:48
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.2	ng/L	1	6/9/2022 22:48
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.2	ng/L	1	6/9/2022 22:48
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.2	ng/L	1	6/9/2022 22:48
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.2	ng/L	1	6/9/2022 22:48
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.2	ng/L	1	6/9/2022 22:48
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.2	ng/L	1	6/9/2022 22:48
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.82	5.2	ng/L	1	6/9/2022 22:48
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.67	5.2	ng/L	1	6/9/2022 22:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-111
Collection Date: 5/31/2022 01:00 PM

Work Order: 22060450
Lab ID: 22060450-04
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.6	5.2	ng/L	1	6/9/2022 22:48
Hexafluoropropylene oxide dimer (HFPO-DA)	13252-13-6	U		1.2	5.2	ng/L	1	6/9/2022 22:48
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.58	5.2	ng/L	1	6/9/2022 22:48
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.2	ng/L	1	6/9/2022 22:48
9Cl-PF3ONS	756426-58-1	U		0.46	5.2	ng/L	1	6/9/2022 22:48
Surr: 13C2-FtS 4:2	PAMN-1492	*91.5*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-FtS 6:2	M2-6-2FTS	*64.2*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-FtS 8:2	M2-8-2FTS	*102*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-PFDA	STL00996	*103*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-PFDoA	STL00998	*74.3*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-PFHxA	STL00993	*78.4*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*85.9*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-PFTeA	13C2-PFTeA	*84.0*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C2-PFUnA	STL00997	*88.9*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C3-HFPO-DA	STL02255	*80.0*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C3-PFBS	STL02337	*77.5*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C4-PFBA	STL00992	*73.1*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C4-PFHpA	STL01892	*67.2*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C4-PFOA	STL00990	*99.2*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C4-PFOS	PAMN-1458	*75.6*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C5-PFNA	STL00995	*98.8*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C5-PFPeA	STL01893	*78.3*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 13C8-FOSA	STL01056	*73.6*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: 18O2-PFHxS	STL00994	*86.8*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: d5-N-EtFOSA	STL02117	*73.4*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*84.0*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*67.8*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*70.7*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: d3-N-MeFOSAA	PAMN-1460	*63.8*			*50-150*	*%REC*	1	6/9/2022 22:48
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*66.1*			*50-150*	*%REC*	1	6/9/2022 22:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-111A
Collection Date: 5/31/2022 01:05 PM

Work Order: 22060450
Lab ID: 22060450-05
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		1.1	5.7	ng/L	1	6/9/2022 22:56
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.2	5.7	ng/L	1	6/9/2022 22:56
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.3	5.7	ng/L	1	6/9/2022 22:56
Perfluorobutanesulfonic Acid	375-73-5	**9.7**		**0.40**	**5.7**	**ng/L**	1	6/9/2022 22:56
Perfluorobutanoic Acid (PFBA	375-22-4	**790**		**30**	**57**	**ng/L**	10	6/14/2022 15:56
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.6	5.7	ng/L	1	6/9/2022 22:56
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.4	5.7	ng/L	1	6/9/2022 22:56
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.71	5.7	ng/L	1	6/9/2022 22:56
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.79	5.7	ng/L	1	6/9/2022 22:56
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.65	5.7	ng/L	1	6/9/2022 22:56
Perfluoroheptanoic Acid (PFH	375-85-9	**190**		**2.0**	**5.7**	**ng/L**	1	6/9/2022 22:56
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**10**		**1.0**	**5.7**	**ng/L**	1	6/9/2022 22:56
Perfluorohexanoic Acid (PFHx	307-24-4	**630**		**14**	**57**	**ng/L**	10	6/14/2022 15:56
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.57	5.7	ng/L	1	6/9/2022 22:56
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.99	5.7	ng/L	1	6/9/2022 22:56
Perfluorooctanesulfonamide (PF	754-91-6	U		0.81	5.7	ng/L	1	6/9/2022 22:56
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		1.0	2.3	ng/L	1	6/9/2022 22:56
Perfluorooctanoic Acid (PFOA	335-67-1	**480**		**7.2**	**23**	**ng/L**	10	6/14/2022 15:56
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**3.9**	J	**0.63**	**5.7**	**ng/L**	1	6/9/2022 22:56
Perfluoropentanoic Acid (PFP	2706-90-3	**510**		**1.5**	**5.7**	**ng/L**	1	6/9/2022 22:56
Perfluorotetradecanoic Acid (PF	376-06-7	U		3.0	5.7	ng/L	1	6/9/2022 22:56
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.2	5.7	ng/L	1	6/9/2022 22:56
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.1	5.7	ng/L	1	6/9/2022 22:56
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.3	5.7	ng/L	1	6/9/2022 22:56
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.8	5.7	ng/L	1	6/9/2022 22:56
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.2	5.7	ng/L	1	6/9/2022 22:56
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.90	5.7	ng/L	1	6/9/2022 22:56
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.73	5.7	ng/L	1	6/9/2022 22:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-111A
Collection Date: 5/31/2022 01:05 PM

Work Order: 22060450
Lab ID: 22060450-05
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.7	5.7	ng/L	1	6/9/2022 22:56
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	**2.8**	J	**1.3**	**5.7**	**ng/L**	1	6/9/2022 22:56
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.64	5.7	ng/L	1	6/9/2022 22:56
11Cl-Pf3OUdS	763051-92-9	U		0.53	5.7	ng/L	1	6/9/2022 22:56
9Cl-PF3ONS	756426-58-1	U		0.51	5.7	ng/L	1	6/9/2022 22:56
Surr: 13C2-FtS 4:2	PAMN-1492	*88.9*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-FtS 6:2	M2-6-2FTS	*89.0*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-FtS 8:2	M2-8-2FTS	*128*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-PFDA	STL00996	*79.7*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-PFDoA	STL00998	*80.5*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-PFHxA	STL00993	*69.0*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*79.2*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-PFTeA	13C2-PFTeA	*73.0*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C2-PFUnA	STL00997	*73.1*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C3-HFPO-DA	STL02255	*70.1*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C3-PFBS	STL02337	*69.1*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C4-PFBA	STL00992	*55.2*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C4-PFHpA	STL01892	*64.7*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C4-PFOA	STL00990	*83.3*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C4-PFOS	PAMN-1458	*74.7*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C5-PFNA	STL00995	*87.4*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C5-PFPeA	STL01893	*67.4*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 13C8-FOSA	STL01056	*62.9*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: 18O2-PFHxS	STL00994	*85.2*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: d5-N-EtFOSA	STL02117	*70.3*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*69.1*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*70.2*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*66.9*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: d3-N-MeFOSAA	PAMN-1460	*68.4*			*50-150*	*%REC*	1	6/9/2022 22:56
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*63.9*			*50-150*	*%REC*	1	6/9/2022 22:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-112B
Collection Date: 5/31/2022 02:40 PM

Work Order: 22060450
Lab ID: 22060450-06
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.93	4.9	ng/L	1	6/9/2022 23:04
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.9	4.9	ng/L	1	6/9/2022 23:04
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.9	ng/L	1	6/9/2022 23:04
Perfluorobutanesulfonic Acid	375-73-5	**69**		**0.35**	**4.9**	**ng/L**	1	6/9/2022 23:04
Perfluorobutanoic Acid (PFBA	375-22-4	**1,800**		**26**	**49**	**ng/L**	10	6/14/2022 16:05
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	4.9	ng/L	1	6/9/2022 23:04
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.9	ng/L	1	6/9/2022 23:04
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.62	4.9	ng/L	1	6/9/2022 23:04
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.68	4.9	ng/L	1	6/9/2022 23:04
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.56	4.9	ng/L	1	6/9/2022 23:04
Perfluoroheptanoic Acid (PFH	375-85-9	**34**		**1.7**	**4.9**	**ng/L**	1	6/9/2022 23:04
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**8.4**		**0.89**	**4.9**	**ng/L**	1	6/9/2022 23:04
Perfluorohexanoic Acid (PFHx	307-24-4	**200**		**1.2**	**4.9**	**ng/L**	1	6/9/2022 23:04
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.49	4.9	ng/L	1	6/9/2022 23:04
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.86	4.9	ng/L	1	6/9/2022 23:04
Perfluorooctanesulfonamide (PF	754-91-6	U		0.70	4.9	ng/L	1	6/9/2022 23:04
Perfluorooctanesulfonic Acid	1763-23-1	**1.6**	J	**0.88**	**2.0**	**ng/L**	1	6/9/2022 23:04
Perfluorooctanoic Acid (PFOA	335-67-1	**33**		**0.62**	**2.0**	**ng/L**	1	6/9/2022 23:04
Perfluoropentanesulfonic Acic (PFPeS)	2706-91-4	**10**		**0.55**	**4.9**	**ng/L**	1	6/9/2022 23:04
Perfluoropentanoic Acid (PFPe	2706-90-3	**280**		**1.3**	**4.9**	**ng/L**	1	6/9/2022 23:04
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.6	4.9	ng/L	1	6/9/2022 23:04
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.9	ng/L	1	6/9/2022 23:04
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.96	4.9	ng/L	1	6/9/2022 23:04
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.9	ng/L	1	6/9/2022 23:04
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.9	ng/L	1	6/9/2022 23:04
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.9	ng/L	1	6/9/2022 23:04
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.78	4.9	ng/L	1	6/9/2022 23:04
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.64	4.9	ng/L	1	6/9/2022 23:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-112B
Collection Date: 5/31/2022 02:40 PM

Work Order: 22060450
Lab ID: 22060450-06
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	4.9	ng/L	1	6/9/2022 23:04
Hexafluoropropylene oxide dimer (HFPO-DA)	13252-13-6	U		1.2	4.9	ng/L	1	6/9/2022 23:04
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.56	4.9	ng/L	1	6/9/2022 23:04
11Cl-Pf3OUdS	763051-92-9	U		0.46	4.9	ng/L	1	6/9/2022 23:04
9Cl-PF3ONS	756426-58-1	U		0.44	4.9	ng/L	1	6/9/2022 23:04
Surr: 13C2-FtS 4:2	PAMN-1492	*51.9*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-FtS 6:2	M2-6-2FTS	*74.5*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-FtS 8:2	M2-8-2FTS	*92.0*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-PFDA	STL00996	*52.6*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-PFDoA	STL00998	*53.9*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-PFHxA	STL00993	*53.9*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*55.8*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-PFTeA	13C2-PFTeA	*66.8*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C2-PFUnA	STL00997	*72.4*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C3-HFPO-DA	STL02255	*49.3*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C3-PFBS	STL02337	*53.0*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C4-PFBA	STL00992	*41.2*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C4-PFHpA	STL01892	*38.4*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C4-PFOA	STL00990	*52.8*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C4-PFOS	PAMN-1458	*51.9*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C5-PFNA	STL00995	*56.5*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C5-PFPeA	STL01893	*51.3*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 13C8-FOSA	STL01056	*26.3*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: 18O2-PFHxS	STL00994	*48.5*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: d5-N-EtFOSA	STL02117	*42.2*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*46.6*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*46.8*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*43.8*	S		*50-150*	*%REC*	1	6/9/2022 23:04
Surr: d3-N-MeFOSAA	PAMN-1460	*51.1*			*50-150*	*%REC*	1	6/9/2022 23:04
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*44.1*	S		*50-150*	*%REC*	1	6/9/2022 23:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-17A
Collection Date: 5/31/2022 04:55 PM

Work Order: 22060450
Lab ID: 22060450-07
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.94	5.0	ng/L	1	6/9/2022 23:12
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.9	5.0	ng/L	1	6/9/2022 23:12
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	5.0	ng/L	1	6/9/2022 23:12
Perfluorobutanesulfonic Acid	375-73-5	**160**		**0.35**	**5.0**	**ng/L**	1	6/9/2022 23:12
Perfluorobutanoic Acid (PFBA	375-22-4	**450**		**26**	**50**	**ng/L**	10	6/14/2022 16:21
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.0	ng/L	1	6/9/2022 23:12
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	5.0	ng/L	1	6/9/2022 23:12
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.63	5.0	ng/L	1	6/9/2022 23:12
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.70	5.0	ng/L	1	6/9/2022 23:12
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.57	5.0	ng/L	1	6/9/2022 23:12
Perfluoroheptanoic Acid (PFH	375-85-9	**630**		**17**	**50**	**ng/L**	10	6/14/2022 16:21
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**44**		**0.91**	**5.0**	**ng/L**	1	6/9/2022 23:12
Perfluorohexanoic Acid (PFHx	307-24-4	**470**		**12**	**50**	**ng/L**	10	6/14/2022 16:21
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.50	5.0	ng/L	1	6/9/2022 23:12
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.88	5.0	ng/L	1	6/9/2022 23:12
Perfluorooctanesulfonamide (PF	754-91-6	U		0.72	5.0	ng/L	1	6/9/2022 23:12
Perfluorooctanesulfonic Acid	1763-23-1	**1.1**	J	**0.90**	**2.0**	**ng/L**	1	6/9/2022 23:12
Perfluorooctanoic Acid (PFOA	335-67-1	**11,000**		**64**	**200**	**ng/L**	100	6/14/2022 16:13
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**23**		**0.56**	**5.0**	**ng/L**	1	6/9/2022 23:12
Perfluoropentanoic Acid (PFPe	2706-90-3	**320**		**1.3**	**5.0**	**ng/L**	1	6/9/2022 23:12
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.0	ng/L	1	6/9/2022 23:12
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	5.0	ng/L	1	6/9/2022 23:12
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.98	5.0	ng/L	1	6/9/2022 23:12
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.0	ng/L	1	6/9/2022 23:12
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.0	ng/L	1	6/9/2022 23:12
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.0	ng/L	1	6/9/2022 23:12
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.80	5.0	ng/L	1	6/9/2022 23:12
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.65	5.0	ng/L	1	6/9/2022 23:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-17A
Collection Date: 5/31/2022 04:55 PM

Work Order: 22060450
Lab ID: 22060450-07
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.0	ng/L	1	6/9/2022 23:12
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	**3.3**	J	**1.2**	**5.0**	**ng/L**	1	6/9/2022 23:12
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.57	5.0	ng/L	1	6/9/2022 23:12
11Cl-Pf3OUdS	763051-92-9	U		0.47	5.0	ng/L	1	6/9/2022 23:12
9Cl-PF3ONS	756426-58-1	U		0.45	5.0	ng/L	1	6/9/2022 23:12
Surr: 13C2-FtS 4:2	PAMN-1492	*190*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-FtS 6:2	M2-6-2FTS	*31.8*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-FtS 8:2	M2-8-2FTS	*94.4*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-PFDA	STL00996	*62.9*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-PFDoA	STL00998	*34.2*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-PFHxA	STL00993	*64.1*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*31.0*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-PFTeA	13C2-PFTeA	*35.2*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C2-PFUnA	STL00997	*61.1*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C3-HFPO-DA	STL02255	*58.2*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C3-PFBS	STL02337	*60.4*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C4-PFBA	STL00992	*45.7*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C4-PFHpA	STL01892	*38.2*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C4-PFOA	STL00990	*40.0*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C4-PFOS	PAMN-1458	*49.6*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C5-PFNA	STL00995	*56.5*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C5-PFPeA	STL01893	*56.4*			*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 13C8-FOSA	STL01056	*43.7*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: 18O2-PFHxS	STL00994	*47.6*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: d5-N-EtFOSA	STL02117	*30.2*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*37.7*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*36.0*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*32.7*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: d3-N-MeFOSAA	PAMN-1460	*40.0*	S		*50-150*	*%REC*	1	6/9/2022 23:12
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*35.9*	S		*50-150*	*%REC*	1	6/9/2022 23:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-115A
Collection Date: 5/31/2022 11:45 AM

Work Order: 22060450
Lab ID: 22060450-08
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.90	4.8	ng/L	1	6/9/2022 23:21
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**4.3**	J	**1.9**	**4.8**	**ng/L**	1	6/9/2022 23:21
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.8	ng/L	1	6/9/2022 23:21
Perfluorobutanesulfonic Acid	375-73-5	**2,300**		**3.4**	**48**	**ng/L**	10	6/14/2022 16:38
Perfluorobutanoic Acid (PFBA	375-22-4	**970**		**25**	**48**	**ng/L**	10	6/14/2022 16:38
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.3	4.8	ng/L	1	6/9/2022 23:21
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.8	ng/L	1	6/9/2022 23:21
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.60	4.8	ng/L	1	6/9/2022 23:21
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.67	4.8	ng/L	1	6/9/2022 23:21
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**1.6**	J	**0.55**	**4.8**	**ng/L**	1	6/9/2022 23:21
Perfluoroheptanoic Acid (PFH	375-85-9	**210**		**1.7**	**4.8**	**ng/L**	1	6/9/2022 23:21
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**29**		**0.87**	**4.8**	**ng/L**	1	6/9/2022 23:21
Perfluorohexanoic Acid (PFHx	307-24-4	**660**		**12**	**48**	**ng/L**	10	6/14/2022 16:38
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.48	4.8	ng/L	1	6/9/2022 23:21
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.84	4.8	ng/L	1	6/9/2022 23:21
Perfluorooctanesulfonamide (PF	754-91-6	U		0.69	4.8	ng/L	1	6/9/2022 23:21
Perfluorooctanesulfonic Acid	1763-23-1	**3.0**		**0.86**	**1.9**	**ng/L**	1	6/9/2022 23:21
Perfluorooctanoic Acid (PFOA	335-67-1	**260**		**0.61**	**1.9**	**ng/L**	1	6/9/2022 23:21
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**67**		**0.54**	**4.8**	**ng/L**	1	6/9/2022 23:21
Perfluoropentanoic Acid (PFP	2706-90-3	**410**		**12**	**48**	**ng/L**	10	6/14/2022 16:38
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.5	4.8	ng/L	1	6/9/2022 23:21
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.8	ng/L	1	6/9/2022 23:21
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.94	4.8	ng/L	1	6/9/2022 23:21
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.8	ng/L	1	6/9/2022 23:21
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.8	ng/L	1	6/9/2022 23:21
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.8	ng/L	1	6/9/2022 23:21
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.77	4.8	ng/L	1	6/9/2022 23:21
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.62	4.8	ng/L	1	6/9/2022 23:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-115A
Collection Date: 5/31/2022 11:45 AM

Work Order: 22060450
Lab ID: 22060450-08
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	4.8	ng/L	1	6/9/2022 23:21
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**3.6**	J	**1.1**	**4.8**	**ng/L**	1	6/9/2022 23:21
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.54	4.8	ng/L	1	6/9/2022 23:21
11Cl-Pf3OUdS	763051-92-9	U		0.45	4.8	ng/L	1	6/9/2022 23:21
9Cl-PF3ONS	756426-58-1	U		0.43	4.8	ng/L	1	6/9/2022 23:21
Surr: 13C2-FtS 4:2	PAMN-1492	*68.3*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-FtS 6:2	M2-6-2FTS	*68.9*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-FtS 8:2	M2-8-2FTS	*158*	S		*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-PFDA	STL00996	*87.6*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-PFDoA	STL00998	*55.1*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-PFHxA	STL00993	*57.8*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*63.4*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-PFTeA	13C2-PFTeA	*62.9*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C2-PFUnA	STL00997	*75.8*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C3-HFPO-DA	STL02255	*61.9*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C3-PFBS	STL02337	*50.2*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C4-PFBA	STL00992	*45.2*	S		*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C4-PFHpA	STL01892	*43.8*	S		*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C4-PFOA	STL00990	*68.0*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C4-PFOS	PAMN-1458	*50.8*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C5-PFNA	STL00995	*76.3*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C5-PFPeA	STL01893	*56.3*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 13C8-FOSA	STL01056	*48.5*	S		*50-150*	*%REC*	1	6/9/2022 23:21
Surr: 18O2-PFHxS	STL00994	*57.5*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: d5-N-EtFOSA	STL02117	*56.5*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*67.9*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*52.1*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*53.8*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: d3-N-MeFOSAA	PAMN-1460	*57.8*			*50-150*	*%REC*	1	6/9/2022 23:21
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*52.4*			*50-150*	*%REC*	1	6/9/2022 23:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-104A
Collection Date: 5/31/2022 04:20 PM

Work Order: 22060450
Lab ID: 22060450-09
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.96	5.2	ng/L	1	6/9/2022 23:29
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.2	ng/L	1	6/9/2022 23:29
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.2	ng/L	1	6/9/2022 23:29
Perfluorobutanesulfonic Acid	375-73-5	**110**		**0.36**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluorobutanoic Acid (PFBA	375-22-4	**300**		**2.7**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.2	ng/L	1	6/9/2022 23:29
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.2	ng/L	1	6/9/2022 23:29
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.64	5.2	ng/L	1	6/9/2022 23:29
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.71	5.2	ng/L	1	6/9/2022 23:29
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**0.59**	J	**0.58**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluoroheptanoic Acid (PFH	375-85-9	**18**		**1.8**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**17**		**0.93**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluorohexanoic Acid (PFHx	307-24-4	**110**		**1.2**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.51	5.2	ng/L	1	6/9/2022 23:29
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.90	5.2	ng/L	1	6/9/2022 23:29
Perfluorooctanesulfonamide (PF	754-91-6	U		0.73	5.2	ng/L	1	6/9/2022 23:29
Perfluorooctanesulfonic Acid	1763-23-1	**13**		**0.92**	**2.1**	**ng/L**	1	6/9/2022 23:29
Perfluorooctanoic Acid (PFOA	335-67-1	**91**		**0.65**	**2.1**	**ng/L**	1	6/9/2022 23:29
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**11**		**0.57**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluoropentanoic Acid (PFP	2706-90-3	**140**		**1.3**	**5.2**	**ng/L**	1	6/9/2022 23:29
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.2	ng/L	1	6/9/2022 23:29
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.2	ng/L	1	6/9/2022 23:29
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.2	ng/L	1	6/9/2022 23:29
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.2	ng/L	1	6/9/2022 23:29
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.2	ng/L	1	6/9/2022 23:29
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.2	ng/L	1	6/9/2022 23:29
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.82	5.2	ng/L	1	6/9/2022 23:29
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.66	5.2	ng/L	1	6/9/2022 23:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-104A
Collection Date: 5/31/2022 04:20 PM

Work Order: 22060450
Lab ID: 22060450-09
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.2	ng/L	1	6/9/2022 23:29
Hexafluoropropylene oxide dimer (HFPO-DA)	13252-13-6	U		1.2	5.2	ng/L	1	6/9/2022 23:29
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.58	5.2	ng/L	1	6/9/2022 23:29
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.2	ng/L	1	6/9/2022 23:29
9Cl-PF3ONS	756426-58-1	U		0.46	5.2	ng/L	1	6/9/2022 23:29
Surr: 13C2-FtS 4:2	PAMN-1492	*69.4*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-FtS 6:2	M2-6-2FTS	*65.6*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-FtS 8:2	M2-8-2FTS	*129*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-PFDA	STL00996	*93.9*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-PFDoA	STL00998	*74.4*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-PFHxA	STL00993	*67.9*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*63.6*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-PFTeA	13C2-PFTeA	*69.5*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C2-PFUnA	STL00997	*78.2*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C3-HFPO-DA	STL02255	*70.6*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C3-PFBS	STL02337	*68.0*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C4-PFBA	STL00992	*56.8*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C4-PFHpA	STL01892	*54.0*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C4-PFOA	STL00990	*88.2*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C4-PFOS	PAMN-1458	*68.8*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C5-PFNA	STL00995	*92.3*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C5-PFPeA	STL01893	*65.3*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 13C8-FOSA	STL01056	*65.7*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: 18O2-PFHxS	STL00994	*73.2*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: d5-N-EtFOSA	STL02117	*61.9*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*78.9*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*62.7*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*65.3*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: d3-N-MeFOSAA	PAMN-1460	*61.9*			*50-150*	*%REC*	1	6/9/2022 23:29
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*59.3*			*50-150*	*%REC*	1	6/9/2022 23:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-112A
Collection Date: 5/31/2022 02:35 PM

Work Order: 22060450
Lab ID: 22060450-10
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.95	5.1	ng/L	1	6/9/2022 21:09
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.1	ng/L	1	6/9/2022 21:09
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.1	ng/L	1	6/9/2022 21:09
Perfluorobutanesulfonic Acid	375-73-5	**180**		**0.36**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluorobutanoic Acid (PFBA	375-22-4	**180**		**2.7**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.1	ng/L	1	6/9/2022 21:09
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.1	ng/L	1	6/9/2022 21:09
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.63	5.1	ng/L	1	6/9/2022 21:09
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.70	5.1	ng/L	1	6/9/2022 21:09
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**1.7**	J	**0.58**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluoroheptanoic Acid (PFH	375-85-9	**25**		**1.8**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**48**		**0.92**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluorohexanoic Acid (PFHx	307-24-4	**88**		**1.2**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.51	5.1	ng/L	1	6/9/2022 21:09
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.89	5.1	ng/L	1	6/9/2022 21:09
Perfluorooctanesulfonamide (PF	754-91-6	U		0.73	5.1	ng/L	1	6/9/2022 21:09
Perfluorooctanesulfonic Acid	1763-23-1	**20**		**0.91**	**2.0**	**ng/L**	1	6/9/2022 21:09
Perfluorooctanoic Acid (PFOA	335-67-1	**150**		**0.64**	**2.0**	**ng/L**	1	6/9/2022 21:09
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**19**		**0.57**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluoropentanoic Acid (PFP	2706-90-3	**110**		**1.3**	**5.1**	**ng/L**	1	6/9/2022 21:09
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/9/2022 21:09
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/9/2022 21:09
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.99	5.1	ng/L	1	6/9/2022 21:09
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/9/2022 21:09
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.1	ng/L	1	6/9/2022 21:09
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/9/2022 21:09
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/9/2022 21:09
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.66	5.1	ng/L	1	6/9/2022 21:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-112A
Collection Date: 5/31/2022 02:35 PM

Work Order: 22060450
Lab ID: 22060450-10
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/9/2022 21:09
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**2.1**	J	**1.2**	**5.1**	**ng/L**	1	6/9/2022 21:09
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.57	5.1	ng/L	1	6/9/2022 21:09
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.1	ng/L	1	6/9/2022 21:09
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/9/2022 21:09
Surr: 13C2-FtS 4:2	PAMN-1492	*81.6*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-FtS 6:2	M2-6-2FTS	*75.3*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-FtS 8:2	M2-8-2FTS	*114*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-PFDA	STL00996	*72.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-PFDoA	STL00998	*58.5*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-PFHxA	STL00993	*67.2*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*57.4*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-PFTeA	13C2-PFTeA	*52.8*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C2-PFUnA	STL00997	*96.4*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C3-HFPO-DA	STL02255	*62.9*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C3-PFBS	STL02337	*56.0*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C4-PFBA	STL00992	*52.8*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C4-PFHpA	STL01892	*39.8*	S		*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C4-PFOA	STL00990	*57.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C4-PFOS	PAMN-1458	*57.0*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C5-PFNA	STL00995	*80.0*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C5-PFPeA	STL01893	*58.3*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 13C8-FOSA	STL01056	*51.4*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: 18O2-PFHxS	STL00994	*51.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: d5-N-EtFOSA	STL02117	*55.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*61.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*53.8*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*55.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: d3-N-MeFOSAA	PAMN-1460	*65.1*			*50-150*	*%REC*	1	6/9/2022 21:09
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*50.1*			*50-150*	*%REC*	1	6/9/2022 21:09

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-112
Collection Date: 5/31/2022 02:30 PM

Work Order: 22060450
Lab ID: 22060450-11
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/8/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.92	4.9	ng/L	1	6/9/2022 23:37
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.9	4.9	ng/L	1	6/9/2022 23:37
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.9	ng/L	1	6/9/2022 23:37
Perfluorobutanesulfonic Acid	375-73-5	**5.6**		**0.35**	**4.9**	**ng/L**	1	6/9/2022 23:37
Perfluorobutanoic Acid (PFBA	375-22-4	**3.4**	J	**2.6**	**4.9**	**ng/L**	1	6/9/2022 23:37
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	4.9	ng/L	1	6/9/2022 23:37
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.9	ng/L	1	6/9/2022 23:37
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.61	4.9	ng/L	1	6/9/2022 23:37
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.68	4.9	ng/L	1	6/9/2022 23:37
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.56	4.9	ng/L	1	6/9/2022 23:37
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.7	4.9	ng/L	1	6/9/2022 23:37
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**1.0**	J	**0.89**	**4.9**	**ng/L**	1	6/9/2022 23:37
Perfluorohexanoic Acid (PFHx	307-24-4	**1.9**	J	**1.2**	**4.9**	**ng/L**	1	6/9/2022 23:37
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.49	4.9	ng/L	1	6/9/2022 23:37
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.86	4.9	ng/L	1	6/9/2022 23:37
Perfluorooctanesulfonamide (PF	754-91-6	U		0.70	4.9	ng/L	1	6/9/2022 23:37
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.88	2.0	ng/L	1	6/9/2022 23:37
Perfluorooctanoic Acid (PFOA	335-67-1	**4.4**		**0.62**	**2.0**	**ng/L**	1	6/9/2022 23:37
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.55	4.9	ng/L	1	6/9/2022 23:37
Perfluoropentanoic Acid (PFP	2706-90-3	**1.8**	J	**1.3**	**4.9**	**ng/L**	1	6/9/2022 23:37
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.6	4.9	ng/L	1	6/9/2022 23:37
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.9	ng/L	1	6/9/2022 23:37
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.96	4.9	ng/L	1	6/9/2022 23:37
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.9	ng/L	1	6/9/2022 23:37
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.9	ng/L	1	6/9/2022 23:37
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.9	ng/L	1	6/9/2022 23:37
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.78	4.9	ng/L	1	6/9/2022 23:37
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.64	4.9	ng/L	1	6/9/2022 23:37
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	4.9	ng/L	1	6/9/2022 23:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-112
Collection Date: 5/31/2022 02:30 PM

Work Order: 22060450
Lab ID: 22060450-11
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**1.5**	J	**1.2**	**4.9**	**ng/L**	1	6/9/2022 23:37
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.55	4.9	ng/L	1	6/9/2022 23:37
11Cl-Pf3OUdS	763051-92-9	U		0.46	4.9	ng/L	1	6/9/2022 23:37
9Cl-PF3ONS	756426-58-1	U		0.44	4.9	ng/L	1	6/9/2022 23:37
Surr: 13C2-FtS 4:2	PAMN-1492	*74.2*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-FtS 6:2	M2-6-2FTS	*75.5*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-FtS 8:2	M2-8-2FTS	*155*	S		*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-PFDA	STL00996	*91.5*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-PFDoA	STL00998	*62.3*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-PFHxA	STL00993	*70.7*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*61.8*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-PFTeA	13C2-PFTeA	*71.7*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C2-PFUnA	STL00997	*87.3*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C3-HFPO-DA	STL02255	*71.5*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C3-PFBS	STL02337	*65.7*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C4-PFBA	STL00992	*52.7*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C4-PFHpA	STL01892	*43.0*	S		*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C4-PFOA	STL00990	*68.4*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C4-PFOS	PAMN-1458	*53.0*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C5-PFNA	STL00995	*79.6*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C5-PFPeA	STL01893	*66.0*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 13C8-FOSA	STL01056	*68.6*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: 18O2-PFHxS	STL00994	*57.1*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: d5-N-EtFOSA	STL02117	*66.8*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*72.1*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*67.8*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*61.3*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: d3-N-MeFOSAA	PAMN-1460	*65.7*			*50-150*	*%REC*	1	6/9/2022 23:37
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*61.7*			*50-150*	*%REC*	1	6/9/2022 23:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-111B
Collection Date: 5/31/2022 01:10 PM

Work Order: 22060450
Lab ID: 22060450-12
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.90	4.8	ng/L	1	6/10/2022 01:00
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.8	4.8	ng/L	1	6/10/2022 01:00
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.8	ng/L	1	6/10/2022 01:00
Perfluorobutanesulfonic Acid	375-73-5	**1.1**	J	**0.34**	**4.8**	**ng/L**	1	6/10/2022 01:00
Perfluorobutanoic Acid (PFBA	375-22-4	**20**		**2.5**	**4.8**	**ng/L**	1	6/10/2022 01:00
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.3	4.8	ng/L	1	6/10/2022 01:00
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.8	ng/L	1	6/10/2022 01:00
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.60	4.8	ng/L	1	6/10/2022 01:00
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.67	4.8	ng/L	1	6/10/2022 01:00
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.54	4.8	ng/L	1	6/10/2022 01:00
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.7	4.8	ng/L	1	6/10/2022 01:00
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**1.1**	J	**0.87**	**4.8**	**ng/L**	1	6/10/2022 01:00
Perfluorohexanoic Acid (PFHx	307-24-4	**7.8**		**1.2**	**4.8**	**ng/L**	1	6/10/2022 01:00
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.48	4.8	ng/L	1	6/10/2022 01:00
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.84	4.8	ng/L	1	6/10/2022 01:00
Perfluorooctanesulfonamide (PF	754-91-6	U		0.68	4.8	ng/L	1	6/10/2022 01:00
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.86	1.9	ng/L	1	6/10/2022 01:00
Perfluorooctanoic Acid (PFOA	335-67-1	**11**		**0.61**	**1.9**	**ng/L**	1	6/10/2022 01:00
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.54	4.8	ng/L	1	6/10/2022 01:00
Perfluoropentanoic Acid (PFP	2706-90-3	**7.3**		**1.2**	**4.8**	**ng/L**	1	6/10/2022 01:00
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.5	4.8	ng/L	1	6/10/2022 01:00
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.8	ng/L	1	6/10/2022 01:00
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.94	4.8	ng/L	1	6/10/2022 01:00
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.8	ng/L	1	6/10/2022 01:00
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.8	ng/L	1	6/10/2022 01:00
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.8	ng/L	1	6/10/2022 01:00
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.76	4.8	ng/L	1	6/10/2022 01:00
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.62	4.8	ng/L	1	6/10/2022 01:00
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.4	4.8	ng/L	1	6/10/2022 01:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-111B
Collection Date: 5/31/2022 01:10 PM

Work Order: 22060450
Lab ID: 22060450-12
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.1	4.8	ng/L	1	6/10/2022 01:00
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.54	4.8	ng/L	1	6/10/2022 01:00
11Cl-Pf3OUdS	763051-92-9	U		0.45	4.8	ng/L	1	6/10/2022 01:00
9Cl-PF3ONS	756426-58-1	U		0.43	4.8	ng/L	1	6/10/2022 01:00
Surr: 13C2-FtS 4:2	PAMN-1492	*53.3*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-FtS 6:2	M2-6-2FTS	*64.6*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-FtS 8:2	M2-8-2FTS	*73.6*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-PFDA	STL00996	*54.0*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-PFDoA	STL00998	*40.7*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-PFHxA	STL00993	*55.2*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*50.5*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-PFTeA	13C2-PFTeA	*47.6*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C2-PFUnA	STL00997	*64.9*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C3-HFPO-DA	STL02255	*48.0*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C3-PFBS	STL02337	*49.3*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C4-PFBA	STL00992	*46.8*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C4-PFHpA	STL01892	*38.8*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C4-PFOA	STL00990	*52.1*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C4-PFOS	PAMN-1458	*51.7*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C5-PFNA	STL00995	*66.5*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C5-PFPeA	STL01893	*50.7*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 13C8-FOSA	STL01056	*43.1*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: 18O2-PFHxS	STL00994	*53.4*			*50-150*	*%REC*	1	6/10/2022 01:00
Surr: d5-N-EtFOSA	STL02117	*46.7*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*44.4*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*43.1*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*44.0*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: d3-N-MeFOSAA	PAMN-1460	*41.5*	S		*50-150*	*%REC*	1	6/10/2022 01:00
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*39.7*	S		*50-150*	*%REC*	1	6/10/2022 01:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-34
Collection Date: 6/1/2022 11:30 AM

Work Order: 22060450
Lab ID: 22060450-13
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid (FtS 4:2)	757124-72-4	**0.98**	J	**0.94**	**5.0**	**ng/L**	1	6/10/2022 01:08
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**27**		**1.9**	**5.0**	**ng/L**	1	6/10/2022 01:08
Fluorotelomer Sulphonic Acid 8:2)	39108-34-4	U		1.1	5.0	ng/L	1	6/10/2022 01:08
Perfluorobutanesulfonic Acid	375-73-5	**12,000**		**35**	**500**	**ng/L**	100	6/14/2022 17:11
Perfluorobutanoic Acid (PFBA	375-22-4	**7,200**		**260**	**500**	**ng/L**	100	6/14/2022 17:11
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.0	ng/L	1	6/10/2022 01:08
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	5.0	ng/L	1	6/10/2022 01:08
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.63	5.0	ng/L	1	6/10/2022 01:08
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.69	5.0	ng/L	1	6/10/2022 01:08
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**24**		**0.57**	**5.0**	**ng/L**	1	6/10/2022 01:08
Perfluoroheptanoic Acid (PFH	375-85-9	**300**		**1.7**	**5.0**	**ng/L**	1	6/10/2022 01:08
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**230**		**0.91**	**5.0**	**ng/L**	1	6/10/2022 01:08
Perfluorohexanoic Acid (PFHx	307-24-4	**670**		**12**	**50**	**ng/L**	10	6/14/2022 17:19
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	**3.1**	J	**0.50**	**5.0**	**ng/L**	1	6/10/2022 01:08
Perfluorononanoic Acid (PFNA	375-95-1	**2.7**	J	**0.87**	**5.0**	**ng/L**	1	6/10/2022 01:08
Perfluorooctanesulfonamide (PF	754-91-6	U		0.71	5.0	ng/L	1	6/10/2022 01:08
Perfluorooctanesulfonic Acid	1763-23-1	**590**		**9.0**	**20**	**ng/L**	10	6/14/2022 17:19
Perfluorooctanoic Acid (PFOA	335-67-1	**1,900**		**6.3**	**20**	**ng/L**	10	6/14/2022 17:19
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**450**		**0.56**	**5.0**	**ng/L**	1	6/10/2022 01:08
Perfluoropentanoic Acid (PFP	2706-90-3	**1,000**		**13**	**50**	**ng/L**	10	6/14/2022 17:19
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.0	ng/L	1	6/10/2022 01:08
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	5.0	ng/L	1	6/10/2022 01:08
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.98	5.0	ng/L	1	6/10/2022 01:08
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.0	ng/L	1	6/10/2022 01:08
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.0	ng/L	1	6/10/2022 01:08
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.0	ng/L	1	6/10/2022 01:08
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.80	5.0	ng/L	1	6/10/2022 01:08
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.65	5.0	ng/L	1	6/10/2022 01:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-34
Collection Date: 6/1/2022 11:30 AM

Work Order: 22060450
Lab ID: 22060450-13
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	**4.2**	J	**1.5**	**5.0**	**ng/L**	1	6/10/2022 01:08
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**23**		**1.2**	**5.0**	**ng/L**	1	6/10/2022 01:08
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.57	5.0	ng/L	1	6/10/2022 01:08
11Cl-Pf3OUdS	763051-92-9	U		0.47	5.0	ng/L	1	6/10/2022 01:08
9Cl-PF3ONS	756426-58-1	U		0.45	5.0	ng/L	1	6/10/2022 01:08
Surr: 13C2-FtS 4:2	PAMN-1492	*165*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-FtS 6:2	M2-6-2FTS	*110*			*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-FtS 8:2	M2-8-2FTS	*137*			*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-PFDA	STL00996	*63.6*			*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-PFDoA	STL00998	*43.2*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-PFHxA	STL00993	*40.3*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*38.2*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-PFTeA	13C2-PFTeA	*35.3*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C2-PFUnA	STL00997	*63.4*			*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C3-HFPO-DA	STL02255	*30.2*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C3-PFBS	STL02337	*22.7*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C4-PFBA	STL00992	*22.0*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C4-PFHpA	STL01892	*27.8*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C4-PFOA	STL00990	*42.7*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C4-PFOS	PAMN-1458	*32.3*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C5-PFNA	STL00995	*64.4*			*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C5-PFPeA	STL01893	*35.5*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 13C8-FOSA	STL01056	*29.9*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: 18O2-PFHxS	STL00994	*39.7*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: d5-N-EtFOSA	STL02117	*35.8*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*66.8*			*50-150*	*%REC*	1	6/10/2022 01:08
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*32.6*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*32.9*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: d3-N-MeFOSAA	PAMN-1460	*40.9*	S		*50-150*	*%REC*	1	6/10/2022 01:08
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*31.8*	S		*50-150*	*%REC*	1	6/10/2022 01:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-26
Collection Date: 5/31/2022 03:40 PM

Work Order: 22060450
Lab ID: 22060450-14
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.96	5.1	ng/L	1	6/10/2022 01:16
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**5.8**		**2.0**	**5.1**	**ng/L**	1	6/10/2022 01:16
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.1	ng/L	1	6/10/2022 01:16
Perfluorobutanesulfonic Acid	375-73-5	**320**		**0.36**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluorobutanoic Acid (PFBA	375-22-4	**5,400**		**270**	**510**	**ng/L**	100	6/14/2022 17:35
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.1	ng/L	1	6/10/2022 01:16
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.1	ng/L	1	6/10/2022 01:16
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.64	5.1	ng/L	1	6/10/2022 01:16
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.71	5.1	ng/L	1	6/10/2022 01:16
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**1.6**	J	**0.58**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluoroheptanoic Acid (PFH	375-85-9	**110**		**1.8**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**59**		**0.93**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluorohexanoic Acid (PFHx	307-24-4	**260**		**1.2**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.51	5.1	ng/L	1	6/10/2022 01:16
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.89	5.1	ng/L	1	6/10/2022 01:16
Perfluorooctanesulfonamide (PF	754-91-6	U		0.73	5.1	ng/L	1	6/10/2022 01:16
Perfluorooctanesulfonic Acid	1763-23-1	**3.4**		**0.92**	**2.1**	**ng/L**	1	6/10/2022 01:16
Perfluorooctanoic Acid (PFOA	335-67-1	**240**		**0.65**	**2.1**	**ng/L**	1	6/10/2022 01:16
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**25**		**0.57**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluoropentanoic Acid (PFPe	2706-90-3	**260**		**1.3**	**5.1**	**ng/L**	1	6/10/2022 01:16
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/10/2022 01:16
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/10/2022 01:16
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.1	ng/L	1	6/10/2022 01:16
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/10/2022 01:16
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.1	ng/L	1	6/10/2022 01:16
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/10/2022 01:16
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/10/2022 01:16
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.66	5.1	ng/L	1	6/10/2022 01:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-26
Collection Date: 5/31/2022 03:40 PM

Work Order: 22060450
Lab ID: 22060450-14
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/10/2022 01:16
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**3.5**	J	**1.2**	**5.1**	**ng/L**	1	6/10/2022 01:16
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.58	5.1	ng/L	1	6/10/2022 01:16
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.1	ng/L	1	6/10/2022 01:16
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/10/2022 01:16
Surr: 13C2-FtS 4:2	PAMN-1492	*71.4*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-FtS 6:2	M2-6-2FTS	*80.2*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-FtS 8:2	M2-8-2FTS	*130*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-PFDA	STL00996	*81.9*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-PFDoA	STL00998	*77.2*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-PFHxA	STL00993	*71.3*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*65.4*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-PFTeA	13C2-PFTeA	*70.6*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C2-PFUnA	STL00997	*71.5*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C3-HFPO-DA	STL02255	*62.3*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C3-PFBS	STL02337	*67.6*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C4-PFBA	STL00992	*41.5*	S		*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C4-PFHpA	STL01892	*58.4*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C4-PFOA	STL00990	*85.2*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C4-PFOS	PAMN-1458	*77.5*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C5-PFNA	STL00995	*91.7*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C5-PFPeA	STL01893	*65.4*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 13C8-FOSA	STL01056	*55.6*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: 18O2-PFHxS	STL00994	*83.9*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: d5-N-EtFOSA	STL02117	*61.2*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*69.7*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*57.8*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*60.6*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: d3-N-MeFOSAA	PAMN-1460	*62.0*			*50-150*	*%REC*	1	6/10/2022 01:16
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*55.7*			*50-150*	*%REC*	1	6/10/2022 01:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-33
Collection Date: 6/1/2022 09:45 AM

Work Order: 22060450
Lab ID: 22060450-15
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid (FtS 4:2)	757124-72-4	**4.1**	J	**0.96**	**5.1**	**ng/L**	1	6/10/2022 01:24
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**660**		**20**	**51**	**ng/L**	10	6/14/2022 17:52
Fluorotelomer Sulphonic Acid (FtS 8:2)	39108-34-4	**29**		**1.2**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluorobutanesulfonic Acid	375-73-5	**830**		**3.6**	**51**	**ng/L**	10	6/14/2022 17:52
Perfluorobutanoic Acid (PFBA	375-22-4	**870**		**27**	**51**	**ng/L**	10	6/14/2022 17:52
Perfluorodecanesulfonic Acid	335-77-3	**4.4**	J	**1.4**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluorodecanoic Acid (PFDA	335-76-2	**24**		**1.3**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.64	5.1	ng/L	1	6/10/2022 01:24
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.71	5.1	ng/L	1	6/10/2022 01:24
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**23**		**0.58**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluoroheptanoic Acid (PFH	375-85-9	**550**		**18**	**51**	**ng/L**	10	6/14/2022 17:52
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**540**		**9.3**	**51**	**ng/L**	10	6/14/2022 17:52
Perfluorohexanoic Acid (PFHx	307-24-4	**1,300**		**12**	**51**	**ng/L**	10	6/14/2022 17:52
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	**2.7**	J	**0.51**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluorononanoic Acid (PFNA	375-95-1	**7.7**		**0.89**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**12**		**0.73**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluorooctanesulfonic Acid	1763-23-1	**1,600**		**9.1**	**21**	**ng/L**	10	6/14/2022 17:52
Perfluorooctanoic Acid (PFOA	335-67-1	**1,400**		**6.5**	**21**	**ng/L**	10	6/14/2022 17:52
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**85**		**0.57**	**5.1**	**ng/L**	1	6/10/2022 01:24
Perfluoropentanoic Acid (PFP	2706-90-3	**1,500**		**13**	**51**	**ng/L**	10	6/14/2022 17:52
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/10/2022 01:24
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/10/2022 01:24
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.1	ng/L	1	6/10/2022 01:24
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/10/2022 01:24
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	**14**		**1.6**	**5.1**	**ng/L**	1	6/10/2022 01:24
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/10/2022 01:24
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/10/2022 01:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-33
Collection Date: 6/1/2022 09:45 AM

Work Order: 22060450
Lab ID: 22060450-15
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	**11**		**0.66**	**5.1**	**ng/L**	1	6/10/2022 01:24
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/10/2022 01:24
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**33**		**1.2**	**5.1**	**ng/L**	1	6/10/2022 01:24
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.58	5.1	ng/L	1	6/10/2022 01:24
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.1	ng/L	1	6/10/2022 01:24
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/10/2022 01:24
Surr: 13C2-FtS 4:2	PAMN-1492	*151*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-FtS 6:2	M2-6-2FTS	*167*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-FtS 8:2	M2-8-2FTS	*281*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-PFDA	STL00996	*79.4*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-PFDoA	STL00998	*80.1*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-PFHxA	STL00993	*45.0*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*57.4*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-PFTeA	13C2-PFTeA	*64.5*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C2-PFUnA	STL00997	*70.5*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C3-HFPO-DA	STL02255	*41.5*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C3-PFBS	STL02337	*51.7*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C4-PFBA	STL00992	*37.3*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C4-PFHpA	STL01892	*33.5*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C4-PFOA	STL00990	*49.7*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C4-PFOS	PAMN-1458	*69.1*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C5-PFNA	STL00995	*85.3*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C5-PFPeA	STL01893	*39.8*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 13C8-FOSA	STL01056	*23.0*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: 18O2-PFHxS	STL00994	*54.4*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: d5-N-EtFOSA	STL02117	*50.9*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*110*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*57.2*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*49.7*	S		*50-150*	*%REC*	1	6/10/2022 01:24
Surr: d3-N-MeFOSAA	PAMN-1460	*79.1*			*50-150*	*%REC*	1	6/10/2022 01:24
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*48.3*	S		*50-150*	*%REC*	1	6/10/2022 01:24

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-17B
Collection Date: 5/31/2022 05:00 PM

Work Order: 22060450
Lab ID: 22060450-16
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid (FtS 4:2)	757124-72-4	**2.2**	J	**0.99**	**5.3**	**ng/L**	1	6/10/2022 01:49
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**280**		**2.0**	**5.3**	**ng/L**	1	6/10/2022 01:49
Fluorotelomer Sulphonic Acid 8:2)	39108-34-4	U		1.2	5.3	ng/L	1	6/10/2022 01:49
Perfluorobutanesulfonic Acid	375-73-5	**360**		**0.37**	**5.3**	**ng/L**	1	6/10/2022 01:49
Perfluorobutanoic Acid (PFBA	375-22-4	**490**		**27**	**53**	**ng/L**	10	6/14/2022 18:00
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.3	ng/L	1	6/10/2022 01:49
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.3	ng/L	1	6/10/2022 01:49
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.66	5.3	ng/L	1	6/10/2022 01:49
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.73	5.3	ng/L	1	6/10/2022 01:49
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**11**		**0.60**	**5.3**	**ng/L**	1	6/10/2022 01:49
Perfluoroheptanoic Acid (PFH	375-85-9	**130**		**1.8**	**5.3**	**ng/L**	1	6/10/2022 01:49
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**250**		**0.95**	**5.3**	**ng/L**	1	6/10/2022 01:49
Perfluorohexanoic Acid (PFHx	307-24-4	**490**		**13**	**53**	**ng/L**	10	6/14/2022 18:00
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.52	5.3	ng/L	1	6/10/2022 01:49
Perfluorononanoic Acid (PFNA	375-95-1	**2.6**	J	**0.92**	**5.3**	**ng/L**	1	6/10/2022 01:49
Perfluorooctanesulfonamide (PF	754-91-6	U		0.75	5.3	ng/L	1	6/10/2022 01:49
Perfluorooctanesulfonic Acid	1763-23-1	**75**		**0.94**	**2.1**	**ng/L**	1	6/10/2022 01:49
Perfluorooctanoic Acid (PFOA	335-67-1	**1,000**		**6.7**	**21**	**ng/L**	10	6/14/2022 18:00
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**110**		**0.59**	**5.3**	**ng/L**	1	6/10/2022 01:49
Perfluoropentanoic Acid (PFPe	2706-90-3	**560**		**14**	**53**	**ng/L**	10	6/14/2022 18:00
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.8	5.3	ng/L	1	6/10/2022 01:49
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.3	ng/L	1	6/10/2022 01:49
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.3	ng/L	1	6/10/2022 01:49
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.3	ng/L	1	6/10/2022 01:49
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.3	ng/L	1	6/10/2022 01:49
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.3	ng/L	1	6/10/2022 01:49
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.84	5.3	ng/L	1	6/10/2022 01:49
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	**1.3**	J	**0.68**	**5.3**	**ng/L**	1	6/10/2022 01:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-17B
Collection Date: 5/31/2022 05:00 PM

Work Order: 22060450
Lab ID: 22060450-16
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.6	5.3	ng/L	1	6/10/2022 01:49
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**4.3**	J	**1.2**	**5.3**	**ng/L**	1	6/10/2022 01:49
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.59	5.3	ng/L	1	6/10/2022 01:49
11Cl-Pf3OUdS	763051-92-9	U		0.49	5.3	ng/L	1	6/10/2022 01:49
9Cl-PF3ONS	756426-58-1	U		0.47	5.3	ng/L	1	6/10/2022 01:49
Surr: 13C2-FtS 4:2	PAMN-1492	*96.4*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-FtS 6:2	M2-6-2FTS	*57.2*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-FtS 8:2	M2-8-2FTS	*83.2*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-PFDA	STL00996	*97.4*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-PFDoA	STL00998	*64.3*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-PFHxA	STL00993	*79.2*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*70.4*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-PFTeA	13C2-PFTeA	*76.4*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C2-PFUnA	STL00997	*83.6*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C3-HFPO-DA	STL02255	*76.7*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C3-PFBS	STL02337	*78.2*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C4-PFBA	STL00992	*77.2*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C4-PFHpA	STL01892	*65.0*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C4-PFOA	STL00990	*88.9*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C4-PFOS	PAMN-1458	*71.8*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C5-PFNA	STL00995	*88.9*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C5-PFPeA	STL01893	*74.5*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 13C8-FOSA	STL01056	*66.4*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: 18O2-PFHxS	STL00994	*87.2*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: d5-N-EtFOSA	STL02117	*62.6*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*73.1*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*63.3*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*62.6*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: d3-N-MeFOSAA	PAMN-1460	*55.3*			*50-150*	*%REC*	1	6/10/2022 01:49
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*58.7*			*50-150*	*%REC*	1	6/10/2022 01:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-114
Collection Date: 6/1/2022 07:40 AM

Work Order: 22060450
Lab ID: 22060450-17
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.95	5.1	ng/L	1	6/10/2022 01:57
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**2.8**	J	**2.0**	**5.1**	**ng/L**	1	6/10/2022 01:57
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.1	ng/L	1	6/10/2022 01:57
Perfluorobutanesulfonic Acid	375-73-5	**430**		**3.6**	**51**	**ng/L**	10	6/16/2022 12:12
Perfluorobutanoic Acid (PFBA	375-22-4	**1,300**		**26**	**51**	**ng/L**	10	6/16/2022 12:12
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.1	ng/L	1	6/10/2022 01:57
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.1	ng/L	1	6/10/2022 01:57
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.63	5.1	ng/L	1	6/10/2022 01:57
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.70	5.1	ng/L	1	6/10/2022 01:57
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**6.8**		**0.58**	**5.1**	**ng/L**	1	6/10/2022 01:57
Perfluoroheptanoic Acid (PFH	375-85-9	**120**		**1.8**	**5.1**	**ng/L**	1	6/10/2022 01:57
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**63**		**0.92**	**5.1**	**ng/L**	1	6/10/2022 01:57
Perfluorohexanoic Acid (PFHx	307-24-4	**630**		**12**	**51**	**ng/L**	10	6/16/2022 12:12
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.50	5.1	ng/L	1	6/10/2022 01:57
Perfluorononanoic Acid (PFNA	375-95-1	**5.6**		**0.89**	**5.1**	**ng/L**	1	6/10/2022 01:57
Perfluorooctanesulfonamide (PF	754-91-6	U		0.72	5.1	ng/L	1	6/10/2022 01:57
Perfluorooctanesulfonic Acid	1763-23-1	**44**		**0.91**	**2.0**	**ng/L**	1	6/10/2022 01:57
Perfluorooctanoic Acid (PFOA	335-67-1	**200**		**0.64**	**2.0**	**ng/L**	1	6/10/2022 01:57
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**54**		**0.57**	**5.1**	**ng/L**	1	6/10/2022 01:57
Perfluoropentanoic Acid (PFPe	2706-90-3	**810**		**13**	**51**	**ng/L**	10	6/16/2022 12:12
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/10/2022 01:57
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/10/2022 01:57
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.99	5.1	ng/L	1	6/10/2022 01:57
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/10/2022 01:57
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.1	ng/L	1	6/10/2022 01:57
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/10/2022 01:57
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/10/2022 01:57
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.66	5.1	ng/L	1	6/10/2022 01:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-114
Collection Date: 6/1/2022 07:40 AM

Work Order: 22060450
Lab ID: 22060450-17
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/10/2022 01:57
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	**3.3**	J	**1.2**	**5.1**	**ng/L**	1	6/10/2022 01:57
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.57	5.1	ng/L	1	6/10/2022 01:57
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.1	ng/L	1	6/10/2022 01:57
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/10/2022 01:57
Surr: 13C2-FtS 4:2	PAMN-1492	*80.2*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-FtS 6:2	M2-6-2FTS	*63.5*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-FtS 8:2	M2-8-2FTS	*90.0*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-PFDA	STL00996	*88.7*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-PFDoA	STL00998	*83.3*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-PFHxA	STL00993	*75.2*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*83.4*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-PFTeA	13C2-PFTeA	*76.3*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C2-PFUnA	STL00997	*77.6*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C3-HFPO-DA	STL02255	*73.4*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C3-PFBS	STL02337	*72.2*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C4-PFBA	STL00992	*74.0*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C4-PFHpA	STL01892	*79.2*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C4-PFOA	STL00990	*103*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C4-PFOS	PAMN-1458	*84.4*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C5-PFNA	STL00995	*99.6*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C5-PFPeA	STL01893	*72.0*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 13C8-FOSA	STL01056	*61.9*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: 18O2-PFHxS	STL00994	*101*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: d5-N-EtFOSA	STL02117	*63.8*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*73.1*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*62.4*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*62.9*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: d3-N-MeFOSAA	PAMN-1460	*55.9*			*50-150*	*%REC*	1	6/10/2022 01:57
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*60.3*			*50-150*	*%REC*	1	6/10/2022 01:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-114A
Collection Date: 6/1/2022 07:45 AM

Work Order: 22060450
Lab ID: 22060450-18
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/9/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.95	5.1	ng/L	1	6/10/2022 02:06
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**6.5**		**2.0**	**5.1**	**ng/L**	1	6/10/2022 02:06
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	5.1	ng/L	1	6/10/2022 02:06
Perfluorobutanesulfonic Acid	375-73-5	**47**		**0.36**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorobutanoic Acid (PFBA	375-22-4	**63**		**2.6**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.1	ng/L	1	6/10/2022 02:06
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.1	ng/L	1	6/10/2022 02:06
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.63	5.1	ng/L	1	6/10/2022 02:06
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.70	5.1	ng/L	1	6/10/2022 02:06
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**0.74**	J	**0.58**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluoroheptanoic Acid (PFH	375-85-9	**6.0**		**1.8**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**32**		**0.92**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorohexanoic Acid (PFHx	307-24-4	**34**		**1.2**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.50	5.1	ng/L	1	6/10/2022 02:06
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.88	5.1	ng/L	1	6/10/2022 02:06
Perfluorooctanesulfonamide (PFOSA)	754-91-6	**1.2**	J	**0.72**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorooctanesulfonic Acid	1763-23-1	**24**		**0.91**	**2.0**	**ng/L**	1	6/10/2022 02:06
Perfluorooctanoic Acid (PFOA	335-67-1	**32**		**0.64**	**2.0**	**ng/L**	1	6/10/2022 02:06
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**23**		**0.57**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluoropentanoic Acid (PFP	2706-90-3	**35**		**1.3**	**5.1**	**ng/L**	1	6/10/2022 02:06
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/10/2022 02:06
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/10/2022 02:06
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.99	5.1	ng/L	1	6/10/2022 02:06
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/10/2022 02:06
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.1	ng/L	1	6/10/2022 02:06
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/10/2022 02:06
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/10/2022 02:06
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	**1.7**	J	**0.65**	**5.1**	**ng/L**	1	6/10/2022 02:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-114A
Collection Date: 6/1/2022 07:45 AM

Work Order: 22060450
Lab ID: 22060450-18
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/10/2022 02:06
Hexafluoropropylene oxide dir acid (HFPO-DA)	13252-13-6	**4.9**	J	**1.2**	**5.1**	**ng/L**	1	6/10/2022 02:06
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.57	5.1	ng/L	1	6/10/2022 02:06
11Cl-Pf3OUdS	763051-92-9	U		0.47	5.1	ng/L	1	6/10/2022 02:06
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/10/2022 02:06
Surr: 13C2-FtS 4:2	PAMN-1492	*68.7*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-FtS 6:2	M2-6-2FTS	*83.9*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-FtS 8:2	M2-8-2FTS	*138*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-PFDA	STL00996	*82.6*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-PFDoA	STL00998	*71.6*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-PFHxA	STL00993	*78.4*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*62.5*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-PFTeA	13C2-PFTeA	*71.9*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C2-PFUnA	STL00997	*70.3*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C3-HFPO-DA	STL02255	*60.5*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C3-PFBS	STL02337	*66.2*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C4-PFBA	STL00992	*56.8*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C4-PFHpA	STL01892	*51.3*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C4-PFOA	STL00990	*80.4*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C4-PFOS	PAMN-1458	*78.0*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C5-PFNA	STL00995	*89.2*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C5-PFPeA	STL01893	*66.2*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 13C8-FOSA	STL01056	*58.6*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: 18O2-PFHxS	STL00994	*75.5*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: d5-N-EtFOSA	STL02117	*63.2*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*67.6*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*63.5*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*62.0*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: d3-N-MeFOSAA	PAMN-1460	*62.9*			*50-150*	*%REC*	1	6/10/2022 02:06
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*60.9*			*50-150*	*%REC*	1	6/10/2022 02:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-115
Collection Date: 5/31/2022 11:40 AM

Work Order: 22060450
Lab ID: 22060450-19
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.93	4.9	ng/L	1	6/10/2022 18:48
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.9	4.9	ng/L	1	6/10/2022 18:48
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.9	ng/L	1	6/14/2022 12:30
Perfluorobutanesulfonic Acid	375-73-5	**890**		**3.5**	**49**	**ng/L**	10	6/14/2022 18:25
Perfluorobutanoic Acid (PFBA	375-22-4	**1,900**		**26**	**49**	**ng/L**	10	6/14/2022 18:25
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	4.9	ng/L	1	6/10/2022 18:48
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.9	ng/L	1	6/10/2022 18:48
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.62	4.9	ng/L	1	6/10/2022 18:48
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.68	4.9	ng/L	1	6/10/2022 18:48
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**0.66**	J	**0.56**	**4.9**	**ng/L**	1	6/10/2022 18:48
Perfluoroheptanoic Acid (PFH	375-85-9	**200**		**1.7**	**4.9**	**ng/L**	1	6/10/2022 18:48
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**35**		**0.89**	**4.9**	**ng/L**	1	6/10/2022 18:48
Perfluorohexanoic Acid (PFHx	307-24-4	**390**		**1.2**	**4.9**	**ng/L**	1	6/10/2022 18:48
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.49	4.9	ng/L	1	6/10/2022 18:48
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.86	4.9	ng/L	1	6/10/2022 18:48
Perfluorooctanesulfonamide (PF	754-91-6	U		0.70	4.9	ng/L	1	6/10/2022 18:48
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.88	2.0	ng/L	1	6/10/2022 18:48
Perfluorooctanoic Acid (PFOA	335-67-1	**5,000**		**62**	**200**	**ng/L**	100	6/14/2022 18:17
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**17**		**0.55**	**4.9**	**ng/L**	1	6/10/2022 18:48
Perfluoropentanoic Acid (PFP	2706-90-3	**280**		**1.3**	**4.9**	**ng/L**	1	6/10/2022 18:48
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.6	4.9	ng/L	1	6/10/2022 18:48
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.9	ng/L	1	6/10/2022 18:48
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.96	4.9	ng/L	1	6/10/2022 18:48
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.9	ng/L	1	6/10/2022 18:48
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.9	ng/L	1	6/14/2022 12:30
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.9	ng/L	1	6/10/2022 18:48
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.78	4.9	ng/L	1	6/10/2022 18:48
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.64	4.9	ng/L	1	6/10/2022 18:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: MW-115
Collection Date: 5/31/2022 11:40 AM

Work Order: 22060450
Lab ID: 22060450-19
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	4.9	ng/L	1	6/10/2022 18:48
Hexafluoropropylene oxide dimer (HFPO-DA)	13252-13-6	U		1.2	4.9	ng/L	1	6/10/2022 18:48
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.56	4.9	ng/L	1	6/10/2022 18:48
11Cl-Pf3OUdS	763051-92-9	U		0.46	4.9	ng/L	1	6/10/2022 18:48
9Cl-PF3ONS	756426-58-1	U		0.44	4.9	ng/L	1	6/10/2022 18:48
Surr: 13C2-FtS 4:2	PAMN-1492	*147*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-FtS 6:2	M2-6-2FTS	*78.7*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-FtS 8:2	M2-8-2FTS	*90.3*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-PFDA	STL00996	*68.0*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-PFDoA	STL00998	*64.1*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-PFHxA	STL00993	*65.5*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*60.7*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-PFTeA	13C2-PFTeA	*74.2*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C2-PFUnA	STL00997	*65.7*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C3-HFPO-DA	STL02255	*66.2*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C3-PFBS	STL02337	*54.6*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C4-PFBA	STL00992	*58.2*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C4-PFHpA	STL01892	*69.1*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C4-PFOA	STL00990	*69.3*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C4-PFOS	PAMN-1458	*55.5*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C5-PFNA	STL00995	*75.7*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C5-PFPeA	STL01893	*56.1*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 13C8-FOSA	STL01056	*71.9*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: 18O2-PFHxS	STL00994	*63.1*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: d5-N-EtFOSA	STL02117	*52.9*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*54.5*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*62.7*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*50.1*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: d3-N-MeFOSAA	PAMN-1460	*57.6*			*50-150*	*%REC*	1	6/10/2022 18:48
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*40.7*	S		*50-150*	*%REC*	1	6/10/2022 18:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-17
Collection Date: 5/31/2022 04:50 PM

Work Order: 22060450
Lab ID: 22060450-20
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		1.0	5.5	ng/L	1	6/10/2022 18:56
Fluorotelomer Sulphonic Acid (FtS 6:2)	27619-97-2	**320**		**2.1**	**5.5**	**ng/L**	1	6/10/2022 18:56
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.3	5.5	ng/L	1	6/14/2022 12:38
Perfluorobutanesulfonic Acid	375-73-5	**410**		**0.39**	**5.5**	**ng/L**	1	6/10/2022 18:56
Perfluorobutanoic Acid (PFBA	375-22-4	**630**		**29**	**55**	**ng/L**	10	6/14/2022 18:33
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.5	5.5	ng/L	1	6/10/2022 18:56
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.4	5.5	ng/L	1	6/10/2022 18:56
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.69	5.5	ng/L	1	6/10/2022 18:56
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.77	5.5	ng/L	1	6/10/2022 18:56
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	**14**		**0.63**	**5.5**	**ng/L**	1	6/10/2022 18:56
Perfluoroheptanoic Acid (PFH	375-85-9	**240**		**1.9**	**5.5**	**ng/L**	1	6/10/2022 18:56
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**220**		**1.0**	**5.5**	**ng/L**	1	6/10/2022 18:56
Perfluorohexanoic Acid (PFHx	307-24-4	**740**		**13**	**55**	**ng/L**	10	6/14/2022 18:33
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.55	5.5	ng/L	1	6/10/2022 18:56
Perfluorononanoic Acid (PFNA	375-95-1	**6.1**		**0.96**	**5.5**	**ng/L**	1	6/10/2022 18:56
Perfluorooctanesulfonamide (PF	754-91-6	U		0.79	5.5	ng/L	1	6/10/2022 18:56
Perfluorooctanesulfonic Acid	1763-23-1	**570**		**9.9**	**22**	**ng/L**	10	6/14/2022 18:33
Perfluorooctanoic Acid (PFOA	335-67-1	**610**		**7.0**	**22**	**ng/L**	10	6/14/2022 18:33
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**87**		**0.62**	**5.5**	**ng/L**	1	6/10/2022 18:56
Perfluoropentanoic Acid (PFPe	2706-90-3	**590**		**14**	**55**	**ng/L**	10	6/14/2022 18:33
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.9	5.5	ng/L	1	6/10/2022 18:56
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.1	5.5	ng/L	1	6/10/2022 18:56
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.1	5.5	ng/L	1	6/10/2022 18:56
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.3	5.5	ng/L	1	6/10/2022 18:56
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.7	5.5	ng/L	1	6/14/2022 12:38
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.2	5.5	ng/L	1	6/10/2022 18:56
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.88	5.5	ng/L	1	6/10/2022 18:56
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.71	5.5	ng/L	1	6/10/2022 18:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: W-17
Collection Date: 5/31/2022 04:50 PM

Work Order: 22060450
Lab ID: 22060450-20
Matrix: GROUNDWATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.7	5.5	ng/L	1	6/10/2022 18:56
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.3	5.5	ng/L	1	6/10/2022 18:56
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.62	5.5	ng/L	1	6/10/2022 18:56
11Cl-Pf3OUdS	763051-92-9	U		0.52	5.5	ng/L	1	6/10/2022 18:56
9Cl-PF3ONS	756426-58-1	U		0.50	5.5	ng/L	1	6/10/2022 18:56
Surr: 13C2-FtS 4:2	PAMN-1492	*78.9*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-FtS 6:2	M2-6-2FTS	*80.4*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-FtS 8:2	M2-8-2FTS	*73.8*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-PFDA	STL00996	*70.0*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-PFDoA	STL00998	*68.2*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-PFHxA	STL00993	*68.2*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*82.3*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-PFTeA	13C2-PFTeA	*115*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C2-PFUnA	STL00997	*79.7*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C3-HFPO-DA	STL02255	*75.7*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C3-PFBS	STL02337	*69.8*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C4-PFBA	STL00992	*74.0*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C4-PFHpA	STL01892	*84.2*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C4-PFOA	STL00990	*90.8*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C4-PFOS	PAMN-1458	*66.9*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C5-PFNA	STL00995	*86.5*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C5-PFPeA	STL01893	*73.0*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 13C8-FOSA	STL01056	*71.3*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: 18O2-PFHxS	STL00994	*69.6*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: d5-N-EtFOSA	STL02117	*59.9*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*76.1*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*65.8*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*62.9*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: d3-N-MeFOSAA	PAMN-1460	*56.4*			*50-150*	*%REC*	1	6/10/2022 18:56
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*65.0*			*50-150*	*%REC*	1	6/10/2022 18:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: Seep 2N
Collection Date: 6/1/2022 11:20 AM

Work Order: 22060450
Lab ID: 22060450-21
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.96	5.1	ng/L	1	6/10/2022 19:04
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.1	ng/L	1	6/10/2022 19:04
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.1	ng/L	1	6/14/2022 12:46
Perfluorobutanesulfonic Acid	375-73-5	**8.0**		**0.36**	**5.1**	**ng/L**	1	6/10/2022 19:04
Perfluorobutanoic Acid (PFBA	375-22-4	**12**		**2.7**	**5.1**	**ng/L**	1	6/10/2022 19:04
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.1	ng/L	1	6/10/2022 19:04
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.1	ng/L	1	6/10/2022 19:04
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.64	5.1	ng/L	1	6/10/2022 19:04
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.71	5.1	ng/L	1	6/10/2022 19:04
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.58	5.1	ng/L	1	6/10/2022 19:04
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.8	5.1	ng/L	1	6/10/2022 19:04
Perfluorohexanesulfonic Acid (P	355-46-4	U		0.92	5.1	ng/L	1	6/10/2022 19:04
Perfluorohexanoic Acid (PFHx	307-24-4	**6.2**		**1.2**	**5.1**	**ng/L**	1	6/10/2022 19:04
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.51	5.1	ng/L	1	6/10/2022 19:04
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.89	5.1	ng/L	1	6/10/2022 19:04
Perfluorooctanesulfonamide (PF	754-91-6	U		0.73	5.1	ng/L	1	6/10/2022 19:04
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.91	2.0	ng/L	1	6/10/2022 19:04
Perfluorooctanoic Acid (PFOA	335-67-1	**11**		**0.65**	**2.0**	**ng/L**	1	6/10/2022 19:04
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**1.0**	J	**0.57**	**5.1**	**ng/L**	1	6/10/2022 19:04
Perfluoropentanoic Acid (PFPe	2706-90-3	**5.3**		**1.3**	**5.1**	**ng/L**	1	6/10/2022 19:04
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.7	5.1	ng/L	1	6/10/2022 19:04
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.1	ng/L	1	6/10/2022 19:04
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.1	ng/L	1	6/10/2022 19:04
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.1	ng/L	1	6/10/2022 19:04
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.1	ng/L	1	6/14/2022 12:46
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.1	ng/L	1	6/10/2022 19:04
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.81	5.1	ng/L	1	6/10/2022 19:04
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.66	5.1	ng/L	1	6/10/2022 19:04
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	5.1	ng/L	1	6/10/2022 19:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: Seep 2N
Collection Date: 6/1/2022 11:20 AM

Work Order: 22060450
Lab ID: 22060450-21
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.2	5.1	ng/L	1	6/10/2022 19:04
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.58	5.1	ng/L	1	6/10/2022 19:04
11Cl-Pf3OUdS	763051-92-9	U		0.48	5.1	ng/L	1	6/10/2022 19:04
9Cl-PF3ONS	756426-58-1	U		0.46	5.1	ng/L	1	6/10/2022 19:04
Surr: 13C2-FtS 4:2	PAMN-1492	*74.7*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-FtS 6:2	M2-6-2FTS	*72.3*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-FtS 8:2	M2-8-2FTS	*67.6*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-PFDA	STL00996	*66.4*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-PFDoA	STL00998	*74.4*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-PFHxA	STL00993	*70.4*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*67.6*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-PFTeA	13C2-PFTeA	*96.0*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C2-PFUnA	STL00997	*70.6*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C3-HFPO-DA	STL02255	*75.0*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C3-PFBS	STL02337	*65.0*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C4-PFBA	STL00992	*70.9*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C4-PFHpA	STL01892	*73.4*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C4-PFOA	STL00990	*76.5*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C4-PFOS	PAMN-1458	*65.6*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C5-PFNA	STL00995	*79.3*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C5-PFPeA	STL01893	*64.5*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 13C8-FOSA	STL01056	*76.6*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: 18O2-PFHxS	STL00994	*73.6*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: d5-N-EtFOSA	STL02117	*60.4*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*57.0*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*75.2*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*63.5*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: d3-N-MeFOSAA	PAMN-1460	*52.3*			*50-150*	*%REC*	1	6/10/2022 19:04
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*60.6*			*50-150*	*%REC*	1	6/10/2022 19:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-1
Collection Date: 6/1/2022 01:35 PM

Work Order: 22060450
Lab ID: 22060450-22
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.98	5.2	ng/L	1	6/10/2022 19:13
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.2	ng/L	1	6/10/2022 19:13
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.2	ng/L	1	6/14/2022 12:55
Perfluorobutanesulfonic Acid	375-73-5	**1.0**	J	**0.37**	**5.2**	**ng/L**	1	6/10/2022 19:13
Perfluorobutanoic Acid (PFBA	375-22-4	**5.5**		**2.7**	**5.2**	**ng/L**	1	6/10/2022 19:13
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.2	ng/L	1	6/10/2022 19:13
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.2	ng/L	1	6/10/2022 19:13
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.65	5.2	ng/L	1	6/10/2022 19:13
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.72	5.2	ng/L	1	6/10/2022 19:13
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.59	5.2	ng/L	1	6/10/2022 19:13
Perfluoroheptanoic Acid (PFH	375-85-9	**2.8**	J	**1.8**	**5.2**	**ng/L**	1	6/10/2022 19:13
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**1.4**	J	**0.94**	**5.2**	**ng/L**	1	6/10/2022 19:13
Perfluorohexanoic Acid (PFHx	307-24-4	**2.1**	J	**1.3**	**5.2**	**ng/L**	1	6/10/2022 19:13
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.52	5.2	ng/L	1	6/10/2022 19:13
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.91	5.2	ng/L	1	6/10/2022 19:13
Perfluorooctanesulfonamide (PF	754-91-6	U		0.74	5.2	ng/L	1	6/10/2022 19:13
Perfluorooctanesulfonic Acid	1763-23-1	**1.8**	J	**0.93**	**2.1**	**ng/L**	1	6/10/2022 19:13
Perfluorooctanoic Acid (PFOA	335-67-1	**8.9**		**0.66**	**2.1**	**ng/L**	1	6/10/2022 19:13
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.58	5.2	ng/L	1	6/10/2022 19:13
Perfluoropentanoic Acid (PFP	2706-90-3	**1.8**	J	**1.3**	**5.2**	**ng/L**	1	6/10/2022 19:13
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.8	5.2	ng/L	1	6/10/2022 19:13
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.2	ng/L	1	6/10/2022 19:13
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.2	ng/L	1	6/10/2022 19:13
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.2	ng/L	1	6/10/2022 19:13
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.2	ng/L	1	6/14/2022 12:55
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.2	ng/L	1	6/10/2022 19:13
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.83	5.2	ng/L	1	6/10/2022 19:13
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.67	5.2	ng/L	1	6/10/2022 19:13
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.6	5.2	ng/L	1	6/10/2022 19:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-1
Collection Date: 6/1/2022 01:35 PM

Work Order: 22060450
Lab ID: 22060450-22
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.2	5.2	ng/L	1	6/10/2022 19:13
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.59	5.2	ng/L	1	6/10/2022 19:13
11Cl-Pf3OUdS	763051-92-9	U		0.49	5.2	ng/L	1	6/10/2022 19:13
9Cl-PF3ONS	756426-58-1	U		0.47	5.2	ng/L	1	6/10/2022 19:13
Surr: 13C2-FtS 4:2	PAMN-1492	*83.6*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-FtS 6:2	M2-6-2FTS	*78.9*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-FtS 8:2	M2-8-2FTS	*74.5*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-PFDA	STL00996	*73.7*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-PFDoA	STL00998	*76.7*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-PFHxA	STL00993	*70.0*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*61.6*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-PFTeA	13C2-PFTeA	*78.5*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C2-PFUnA	STL00997	*73.6*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C3-HFPO-DA	STL02255	*84.1*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C3-PFBS	STL02337	*70.6*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C4-PFBA	STL00992	*73.0*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C4-PFHpA	STL01892	*68.8*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C4-PFOA	STL00990	*69.6*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C4-PFOS	PAMN-1458	*70.2*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C5-PFNA	STL00995	*73.6*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C5-PFPeA	STL01893	*68.5*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 13C8-FOSA	STL01056	*67.4*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: 18O2-PFHxS	STL00994	*78.5*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: d5-N-EtFOSA	STL02117	*53.4*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*52.9*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*57.2*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*50.1*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: d3-N-MeFOSAA	PAMN-1460	*61.5*			*50-150*	*%REC*	1	6/10/2022 19:13
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*58.0*			*50-150*	*%REC*	1	6/10/2022 19:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-2
Collection Date: 6/1/2022 01:15 PM

Work Order: 22060450
Lab ID: 22060450-23
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.91	4.9	ng/L	1	6/10/2022 19:21
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.9	4.9	ng/L	1	6/10/2022 19:21
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.9	ng/L	1	6/14/2022 13:03
Perfluorobutanesulfonic Acid	375-73-5	**1.2**	J	**0.34**	**4.9**	**ng/L**	1	6/10/2022 19:21
Perfluorobutanoic Acid (PFBA	375-22-4	**5.5**		**2.5**	**4.9**	**ng/L**	1	6/10/2022 19:21
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.3	4.9	ng/L	1	6/10/2022 19:21
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.9	ng/L	1	6/10/2022 19:21
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.61	4.9	ng/L	1	6/10/2022 19:21
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.67	4.9	ng/L	1	6/10/2022 19:21
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.55	4.9	ng/L	1	6/10/2022 19:21
Perfluoroheptanoic Acid (PFH	375-85-9	**2.5**	J	**1.7**	**4.9**	**ng/L**	1	6/10/2022 19:21
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**1.3**	J	**0.88**	**4.9**	**ng/L**	1	6/10/2022 19:21
Perfluorohexanoic Acid (PFHx	307-24-4	**2.0**	J	**1.2**	**4.9**	**ng/L**	1	6/10/2022 19:21
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.48	4.9	ng/L	1	6/10/2022 19:21
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.85	4.9	ng/L	1	6/10/2022 19:21
Perfluorooctanesulfonamide (PF	754-91-6	U		0.69	4.9	ng/L	1	6/10/2022 19:21
Perfluorooctanesulfonic Acid	1763-23-1	**2.4**		**0.87**	**1.9**	**ng/L**	1	6/10/2022 19:21
Perfluorooctanoic Acid (PFOA	335-67-1	**9.3**		**0.61**	**1.9**	**ng/L**	1	6/10/2022 19:21
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.54	4.9	ng/L	1	6/10/2022 19:21
Perfluoropentanoic Acid (PFP	2706-90-3	**2.6**	J	**1.2**	**4.9**	**ng/L**	1	6/10/2022 19:21
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.6	4.9	ng/L	1	6/10/2022 19:21
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.9	ng/L	1	6/10/2022 19:21
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.95	4.9	ng/L	1	6/10/2022 19:21
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.9	ng/L	1	6/10/2022 19:21
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.9	ng/L	1	6/14/2022 13:03
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.9	ng/L	1	6/10/2022 19:21
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.77	4.9	ng/L	1	6/10/2022 19:21
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.63	4.9	ng/L	1	6/10/2022 19:21
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	4.9	ng/L	1	6/10/2022 19:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-2
Collection Date: 6/1/2022 01:15 PM

Work Order: 22060450
Lab ID: 22060450-23
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.1	4.9	ng/L	1	6/10/2022 19:21
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.55	4.9	ng/L	1	6/10/2022 19:21
11Cl-Pf3OUdS	763051-92-9	U		0.45	4.9	ng/L	1	6/10/2022 19:21
9Cl-PF3ONS	756426-58-1	U		0.44	4.9	ng/L	1	6/10/2022 19:21
Surr: 13C2-FtS 4:2	PAMN-1492	*85.2*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-FtS 6:2	M2-6-2FTS	*83.1*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-FtS 8:2	M2-8-2FTS	*74.3*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-PFDA	STL00996	*71.6*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-PFDoA	STL00998	*66.7*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-PFHxA	STL00993	*74.4*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*56.2*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-PFTeA	13C2-PFTeA	*72.9*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C2-PFUnA	STL00997	*66.6*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C3-HFPO-DA	STL02255	*86.8*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C3-PFBS	STL02337	*71.4*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C4-PFBA	STL00992	*67.7*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C4-PFHpA	STL01892	*57.3*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C4-PFOA	STL00990	*60.8*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C4-PFOS	PAMN-1458	*73.0*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C5-PFNA	STL00995	*57.7*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C5-PFPeA	STL01893	*67.3*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 13C8-FOSA	STL01056	*61.4*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: 18O2-PFHxS	STL00994	*65.9*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: d5-N-EtFOSA	STL02117	*58.3*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*48.4*	S		*50-150*	*%REC*	1	6/10/2022 19:21
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*59.4*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*52.1*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: d3-N-MeFOSAA	PAMN-1460	*58.0*			*50-150*	*%REC*	1	6/10/2022 19:21
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*65.1*			*50-150*	*%REC*	1	6/10/2022 19:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-3
Collection Date: 6/1/2022 11:25 AM

Work Order: 22060450
Lab ID: 22060450-24
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.99	5.3	ng/L	1	6/10/2022 19:29
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.0	5.3	ng/L	1	6/10/2022 19:29
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.2	5.3	ng/L	1	6/14/2022 13:11
Perfluorobutanesulfonic Acid	375-73-5	**2.7**	J	**0.37**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluorobutanoic Acid (PFBA	375-22-4	**13**		**2.7**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.4	5.3	ng/L	1	6/10/2022 19:29
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.3	5.3	ng/L	1	6/10/2022 19:29
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.66	5.3	ng/L	1	6/10/2022 19:29
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.73	5.3	ng/L	1	6/10/2022 19:29
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.60	5.3	ng/L	1	6/10/2022 19:29
Perfluoroheptanoic Acid (PFH	375-85-9	**3.4**	J	**1.8**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**2.0**	J	**0.95**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluorohexanoic Acid (PFHx	307-24-4	**5.4**		**1.3**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.52	5.3	ng/L	1	6/10/2022 19:29
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.92	5.3	ng/L	1	6/10/2022 19:29
Perfluorooctanesulfonamide (PF	754-91-6	U		0.75	5.3	ng/L	1	6/10/2022 19:29
Perfluorooctanesulfonic Acid	1763-23-1	**2.2**		**0.94**	**2.1**	**ng/L**	1	6/10/2022 19:29
Perfluorooctanoic Acid (PFOA	335-67-1	**20**		**0.67**	**2.1**	**ng/L**	1	6/10/2022 19:29
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	**0.93**	J	**0.59**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluoropentanoic Acid (PFPe	2706-90-3	**4.9**	J	**1.4**	**5.3**	**ng/L**	1	6/10/2022 19:29
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.8	5.3	ng/L	1	6/10/2022 19:29
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.0	5.3	ng/L	1	6/10/2022 19:29
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.0	5.3	ng/L	1	6/10/2022 19:29
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.2	5.3	ng/L	1	6/10/2022 19:29
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.6	5.3	ng/L	1	6/14/2022 13:11
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.1	5.3	ng/L	1	6/10/2022 19:29
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.84	5.3	ng/L	1	6/10/2022 19:29
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.68	5.3	ng/L	1	6/10/2022 19:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-3
Collection Date: 6/1/2022 11:25 AM

Work Order: 22060450
Lab ID: 22060450-24
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.6	5.3	ng/L	1	6/10/2022 19:29
Hexafluoropropylene oxide dimer (HFPO-DA)	13252-13-6	U		1.2	5.3	ng/L	1	6/10/2022 19:29
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.59	5.3	ng/L	1	6/10/2022 19:29
11Cl-Pf3OUdS	763051-92-9	U		0.49	5.3	ng/L	1	6/10/2022 19:29
9Cl-PF3ONS	756426-58-1	U		0.47	5.3	ng/L	1	6/10/2022 19:29
Surr: 13C2-FtS 4:2	PAMN-1492	*73.7*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-FtS 6:2	M2-6-2FTS	*80.4*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-FtS 8:2	M2-8-2FTS	*77.9*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-PFDA	STL00996	*77.9*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-PFDoA	STL00998	*78.1*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-PFHxA	STL00993	*81.5*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*61.7*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-PFTeA	13C2-PFTeA	*84.3*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C2-PFUnA	STL00997	*72.6*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C3-HFPO-DA	STL02255	*94.0*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C3-PFBS	STL02337	*72.0*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C4-PFBA	STL00992	*65.6*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C4-PFHpA	STL01892	*53.2*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C4-PFOA	STL00990	*59.6*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C4-PFOS	PAMN-1458	*71.1*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C5-PFNA	STL00995	*56.2*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C5-PFPeA	STL01893	*69.7*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 13C8-FOSA	STL01056	*61.2*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: 18O2-PFHxS	STL00994	*54.1*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: d5-N-EtFOSA	STL02117	*56.8*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*50.8*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*59.0*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*51.7*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: d3-N-MeFOSAA	PAMN-1460	*65.9*			*50-150*	*%REC*	1	6/10/2022 19:29
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*66.7*			*50-150*	*%REC*	1	6/10/2022 19:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-4
Collection Date: 6/1/2022 03:00 PM

Work Order: 22060450
Lab ID: 22060450-25
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		1.0	5.6	ng/L	1	6/10/2022 19:37
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		2.2	5.6	ng/L	1	6/10/2022 19:37
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.3	5.6	ng/L	1	6/14/2022 13:19
Perfluorobutanesulfonic Acid	375-73-5	**2.2**	J	**0.39**	**5.6**	**ng/L**	1	6/10/2022 19:37
Perfluorobutanoic Acid (PFBA	375-22-4	**9.0**		**2.9**	**5.6**	**ng/L**	1	6/10/2022 19:37
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.5	5.6	ng/L	1	6/10/2022 19:37
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.4	5.6	ng/L	1	6/10/2022 19:37
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.70	5.6	ng/L	1	6/10/2022 19:37
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.77	5.6	ng/L	1	6/10/2022 19:37
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.63	5.6	ng/L	1	6/10/2022 19:37
Perfluoroheptanoic Acid (PFH	375-85-9	**3.8**	J	**1.9**	**5.6**	**ng/L**	1	6/10/2022 19:37
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**2.7**	J	**1.0**	**5.6**	**ng/L**	1	6/10/2022 19:37
Perfluorohexanoic Acid (PFHx	307-24-4	**3.6**	J	**1.3**	**5.6**	**ng/L**	1	6/10/2022 19:37
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.56	5.6	ng/L	1	6/10/2022 19:37
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.98	5.6	ng/L	1	6/10/2022 19:37
Perfluorooctanesulfonamide (PF	754-91-6	U		0.80	5.6	ng/L	1	6/10/2022 19:37
Perfluorooctanesulfonic Acid	1763-23-1	**2.4**		**1.0**	**2.2**	**ng/L**	1	6/10/2022 19:37
Perfluorooctanoic Acid (PFOA	335-67-1	**12**		**0.71**	**2.2**	**ng/L**	1	6/10/2022 19:37
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.62	5.6	ng/L	1	6/10/2022 19:37
Perfluoropentanoic Acid (PFP	2706-90-3	**3.2**	J	**1.4**	**5.6**	**ng/L**	1	6/10/2022 19:37
Perfluorotetradecanoic Acid (PF	376-06-7	U		3.0	5.6	ng/L	1	6/10/2022 19:37
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		2.2	5.6	ng/L	1	6/10/2022 19:37
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		1.1	5.6	ng/L	1	6/10/2022 19:37
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.3	5.6	ng/L	1	6/10/2022 19:37
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.7	5.6	ng/L	1	6/14/2022 13:19
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.2	5.6	ng/L	1	6/10/2022 19:37
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.89	5.6	ng/L	1	6/10/2022 19:37
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.72	5.6	ng/L	1	6/10/2022 19:37
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.7	5.6	ng/L	1	6/10/2022 19:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-4
Collection Date: 6/1/2022 03:00 PM

Work Order: 22060450
Lab ID: 22060450-25
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.3	5.6	ng/L	1	6/10/2022 19:37
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.63	5.6	ng/L	1	6/10/2022 19:37
11Cl-Pf3OUdS	763051-92-9	U		0.52	5.6	ng/L	1	6/10/2022 19:37
9Cl-PF3ONS	756426-58-1	U		0.50	5.6	ng/L	1	6/10/2022 19:37
Surr: 13C2-FtS 4:2	PAMN-1492	*62.4*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-FtS 6:2	M2-6-2FTS	*70.2*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-FtS 8:2	M2-8-2FTS	*69.6*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-PFDA	STL00996	*76.7*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-PFDoA	STL00998	*50.7*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-PFHxA	STL00993	*72.1*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*51.1*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-PFTeA	13C2-PFTeA	*80.4*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C2-PFUnA	STL00997	*73.8*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C3-HFPO-DA	STL02255	*94.5*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C3-PFBS	STL02337	*57.5*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C4-PFBA	STL00992	*59.1*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C4-PFHpA	STL01892	*47.7*	S		*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C4-PFOA	STL00990	*58.7*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C4-PFOS	PAMN-1458	*55.5*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C5-PFNA	STL00995	*52.2*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C5-PFPeA	STL01893	*55.6*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 13C8-FOSA	STL01056	*39.8*	S		*50-150*	*%REC*	1	6/10/2022 19:37
Surr: 18O2-PFHxS	STL00994	*43.9*	S		*50-150*	*%REC*	1	6/10/2022 19:37
Surr: d5-N-EtFOSA	STL02117	*47.1*	S		*50-150*	*%REC*	1	6/10/2022 19:37
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*51.6*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*44.2*	S		*50-150*	*%REC*	1	6/10/2022 19:37
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*50.4*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: d3-N-MeFOSAA	PAMN-1460	*51.2*			*50-150*	*%REC*	1	6/10/2022 19:37
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*58.7*			*50-150*	*%REC*	1	6/10/2022 19:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-5
Collection Date: 6/1/2022 02:30 PM

Work Order: 22060450
Lab ID: 22060450-26
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.92	4.9	ng/L	1	6/10/2022 19:46
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.9	4.9	ng/L	1	6/10/2022 19:46
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.9	ng/L	1	6/14/2022 13:28
Perfluorobutanesulfonic Acid	375-73-5	**2.0**	J	**0.34**	**4.9**	**ng/L**	1	6/10/2022 19:46
Perfluorobutanoic Acid (PFBA	375-22-4	**8.8**		**2.6**	**4.9**	**ng/L**	1	6/10/2022 19:46
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.3	4.9	ng/L	1	6/10/2022 19:46
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.9	ng/L	1	6/10/2022 19:46
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.61	4.9	ng/L	1	6/10/2022 19:46
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.68	4.9	ng/L	1	6/10/2022 19:46
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.56	4.9	ng/L	1	6/10/2022 19:46
Perfluoroheptanoic Acid (PFH	375-85-9	**3.2**	J	**1.7**	**4.9**	**ng/L**	1	6/10/2022 19:46
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	**1.6**	J	**0.89**	**4.9**	**ng/L**	1	6/10/2022 19:46
Perfluorohexanoic Acid (PFHx	307-24-4	**3.2**	J	**1.2**	**4.9**	**ng/L**	1	6/10/2022 19:46
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.49	4.9	ng/L	1	6/10/2022 19:46
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.85	4.9	ng/L	1	6/10/2022 19:46
Perfluorooctanesulfonamide (PF	754-91-6	U		0.70	4.9	ng/L	1	6/10/2022 19:46
Perfluorooctanesulfonic Acid	1763-23-1	**2.9**		**0.88**	**2.0**	**ng/L**	1	6/10/2022 19:46
Perfluorooctanoic Acid (PFOA	335-67-1	**10**		**0.62**	**2.0**	**ng/L**	1	6/10/2022 19:46
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.55	4.9	ng/L	1	6/10/2022 19:46
Perfluoropentanoic Acid (PFP	2706-90-3	**3.3**	J	**1.3**	**4.9**	**ng/L**	1	6/10/2022 19:46
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.6	4.9	ng/L	1	6/10/2022 19:46
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.9	4.9	ng/L	1	6/10/2022 19:46
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.96	4.9	ng/L	1	6/10/2022 19:46
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.9	ng/L	1	6/10/2022 19:46
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.9	ng/L	1	6/14/2022 13:28
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.9	ng/L	1	6/10/2022 19:46
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.78	4.9	ng/L	1	6/10/2022 19:46
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.63	4.9	ng/L	1	6/10/2022 19:46
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.5	4.9	ng/L	1	6/10/2022 19:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: SW-5
Collection Date: 6/1/2022 02:30 PM

Work Order: 22060450
Lab ID: 22060450-26
Matrix: SURFACE WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.1	4.9	ng/L	1	6/10/2022 19:46
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.55	4.9	ng/L	1	6/10/2022 19:46
11Cl-Pf3OUdS	763051-92-9	U		0.46	4.9	ng/L	1	6/10/2022 19:46
9Cl-PF3ONS	756426-58-1	U		0.44	4.9	ng/L	1	6/10/2022 19:46
Surr: 13C2-FtS 4:2	PAMN-1492	*76.7*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-FtS 6:2	M2-6-2FTS	*72.8*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-FtS 8:2	M2-8-2FTS	*67.3*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-PFDA	STL00996	*69.4*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-PFDoA	STL00998	*68.4*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-PFHxA	STL00993	*74.3*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*52.1*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-PFTeA	13C2-PFTeA	*71.1*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C2-PFUnA	STL00997	*68.3*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C3-HFPO-DA	STL02255	*78.5*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C3-PFBS	STL02337	*70.0*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C4-PFBA	STL00992	*76.7*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C4-PFHpA	STL01892	*70.1*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C4-PFOA	STL00990	*77.6*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C4-PFOS	PAMN-1458	*72.7*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C5-PFNA	STL00995	*76.6*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C5-PFPeA	STL01893	*66.0*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 13C8-FOSA	STL01056	*65.2*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: 18O2-PFHxS	STL00994	*77.3*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: d5-N-EtFOSA	STL02117	*54.4*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*56.9*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*62.6*			*50-150*	*%REC*	1	6/10/2022 19:46
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*48.8*	S		*50-150*	*%REC*	1	6/10/2022 19:46
Surr: d3-N-MeFOSAA	PAMN-1460	*47.4*	S		*50-150*	*%REC*	1	6/10/2022 19:46
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*55.9*			*50-150*	*%REC*	1	6/10/2022 19:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: FIELD BLANK
Collection Date: 6/1/2022 04:10 PM

Work Order: 22060450
Lab ID: 22060450-27
Matrix: WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/10/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.87	4.7	ng/L	1	6/10/2022 19:54
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.8	4.7	ng/L	1	6/10/2022 19:54
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.7	ng/L	1	6/14/2022 13:52
Perfluorobutanesulfonic Acid (PF	375-73-5	U		0.33	4.7	ng/L	1	6/10/2022 19:54
Perfluorobutanoic Acid (PFBA)	375-22-4	U		2.4	4.7	ng/L	1	6/10/2022 19:54
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.3	4.7	ng/L	1	6/10/2022 19:54
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.7	ng/L	1	6/10/2022 19:54
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.58	4.7	ng/L	1	6/10/2022 19:54
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.64	4.7	ng/L	1	6/10/2022 19:54
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.53	4.7	ng/L	1	6/10/2022 19:54
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.6	4.7	ng/L	1	6/10/2022 19:54
Perfluorohexanesulfonic Acid (P	355-46-4	U		0.84	4.7	ng/L	1	6/10/2022 19:54
Perfluorohexanoic Acid (PFHxA)	307-24-4	U		1.1	4.7	ng/L	1	6/10/2022 19:54
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.46	4.7	ng/L	1	6/10/2022 19:54
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.81	4.7	ng/L	1	6/10/2022 19:54
Perfluorooctanesulfonamide (PF	754-91-6	U		0.66	4.7	ng/L	1	6/10/2022 19:54
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.83	1.9	ng/L	1	6/10/2022 19:54
Perfluorooctanoic Acid (PFOA)	335-67-1	U		0.59	1.9	ng/L	1	6/10/2022 19:54
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.52	4.7	ng/L	1	6/10/2022 19:54
Perfluoropentanoic Acid (PFPeA	2706-90-3	U		1.2	4.7	ng/L	1	6/10/2022 19:54
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.5	4.7	ng/L	1	6/10/2022 19:54
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.8	4.7	ng/L	1	6/10/2022 19:54
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.91	4.7	ng/L	1	6/10/2022 19:54
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.7	ng/L	1	6/10/2022 19:54
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.4	4.7	ng/L	1	6/14/2022 13:52
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		0.98	4.7	ng/L	1	6/10/2022 19:54
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.74	4.7	ng/L	1	6/10/2022 19:54
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.60	4.7	ng/L	1	6/10/2022 19:54
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.4	4.7	ng/L	1	6/10/2022 19:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: FIELD BLANK
Collection Date: 6/1/2022 04:10 PM

Work Order: 22060450
Lab ID: 22060450-27
Matrix: WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.1	4.7	ng/L	1	6/10/2022 19:54
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.52	4.7	ng/L	1	6/10/2022 19:54
11Cl-Pf3OUdS	763051-92-9	U		0.44	4.7	ng/L	1	6/10/2022 19:54
9Cl-PF3ONS	756426-58-1	U		0.42	4.7	ng/L	1	6/10/2022 19:54
Surr: 13C2-FtS 4:2	PAMN-1492	*66.5*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-FtS 6:2	M2-6-2FTS	*60.8*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-FtS 8:2	M2-8-2FTS	*66.4*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-PFDA	STL00996	*61.6*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-PFDoA	STL00998	*58.7*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-PFHxA	STL00993	*62.4*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*57.8*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-PFTeA	13C2-PFTeA	*74.1*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C2-PFUnA	STL00997	*58.1*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C3-HFPO-DA	STL02255	*72.3*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C3-PFBS	STL02337	*65.1*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C4-PFBA	STL00992	*66.9*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C4-PFHpA	STL01892	*70.2*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C4-PFOA	STL00990	*68.3*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C4-PFOS	PAMN-1458	*61.4*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C5-PFNA	STL00995	*69.3*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C5-PFPeA	STL01893	*62.4*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 13C8-FOSA	STL01056	*65.2*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: 18O2-PFHxS	STL00994	*68.2*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: d5-N-EtFOSA	STL02117	*44.7*	S		*50-150*	*%REC*	1	6/10/2022 19:54
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*50.3*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*58.1*			*50-150*	*%REC*	1	6/10/2022 19:54
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*39.5*	S		*50-150*	*%REC*	1	6/10/2022 19:54
Surr: d3-N-MeFOSAA	PAMN-1460	*49.6*	S		*50-150*	*%REC*	1	6/10/2022 19:54
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*53.0*			*50-150*	*%REC*	1	6/10/2022 19:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: EQUIP. BLANK
Collection Date: 6/1/2022 04:15 PM

Work Order: 22060450
Lab ID: 22060450-28
Matrix: WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			Method: **E537 MOD**			Prep: E537 Mod / 6/14/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2	757124-72-4	U		0.89	4.8	ng/L	1	6/16/2022 13:51
Fluorotelomer Sulphonic Acid 6:2	27619-97-2	U		1.8	4.8	ng/L	1	6/16/2022 13:51
Fluorotelomer Sulphonic Acid 8:2	39108-34-4	U		1.1	4.8	ng/L	1	6/16/2022 13:51
Perfluorobutanesulfonic Acid (PF	375-73-5	U		0.33	4.8	ng/L	1	6/16/2022 13:51
Perfluorobutanoic Acid (PFBA)	375-22-4	U		2.5	4.8	ng/L	1	6/16/2022 13:51
Perfluorodecanesulfonic Acid (P	335-77-3	U		1.3	4.8	ng/L	1	6/16/2022 13:51
Perfluorodecanoic Acid (PFDA)	335-76-2	U		1.2	4.8	ng/L	1	6/16/2022 13:51
Perfluorododecanesulfonic Acid (PFDoS)	79780-39-5	U		0.59	4.8	ng/L	1	6/16/2022 13:51
Perfluorododecanoic Acid (PFDo	307-55-1	U		0.66	4.8	ng/L	1	6/16/2022 13:51
Perfluoroheptanesulfonic Acid (F	375-92-8	U		0.54	4.8	ng/L	1	6/16/2022 13:51
Perfluoroheptanoic Acid (PFHpA	375-85-9	U		1.6	4.8	ng/L	1	6/16/2022 13:51
Perfluorohexanesulfonic Acid (P	355-46-4	U		0.86	4.8	ng/L	1	6/16/2022 13:51
Perfluorohexanoic Acid (PFHxA)	307-24-4	U		1.1	4.8	ng/L	1	6/16/2022 13:51
Perfluorononanesulfonic Acid (P	68259-12-1	U		0.47	4.8	ng/L	1	6/16/2022 13:51
Perfluorononanoic Acid (PFNA)	375-95-1	U		0.83	4.8	ng/L	1	6/16/2022 13:51
Perfluorooctanesulfonamide (PF	754-91-6	U		0.68	4.8	ng/L	1	6/16/2022 13:51
Perfluorooctanesulfonic Acid (PF	1763-23-1	U		0.85	1.9	ng/L	1	6/16/2022 13:51
Perfluorooctanoic Acid (PFOA	335-67-1	**0.68**	J	**0.60**	**1.9**	**ng/L**	1	6/16/2022 13:51
Perfluoropentanesulfonic Acid (F	2706-91-4	U		0.53	4.8	ng/L	1	6/16/2022 13:51
Perfluoropentanoic Acid (PFPeA	2706-90-3	U		1.2	4.8	ng/L	1	6/16/2022 13:51
Perfluorotetradecanoic Acid (PF	376-06-7	U		2.5	4.8	ng/L	1	6/16/2022 13:51
Perfluorotridecanoic Acid (PFTri	72629-94-8	U		1.8	4.8	ng/L	1	6/16/2022 13:51
Perfluoroundecanoic Acid (PFUr	2058-94-8	U		0.93	4.8	ng/L	1	6/16/2022 13:51
N-ethylperfluoro-1-octanesulfona	4151-50-2	U		1.1	4.8	ng/L	1	6/16/2022 13:51
N-Ethylperfluorooctanesulfonamidoacetic Acid	2991-50-6	U		1.5	4.8	ng/L	1	6/16/2022 13:51
N-Ethylperfluorooctanesulfonamidoethanol	1691-99-2	U		1.0	4.8	ng/L	1	6/16/2022 13:51
N-methylperfluoro-1-octanesulfo	31506-32-8	U		0.76	4.8	ng/L	1	6/16/2022 13:51
N-Methylperfluorooctanesulfonamidoacetic Acid	2355-31-9	U		0.61	4.8	ng/L	1	6/16/2022 13:51
N-Methylperfluorooctanesulfonamidoethanol	24448-09-7	U		1.4	4.8	ng/L	1	6/16/2022 13:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR - PFAS
Sample ID: EQUIP. BLANK
Collection Date: 6/1/2022 04:15 PM

Work Order: 22060450
Lab ID: 22060450-28
Matrix: WATER

Analyses	CAS	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Hexafluoropropylene oxide dime (HFPO-DA)	13252-13-6	U		1.1	4.8	ng/L	1	6/16/2022 13:51
4,8-Dioxa-3H-perfluorononanoic (DONA)	919005-14-4	U		0.54	4.8	ng/L	1	6/16/2022 13:51
11Cl-Pf3OUdS	763051-92-9	U		0.44	4.8	ng/L	1	6/16/2022 13:51
9Cl-PF3ONS	756426-58-1	U		0.43	4.8	ng/L	1	6/16/2022 13:51
Surr: 13C2-FtS 4:2	PAMN-1492	*65.8*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-FtS 6:2	M2-6-2FTS	*147*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-FtS 8:2	M2-8-2FTS	*78.1*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-PFDA	STL00996	*77.2*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-PFDoA	STL00998	*63.2*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-PFHxA	STL00993	*86.0*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-PFHxDA	Perfluorohexadecanoic acid (13C2-PFHxDA)	*69.2*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-PFTeA	13C2-PFTeA	*64.8*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C2-PFUnA	STL00997	*83.1*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C3-HFPO-DA	STL02255	*70.7*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C3-PFBS	STL02337	*69.1*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C4-PFBA	STL00992	*70.1*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C4-PFHpA	STL01892	*64.8*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C4-PFOA	STL00990	*59.8*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C4-PFOS	PAMN-1458	*65.4*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C5-PFNA	STL00995	*60.2*			*50-150*	*%REC*	1	6/18/2022 03:16
Surr: 13C5-PFPeA	STL01893	*73.9*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 13C8-FOSA	STL01056	*73.4*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: 18O2-PFHxS	STL00994	*81.6*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: d5-N-EtFOSA	STL02117	*54.3*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: d5-N-EtFOSAA	d5-N-EtFOSAA	*64.6*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: d9-N-EtFOSE	d9-N-EtFOSE	*55.7*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: d3-N-MeFOSA	d3-N-MeFOSA	*63.7*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: d3-N-MeFOSAA	PAMN-1460	*62.6*			*50-150*	*%REC*	1	6/16/2022 13:51
Surr: d7-N-MeFOSE	d7-N-MeFOSE	*55.2*			*50-150*	*%REC*	1	6/16/2022 13:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

MBLK Sample ID: **MBLK-197590-197590** Units: **ng/L** Analysis Date: **6/9/2022 08:03 PM**

Client ID: Run ID: **LCMS2_220609A** SeqNo: **8512180** Prep Date: **6/8/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	1.9	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid (	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	0.62	5.0								
Perfluorododecanoic Acid (PFI	U	0.69	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFHp	U	1.7	5.0								
Perfluorohexanesulfonic Acid (	U	0.9	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (I	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	1.9	5.0								
Perfluoroundecanoic Acid (PFI	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1.5	5.0								
N-Ethylperfluorooctanesulfona	U	1	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	1.5	5.0								
Hexafluoropropylene oxide din	UI	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*89.73*	0	0	*149.4*	0	*60*	*50-150*	0			
Surr: 13C2-FtS 6:2	*90.54*	0	0	*152*	0	*59.6*	*50-150*	0			
Surr: 13C2-FtS 8:2	*99.47*	0	0	*153.3*	0	*64.9*	*50-150*	0			
Surr: 13C2-PFDA	*112.5*	0	0	*160*	0	*70.3*	*50-150*	0			
Surr: 13C2-PFDoA	*93.17*	0	0	*160*	0	*58.2*	*50-150*	0			
Surr: 13C2-PFHxA	*122.2*	0	0	*160*	0	*76.4*	*50-150*	0			
Surr: 13C2-PFHxDA	*88.89*	0	0	*160*	0	*55.6*	*50-150*	0			
Surr: 13C2-PFTeA	*111.8*	0	0	*160*	0	*69.9*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C2-PFUnA	*114.6*	0	0	*160*	0	*71.6*	*50-150*	0
Surr: 13C3-HFPO-DA	*121.2*	0	0	*160*	0	*75.7*	*50-150*	0
Surr: 13C3-PFBS	*99.5*	0	0	*148.8*	0	*66.9*	*50-150*	0
Surr: 13C4-PFBA	*113.8*	0	0	*160*	0	*71.2*	*50-150*	0
Surr: 13C4-PFHpA	*91.58*	0	0	*160*	0	*57.2*	*50-150*	0
Surr: 13C4-PFOA	*98*	0	0	*160*	0	*61.2*	*50-150*	0
Surr: 13C4-PFOS	*96.12*	0	0	*152.8*	0	*62.9*	*50-150*	0
Surr: 13C5-PFNA	*96.28*	0	0	*160*	0	*60.2*	*50-150*	0
Surr: 13C5-PFPeA	*110.4*	0	0	*160*	0	*69*	*50-150*	0
Surr: 13C8-FOSA	*101.4*	0	0	*160*	0	*63.4*	*50-150*	0
Surr: 18O2-PFHxS	*91.53*	0	0	*151.2*	0	*60.5*	*50-150*	0
Surr: d5-N-EtFOSA	*84.52*	0	0	*160*	0	*52.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*84.43*	0	0	*160*	0	*52.8*	*50-150*	0
Surr: d9-N-EtFOSE	*98.26*	0	0	*160*	0	*61.4*	*50-150*	0
Surr: d3-N-MeFOSA	*85.45*	0	0	*160*	0	*53.4*	*50-150*	0
Surr: d3-N-MeFOSAA	*87.55*	0	0	*160*	0	*54.7*	*50-150*	0
Surr: d7-N-MeFOSE	*84.68*	0	0	*160*	0	*52.9*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

LCS Sample ID: **LCS-197590-197590** Units: **ng/L** Analysis Date: **6/9/2022 08:11 PM**
Client ID: Run ID: **LCMS2_220609A** SeqNo: **8512181** Prep Date: **6/8/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	35.25	0.94	5.0	29.9	0	118	63-143	0			
Fluorotelomer Sulphonic Acid	28.19	1.9	5.0	30.3	0	93	63-162	0			
Fluorotelomer Sulphonic Acid	22.33	1.1	5.0	30.7	0	72.7	61-165	0			
Perfluorobutanesulfonic Acid (	29.57	0.35	5.0	28.3	0	105	72-130	0			
Perfluorobutanoic Acid (PFBA)	33.88	2.6	5.0	32	0	106	73-129	0			
Perfluorodecanesulfonic Acid	29.42	1.4	5.0	30.8	0	95.5	53-142	0			
Perfluorodecanoic Acid (PFDA	27.13	1.2	5.0	32	0	84.8	71-129	0			
Perfluorododecanesulfonic Aci	24.84	0.62	5.0	31	0	80.1	69-134	0			
Perfluorododecanoic Acid (PFI	35.2	0.69	5.0	32	0	110	72-134	0			
Perfluoroheptanesulfonic Acid	29.53	0.57	5.0	30.5	0	96.8	69-134	0			
Perfluoroheptanoic Acid (PFH	31.29	1.7	5.0	32	0	97.8	72-130	0			
Perfluorohexanesulfonic Acid	27.34	0.9	5.0	29.1	0	93.9	68-131	0			
Perfluorohexanoic Acid (PFHx	31.4	1.2	5.0	32	0	98.1	72-129	0			
Perfluorononanesulfonic Acid	33.77	0.5	5.0	30.7	0	110	69-127	0			
Perfluorononanoic Acid (PFNA	27.3	0.87	5.0	32	0	85.3	69-130	0			
Perfluorooctanesulfonamide (F	34.72	0.71	5.0	32	0	109	67-137	0			
Perfluorooctanesulfonic Acid (	29.9	0.89	2.0	29.7	0	101	65-140	0			
Perfluorooctanoic Acid (PFOA)	29.59	0.63	2.0	32	0	92.5	71-133	0			
Perfluoropentanesulfonic Acid	31.34	0.56	5.0	30	0	104	71-127	0			
Perfluoropentanoic Acid (PFPe	33.94	1.3	5.0	32	0	106	72-129	0			
Perfluorotetradecanoic Acid (F	30.06	2.6	5.0	32	0	94	71-132	0			
Perfluorotridecanoic Acid (PFT	29.47	1.9	5.0	32	0	92.1	65-144	0			
Perfluoroundecanoic Acid (PFI	26.02	0.97	5.0	32	0	81.3	69-133	0			
N-ethylperfluoro-1-octanesulfo	30.63	1.2	5.0	32	0	95.7	70-130	0			
N-Ethylperfluorooctanesulfona	36.63	1.5	5.0	32	0	114	61-135	0			
N-Ethylperfluorooctanesulfona	34.36	1	5.0	32	0	107	70-130	0			
N-methylperfluoro-1-octanesul	32.36	0.79	5.0	32	0	101	70-130	0			
N-Methylperfluorooctanesulfor	33.4	0.64	5.0	32	0	104	65-136	0			
N-Methylperfluorooctanesulfor	30.41	1.5	5.0	32	0	95	68-141	0			
Hexafluoropropylene oxide din	28.23	1.2	5.0	32	0	88.2	70-130	0			
4,8-Dioxa-3H-perfluorononano	30.92	0.56	5.0	30.1	0	103	70-130	0			
11Cl-Pf3OUdS	27.05	0.47	5.0	30.1	0	89.9	70-130	0			
9Cl-PF3ONS	29.7	0.45	5.0	29.8	0	99.7	70-130	0			
Surr: 13C2-FtS 4:2	*90.89*	0	0	*149.4*	0	*60.8*	*50-150*	0			
Surr: 13C2-FtS 6:2	*125.1*	0	0	*152*	0	*82.3*	*50-150*	0			
Surr: 13C2-FtS 8:2	*114.3*	0	0	*153.3*	0	*74.6*	*50-150*	0			
Surr: 13C2-PFDA	*112.5*	0	0	*160*	0	*70.3*	*50-150*	0			
Surr: 13C2-PFDoA	*107.9*	0	0	*160*	0	*67.4*	*50-150*	0			
Surr: 13C2-PFHxA	*130.3*	0	0	*160*	0	*81.4*	*50-150*	0			
Surr: 13C2-PFHxDA	*109.7*	0	0	*160*	0	*68.6*	*50-150*	0			
Surr: 13C2-PFTeA	*141.2*	0	0	*160*	0	*88.2*	*50-150*	0			
Surr: 13C2-PFUnA	*116.7*	0	0	*160*	0	*72.9*	*50-150*	0			
Surr: 13C3-HFPO-DA	*111.1*	0	0	*160*	0	*69.4*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*109.9*	0	0	*148.8*	0	*73.8*	*50-150*	0
Surr: 13C4-PFBA	*123.6*	0	0	*160*	0	*77.2*	*50-150*	0
Surr: 13C4-PFHpA	*109.4*	0	0	*160*	0	*68.4*	*50-150*	0
Surr: 13C4-PFOA	*122.2*	0	0	*160*	0	*76.3*	*50-150*	0
Surr: 13C4-PFOS	*115.7*	0	0	*152.8*	0	*75.7*	*50-150*	0
Surr: 13C5-PFNA	*118.5*	0	0	*160*	0	*74.1*	*50-150*	0
Surr: 13C5-PFPeA	*118.7*	0	0	*160*	0	*74.2*	*50-150*	0
Surr: 13C8-FOSA	*105.3*	0	0	*160*	0	*65.8*	*50-150*	0
Surr: 18O2-PFHxS	*110.8*	0	0	*151.2*	0	*73.3*	*50-150*	0
Surr: d5-N-EtFOSA	*100.4*	0	0	*160*	0	*62.7*	*50-150*	0
Surr: d5-N-EtFOSAA	*104.3*	0	0	*160*	0	*65.2*	*50-150*	0
Surr: d9-N-EtFOSE	*106.1*	0	0	*160*	0	*66.3*	*50-150*	0
Surr: d3-N-MeFOSA	*99.9*	0	0	*160*	0	*62.4*	*50-150*	0
Surr: d3-N-MeFOSAA	*111*	0	0	*160*	0	*69.4*	*50-150*	0
Surr: d7-N-MeFOSE	*105*	0	0	*160*	0	*65.6*	*50-150*	0

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

MS Sample ID: **22060450-02A MS** Units: **ng/L** Analysis Date: **6/9/2022 08:52 PM**
Client ID: **W-30A** Run ID: **LCMS2_220609A** SeqNo: **8512185** Prep Date: **6/8/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	35.6	0.98	5.3	31.42	0	113	63-143	0			
Fluorotelomer Sulphonic Acid	26.22	2	5.3	31.84	0	82.3	63-162	0			
Fluorotelomer Sulphonic Acid	38.95	1.2	5.3	32.26	0	121	61-165	0			
Perfluorobutanesulfonic Acid (	31.24	0.37	5.3	29.74	0	105	72-130	0			
Perfluorobutanoic Acid (PFBA)	35.71	2.7	5.3	33.63	0.5467	105	73-129	0			
Perfluorodecanesulfonic Acid	36.08	1.4	5.3	32.37	0	111	53-142	0			
Perfluorodecanoic Acid (PFDA	25.59	1.3	5.3	33.63	0	76.1	71-129	0			
Perfluorododecanesulfonic Aci	30.71	0.65	5.3	32.58	0	94.3	69-134	0			
Perfluorododecanoic Acid (PF	28.22	0.73	5.3	33.63	0	83.9	72-134	0			
Perfluoroheptanesulfonic Acid	40.94	0.59	5.3	32.05	0.03928	128	69-134	0			
Perfluoroheptanoic Acid (PFH	38.13	1.8	5.3	33.63	0.5368	112	72-130	0			
Perfluorohexanesulfonic Acid	31.25	0.95	5.3	30.58	0.9329	99.1	68-131	0			
Perfluorohexanoic Acid (PFHx	33.23	1.3	5.3	33.63	0.4681	97.4	72-129	0			
Perfluorononanesulfonic Acid	36.39	0.52	5.3	32.26	0	113	69-127	0			
Perfluorononanoic Acid (PFNA	25.79	0.91	5.3	33.63	0	76.7	69-130	0			
Perfluorooctanesulfonamide (F	41.49	0.75	5.3	33.63	0	123	67-137	0			
Perfluorooctanesulfonic Acid (	34.51	0.94	2.1	31.21	0.3404	109	65-140	0			
Perfluorooctanoic Acid (PFOA	33.65	0.66	2.1	33.63	0.5761	98.4	71-133	0			
Perfluoropentanesulfonic Acid	38.82	0.58	5.3	31.53	0	123	71-127	0			
Perfluoropentanoic Acid (PFPe	37.07	1.3	5.3	33.63	0.4877	109	72-129	0			
Perfluorotetradecanoic Acid (F	32.04	2.8	5.3	33.63	0	95.3	71-132	0			
Perfluorotridecanoic Acid (PFT	33.46	2	5.3	33.63	0	99.5	65-144	0			
Perfluoroundecanoic Acid (PF	30.14	1	5.3	33.63	0	89.6	69-133	0			
N-ethylperfluoro-1-octanesulfo	34.04	1.2	5.3	33.63	0	101	70-130	0			
N-Ethylperfluorooctanesulfona	36.82	1.6	5.3	33.63	0	109	61-135	0			
N-Ethylperfluorooctanesulfona	37.19	1.1	5.3	33.63	0	111	70-130	0			
N-methylperfluoro-1-octanesul	39.96	0.83	5.3	33.63	0	119	70-130	0			
N-Methylperfluorooctanesulfor	43.77	0.68	5.3	33.63	0	130	65-136	0			
N-Methylperfluorooctanesulfor	27.12	1.6	5.3	33.63	0	80.6	68-141	0			
Hexafluoropropylene oxide din	27.56	1.2	5.3	33.63	0	82	70-130	0			
4,8-Dioxa-3H-perfluorononano	42.05	0.59	5.3	31.63	0	133	70-130	0			S
11Cl-Pf3OUdS	30.41	0.49	5.3	31.63	0	96.1	70-130	0			
9Cl-PF3ONS	36.52	0.47	5.3	31.32	0	117	70-130	0			
Surr: 13C2-FtS 4:2	*96.89*	0	0	*157*	0	*61.7*	*50-150*	0			
Surr: 13C2-FtS 6:2	*90.22*	0	0	*159.7*	0	*56.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*124.8*	0	0	*161.1*	0	*77.5*	*50-150*	0			
Surr: 13C2-PFDA	*143.9*	0	0	*168.1*	0	*85.6*	*50-150*	0			
Surr: 13C2-PFDoA	*94.23*	0	0	*168.1*	0	*56*	*50-150*	0			
Surr: 13C2-PFHxA	*134.3*	0	0	*168.1*	0	*79.9*	*50-150*	0			
Surr: 13C2-PFHxDA	*109.8*	0	0	*168.1*	0	*65.3*	*50-150*	0			
Surr: 13C2-PFTeA	*127.9*	0	0	*168.1*	0	*76.1*	*50-150*	0			
Surr: 13C2-PFUnA	*157.3*	0	0	*168.1*	0	*93.6*	*50-150*	0			
Surr: 13C3-HFPO-DA	*126.3*	0	0	*168.1*	0	*75.1*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*104.6*	0	0	*156.4*	0	*66.9*	*50-150*	0
Surr: 13C4-PFBA	*125.7*	0	0	*168.1*	0	*74.8*	*50-150*	0
Surr: 13C4-PFHpA	*92.09*	0	0	*168.1*	0	*54.8*	*50-150*	0
Surr: 13C4-PFOA	*128.3*	0	0	*168.1*	0	*76.3*	*50-150*	0
Surr: 13C4-PFOS	*95.67*	0	0	*160.6*	0	*59.6*	*50-150*	0
Surr: 13C5-PFNA	*127*	0	0	*168.1*	0	*75.5*	*50-150*	0
Surr: 13C5-PFPeA	*114.9*	0	0	*168.1*	0	*68.3*	*50-150*	0
Surr: 13C8-FOSA	*107*	0	0	*168.1*	0	*63.6*	*50-150*	0
Surr: 18O2-PFHxS	*97.3*	0	0	*158.9*	0	*61.2*	*50-150*	0
Surr: d5-N-EtFOSA	*96.7*	0	0	*168.1*	0	*57.5*	*50-150*	0
Surr: d5-N-EtFOSAA	*110.5*	0	0	*168.1*	0	*65.7*	*50-150*	0
Surr: d9-N-EtFOSE	*96.7*	0	0	*168.1*	0	*57.5*	*50-150*	0
Surr: d3-N-MeFOSA	*90.93*	0	0	*168.1*	0	*54.1*	*50-150*	0
Surr: d3-N-MeFOSAA	*99.26*	0	0	*168.1*	0	*59*	*50-150*	0
Surr: d7-N-MeFOSE	*87.69*	0	0	*168.1*	0	*52.2*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

DUP Sample ID: **22060450-10A DUP** Units: **ng/L** Analysis Date: **6/9/2022 09:17 PM**

Client ID: **MW-112A** Run ID: **LCMS2_220609A** SeqNo: **8512188** Prep Date: **6/8/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.95	5.1	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	1.9	5.1	0	0	0	0-0	1.769	0	30	
Fluorotelomer Sulphonic Acid	U	1.1	5.1	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	243.4	0.35	5.1	0	0	0	0-0	176.9	31.6	30	R
Perfluorobutanoic Acid (PFBA)	228.6	2.6	5.1	0	0	0	0-0	178	24.9	30	
Perfluorodecanesulfonic Acid	U	1.4	5.1	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA	U	1.3	5.1	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Aci	U	0.63	5.1	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFI	U	0.7	5.1	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid	1.162	0.57	5.1	0	0	0	0-0	1.684	0	30	J
Perfluoroheptanoic Acid (PFH	24.99	1.7	5.1	0	0	0	0-0	24.57	1.72	30	
Perfluorohexanesulfonic Acid	48.31	0.91	5.1	0	0	0	0-0	48.49	0.372	30	
Perfluorohexanoic Acid (PFHx	101.8	1.2	5.1	0	0	0	0-0	88.08	14.5	30	
Perfluorononanesulfonic Acid	U	0.5	5.1	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA	U	0.88	5.1	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (F	U	0.72	5.1	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (	19.47	0.9	2.0	0	0	0	0-0	20.05	2.95	30	
Perfluorooctanoic Acid (PFOA)	171.2	0.64	2.0	0	0	0	0-0	148.5	14.2	30	
Perfluoropentanesulfonic Acid	13.3	0.56	5.1	0	0	0	0-0	19.43	37.5	30	R
Perfluoropentanoic Acid (PFPe	117.1	1.3	5.1	0	0	0	0-0	113.1	3.53	30	
Perfluorotetradecanoic Acid (F	U	2.7	5.1	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	2	5.1	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFI	U	0.99	5.1	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfo	U	1.2	5.1	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.6	5.1	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.1	5.1	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesul	U	0.8	5.1	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.65	5.1	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	1.5	5.1	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide din	2.34	1.2	5.1	0	0	0	0-0	2.089	0	30	J
4,8-Dioxa-3H-perfluorononano	U	0.57	5.1	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	0.47	5.1	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	0.45	5.1	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*161.8*	0	0	*151.1*	0	*107*	*50-150*	124.4	*26.2*	*30*	
Surr: 13C2-FtS 6:2	*140.5*	0	0	*153.7*	0	*91.4*	*50-150*	116.8	*18.4*	*30*	
Surr: 13C2-FtS 8:2	*155.7*	0	0	*155*	0	*100*	*50-150*	178.9	*13.9*	*30*	
Surr: 13C2-PFDA	*148.2*	0	0	*161.8*	0	*91.6*	*50-150*	117.6	*23*	*30*	
Surr: 13C2-PFDoA	*177.8*	0	0	*161.8*	0	*110*	*50-150*	95.49	*60.2*	*30*	*R*
Surr: 13C2-PFHxA	*150.7*	0	0	*161.8*	0	*93.2*	*50-150*	109.6	*31.6*	*30*	*R*
Surr: 13C2-PFHxDA	*159.7*	0	0	*161.8*	0	*98.7*	*50-150*	93.63	*52.2*	*30*	*R*
Surr: 13C2-PFTeA	*158.4*	0	0	*161.8*	0	*97.9*	*50-150*	86.14	*59.1*	*30*	*R*
Surr: 13C2-PFUnA	*146.2*	0	0	*161.8*	0	*90.4*	*50-150*	157.3	*7.31*	*30*	
Surr: 13C3-HFPO-DA	*145.5*	0	0	*161.8*	0	*89.9*	*50-150*	102.6	*34.6*	*30*	*R*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197590** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*137.9*	0	0	*150.5*	0	*91.6*	*50-150*	84.98	*47.5*	*30*	*R*
Surr: 13C4-PFBA	*117.6*	0	0	*161.8*	0	*72.7*	*50-150*	86.11	*30.9*	*30*	*R*
Surr: 13C4-PFHpA	*136.3*	0	0	*161.8*	0	*84.2*	*50-150*	64.88	*71*	*30*	*R*
Surr: 13C4-PFOA	*167.9*	0	0	*161.8*	0	*104*	*50-150*	93.18	*57.2*	*30*	*R*
Surr: 13C4-PFOS	*150.7*	0	0	*154.5*	0	*97.5*	*50-150*	88.85	*51.6*	*30*	*R*
Surr: 13C5-PFNA	*161.7*	0	0	*161.8*	0	*99.9*	*50-150*	130.6	*21.3*	*30*	
Surr: 13C5-PFPeA	*146.6*	0	0	*161.8*	0	*90.6*	*50-150*	95.09	*42.7*	*30*	*R*
Surr: 13C8-FOSA	*110*	0	0	*161.8*	0	*68*	*50-150*	83.87	*27*	*30*	
Surr: 18O2-PFHxS	*180.7*	0	0	*152.9*	0	*118*	*50-150*	78.74	*78.6*	*30*	*R*
Surr: d5-N-EtFOSA	*139.1*	0	0	*161.8*	0	*86*	*50-150*	89.97	*42.9*	*30*	*R*
Surr: d5-N-EtFOSAA	*136*	0	0	*161.8*	0	*84.1*	*50-150*	99.61	*30.9*	*30*	*R*
Surr: d9-N-EtFOSE	*135.5*	0	0	*161.8*	0	*83.7*	*50-150*	87.84	*42.6*	*30*	*R*
Surr: d3-N-MeFOSA	*128.7*	0	0	*161.8*	0	*79.5*	*50-150*	89.94	*35.5*	*30*	*R*
Surr: d3-N-MeFOSAA	*133.9*	0	0	*161.8*	0	*82.7*	*50-150*	106.1	*23.1*	*30*	
Surr: d7-N-MeFOSE	*121.1*	0	0	*161.8*	0	*74.9*	*50-150*	81.73	*38.8*	*30*	*R*

The following samples were analyzed in this batch:

22060450-01A	22060450-02A	22060450-03A
22060450-04A	22060450-05A	22060450-06A
22060450-07A	22060450-08A	22060450-09A
22060450-10A	22060450-11A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

MBLK Sample ID: **MBLK-197666-197666** Units: **ng/L** Analysis Date: **6/9/2022 08:19 PM**
Client ID: Run ID: **LCMS2_220609A** SeqNo: **8512182** Prep Date: **6/9/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	1.9	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	0.62	5.0								
Perfluorododecanoic Acid (PFI	U	0.69	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFH	U	1.7	5.0								
Perfluorohexanesulfonic Acid	U	0.9	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	1.9	5.0								
Perfluoroundecanoic Acid (PFI	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1.5	5.0								
N-Ethylperfluorooctanesulfona	U	1	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	1.5	5.0								
Hexafluoropropylene oxide din	U	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*105.7*	0	0	*149.4*	0	*70.7*	*50-150*	0			
Surr: 13C2-FtS 6:2	*97.66*	0	0	*152*	0	*64.2*	*50-150*	0			
Surr: 13C2-FtS 8:2	*144.2*	0	0	*153.3*	0	*94.1*	*50-150*	0			
Surr: 13C2-PFDA	*142.3*	0	0	*160*	0	*88.9*	*50-150*	0			
Surr: 13C2-PFDoA	*118.6*	0	0	*160*	0	*74.1*	*50-150*	0			
Surr: 13C2-PFHxA	*120.1*	0	0	*160*	0	*75*	*50-150*	0			
Surr: 13C2-PFHxDA	*128*	0	0	*160*	0	*80*	*50-150*	0			
Surr: 13C2-PFTeA	*132.9*	0	0	*160*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFUnA	*125.2*	0	0	*160*	0	*78.2*	*50-150*	0			
Surr: 13C3-HFPO-DA	*110.8*	0	0	*160*	0	*69.2*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*106.1*	0	0	*148.8*	0	*71.3*	*50-150*	0
Surr: 13C4-PFBA	*128.8*	0	0	*160*	0	*80.5*	*50-150*	0
Surr: 13C4-PFHpA	*140.6*	0	0	*160*	0	*87.9*	*50-150*	0
Surr: 13C4-PFOA	*169.1*	0	0	*160*	0	*106*	*50-150*	0
Surr: 13C4-PFOS	*124.8*	0	0	*152.8*	0	*81.7*	*50-150*	0
Surr: 13C5-PFNA	*155.7*	0	0	*160*	0	*97.3*	*50-150*	0
Surr: 13C5-PFPeA	*119.3*	0	0	*160*	0	*74.6*	*50-150*	0
Surr: 13C8-FOSA	*100.5*	0	0	*160*	0	*62.8*	*50-150*	0
Surr: 18O2-PFHxS	*148.7*	0	0	*151.2*	0	*98.3*	*50-150*	0
Surr: d5-N-EtFOSA	*103*	0	0	*160*	0	*64.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*121.3*	0	0	*160*	0	*75.8*	*50-150*	0
Surr: d9-N-EtFOSE	*113.7*	0	0	*160*	0	*71*	*50-150*	0
Surr: d3-N-MeFOSA	*105.3*	0	0	*160*	0	*65.8*	*50-150*	0
Surr: d3-N-MeFOSAA	*95.72*	0	0	*160*	0	*59.8*	*50-150*	0
Surr: d7-N-MeFOSE	*97.82*	0	0	*160*	0	*61.1*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

LCS Sample ID: **LCS-197666-197666** Units: **ng/L** Analysis Date: **6/9/2022 08:27 PM**
Client ID: Run ID: **LCMS2_220609A** SeqNo: **8512183** Prep Date: **6/9/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	40.78	0.94	5.0	29.9	0	136	63-143	0			
Fluorotelomer Sulphonic Acid	34.61	1.9	5.0	30.3	0	114	63-162	0			
Fluorotelomer Sulphonic Acid	36.26	1.1	5.0	30.7	0	118	61-165	0			
Perfluorobutanesulfonic Acid (	32.01	0.35	5.0	28.3	0	113	72-130	0			
Perfluorobutanoic Acid (PFBA)	35.55	2.6	5.0	32	0	111	73-129	0			
Perfluorodecanesulfonic Acid (	29.83	1.4	5.0	30.8	0	96.9	53-142	0			
Perfluorodecanoic Acid (PFDA	28.54	1.2	5.0	32	0	89.2	71-129	0			
Perfluorododecanesulfonic Aci	26.2	0.62	5.0	31	0	84.5	69-134	0			
Perfluorododecanoic Acid (PFI	30.48	0.69	5.0	32	0	95.2	72-134	0			
Perfluoroheptanoic Acid (PFHp	33.96	1.7	5.0	32	0	106	72-130	0			
Perfluorohexanesulfonic Acid (	22.26	0.9	5.0	29.1	0	76.5	68-131	0			
Perfluorohexanoic Acid (PFHx	33.4	1.2	5.0	32	0	104	72-129	0			
Perfluorononanesulfonic Acid (	26.36	0.5	5.0	30.7	0	85.9	69-127	0			
Perfluorononanoic Acid (PFNA	26.67	0.87	5.0	32	0	83.4	69-130	0			
Perfluorooctanesulfonamide (F	39.08	0.71	5.0	32	0	122	67-137	0			
Perfluorooctanesulfonic Acid (I	31.02	0.89	2.0	29.7	0	104	65-140	0			
Perfluorooctanoic Acid (PFOA)	32.1	0.63	2.0	32	0	100	71-133	0			
Perfluoropentanoic Acid (PFPe	34.92	1.3	5.0	32	0	109	72-129	0			
Perfluorotetradecanoic Acid (F	31.92	2.6	5.0	32	0	99.8	71-132	0			
Perfluorotridecanoic Acid (PFT	28.23	1.9	5.0	32	0	88.2	65-144	0			
Perfluoroundecanoic Acid (PFI	28.89	0.97	5.0	32	0	90.3	69-133	0			
N-ethylperfluoro-1-octanesulfo	30.4	1.2	5.0	32	0	95	70-130	0			
N-Ethylperfluorooctanesulfona	38.78	1.5	5.0	32	0	121	61-135	0			
N-Ethylperfluorooctanesulfona	32.93	1	5.0	32	0	103	70-130	0			
N-methylperfluoro-1-octanesul	33.24	0.79	5.0	32	0	104	70-130	0			
N-Methylperfluorooctanesulfor	40.56	0.64	5.0	32	0	127	65-136	0			
N-Methylperfluorooctanesulfor	40.07	1.5	5.0	32	0	125	68-141	0			
Hexafluoropropylene oxide din	30.35	1.2	5.0	32	0	94.8	70-130	0			
4,8-Dioxa-3H-perfluorononano	26.83	0.56	5.0	30.1	0	89.1	70-130	0			
11Cl-Pf3OUdS	25.42	0.47	5.0	30.1	0	84.5	70-130	0			
9Cl-PF3ONS	26.4	0.45	5.0	29.8	0	88.6	70-130	0			
Surr: 13C2-FtS 4:2	*109.7*	0	0	*149.4*	0	*73.4*	*50-150*	0			
Surr: 13C2-FtS 6:2	*109.6*	0	0	*152*	0	*72.1*	*50-150*	0			
Surr: 13C2-FtS 8:2	*139.6*	0	0	*153.3*	0	*91.1*	*50-150*	0			
Surr: 13C2-PFDA	*139.6*	0	0	*160*	0	*87.2*	*50-150*	0			
Surr: 13C2-PFDoA	*136.8*	0	0	*160*	0	*85.5*	*50-150*	0			
Surr: 13C2-PFHxA	*131.8*	0	0	*160*	0	*82.4*	*50-150*	0			
Surr: 13C2-PFHxDA	*134.7*	0	0	*160*	0	*84.2*	*50-150*	0			
Surr: 13C2-PFTeA	*136.9*	0	0	*160*	0	*85.5*	*50-150*	0			
Surr: 13C2-PFUnA	*116.4*	0	0	*160*	0	*72.8*	*50-150*	0			
Surr: 13C3-HFPO-DA	*129.1*	0	0	*160*	0	*80.7*	*50-150*	0			
Surr: 13C3-PFBS	*121*	0	0	*148.8*	0	*81.3*	*50-150*	0			
Surr: 13C4-PFBA	*141.6*	0	0	*160*	0	*88.5*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C4-PFHpA	*162.8*	0	0	*160*	0	*102*	*50-150*	0
Surr: 13C4-PFOA	*178.2*	0	0	*160*	0	*111*	*50-150*	0
Surr: 13C4-PFOS	*147.1*	0	0	*152.8*	0	*96.3*	*50-150*	0
Surr: 13C5-PFNA	*161.4*	0	0	*160*	0	*101*	*50-150*	0
Surr: 13C5-PFPeA	*135.4*	0	0	*160*	0	*84.6*	*50-150*	0
Surr: 13C8-FOSA	*103.7*	0	0	*160*	0	*64.8*	*50-150*	0
Surr: 18O2-PFHxS	*170.6*	0	0	*151.2*	0	*113*	*50-150*	0
Surr: d5-N-EtFOSA	*109.4*	0	0	*160*	0	*68.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*120.6*	0	0	*160*	0	*75.4*	*50-150*	0
Surr: d9-N-EtFOSE	*116.4*	0	0	*160*	0	*72.8*	*50-150*	0
Surr: d3-N-MeFOSA	*110.2*	0	0	*160*	0	*68.9*	*50-150*	0
Surr: d3-N-MeFOSAA	*101*	0	0	*160*	0	*63.1*	*50-150*	0
Surr: d7-N-MeFOSE	*101.6*	0	0	*160*	0	*63.5*	*50-150*	0

LCS Sample ID: **LCS-197666-197666** Units: **ng/L** Analysis Date: **6/16/2022 12:04 PM**
Client ID: Run ID: **LCMS2_220615B** SeqNo: **8525101** Prep Date: **6/9/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	25.35	0.57	5.0	30.5	0	83.1	69-134	0			
Perfluoropentanesulfonic Acid	22.94	0.56	5.0	30	0	76.5	71-127	0			

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

MS Sample ID: **22060749-06A MS** Units: **ng/L** Analysis Date: **6/10/2022 12:27 AM**
Client ID: Run ID: **LCMS2_220609A** SeqNo: **8512209** Prep Date: **6/9/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	35.59	0.96	5.1	30.75	0	116	63-143	0			
Fluorotelomer Sulphonic Acid	38.59	2	5.1	31.17	0	124	63-162	0			
Fluorotelomer Sulphonic Acid	38.06	1.2	5.1	31.58	0	121	61-165	0			
Perfluorobutanesulfonic Acid (	32.03	0.36	5.1	29.11	1.492	105	72-130	0			
Perfluorobutanoic Acid (PFBA)	44.97	2.7	5.1	32.91	5.532	120	73-129	0			
Perfluorodecanesulfonic Acid	35.27	1.4	5.1	31.68	0	111	53-142	0			
Perfluorodecanoic Acid (PFDA	29.04	1.3	5.1	32.91	0	88.2	71-129	0			
Perfluorododecanesulfonic Aci	26.13	0.64	5.1	31.89	0	82	69-134	0			
Perfluorododecanoic Acid (PFI	37.8	0.71	5.1	32.91	0	115	72-134	0			
Perfluoroheptanesulfonic Acid	49.82	0.58	5.1	31.37	0.169	158	69-134	0			S
Perfluoroheptanoic Acid (PFH	36.39	1.8	5.1	32.91	0.8817	108	72-130	0			
Perfluorohexanesulfonic Acid	31.48	0.93	5.1	29.93	0.8419	102	68-131	0			
Perfluorohexanoic Acid (PFHx	38.24	1.2	5.1	32.91	1.488	112	72-129	0			
Perfluorononanesulfonic Acid	37.15	0.51	5.1	31.58	0	118	69-127	0			
Perfluorononanoic Acid (PFNA	28.6	0.89	5.1	32.91	0	86.9	69-130	0			
Perfluorooctanesulfonamide (F	38.83	0.73	5.1	32.91	0	118	67-137	0			
Perfluorooctanesulfonic Acid (	41.52	0.92	2.1	30.55	8.601	108	65-140	0			
Perfluorooctanoic Acid (PFOA)	36.96	0.65	2.1	32.91	1.717	107	71-133	0			
Perfluoropentanesulfonic Acid	33.82	0.57	5.1	30.86	0.358	108	71-127	0			
Perfluoropentanoic Acid (PFPe	37.57	1.3	5.1	32.91	0.8784	111	72-129	0			
Perfluorotetradecanoic Acid (F	32.38	2.7	5.1	32.91	0	98.4	71-132	0			
Perfluorotridecanoic Acid (PFT	36.68	2	5.1	32.91	0	111	65-144	0			
Perfluoroundecanoic Acid (PFI	32.39	1	5.1	32.91	0	98.4	69-133	0			
N-ethylperfluoro-1-octanesulfo	32.46	1.2	5.1	32.91	0	98.6	70-130	0			
N-Ethylperfluorooctanesulfona	40.12	1.6	5.1	32.91	0	122	61-135	0			
N-Ethylperfluorooctanesulfona	39.05	1.1	5.1	32.91	0	119	70-130	0			
N-methylperfluoro-1-octanesul	38.92	0.82	5.1	32.91	0	118	70-130	0			
N-Methylperfluorooctanesulfor	40.96	0.66	5.1	32.91	0	124	65-136	0			
Hexafluoropropylene oxide din	33.08	1.2	5.1	32.91	2.618	92.6	70-130	0			
4,8-Dioxa-3H-perfluorononano	37.65	0.58	5.1	30.96	0	122	70-130	0			
11Cl-Pf3OUdS	28.69	0.48	5.1	30.96	0	92.7	70-130	0			
9Cl-PF3ONS	33.84	0.46	5.1	30.65	0	110	70-130	0			
Surr: 13C2-FtS 4:2	*111.7*	0	0	*153.7*	0	*72.7*	*50-150*	0			
Surr: 13C2-FtS 6:2	*98.58*	0	0	*156.3*	0	*63.1*	*50-150*	0			
Surr: 13C2-FtS 8:2	*118.8*	0	0	*157.7*	0	*75.4*	*50-150*	0			
Surr: 13C2-PFDA	*112.9*	0	0	*164.6*	0	*68.6*	*50-150*	0			
Surr: 13C2-PFDoA	*75.13*	0	0	*164.6*	0	*45.7*	*50-150*	0			*S*
Surr: 13C2-PFHxA	*116.9*	0	0	*164.6*	0	*71*	*50-150*	0			
Surr: 13C2-PFHxDA	*96.67*	0	0	*164.6*	0	*58.7*	*50-150*	0			
Surr: 13C2-PFTeA	*109.4*	0	0	*164.6*	0	*66.5*	*50-150*	0			
Surr: 13C2-PFUnA	*138.6*	0	0	*164.6*	0	*84.2*	*50-150*	0			
Surr: 13C3-HFPO-DA	*119.4*	0	0	*164.6*	0	*72.5*	*50-150*	0			
Surr: 13C3-PFBS	*98.98*	0	0	*153.1*	0	*64.7*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C4-PFBA	*105.3*	0	0	*164.6*	0	*64*	*50-150*	0	
Surr: 13C4-PFHpA	*72.52*	0	0	*164.6*	0	*44.1*	*50-150*	0	*S*
Surr: 13C4-PFOA	*94.34*	0	0	*164.6*	0	*57.3*	*50-150*	0	
Surr: 13C4-PFOS	*90.02*	0	0	*157.2*	0	*57.3*	*50-150*	0	
Surr: 13C5-PFNA	*114.6*	0	0	*164.6*	0	*69.6*	*50-150*	0	
Surr: 13C5-PFPeA	*108.2*	0	0	*164.6*	0	*65.7*	*50-150*	0	
Surr: 13C8-FOSA	*117.2*	0	0	*164.6*	0	*71.2*	*50-150*	0	
Surr: 18O2-PFHxS	*84.73*	0	0	*155.5*	0	*54.5*	*50-150*	0	
Surr: d5-N-EtFOSA	*92.09*	0	0	*164.6*	0	*56*	*50-150*	0	
Surr: d5-N-EtFOSAA	*97.18*	0	0	*164.6*	0	*59.1*	*50-150*	0	
Surr: d9-N-EtFOSE	*95.03*	0	0	*164.6*	0	*57.7*	*50-150*	0	
Surr: d3-N-MeFOSA	*90.09*	0	0	*164.6*	0	*54.7*	*50-150*	0	
Surr: d3-N-MeFOSAA	*95.24*	0	0	*164.6*	0	*57.9*	*50-150*	0	
Surr: d7-N-MeFOSE	*92.47*	0	0	*164.6*	0	*56.2*	*50-150*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

DUP Sample ID: **22060749-07A DUP** Units: **ng/L** Analysis Date: **6/10/2022 12:43 AM**
Client ID: Run ID: **LCMS2_220609A** SeqNo: **8512211** Prep Date: **6/9/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.97	5.2	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	2	5.2	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	1.2	5.2	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	1.112	0.36	5.2	0	0	0	0-0	0.8674	0	30	J
Perfluorobutanoic Acid (PFBA)	4.545	2.7	5.2	0	0	0	0-0	3.324	0	30	J
Perfluorodecanesulfonic Acid (	U	1.4	5.2	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA	U	1.3	5.2	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Aci	U	0.64	5.2	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFI	U	0.71	5.2	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFH	U	1.8	5.2	0	0	0	0-0	0.6952	0	30	
Perfluorohexanesulfonic Acid (	U	0.93	5.2	0	0	0	0-0	0.7526	0	30	
Perfluorohexanoic Acid (PFHx	1.91	1.2	5.2	0	0	0	0-0	1.63	0	30	J
Perfluorononanesulfonic Acid (	U	0.51	5.2	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA	U	0.9	5.2	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (F	U	0.74	5.2	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (	1.049	0.92	2.1	0	0	0	0-0	1.363	0	30	J
Perfluorooctanoic Acid (PFOA)	1.529	0.65	2.1	0	0	0	0-0	1.755	0	30	J
Perfluoropentanesulfonic Acid	U	0.58	5.2	0	0	0	0-0	0.4016	0	30	
Perfluoropentanoic Acid (PFPe	U	1.3	5.2	0	0	0	0-0	1.303	0	30	
Perfluorotetradecanoic Acid (F	U	2.7	5.2	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	2	5.2	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFI	U	1	5.2	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfo	U	1.2	5.2	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.6	5.2	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.1	5.2	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesul	U	0.82	5.2	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.67	5.2	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	1.6	5.2	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide din	1.973	1.2	5.2	0	0	0	0-0	1.957	0	30	J
4,8-Dioxa-3H-perfluorononano	U	0.58	5.2	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	0.48	5.2	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	0.46	5.2	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*175.4*	0	0	*154.6*	0	*113*	*50-150*	151.6	*14.6*	*30*	
Surr: 13C2-FtS 6:2	*118.2*	0	0	*157.2*	0	*75.2*	*50-150*	123.6	*4.49*	*30*	
Surr: 13C2-FtS 8:2	*185.5*	0	0	*158.6*	0	*117*	*50-150*	204.7	*9.82*	*30*	
Surr: 13C2-PFDA	*163*	0	0	*165.5*	0	*98.5*	*50-150*	189.8	*15.2*	*30*	
Surr: 13C2-PFDoA	*141*	0	0	*165.5*	0	*85.2*	*50-150*	153.2	*8.28*	*30*	
Surr: 13C2-PFHxA	*145.5*	0	0	*165.5*	0	*87.9*	*50-150*	154.8	*6.23*	*30*	
Surr: 13C2-PFHxDA	*128.5*	0	0	*165.5*	0	*77.6*	*50-150*	139.3	*8.06*	*30*	
Surr: 13C2-PFTeA	*118.4*	0	0	*165.5*	0	*71.6*	*50-150*	125.1	*5.5*	*30*	
Surr: 13C2-PFUnA	*146.7*	0	0	*165.5*	0	*88.7*	*50-150*	154.2	*4.93*	*30*	
Surr: 13C3-HFPO-DA	*143.7*	0	0	*165.5*	0	*86.8*	*50-150*	144.7	*0.716*	*30*	
Surr: 13C3-PFBS	*138.5*	0	0	*153.9*	0	*90*	*50-150*	144.4	*4.2*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197666** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C4-PFBA	*132.1*	0	0	*165.5*	0	*79.8*	*50-150*	143.4	*8.25*	*30*	
Surr: 13C4-PFHpA	*146.6*	0	0	*165.5*	0	*88.5*	*50-150*	138.7	*5.54*	*30*	
Surr: 13C4-PFOA	*187.4*	0	0	*165.5*	0	*113*	*50-150*	178.7	*4.75*	*30*	
Surr: 13C4-PFOS	*133.3*	0	0	*158.1*	0	*84.3*	*50-150*	142.2	*6.44*	*30*	
Surr: 13C5-PFNA	*173*	0	0	*165.5*	0	*105*	*50-150*	186.1	*7.34*	*30*	
Surr: 13C5-PFPeA	*147.5*	0	0	*165.5*	0	*89.1*	*50-150*	160.3	*8.36*	*30*	
Surr: 13C8-FOSA	*129*	0	0	*165.5*	0	*78*	*50-150*	135.6	*4.94*	*30*	
Surr: 18O2-PFHxS	*177.3*	0	0	*156.4*	0	*113*	*50-150*	174.9	*1.39*	*30*	
Surr: d5-N-EtFOSA	*132.3*	0	0	*165.5*	0	*79.9*	*50-150*	139.3	*5.13*	*30*	
Surr: d5-N-EtFOSAA	*162.4*	0	0	*165.5*	0	*98.1*	*50-150*	154.1	*5.24*	*30*	
Surr: d9-N-EtFOSE	*125.9*	0	0	*165.5*	0	*76*	*50-150*	133.9	*6.21*	*30*	
Surr: d3-N-MeFOSA	*137.8*	0	0	*165.5*	0	*83.3*	*50-150*	148.3	*7.32*	*30*	
Surr: d3-N-MeFOSAA	*115.2*	0	0	*165.5*	0	*69.6*	*50-150*	119.8	*3.9*	*30*	
Surr: d7-N-MeFOSE	*121.2*	0	0	*165.5*	0	*73.3*	*50-150*	123.6	*1.91*	*30*	

The following samples were analyzed in this batch:

22060450-12A	22060450-13A	22060450-14A
22060450-15A	22060450-16A	22060450-17A
22060450-18A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-197746-197746** Units: **ng/L** Analysis Date: **6/10/2022 05:42 PM**
Client ID: Run ID: **LCMS1_220610B** SeqNo: **8510092** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	1.9	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	0.62	5.0								
Perfluorododecanoic Acid (PFI	U	0.69	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFH	U	1.7	5.0								
Perfluorohexanesulfonic Acid	U	0.9	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	1.9	5.0								
Perfluoroundecanoic Acid (PFI	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	0.7168	0.64	5.0								J
N-Methylperfluorooctanesulfor	U	1.5	5.0								
Hexafluoropropylene oxide din	UI	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*107.4*	0	0	*149.4*	0	*71.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*120.3*	0	0	*152*	0	*79.1*	*50-150*	0			
Surr: 13C2-FtS 8:2	*117.9*	0	0	*153.3*	0	*76.9*	*50-150*	0			
Surr: 13C2-PFDA	*132.1*	0	0	*160*	0	*82.6*	*50-150*	0			
Surr: 13C2-PFDoA	*101.4*	0	0	*160*	0	*63.4*	*50-150*	0			
Surr: 13C2-PFHxA	*126*	0	0	*160*	0	*78.7*	*50-150*	0			
Surr: 13C2-PFHxDA	*134.3*	0	0	*160*	0	*83.9*	*50-150*	0			
Surr: 13C2-PFTeA	*178.9*	0	0	*160*	0	*112*	*50-150*	0			
Surr: 13C2-PFUnA	*129*	0	0	*160*	0	*80.6*	*50-150*	0			
Surr: 13C3-HFPO-DA	*162.4*	0	0	*160*	0	*101*	*50-150*	0			
Surr: 13C3-PFBS	*127.1*	0	0	*148.8*	0	*85.4*	*50-150*	0			
Surr: 13C4-PFBA	*134.4*	0	0	*160*	0	*84*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C4-PFHpA	*144.6*	0	0	*160*	0	*90.4*	*50-150*	0
Surr: 13C4-PFOA	*182*	0	0	*160*	0	*114*	*50-150*	0
Surr: 13C4-PFOS	*111.3*	0	0	*152.8*	0	*72.9*	*50-150*	0
Surr: 13C5-PFNA	*165.8*	0	0	*160*	0	*104*	*50-150*	0
Surr: 13C5-PFPeA	*123.1*	0	0	*160*	0	*77*	*50-150*	0
Surr: 13C8-FOSA	*94.55*	0	0	*160*	0	*59.1*	*50-150*	0
Surr: 18O2-PFHxS	*109*	0	0	*151.2*	0	*72.1*	*50-150*	0
Surr: d5-N-EtFOSA	*99.34*	0	0	*160*	0	*62.1*	*50-150*	0
Surr: d5-N-EtFOSAA	*152.2*	0	0	*160*	0	*95.2*	*50-150*	0
Surr: d9-N-EtFOSE	*100.3*	0	0	*160*	0	*62.7*	*50-150*	0
Surr: d3-N-MeFOSA	*104.8*	0	0	*160*	0	*65.5*	*50-150*	0
Surr: d3-N-MeFOSAA	*98.48*	0	0	*160*	0	*61.6*	*50-150*	0
Surr: d7-N-MeFOSE	*129.3*	0	0	*160*	0	*80.8*	*50-150*	0

MBLK Sample ID: **MBLK-197746-197746** Units: **ng/L** Analysis Date: **6/14/2022 10:51 AM**

Client ID: Run ID: **LCMS2_220613B** SeqNo: **8519518** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorododecanesulfonic Aci	U	0.62	5.0								
Perfluorononanesulfonic Acid (	U	0.5	5.0								
Surr: 13C4-PFHpA	*120*	0	0	*160*	0	*75*	*50-150*	0			
Surr: d5-N-EtFOSA	*140.8*	0	0	*160*	0	*88*	*50-150*	0			
Surr: d3-N-MeFOSA	*132.7*	0	0	*160*	0	*82.9*	*50-150*	0			

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

LCS Sample ID: **LCS-197746-197746** Units: **ng/L** Analysis Date: **6/10/2022 05:50 PM**
Client ID: Run ID: **LCMS1_220610B** SeqNo: **8510093** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	35.36	0.94	5.0	29.9	0	118	63-143	0			
Fluorotelomer Sulphonic Acid	32.55	1.9	5.0	30.3	0	107	63-162	0			
Perfluorobutanesulfonic Acid (	31.58	0.35	5.0	28.3	0	112	72-130	0			
Perfluorobutanoic Acid (PFBA)	33.75	2.6	5.0	32	0	105	73-129	0			
Perfluorodecanesulfonic Acid	27.52	1.4	5.0	30.8	0	89.4	53-142	0			
Perfluorodecanoic Acid (PFDA	27.1	1.2	5.0	32	0	84.7	71-129	0			
Perfluorododecanoic Acid (PFI	29.5	0.69	5.0	32	0	92.2	72-134	0			
Perfluoroheptanesulfonic Acid	32.59	0.57	5.0	30.5	0	107	69-134	0			
Perfluoroheptanoic Acid (PFH	37.7	1.7	5.0	32	0	118	72-130	0			
Perfluorohexanesulfonic Acid	29.43	0.9	5.0	29.1	0	101	68-131	0			
Perfluorohexanoic Acid (PFHx	31.43	1.2	5.0	32	0	98.2	72-129	0			
Perfluorononanoic Acid (PFNA	24.59	0.87	5.0	32	0	76.8	69-130	0			
Perfluorooctanesulfonamide (F	39.51	0.71	5.0	32	0	123	67-137	0			
Perfluorooctanesulfonic Acid (	28.36	0.89	2.0	29.7	0	95.5	65-140	0			
Perfluorooctanoic Acid (PFOA)	29.05	0.63	2.0	32	0	90.8	71-133	0			
Perfluoropentanesulfonic Acid	29.37	0.56	5.0	30	0	97.9	71-127	0			
Perfluoropentanoic Acid (PFPe	34.92	1.3	5.0	32	0	109	72-129	0			
Perfluorotetradecanoic Acid (F	26.84	2.6	5.0	32	0	83.9	71-132	0			
Perfluorotridecanoic Acid (PFT	25.47	1.9	5.0	32	0	79.6	65-144	0			
Perfluoroundecanoic Acid (PFI	28.24	0.97	5.0	32	0	88.2	69-133	0			
N-ethylperfluoro-1-octanesulfo	35.81	1.2	5.0	32	0	112	70-130	0			
N-Ethylperfluorooctanesulfona	39.71	1	5.0	32	0	124	70-130	0			
N-methylperfluoro-1-octanesul	32.48	0.79	5.0	32	0	101	70-130	0			
N-Methylperfluorooctanesulfor	30.28	0.64	5.0	32	0	94.6	65-136	0			
N-Methylperfluorooctanesulfor	28.2	1.5	5.0	32	0	88.1	68-141	0			
Hexafluoropropylene oxide din	33.07	1.2	5.0	32	0	103	70-130	0			
11Cl-Pf3OUdS	25.08	0.47	5.0	30.1	0	83.3	70-130	0			
9Cl-PF3ONS	22.39	0.45	5.0	29.8	0	75.1	70-130	0			
Surr: 13C2-FtS 4:2	*100.3*	0	0	*149.4*	0	*67.1*	*50-150*	0			
Surr: 13C2-FtS 6:2	*103.4*	0	0	*152*	0	*68*	*50-150*	0			
Surr: 13C2-FtS 8:2	*105*	0	0	*153.3*	0	*68.5*	*50-150*	0			
Surr: 13C2-PFDA	*132.4*	0	0	*160*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFDoA	*106.2*	0	0	*160*	0	*66.4*	*50-150*	0			
Surr: 13C2-PFHxA	*125.1*	0	0	*160*	0	*78.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*82.45*	0	0	*160*	0	*51.5*	*50-150*	0			
Surr: 13C2-PFTeA	*116.9*	0	0	*160*	0	*73.1*	*50-150*	0			
Surr: 13C2-PFUnA	*121.4*	0	0	*160*	0	*75.9*	*50-150*	0			
Surr: 13C3-HFPO-DA	*125.7*	0	0	*160*	0	*78.5*	*50-150*	0			
Surr: 13C3-PFBS	*89.77*	0	0	*148.8*	0	*60.3*	*50-150*	0			
Surr: 13C4-PFBA	*96.52*	0	0	*160*	0	*60.3*	*50-150*	0			
Surr: 13C4-PFOA	*94.43*	0	0	*160*	0	*59*	*50-150*	0			
Surr: 13C4-PFOS	*106.5*	0	0	*152.8*	0	*69.7*	*50-150*	0			
Surr: 13C5-PFNA	*89.8*	0	0	*160*	0	*56.1*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFPeA	*93.13*	0	0	*160*	0	*58.2*	*50-150*	0
Surr: 13C8-FOSA	*85.76*	0	0	*160*	0	*53.6*	*50-150*	0
Surr: 18O2-PFHxS	*85.44*	0	0	*151.2*	0	*56.5*	*50-150*	0
Surr: d5-N-EtFOSAA	*80.89*	0	0	*160*	0	*50.6*	*50-150*	0
Surr: d9-N-EtFOSE	*82.44*	0	0	*160*	0	*51.5*	*50-150*	0
Surr: d3-N-MeFOSAA	*84.05*	0	0	*160*	0	*52.5*	*50-150*	0
Surr: d7-N-MeFOSE	*82.09*	0	0	*160*	0	*51.3*	*50-150*	0

LCS Sample ID: **LCS-197746-197746** Units: **ng/L** Analysis Date: **6/14/2022 10:59 AM**

Client ID: Run ID: **LCMS2_220613B** SeqNo: **8519519** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorododecanesulfonic Aci	33.21	0.62	5.0	31	0	107	69-134	0			
Perfluorononanesulfonic Acid	28.9	0.5	5.0	30.7	0	94.1	69-127	0			
Surr: 13C4-PFHpA	*152.1*	0	0	*160*	0	*95.1*	*50-150*	0			
Surr: d5-N-EtFOSA	*146.6*	0	0	*160*	0	*91.6*	*50-150*	0			
Surr: d3-N-MeFOSA	*145.8*	0	0	*160*	0	*91.1*	*50-150*	0			

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **22060810-02A MS** Units: **ng/L** Analysis Date: **6/10/2022 05:58 PM**
Client ID: Run ID: **LCMS1_220610B** SeqNo: **8510095** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	32.81	0.95	5.1	30.48	0	108	63-143	0			
Fluorotelomer Sulphonic Acid	38.75	2	5.1	30.88	3.533	114	63-162	0			
Perfluorobutanesulfonic Acid (	40.59	0.36	5.1	28.85	9.849	107	72-130	0			
Perfluorobutanoic Acid (PFBA)	82.94	2.7	5.1	32.62	47.34	109	73-129	0			
Perfluorodecanesulfonic Acid	30.35	1.4	5.1	31.39	0	96.7	53-142	0			
Perfluorodecanoic Acid (PFDA	30.97	1.3	5.1	32.62	0	94.9	71-129	0			
Perfluorododecanesulfonic Aci	28.19	0.63	5.1	31.6	0	89.2	69-134	0			
Perfluorododecanoic Acid (PFI	31.46	0.7	5.1	32.62	0	96.4	72-134	0			
Perfluoroheptanesulfonic Acid	29.98	0.58	5.1	31.09	1.945	90.2	69-134	0			
Perfluoroheptanoic Acid (PFH	45.05	1.8	5.1	32.62	13.51	96.7	72-130	0			
Perfluorohexanesulfonic Acid	34.49	0.92	5.1	29.66	3.791	103	68-131	0			
Perfluorohexanoic Acid (PFHx	65.02	1.2	5.1	32.62	29.73	108	72-129	0			
Perfluorononanesulfonic Acid	32.94	0.51	5.1	31.29	0	105	69-127	0			
Perfluorononanoic Acid (PFNA	30.08	0.89	5.1	32.62	1.803	86.7	69-130	0			
Perfluorooctanesulfonamide (F	38.08	0.72	5.1	32.62	0	117	67-137	0			
Perfluorooctanesulfonic Acid (	82.65	0.91	2.0	30.27	46.34	120	65-140	0			
Perfluorooctanoic Acid (PFOA)	80.09	0.64	2.0	32.62	50.96	89.3	71-133	0			
Perfluoropentanesulfonic Acid	28.25	0.57	5.1	30.58	0	92.4	71-127	0			
Perfluoropentanoic Acid (PFPe	71.08	1.3	5.1	32.62	37.97	102	72-129	0			
Perfluorotetradecanoic Acid (F	30.47	2.7	5.1	32.62	0	93.4	71-132	0			
Perfluorotridecanoic Acid (PFT	36.26	2	5.1	32.62	0	111	65-144	0			
Perfluoroundecanoic Acid (PFI	32.27	0.99	5.1	32.62	0	98.9	69-133	0			
N-ethylperfluoro-1-octanesulfo	37.56	1.2	5.1	32.62	0	115	70-130	0			
N-Ethylperfluorooctanesulfona	34.43	1.1	5.1	32.62	0	106	70-130	0			
N-methylperfluoro-1-octanesul	44.29	0.81	5.1	32.62	0	136	70-130	0			S
N-Methylperfluorooctanesulfor	36.91	0.66	5.1	32.62	0	113	65-136	0			
N-Methylperfluorooctanesulfor	44.23	1.5	5.1	32.62	0	136	68-141	0			
Hexafluoropropylene oxide din	32.95	1.2	5.1	32.62	0	101	70-130	0			
4,8-Dioxa-3H-perfluorononano	32.04	0.57	5.1	30.68	0	104	70-130	0			
11Cl-Pf3OUdS	26.45	0.48	5.1	30.68	0	86.2	70-130	0			
9Cl-PF3ONS	30.06	0.46	5.1	30.37	0	99	70-130	0			
Surr: 13C2-FtS 4:2	*158*	0	0	*152.3*	0	*104*	*50-150*	0			
Surr: 13C2-FtS 6:2	*153*	0	0	*154.9*	0	*98.8*	*50-150*	0			
Surr: 13C2-FtS 8:2	*122.9*	0	0	*156.2*	0	*78.7*	*50-150*	0			
Surr: 13C2-PFDA	*140.1*	0	0	*163.1*	0	*85.9*	*50-150*	0			
Surr: 13C2-PFDoA	*143.3*	0	0	*163.1*	0	*87.8*	*50-150*	0			
Surr: 13C2-PFHxA	*134.4*	0	0	*163.1*	0	*82.4*	*50-150*	0			
Surr: 13C2-PFHxDA	*110.4*	0	0	*163.1*	0	*67.7*	*50-150*	0			
Surr: 13C2-PFTeA	*134.5*	0	0	*163.1*	0	*82.5*	*50-150*	0			
Surr: 13C2-PFUnA	*137.2*	0	0	*163.1*	0	*84.1*	*50-150*	0			
Surr: 13C3-HFPO-DA	*139.8*	0	0	*163.1*	0	*85.7*	*50-150*	0			
Surr: 13C3-PFBS	*120.5*	0	0	*151.7*	0	*79.4*	*50-150*	0			
Surr: 13C4-PFBA	*135.4*	0	0	*163.1*	0	*83.1*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C4-PFHpA	*135.9*	0	0	*163.1*	0	*83.4*	*50-150*	0
Surr: 13C4-PFOA	*138.7*	0	0	*163.1*	0	*85.1*	*50-150*	0
Surr: 13C4-PFOS	*126*	0	0	*155.7*	0	*80.9*	*50-150*	0
Surr: 13C5-PFNA	*136.8*	0	0	*163.1*	0	*83.9*	*50-150*	0
Surr: 13C5-PFPeA	*126.3*	0	0	*163.1*	0	*77.5*	*50-150*	0
Surr: 13C8-FOSA	*146.3*	0	0	*163.1*	0	*89.7*	*50-150*	0
Surr: 18O2-PFHxS	*136.9*	0	0	*154.1*	0	*88.8*	*50-150*	0
Surr: d5-N-EtFOSA	*102.4*	0	0	*163.1*	0	*62.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*103*	0	0	*163.1*	0	*63.2*	*50-150*	0
Surr: d9-N-EtFOSE	*121.7*	0	0	*163.1*	0	*74.6*	*50-150*	0
Surr: d3-N-MeFOSA	*93.95*	0	0	*163.1*	0	*57.6*	*50-150*	0
Surr: d3-N-MeFOSAA	*116.8*	0	0	*163.1*	0	*71.6*	*50-150*	0
Surr: d7-N-MeFOSE	*103.1*	0	0	*163.1*	0	*63.2*	*50-150*	0

MS Sample ID: **22060810-02A MS** Units: **ng/L** Analysis Date: **6/14/2022 11:40 AM**

Client ID: Run ID: **LCMS2_220613B** SeqNo: **8519524** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	37.33	1.2	5.1	31.29	0	119	61-165	0			
N-Ethylperfluorooctanesulfona	39.82	1.6	5.1	32.62	0	122	61-135	0			

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

DUP Sample ID: **22060810-07A DUP** Units: **ng/L** Analysis Date: **6/10/2022 06:15 PM**
Client ID: Run ID: **LCMS1_220610B** SeqNo: **8510097** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.97	5.2	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	2	5.2	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	2.724	0.36	5.2	0	0	0	0-0	3.464	0	30	J
Perfluorobutanoic Acid (PFBA)	29.87	2.7	5.2	0	0	0	0-0	29.61	0.876	30	
Perfluorodecanesulfonic Acid	U	1.4	5.2	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA	U	1.3	5.2	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Aci	U	0.65	5.2	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFI	U	0.72	5.2	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid	U	0.59	5.2	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFH	U	1.8	5.2	0	0	0	0-0	1.096	0	30	
Perfluorohexanesulfonic Acid	1.47	0.94	5.2	0	0	0	0-0	0.8815	0	30	J
Perfluorohexanoic Acid (PFHx	5.684	1.2	5.2	0	0	0	0-0	5.077	11.3	30	
Perfluorononanesulfonic Acid	U	0.51	5.2	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA	U	0.9	5.2	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (F	U	0.74	5.2	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (	4.314	0.92	2.1	0	0	0	0-0	5.468	23.6	30	
Perfluorooctanoic Acid (PFOA)	1.54	0.65	2.1	0	0	0	0-0	1.249	0	30	J
Perfluoropentanesulfonic Acid	U	0.58	5.2	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPe	8.02	1.3	5.2	0	0	0	0-0	8.278	3.17	30	
Perfluorotetradecanoic Acid (F	U	2.7	5.2	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	2	5.2	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFI	U	1	5.2	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfo	U	1.2	5.2	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.1	5.2	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesul	U	0.82	5.2	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.67	5.2	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	1.6	5.2	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide din	U	1.2	5.2	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononano	U	0.58	5.2	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	0.48	5.2	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	0.46	5.2	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*132.8*	0	0	*155*	0	*85.7*	*50-150*	107.7	*20.8*	*30*	
Surr: 13C2-FtS 6:2	*123.1*	0	0	*157.6*	0	*78.1*	*50-150*	113.6	*8.01*	*30*	
Surr: 13C2-FtS 8:2	*113.2*	0	0	*158.9*	0	*71.2*	*50-150*	95.8	*16.6*	*30*	
Surr: 13C2-PFDA	*132.8*	0	0	*165.9*	0	*80.1*	*50-150*	117.8	*12*	*30*	
Surr: 13C2-PFDoA	*150.2*	0	0	*165.9*	0	*90.5*	*50-150*	121.7	*20.9*	*30*	
Surr: 13C2-PFHxA	*129.5*	0	0	*165.9*	0	*78*	*50-150*	122.1	*5.83*	*30*	
Surr: 13C2-PFHxDA	*105.7*	0	0	*165.9*	0	*63.7*	*50-150*	95.77	*9.84*	*30*	
Surr: 13C2-PFTeA	*130*	0	0	*165.9*	0	*78.4*	*50-150*	115.8	*11.5*	*30*	
Surr: 13C2-PFUnA	*134*	0	0	*165.9*	0	*80.8*	*50-150*	118.3	*12.5*	*30*	
Surr: 13C3-HFPO-DA	*124.8*	0	0	*165.9*	0	*75.2*	*50-150*	121.7	*2.54*	*30*	
Surr: 13C3-PFBS	*107.4*	0	0	*154.3*	0	*69.6*	*50-150*	100.4	*6.71*	*30*	
Surr: 13C4-PFBA	*134.5*	0	0	*165.9*	0	*81*	*50-150*	128.1	*4.87*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197746** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C4-PFHpA	*126.2*	0	0	*165.9*	0	*76.1*	*50-150*	112.7	*11.3*	*30*	
Surr: 13C4-PFOA	*136.4*	0	0	*165.9*	0	*82.2*	*50-150*	130.1	*4.7*	*30*	
Surr: 13C4-PFOS	*126*	0	0	*158.4*	0	*79.5*	*50-150*	112.7	*11.1*	*30*	
Surr: 13C5-PFNA	*134.1*	0	0	*165.9*	0	*80.8*	*50-150*	128.3	*4.39*	*30*	
Surr: 13C5-PFPeA	*115.6*	0	0	*165.9*	0	*69.7*	*50-150*	107.3	*7.48*	*30*	
Surr: 13C8-FOSA	*117.8*	0	0	*165.9*	0	*71*	*50-150*	118.4	*0.508*	*30*	
Surr: 18O2-PFHxS	*135.3*	0	0	*156.8*	0	*86.3*	*50-150*	129.6	*4.29*	*30*	
Surr: d5-N-EtFOSA	*80*	0	0	*165.9*	0	*48.2*	*50-150*	90.7	*12.5*	*30*	*S*
Surr: d5-N-EtFOSAA	*89.53*	0	0	*165.9*	0	*54*	*50-150*	83.77	*6.64*	*30*	
Surr: d9-N-EtFOSE	*96.57*	0	0	*165.9*	0	*58.2*	*50-150*	103.3	*6.73*	*30*	
Surr: d3-N-MeFOSA	*88.92*	0	0	*165.9*	0	*53.6*	*50-150*	83.83	*5.9*	*30*	
Surr: d3-N-MeFOSAA	*103.3*	0	0	*165.9*	0	*62.3*	*50-150*	97.54	*5.71*	*30*	
Surr: d7-N-MeFOSE	*86.41*	0	0	*165.9*	0	*52.1*	*50-150*	93.76	*8.15*	*30*	

DUP Sample ID: **22060810-07A DUP** Units: **ng/L** Analysis Date: **6/14/2022 12:13 PM**

Client ID: Run ID: **LCMS2_220613B** SeqNo: **8519528** Prep Date: **6/10/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	1.2	5.2	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.6	5.2	0	0	0	0-0	0.4619	0	30	

The following samples were analyzed in this batch:

22060450-19A	22060450-20A	22060450-21A
22060450-22A	22060450-23A	22060450-24A
22060450-25A	22060450-26A	22060450-27A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

MBLK Sample ID: **MBLK-197910-197910** Units: **ng/L** Analysis Date: **6/16/2022 12:45 PM**
Client ID: Run ID: **LCMS2_220615B** SeqNo: **8528669** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	1.9	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid (	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	2.397	0.62	5.0								J
Perfluorododecanoic Acid (PF	U	0.69	5.0								
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroheptanoic Acid (PFH	U	1.7	5.0								
Perfluorohexanesulfonic Acid (	U	0.9	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	1.9	5.0								
Perfluoroundecanoic Acid (PF	U	0.97	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1.5	5.0								
N-Ethylperfluorooctanesulfona	U	1	5.0								
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	1.5	5.0								
Hexafluoropropylene oxide din	U	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*108.9*	0	0	*149.4*	0	*72.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*168.5*	0	0	*152*	0	*111*	*50-150*	0			
Surr: 13C2-FtS 8:2	*90.63*	0	0	*153.3*	0	*59.1*	*50-150*	0			
Surr: 13C2-PFDA	*94.67*	0	0	*160*	0	*59.2*	*50-150*	0			
Surr: 13C2-PFDoA	*103.7*	0	0	*160*	0	*64.8*	*50-150*	0			
Surr: 13C2-PFHxA	*100.9*	0	0	*160*	0	*63*	*50-150*	0			
Surr: 13C2-PFHxDA	*96.82*	0	0	*160*	0	*60.5*	*50-150*	0			
Surr: 13C2-PFTeA	*97.67*	0	0	*160*	0	*61*	*50-150*	0			
Surr: 13C2-PFUnA	*110*	0	0	*160*	0	*68.8*	*50-150*	0			
Surr: 13C3-HFPO-DA	*93.36*	0	0	*160*	0	*58.4*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197910**	Instrument ID **LCMS2**			Method: **E537 Mod**				
Surr: 13C3-PFBS	*101.9*	0	0	*148.8*	0	*68.5*	*50-150*	0
Surr: 13C4-PFBA	*114.3*	0	0	*160*	0	*71.4*	*50-150*	0
Surr: 13C4-PFHpA	*157.8*	0	0	*160*	0	*98.6*	*50-150*	0
Surr: 13C4-PFOA	*126.2*	0	0	*160*	0	*78.9*	*50-150*	0
Surr: 13C4-PFOS	*95.3*	0	0	*152.8*	0	*62.4*	*50-150*	0
Surr: 13C5-PFPeA	*117.9*	0	0	*160*	0	*73.7*	*50-150*	0
Surr: 13C8-FOSA	*97.94*	0	0	*160*	0	*61.2*	*50-150*	0
Surr: 18O2-PFHxS	*154*	0	0	*151.2*	0	*102*	*50-150*	0
Surr: d5-N-EtFOSA	*88.86*	0	0	*160*	0	*55.5*	*50-150*	0
Surr: d5-N-EtFOSAA	*94.74*	0	0	*160*	0	*59.2*	*50-150*	0
Surr: d9-N-EtFOSE	*115.3*	0	0	*160*	0	*72.1*	*50-150*	0
Surr: d3-N-MeFOSA	*85.06*	0	0	*160*	0	*53.2*	*50-150*	0
Surr: d3-N-MeFOSAA	*112.6*	0	0	*160*	0	*70.4*	*50-150*	0
Surr: d7-N-MeFOSE	*100.4*	0	0	*160*	0	*62.7*	*50-150*	0

MBLK Sample ID: **MBLK-197910-197910** Units: **ng/L** Analysis Date: **6/18/2022 01:20 AM**

Client ID: Run ID: **LCMS2_220617B** SeqNo: **8534929** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluorononanoic Acid (PFNA	U	0.87	5.0								

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

LCS Sample ID: **LCS-197910-197910** Units: **ng/L** Analysis Date: **6/16/2022 12:53 PM**
Client ID: Run ID: **LCMS2_220615B** SeqNo: **8528670** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	33.79	0.94	5.0	29.9	0	113	63-143	0			
Fluorotelomer Sulphonic Acid	32.59	1.9	5.0	30.3	0	108	63-162	0			
Fluorotelomer Sulphonic Acid	37.04	1.1	5.0	30.7	0	121	61-165	0			
Perfluorobutanesulfonic Acid (	30.19	0.35	5.0	28.3	0	107	72-130	0			
Perfluorobutanoic Acid (PFBA)	33.89	2.6	5.0	32	0	106	73-129	0			
Perfluorodecanesulfonic Acid (	27.63	1.4	5.0	30.8	0	89.7	53-142	0			
Perfluorodecanoic Acid (PFDA	25.28	1.2	5.0	32	0	79	71-129	0			
Perfluorododecanesulfonic Aci	22.29	0.62	5.0	31	0	71.9	69-134	0			
Perfluorododecanoic Acid (PFI	31.71	0.69	5.0	32	0	99.1	72-134	0			
Perfluoroheptanesulfonic Acid	23.45	0.57	5.0	30.5	0	76.9	69-134	0			
Perfluoroheptanoic Acid (PFH	28.13	1.7	5.0	32	0	87.9	72-130	0			
Perfluorohexanesulfonic Acid (	25.36	0.9	5.0	29.1	0	87.2	68-131	0			
Perfluorohexanoic Acid (PFHx	31.7	1.2	5.0	32	0	99.1	72-129	0			
Perfluorononanesulfonic Acid (	37.28	0.5	5.0	30.7	0	121	69-127	0			
Perfluorononanoic Acid (PFNA	28.6	0.87	5.0	32	0	89.4	69-130	0			
Perfluorooctanesulfonamide (F	28.98	0.71	5.0	32	0	90.6	67-137	0			
Perfluorooctanesulfonic Acid (I	30.54	0.89	2.0	29.7	0	103	65-140	0			
Perfluorooctanoic Acid (PFOA)	30.11	0.63	2.0	32	0	94.1	71-133	0			
Perfluoropentanoic Acid (PFPe	34.28	1.3	5.0	32	0	107	72-129	0			
Perfluorotetradecanoic Acid (F	28.65	2.6	5.0	32	0	89.5	71-132	0			
Perfluorotridecanoic Acid (PFT	33.29	1.9	5.0	32	0	104	65-144	0			
N-ethylperfluoro-1-octanesulfo	32.77	1.2	5.0	32	0	102	70-130	0			
N-Ethylperfluorooctanesulfona	41.99	1.5	5.0	32	0	131	61-135	0			
N-Ethylperfluorooctanesulfona	32.08	1	5.0	32	0	100	70-130	0			
N-Methylperfluorooctanesulfor	37.38	0.64	5.0	32	0	117	65-136	0			
N-Methylperfluorooctanesulfor	24.92	1.5	5.0	32	0	77.9	68-141	0			
Hexafluoropropylene oxide din	32.12	1.2	5.0	32	0	100	70-130	0			
4,8-Dioxa-3H-perfluorononano	26.28	0.56	5.0	30.1	0	87.3	70-130	0			
11Cl-Pf3OUdS	31.55	0.47	5.0	30.1	0	105	70-130	0			
9Cl-PF3ONS	30.84	0.45	5.0	29.8	0	104	70-130	0			
Surr: 13C2-FtS 4:2	*128.8*	0	0	*149.4*	0	*86.2*	*50-150*	0			
Surr: 13C2-FtS 6:2	*196.8*	0	0	*152*	0	*129*	*50-150*	0			
Surr: 13C2-FtS 8:2	*122.6*	0	0	*153.3*	0	*80*	*50-150*	0			
Surr: 13C2-PFDA	*129.7*	0	0	*160*	0	*81.1*	*50-150*	0			
Surr: 13C2-PFDoA	*144.4*	0	0	*160*	0	*90.2*	*50-150*	0			
Surr: 13C2-PFHxA	*137.9*	0	0	*160*	0	*86.2*	*50-150*	0			
Surr: 13C2-PFHxDA	*119.6*	0	0	*160*	0	*74.7*	*50-150*	0			
Surr: 13C2-PFTeA	*146.5*	0	0	*160*	0	*91.5*	*50-150*	0			
Surr: 13C2-PFUnA	*152*	0	0	*160*	0	*95*	*50-150*	0			
Surr: 13C3-HFPO-DA	*120.8*	0	0	*160*	0	*75.5*	*50-150*	0			
Surr: 13C3-PFBS	*129.2*	0	0	*148.8*	0	*86.8*	*50-150*	0			
Surr: 13C4-PFBA	*150.5*	0	0	*160*	0	*94*	*50-150*	0			
Surr: 13C4-PFHpA	*183.3*	0	0	*160*	0	*115*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C4-PFOA	*151.8*	0	0	*160*	0	*94.9*	*50-150*	0
Surr: 13C4-PFOS	*117.4*	0	0	*152.8*	0	*76.8*	*50-150*	0
Surr: 13C5-PFPeA	*143.9*	0	0	*160*	0	*89.9*	*50-150*	0
Surr: 18O2-PFHxS	*191.6*	0	0	*151.2*	0	*127*	*50-150*	0
Surr: d5-N-EtFOSAA	*122.1*	0	0	*160*	0	*76.3*	*50-150*	0
Surr: d3-N-MeFOSAA	*138.9*	0	0	*160*	0	*86.8*	*50-150*	0

LCS Sample ID: **LCS-197910-197910** Units: **ng/L** Analysis Date: **6/16/2022 03:14 PM**
Client ID: Run ID: **LCMS2_220615B** SeqNo: **8528686** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroundecanoic Acid (PFI	23.26	0.97	5.0	32	0	72.7	69-133	0			

LCS Sample ID: **LCS-197910-197910** Units: **ng/L** Analysis Date: **6/18/2022 01:29 AM**
Client ID: Run ID: **LCMS2_220617B** SeqNo: **8534930** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoropentanesulfonic Acid	30.6	0.56	5.0	30	0	102	71-127	0			
Surr: 13C5-PFNA	*209.9*	0	0	*160*	0	*131*	*50-150*	0			
Surr: 13C8-FOSA	*88.96*	0	0	*160*	0	*55.6*	*50-150*	0			
Surr: d5-N-EtFOSA	*85.34*	0	0	*160*	0	*53.3*	*50-150*	0			
Surr: d9-N-EtFOSE	*100.5*	0	0	*160*	0	*62.8*	*50-150*	0			
Surr: d3-N-MeFOSA	*80.08*	0	0	*160*	0	*50.1*	*50-150*	0			
Surr: d7-N-MeFOSE	*81.54*	0	0	*160*	0	*51*	*50-150*	0			

LCS Sample ID: **LCS-197910-197910** Units: **ng/L** Analysis Date: **6/20/2022 08:57 PM**
Client ID: Run ID: **LCMS2_220620A** SeqNo: **8540817** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
N-methylperfluoro-1-octanesul	27.54	0.79	5.0	32	0	86.1	70-130	0			

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

MS Sample ID: **22061087-01B MS** Units: **ng/L** Analysis Date: **6/16/2022 01:35 PM**
Client ID: Run ID: **LCMS2_220615B** SeqNo: **8528674** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	33.22	0.88	4.7	28.03	0	119	63-143	0			
Fluorotelomer Sulphonic Acid	33.07	1.8	4.7	28.4	0	116	63-162	0			
Fluorotelomer Sulphonic Acid	32.36	1.1	4.7	28.78	0	112	61-165	0			
Perfluorobutanesulfonic Acid (	28.66	0.33	4.7	26.53	0.7124	105	72-130	0			
Perfluorobutanoic Acid (PFBA)	34.56	2.4	4.7	29.99	0.8465	112	73-129	0			
Perfluorodecanesulfonic Acid	30.71	1.3	4.7	28.87	0	106	53-142	0			
Perfluorodecanoic Acid (PFDA	26.34	1.2	4.7	29.99	0	87.8	71-129	0			
Perfluorododecanesulfonic Aci	20.44	0.58	4.7	29.06	0	70.3	69-134	0			
Perfluorododecanoic Acid (PFI	27.43	0.65	4.7	29.99	0	91.4	72-134	0			
Perfluoroheptanesulfonic Acid	30.44	0.53	4.7	28.59	0	106	69-134	0			
Perfluoroheptanoic Acid (PFH	31.53	1.6	4.7	29.99	0.7699	103	72-130	0			
Perfluorohexanesulfonic Acid	24.86	0.85	4.7	27.28	0.821	88.1	68-131	0			
Perfluorohexanoic Acid (PFHx	31.15	1.1	4.7	29.99	0.7252	101	72-129	0			
Perfluorononanesulfonic Acid	27.93	0.46	4.7	28.78	0	97.1	69-127	0			
Perfluorononanoic Acid (PFNA	24.36	0.82	4.7	29.99	0	81.2	69-130	0			
Perfluorooctanesulfonamide (F	33.24	0.67	4.7	29.99	0	111	67-137	0			
Perfluorooctanesulfonic Acid (I	26.74	0.84	1.9	27.84	0	96	65-140	0			
Perfluorooctanoic Acid (PFOA)	32.87	0.59	1.9	29.99	1.597	104	71-133	0			
Perfluoropentanesulfonic Acid	29.77	0.52	4.7	28.12	0	106	71-127	0			
Perfluoropentanoic Acid (PFPe	32.61	1.2	4.7	29.99	0.952	106	72-129	0			
Perfluorotetradecanoic Acid (F	32.38	2.5	4.7	29.99	0	108	71-132	0			
Perfluorotridecanoic Acid (PFT	50.42	1.8	4.7	29.99	0	168	65-144	0			S
Perfluoroundecanoic Acid (PFI	26.85	0.91	4.7	29.99	0	89.5	69-133	0			
N-ethylperfluoro-1-octanesulfo	33.31	1.1	4.7	29.99	0	111	70-130	0			
N-Ethylperfluorooctanesulfona	31.86	1.4	4.7	29.99	0.07667	106	61-135	0			
N-Ethylperfluorooctanesulfona	36.14	0.98	4.7	29.99	0	120	70-130	0			
N-methylperfluoro-1-octanesul	30.2	0.74	4.7	29.99	0	101	70-130	0			
N-Methylperfluorooctanesulfor	37.79	0.6	4.7	29.99	0	126	65-136	0			
N-Methylperfluorooctanesulfor	49.94	1.4	4.7	29.99	0	167	68-141	0			S
Hexafluoropropylene oxide din	29.4	1.1	4.7	29.99	0	98	70-130	0			
4,8-Dioxa-3H-perfluorononano	24.5	0.53	4.7	28.21	0	86.8	70-130	0			
11Cl-Pf3OUdS	28.03	0.44	4.7	28.21	0	99.3	70-130	0			
9Cl-PF3ONS	26.4	0.42	4.7	27.93	0	94.5	70-130	0			
Surr: 13C2-FtS 4:2	*172.6*	0	0	*140.1*	0	*123*	*50-150*	0			
Surr: 13C2-FtS 6:2	*187.1*	0	0	*142.5*	0	*131*	*50-150*	0			
Surr: 13C2-FtS 8:2	*196*	0	0	*143.7*	0	*136*	*50-150*	0			
Surr: 13C2-PFDA	*193.3*	0	0	*150*	0	*129*	*50-150*	0			
Surr: 13C2-PFDoA	*223.6*	0	0	*150*	0	*149*	*50-150*	0			
Surr: 13C2-PFHxA	*201.3*	0	0	*150*	0	*134*	*50-150*	0			
Surr: 13C2-PFHxDA	*81.66*	0	0	*150*	0	*54.4*	*50-150*	0			
Surr: 13C2-PFTeA	*113.1*	0	0	*150*	0	*75.4*	*50-150*	0			
Surr: 13C2-PFUnA	*164.4*	0	0	*150*	0	*110*	*50-150*	0			
Surr: 13C3-HFPO-DA	*175.7*	0	0	*150*	0	*117*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*161.3*	0	0	*139.5*	0	*116*	*50-150*	0	
Surr: 13C4-PFBA	*182.2*	0	0	*150*	0	*122*	*50-150*	0	
Surr: 13C4-PFHpA	*163.3*	0	0	*150*	0	*109*	*50-150*	0	
Surr: 13C4-PFOA	*226.4*	0	0	*150*	0	*151*	*50-150*	0	*S*
Surr: 13C4-PFOS	*169.8*	0	0	*143.2*	0	*119*	*50-150*	0	
Surr: 13C5-PFPeA	*189.9*	0	0	*150*	0	*127*	*50-150*	0	
Surr: 13C8-FOSA	*52.67*	0	0	*150*	0	*35.1*	*50-150*	0	*S*
Surr: 18O2-PFHxS	*189.8*	0	0	*141.7*	0	*134*	*50-150*	0	
Surr: d5-N-EtFOSA	*77.53*	0	0	*150*	0	*51.7*	*50-150*	0	
Surr: d5-N-EtFOSAA	*208.8*	0	0	*150*	0	*139*	*50-150*	0	
Surr: d9-N-EtFOSE	*78.35*	0	0	*150*	0	*52.2*	*50-150*	0	
Surr: d3-N-MeFOSA	*73.9*	0	0	*150*	0	*49.3*	*50-150*	0	*S*
Surr: d3-N-MeFOSAA	*172.2*	0	0	*150*	0	*115*	*50-150*	0	
Surr: d7-N-MeFOSE	*65.57*	0	0	*150*	0	*43.7*	*50-150*	0	*S*

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

DUP Sample ID: **22060450-28A DUP** Units: **ng/L** Analysis Date: **6/16/2022 01:43 PM**
Client ID: **EQUIP. BLANK** Run ID: **LCMS2_220615B** SeqNo: **8528675** Prep Date: **6/14/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.93	5.0	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	1.9	5.0	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid	U	1.1	5.0	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (	U	0.35	5.0	0	0	0	0-0	0	0	30	
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0	0	0	0	0-0	0	0	30	
Perfluorodecanesulfonic Acid	U	1.4	5.0	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA	U	1.2	5.0	0	0	0	0-0	0	0	30	
Perfluorododecanesulfonic Aci	2.351	0.62	5.0	0	0	0	0-0	0	0	30	J
Perfluorododecanoic Acid (PFI	U	0.69	5.0	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid	U	0.57	5.0	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFH	U	1.7	5.0	0	0	0	0-0	0.8683	0	30	
Perfluorohexanesulfonic Acid	U	0.9	5.0	0	0	0	0-0	0.4113	0	30	
Perfluorohexanoic Acid (PFHx	U	1.2	5.0	0	0	0	0-0	0	0	30	
Perfluorononanesulfonic Acid	U	0.5	5.0	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA	U	0.87	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (F	U	0.71	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (	U	0.89	2.0	0	0	0	0-0	0.3991	0	30	
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0	0	0	0	0-0	0.6764	0	30	
Perfluoropentanesulfonic Acid	U	0.56	5.0	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPe	U	1.3	5.0	0	0	0	0-0	0	0	30	
Perfluorotetradecanoic Acid (F	U	2.6	5.0	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFT	U	1.9	5.0	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFI	U	0.97	5.0	0	0	0	0-0	0	0	30	
N-ethylperfluoro-1-octanesulfo	U	1.1	5.0	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfona	U	1.5	5.0	0	0	0	0-0	0.3412	0	30	
N-Ethylperfluorooctanesulfona	U	1	5.0	0	0	0	0-0	0	0	30	
N-methylperfluoro-1-octanesul	U	0.79	5.0	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	0.64	5.0	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfor	U	1.5	5.0	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide din	1.198	1.2	5.0	0	0	0	0-0	0	0	30	J
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	U	0.47	5.0	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	U	0.45	5.0	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*91.64*	0	0	*149.2*	0	*61.4*	*50-150*	93.55	*2.07*	*30*	
Surr: 13C2-FtS 6:2	*163.7*	0	0	*151.8*	0	*108*	*50-150*	212.6	*26*	*30*	
Surr: 13C2-FtS 8:2	*88.92*	0	0	*153*	0	*58.1*	*50-150*	114	*24.7*	*30*	
Surr: 13C2-PFDA	*88.72*	0	0	*159.7*	0	*55.5*	*50-150*	117.7	*28*	*30*	
Surr: 13C2-PFDoA	*108.1*	0	0	*159.7*	0	*67.6*	*50-150*	96.22	*11.6*	*30*	
Surr: 13C2-PFHxA	*98.52*	0	0	*159.7*	0	*61.7*	*50-150*	130.9	*28.2*	*30*	
Surr: 13C2-PFHxDA	*95.69*	0	0	*159.7*	0	*59.9*	*50-150*	105.4	*9.65*	*30*	
Surr: 13C2-PFTeA	*104*	0	0	*159.7*	0	*65.1*	*50-150*	98.65	*5.3*	*30*	
Surr: 13C2-PFUnA	*109.7*	0	0	*159.7*	0	*68.7*	*50-150*	126.6	*14.3*	*30*	
Surr: 13C3-HFPO-DA	*83.58*	0	0	*159.7*	0	*52.3*	*50-150*	107.8	*25.3*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060450
Project: WRR - PFAS

QC BATCH REPORT

Batch ID: **197910** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*90.13*	0	0	*148.6*	0	*60.7*	*50-150*	97.94	*8.3*	*30*	
Surr: 13C4-PFBA	*102.2*	0	0	*159.7*	0	*64*	*50-150*	106.8	*4.46*	*30*	
Surr: 13C4-PFHpA	*144.1*	0	0	*159.7*	0	*90.2*	*50-150*	98.76	*37.3*	*30*	*R*
Surr: 13C4-PFOA	*95.1*	0	0	*159.7*	0	*59.5*	*50-150*	91.07	*4.33*	*30*	
Surr: 13C4-PFOS	*98.11*	0	0	*152.6*	0	*64.3*	*50-150*	95.16	*3.05*	*30*	
Surr: 13C5-PFPeA	*104.8*	0	0	*159.7*	0	*65.6*	*50-150*	112.5	*7.09*	*30*	
Surr: 13C8-FOSA	*93.96*	0	0	*159.7*	0	*58.8*	*50-150*	111.9	*17.4*	*30*	
Surr: 18O2-PFHxS	*167.7*	0	0	*151*	0	*111*	*50-150*	117.4	*35.3*	*30*	*R*
Surr: d5-N-EtFOSA	*91.97*	0	0	*159.7*	0	*57.6*	*50-150*	82.78	*10.5*	*30*	
Surr: d5-N-EtFOSAA	*96.62*	0	0	*159.7*	0	*60.5*	*50-150*	98.38	*1.81*	*30*	
Surr: d9-N-EtFOSE	*105.7*	0	0	*159.7*	0	*66.2*	*50-150*	84.8	*22*	*30*	
Surr: d3-N-MeFOSA	*86.74*	0	0	*159.7*	0	*54.3*	*50-150*	96.96	*11.1*	*30*	
Surr: d3-N-MeFOSAA	*112.5*	0	0	*159.7*	0	*70.4*	*50-150*	95.29	*16.6*	*30*	
Surr: d7-N-MeFOSE	*99.87*	0	0	*159.7*	0	*62.5*	*50-150*	84.1	*17.1*	*30*	

The following samples were analyzed in this batch: 22060450-28A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Chain of Custody Form

ALS Group USA, Corp

Work Order: _____

Company Name	Gannett Fleming, Inc.	Purchase Order		Parameter/Method Request for Analysis	
		Company Name	Gannett Fleming, Inc.	A	537M
Send Report To	awmiller@gfnet.com	Invoice Attn	Accounts Payable	B	
Project Name	WRR - PFAS	Project #	55929.007	C	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303 Suite 303	D	
				E	
				F	
City State Zip	Madison, WI 53717-1338	City State Zip	Madison, WI 53717-1338	G	
Phone		Phone		H	
e-Mail Address		e-Mail Address		I	
				J	

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	G	H	I	J
1	MW-104	5/31	16:15	GW	—	3	X									
2	W-30A		14:00				X									
3	W-30B		14:05				X									
4	MW-111		13:00													
5	MW-111A		13:05													
6	MW-112B		1440													
7	W-17A		1655													
8	MW-115A		1145													
9	MW-104A		16:20													
10	MW-112A		14:35													

22060450

GANNETTFLEMING - WI: Gannett Fleming, Inc.
Project: WRR - PFAS

Notes: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Required Turnaround Time: ___ Std 10 Wk days ___ 5 Wk days ___ 2 Wk days ___ 24 hr

Results Due:

Relinquised by	Date	Time	Received by	Date	Time
			FedEx		
FedEx	6/4/22 CMK	10:00			

NOTES: IR1 4.4c

QC Reporting Level: (check box below)

- Level II: Standard QC
- Level III: Std QC + Raw data
- Level IV: SW846 CLP-Like
- Other:

ALS Group USA, Corp | 3352 128th Ave | | Holland Michigan 49424 | TEL. (616) 399-6070

Chain of Custody Form

ALS Group USA, Corp

Work Order: _____

Company Name	Gannett Fleming, Inc.	Purchase Order		Parameter/Method Request for Analysis	
		Company Name	Gannett Fleming, Inc.	A	537 M
Send Report To		Invoice Attn	Accounts Payable	B	
Project Name		Project #	55929.007	C	
				D	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303 Suite 303	E	
				F	
City State Zip	Madison, WI 53717-1338	City State Zip	Madison, WI 53717-1338	G	
Phone		Phone		H	
e-Mail Address		e-Mail Address		I	
				J	

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	G	es
1	MW-112	5/31	1430	GW	-	3	Y							
2	MW-111B	5/31	1310											
3	W-34	6/1	11:30											
4	W-26	5/31	1540											
5	W-33	6/1	945											
6	W-17B	5/31	1700											
7	MW-114	6/1	740											
8	MW-114A	6/1	745											
9	MW-115	5/31	1140											
10	W-17	5/31	1650											

22060450
GANNETTFLEMING - WI: Gannett Fleming, Inc.
Project: WRR - PFAS

Notes: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Required Turnaround Time: ___ Std 10 Wk days ___ 5 Wk days ___ 2 Wk days ___ 24 hr

Results Due:

Relinquised by	Date	Time	Received by	Date	Time
			FedEx		
FedEx	6/4/22	10:00	[signature]		

NOTES: IR1 4.4c

QC Reporting Level: (check box below)

- Level II: Standard QC
- Level III: Std QC + Raw data
- Level IV: SW846 CLP-Like
- Other:

ALS Group USA, Corp | 3352 128th Ave | | Holland Michigan 49424 | TEL. (616) 399-6070

Chain of Custody Form

ALS Group USA, Corp

Work Order: _____

Company Name	Gannett Fleming, Inc.	Purchase Order		Parameter/Method Request for Analysis
		Company Name	Gannett Fleming, Inc.	A
Send Report To		Invoice Attn	Accounts Payable	B
Project Name		Project #	55929.007	C
				D
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303 Suite 303	E
				F
City State Zip	Madison, WI 53717-1338	City State Zip	Madison, WI 53717-1338	G
Phone		Phone		H
e-Mail Address		e-Mail Address		I
				J

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	Notes
1	Seep 2N	6/1	11:20	SW	-	3	X						
2	SW-1		1335										
3	SW-2		13:15										
4	SW-3		11:25	SW									
5	SW-4		1500										
6	SW-5		1430										
7	Field Blank		16:10										
8	Equip. Blank		16:15										
9													
10													

22060450
GANNETTFLEMING - WI: Gannett Fleming, Inc.
Project: WRR - PFAS

Notes: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Required Turnaround Time: ___ Std 10 Wk days ___ 5 Wk days ___ 2 Wk days ___ 24 hr

Results Due:

Relinquised by	Date	Time	Received by	Date	Time
			FedEx		
FedEx	6/4/22	10:00	[signature]		

NOTES:

QC Reporting Level: (check box below)

- Level II: Standard QC
- Level III: Std QC + Raw data
- Level IV: SW846 CLP-Like

Other:

ALS Group USA, Corp | 3352 128th Ave | | Holland Michigan 49424 | TEL. (616) 399-6070

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **04-Jun-22 10:00**

Work Order: **22060450** Received by: **CMK**

Checklist completed by Caleb Kaatje eSignature 06-Jun-22 Date Reviewed by: Jodi Blouw eSignature 06-Jun-22 Date

Matrices: Groundwater, Surfacewater
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.4/4.4c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/6/2022 11:42:09 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Revision: 2

06-Sep-2022

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)**

Work Order: **22060570**

Dear Anthony,

Revision: **2**

ALS Environmental received 4 samples on 03-Jun-2022 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 23.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Jodi Blouw

Jodi Blouw

ALS Group, USA

Date: 06-Sep-22

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **22060570**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22060570-02	W-31A	Groundwater		6/2/2022 09:15	6/3/2022 09:30	☐
22060570-03	W-31B	Groundwater		6/2/2022 09:20	6/3/2022 09:30	☐
22060570-04	W-32	Groundwater		6/1/2022 14:20	6/3/2022 09:30	☐
22060570-22	W-35	Groundwater		6/1/2022 16:40	6/3/2022 09:30	☐

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **22060570**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 22060570

Case Narrative

Samples for the above noted Work Order were received on 06/03/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, sample condition, preservation, and temperature compliance.
In order to ensure compliance with NR 149 criteria, please note the following report format:
(1) The Limit of Detection (LOD) is reported as the MDL (Method Detection Limit)
(2) The Limit of Quantitation (LOQ) is reported as the PQL (Practical Quantitation Limit)
(3) All reported concentrations, including those for the LOD and LOQ, are adjusted for any required dilutions
(4) All reported concentrations, including those for the LOD and LOQ, are adjusted for moisture content when samples are reported on a dry weight basis.

Samples were analyzed according to the analytical methodology previously documented in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Detail as to the associated samples can be found at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, acronyms, and units utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics
Batch 197492, Method E537 Mod, Sample W-31A (22060570-02A): 13C4-PFOA, 13C2-FtS 8:2, 13C2-PFDoA, 13C3-HFPO-DA, d3-N-MeFOSA, d5-N-EtFOSAA failed in CCV/ICV (Target analytes passed in CCV/ICV).

Batch 197492, Method E537 Mod, Sample W-31B (22060570-03A): 13C4-PFOA, 13C2-FtS 8:2, 13C2-PFDoA, 13C3-HFPO-DA, d3-N-MeFOSA, d5-N-EtFOSAA failed in CCV/ICV (Target analytes passed in CCV/ICV).

Batch 197492, Method E537 Mod, Sample W-31A (22060570-02A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-PFDoA

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA failed in CCV/ICV (Target analyte passed in CCV/ICV)

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFHpA_IS

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS, 13C-8_2-FTS_IS

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFBA, 13C4-PFHpA

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. d3-N-MeFOSAA, 13C2-FtS 4:2, 13C2-FtS 6:2, 13C2-FtS 8:2

Batch 197492, Method E537 Mod, Sample W-35 (22060570-22A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA failed in CCV/ICV (Target analyte passed in CCV/ICV)

Batch 197492, Method E537 Mod, Sample W-35 (22060570-22A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSA, d5-N-EtFOSA, d9-N-EtFOSE

Batch 197492, Method E537 Mod, Sample LCS-197492: The LCS recovery was below the lower control limit. The sample results for this batch may be biased low for this analyte: PFNA

Batch 197492, Method E537 Mod, Sample LCS-197492: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: NEtFOSAA

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): Dirty sample matrix. 5x dilution required for SPE extraction.

* rev1 - Revised report to remove samples not analyzed in this work order *

rev2 - revised to remove analytes not required for Wisconsin reporting

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31A
Collection Date: 6/2/2022 09:15 AM

Work Order: 22060570
Lab ID: 22060570-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.97	5.2	ng/L	1	6/8/2022 08:31
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**10**		**2.0**	**5.2**	**ng/L**	1	6/8/2022 08:31
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.2	ng/L	1	6/8/2022 08:31
Perfluorobutanesulfonic Acid (PFBS)	**150**		**0.36**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorobutanoic Acid (PFBA)	**140**		**2.7**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.2	ng/L	1	6/8/2022 08:31
Perfluorodecanoic Acid (PFDA)	U		1.3	5.2	ng/L	1	6/8/2022 08:31
Perfluorododecanesulfonic Acid (PFDoS)	U		0.65	5.2	ng/L	1	6/8/2022 08:31
Perfluorododecanoic Acid (PFDoA)	U		0.72	5.2	ng/L	1	6/8/2022 08:31
Perfluoroheptanesulfonic Acid (PFHpS)	**22**		**0.59**	**5.2**	**ng/L**	1	6/9/2022 02:29
Perfluoroheptanoic Acid (PFHpA)	**31**		**1.8**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorohexanesulfonic Acid (PFHxS)	**120**		**0.94**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorohexanoic Acid (PFHxA)	**87**		**1.2**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorononanesulfonic Acid (PFNS)	U		0.52	5.2	ng/L	1	6/8/2022 08:31
Perfluorononanoic Acid (PFNA)	U		0.90	5.2	ng/L	1	6/8/2022 08:31
Perfluorooctanesulfonamide (PFOSA)	U		0.74	5.2	ng/L	1	6/8/2022 08:31
Perfluorooctanesulfonic Acid (PFOS)	**70**		**0.93**	**2.1**	**ng/L**	1	6/8/2022 08:31
Perfluorooctanoic Acid (PFOA)	**520**		**6.5**	**21**	**ng/L**	10	6/9/2022 12:15
Perfluoropentanesulfonic Acid (PFPeS)	**11**		**0.58**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluoropentanoic Acid (PFPeA)	**200**		**1.3**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorotetradecanoic Acid (PFTeA)	U		2.7	5.2	ng/L	1	6/8/2022 08:31
Perfluorotridecanoic Acid (PFTriA)	U		2.0	5.2	ng/L	1	6/8/2022 08:31
Perfluoroundecanoic Acid (PFUnA)	U		1.0	5.2	ng/L	1	6/9/2022 02:29
N-ethylperfluoro-1-octanesulfonamide	U		1.2	5.2	ng/L	1	6/8/2022 08:31
N-Ethylperfluorooctanesulfonamidoacetic Acid	**2.1**	J	**1.6**	**5.2**	**ng/L**	1	6/8/2022 08:31
N-Ethylperfluorooctanesulfonamidoethanol	U		1.1	5.2	ng/L	1	6/8/2022 08:31
N-methylperfluoro-1-octanesulfonamide	U		0.82	5.2	ng/L	1	6/8/2022 08:31
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.67	5.2	ng/L	1	6/8/2022 08:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31A
Collection Date: 6/2/2022 09:15 AM

Work Order: 22060570
Lab ID: 22060570-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	U		1.6	5.2	ng/L	1	6/8/2022 08:31
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.2	ng/L	1	6/8/2022 08:31
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.58	5.2	ng/L	1	6/8/2022 08:31
11Cl-Pf3OUdS	U		0.48	5.2	ng/L	1	6/8/2022 08:31
9Cl-PF3ONS	U		0.47	5.2	ng/L	1	6/8/2022 08:31
Surr: 13C2-FtS 4:2	*143*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-FtS 6:2	*91.4*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-FtS 8:2	*133*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFDA	*118*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFDoA	*154*	S		*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFHxA	*107*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFHxDA	*102*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFTeA	*104*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFUnA	*97.3*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C3-HFPO-DA	*111*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C3-PFBS	*107*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFBA	*100*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFHpA	*79.7*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFOA	*118*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFOS	*108*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C5-PFNA	*132*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C5-PFPeA	*102*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C8-FOSA	*106*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 18O2-PFHxS	*102*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d5-N-EtFOSA	*93.1*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d5-N-EtFOSAA	*113*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d9-N-EtFOSE	*96.9*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d3-N-MeFOSA	*100*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d3-N-MeFOSAA	*90.6*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d7-N-MeFOSE	*91.1*			*50-150*	*%REC*	1	6/8/2022 08:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31B
Collection Date: 6/2/2022 09:20 AM

Work Order: 22060570
Lab ID: 22060570-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.93	5.0	ng/L	1	6/8/2022 08:40
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		1.9	5.0	ng/L	1	6/8/2022 08:40
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.1	5.0	ng/L	1	6/8/2022 08:40
Perfluorobutanesulfonic Acid (PFBS)	**7.6**		**0.35**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorobutanoic Acid (PFBA)	**8.8**		**2.6**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.0	ng/L	1	6/8/2022 08:40
Perfluorodecanoic Acid (PFDA)	U		1.2	5.0	ng/L	1	6/8/2022 08:40
Perfluorododecanesulfonic Acid (PFDoS)	U		0.62	5.0	ng/L	1	6/8/2022 08:40
Perfluorododecanoic Acid (PFDoA)	U		0.69	5.0	ng/L	1	6/8/2022 08:40
Perfluoroheptanesulfonic Acid (PFHpS)	**6.2**		**0.56**	**5.0**	**ng/L**	1	6/9/2022 02:37
Perfluoroheptanoic Acid (PFHpA)	**2.1**	J	**1.7**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorohexanesulfonic Acid (PFHxS)	**24**		**0.90**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorohexanoic Acid (PFHxA)	**8.2**		**1.2**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorononanesulfonic Acid (PFNS)	U		0.49	5.0	ng/L	1	6/8/2022 08:40
Perfluorononanoic Acid (PFNA)	U		0.86	5.0	ng/L	1	6/8/2022 08:40
Perfluorooctanesulfonamide (PFOSA)	U		0.71	5.0	ng/L	1	6/8/2022 08:40
Perfluorooctanesulfonic Acid (PFOS)	**60**		**0.89**	**2.0**	**ng/L**	1	6/8/2022 08:40
Perfluorooctanoic Acid (PFOA)	**11**		**0.63**	**2.0**	**ng/L**	1	6/8/2022 08:40
Perfluoropentanesulfonic Acid (PFPeS)	**1.1**	J	**0.55**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluoropentanoic Acid (PFPeA)	**12**		**1.3**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorotetradecanoic Acid (PFTeA)	U		2.6	5.0	ng/L	1	6/8/2022 08:40
Perfluorotridecanoic Acid (PFTriA)	U		1.9	5.0	ng/L	1	6/8/2022 08:40
Perfluoroundecanoic Acid (PFUnA)	U		0.97	5.0	ng/L	1	6/9/2022 02:37
N-ethylperfluoro-1-octanesulfonamide	U		1.1	5.0	ng/L	1	6/8/2022 08:40
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		1.5	5.0	ng/L	1	6/8/2022 08:40
N-Ethylperfluorooctanesulfonamidoethanol	U		1.0	5.0	ng/L	1	6/8/2022 08:40
N-methylperfluoro-1-octanesulfonamide	U		0.79	5.0	ng/L	1	6/8/2022 08:40
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.64	5.0	ng/L	1	6/8/2022 08:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31B
Collection Date: 6/2/2022 09:20 AM

Work Order: 22060570
Lab ID: 22060570-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	**3.9**	J	**1.5**	**5.0**	**ng/L**	1	6/8/2022 08:40
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.0	ng/L	1	6/8/2022 08:40
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.56	5.0	ng/L	1	6/8/2022 08:40
11Cl-Pf3OUdS	U		0.46	5.0	ng/L	1	6/8/2022 08:40
9Cl-PF3ONS	U		0.45	5.0	ng/L	1	6/8/2022 08:40
Surr: 13C2-FtS 4:2	*85.5*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-FtS 6:2	*81.2*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-FtS 8:2	*103*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFDA	*95.5*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFDoA	*118*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFHxA	*91.0*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFHxDA	*94.4*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFTeA	*103*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFUnA	*83.5*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C3-HFPO-DA	*90.6*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C3-PFBS	*89.9*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFBA	*91.0*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFHpA	*105*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFOA	*120*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFOS	*107*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C5-PFNA	*119*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C5-PFPeA	*87.8*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C8-FOSA	*75.6*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 18O2-PFHxS	*127*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d5-N-EtFOSA	*69.9*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d5-N-EtFOSAA	*93.1*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d9-N-EtFOSE	*84.8*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d3-N-MeFOSA	*79.2*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d3-N-MeFOSAA	*78.1*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d7-N-MeFOSE	*74.2*			*50-150*	*%REC*	1	6/8/2022 08:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-32
Collection Date: 6/1/2022 02:20 PM

Work Order: 22060570
Lab ID: 22060570-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		4.7	25	ng/L	1	6/8/2022 09:54
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**13**	J	**9.6**	**25**	**ng/L**	1	6/8/2022 09:54
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		5.6	25	ng/L	1	6/8/2022 09:54
Perfluorobutanesulfonic Acid (PFBS)	**4,000**		**18**	**250**	**ng/L**	10	6/9/2022 12:24
Perfluorobutanoic Acid (PFBA)	**2,300**		**13**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorodecanesulfonic Acid (PFDS)	U		6.8	25	ng/L	1	6/8/2022 09:54
Perfluorodecanoic Acid (PFDA)	U		6.2	25	ng/L	1	6/8/2022 09:54
Perfluorododecanesulfonic Acid (PFDoS)	U		3.1	25	ng/L	1	6/8/2022 09:54
Perfluorododecanoic Acid (PFDoA)	U		3.5	25	ng/L	1	6/8/2022 09:54
Perfluoroheptanesulfonic Acid (PFHpS)	**14**	J	**2.8**	**25**	**ng/L**	1	6/9/2022 03:02
Perfluoroheptanoic Acid (PFHpA)	**600**		**8.6**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorohexanesulfonic Acid (PFHxS)	**120**		**4.5**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorohexanoic Acid (PFHxA)	**1,400**		**6.0**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorononanesulfonic Acid (PFNS)	U		2.5	25	ng/L	1	6/8/2022 09:54
Perfluorononanoic Acid (PFNA)	U		4.4	25	ng/L	1	6/8/2022 09:54
Perfluorooctanesulfonamide (PFOSA)	U		3.6	25	ng/L	1	6/8/2022 09:54
Perfluorooctanesulfonic Acid (PFOS)	**24**		**4.5**	**10**	**ng/L**	1	6/8/2022 09:54
Perfluorooctanoic Acid (PFOA)	**7,500**		**32**	**100**	**ng/L**	10	6/9/2022 12:24
Perfluoropentanesulfonic Acid (PFPeS)	**170**		**2.8**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluoropentanoic Acid (PFPeA)	**460**		**6.4**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorotetradecanoic Acid (PFTeA)	U		13	25	ng/L	1	6/8/2022 09:54
Perfluorotridecanoic Acid (PFTriA)	U		9.7	25	ng/L	1	6/8/2022 09:54
Perfluoroundecanoic Acid (PFUnA)	**6.5**	J	**4.9**	**25**	**ng/L**	1	6/9/2022 03:02
N-ethylperfluoro-1-octanesulfonamide	U		5.8	25	ng/L	1	6/8/2022 09:54
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		7.7	25	ng/L	1	6/8/2022 09:54
N-Ethylperfluorooctanesulfonamidoethanol	U		5.2	25	ng/L	1	6/8/2022 09:54
N-methylperfluoro-1-octanesulfonamide	U		4.0	25	ng/L	1	6/8/2022 09:54
N-Methylperfluorooctanesulfonamidoacetic Acid	U		3.2	25	ng/L	1	6/8/2022 09:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-32
Collection Date: 6/1/2022 02:20 PM

Work Order: 22060570
Lab ID: 22060570-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	U		7.5	25	ng/L	1	6/8/2022 09:54
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		5.8	25	ng/L	1	6/8/2022 09:54
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		2.8	25	ng/L	1	6/8/2022 09:54
11Cl-Pf3OUdS	U		2.3	25	ng/L	1	6/8/2022 09:54
9Cl-PF3ONS	U		2.2	25	ng/L	1	6/8/2022 09:54
Surr: 13C2-FtS 4:2	*399*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-FtS 6:2	*192*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-FtS 8:2	*275*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFDA	*110*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFDoA	*99.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFHxA	*81.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFHxDA	*88.4*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFTeA	*99.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFUnA	*87.9*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C3-HFPO-DA	*79.7*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C3-PFBS	*58.0*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFBA	*48.6*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFHpA	*44.9*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFOA	*67.0*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFOS	*98.9*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C5-PFNA	*103*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C5-PFPeA	*60.9*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C8-FOSA	*85.1*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 18O2-PFHxS	*50.7*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d5-N-EtFOSA	*72.5*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d5-N-EtFOSAA	*105*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d9-N-EtFOSE	*71.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d3-N-MeFOSA	*75.3*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d3-N-MeFOSAA	*192*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d7-N-MeFOSE	*68.5*			*50-150*	*%REC*	1	6/8/2022 09:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-35
Collection Date: 6/1/2022 04:40 PM

Work Order: 22060570
Lab ID: 22060570-22
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	**18**		**1.0**	**5.5**	**ng/L**	1	6/8/2022 10:02
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**1,200**		**21**	**55**	**ng/L**	10	6/9/2022 12:32
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.5	ng/L	1	6/8/2022 10:02
Perfluorobutanesulfonic Acid (PFBS)	**230**		**0.38**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorobutanoic Acid (PFBA)	**250**		**2.8**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorodecanesulfonic Acid (PFDS)	U		1.5	5.5	ng/L	1	6/8/2022 10:02
Perfluorodecanoic Acid (PFDA)	U		1.4	5.5	ng/L	1	6/8/2022 10:02
Perfluorododecanesulfonic Acid (PFDoS)	U		0.68	5.5	ng/L	1	6/8/2022 10:02
Perfluorododecanoic Acid (PFDoA)	U		0.76	5.5	ng/L	1	6/8/2022 10:02
Perfluoroheptanesulfonic Acid (PFHpS)	**88**		**0.62**	**5.5**	**ng/L**	1	6/9/2022 03:10
Perfluoroheptanoic Acid (PFHpA)	**83**		**1.9**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorohexanesulfonic Acid (PFHxS)	**110**		**0.99**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorohexanoic Acid (PFHxA)	**250**		**1.3**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorononanesulfonic Acid (PFNS)	U		0.54	5.5	ng/L	1	6/8/2022 10:02
Perfluorononanoic Acid (PFNA)	**1.1**	J	**0.95**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorooctanesulfonamide (PFOSA)	U		0.78	5.5	ng/L	1	6/8/2022 10:02
Perfluorooctanesulfonic Acid (PFOS)	**41**		**0.98**	**2.2**	**ng/L**	1	6/8/2022 10:02
Perfluorooctanoic Acid (PFOA)	**1,400**		**6.9**	**22**	**ng/L**	10	6/9/2022 12:32
Perfluoropentanesulfonic Acid (PFPeS)	**5.1**	J	**0.61**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluoropentanoic Acid (PFPeA)	**660**		**14**	**55**	**ng/L**	10	6/9/2022 12:32
Perfluorotetradecanoic Acid (PFTeA)	U		2.9	5.5	ng/L	1	6/8/2022 10:02
Perfluorotridecanoic Acid (PFTriA)	U		2.1	5.5	ng/L	1	6/8/2022 10:02
Perfluoroundecanoic Acid (PFUnA)	U		1.1	5.5	ng/L	1	6/9/2022 03:10
N-ethylperfluoro-1-octanesulfonamide	U		1.3	5.5	ng/L	1	6/8/2022 10:02
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		1.7	5.5	ng/L	1	6/8/2022 10:02
N-Ethylperfluorooctanesulfonamidoethanol	U		1.1	5.5	ng/L	1	6/8/2022 10:02
N-methylperfluoro-1-octanesulfonamide	U		0.87	5.5	ng/L	1	6/8/2022 10:02
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.70	5.5	ng/L	1	6/8/2022 10:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Sep-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-35
Collection Date: 6/1/2022 04:40 PM

Work Order: 22060570
Lab ID: 22060570-22
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoethanol	U		1.6	5.5	ng/L	1	6/8/2022 10:02
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.3	5.5	ng/L	1	6/8/2022 10:02
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.61	5.5	ng/L	1	6/8/2022 10:02
11Cl-Pf3OUdS	U		0.51	5.5	ng/L	1	6/8/2022 10:02
9Cl-PF3ONS	U		0.49	5.5	ng/L	1	6/8/2022 10:02
Surr: 13C2-FtS 4:2	*131*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-FtS 6:2	*106*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-FtS 8:2	*80.8*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFDA	*68.9*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFDoA	*61.4*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFHxA	*73.9*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFHxDA	*50.5*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFTeA	*57.2*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFUnA	*85.5*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C3-HFPO-DA	*69.1*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C3-PFBS	*63.1*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFBA	*62.1*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFHpA	*57.5*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFOA	*65.7*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFOS	*69.9*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C5-PFNA	*71.6*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C5-PFPeA	*58.2*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C8-FOSA	*50.2*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 18O2-PFHxS	*71.7*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d5-N-EtFOSA	*41.3*	S		*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d5-N-EtFOSAA	*71.3*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d9-N-EtFOSE	*49.7*	S		*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d3-N-MeFOSA	*49.4*	S		*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d3-N-MeFOSAA	*60.8*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d7-N-MeFOSE	*50.1*			*50-150*	*%REC*	1	6/8/2022 10:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 2

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

MBLK Sample ID: **MBLK-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 09:21 AM**

Client ID: Run ID: **LCMS2_220607C** SeqNo: **8496008** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	U	0.94	5.0								
Fluorotelomer Sulphonic Acid	U	1.9	5.0								
Fluorotelomer Sulphonic Acid	U	1.1	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid (	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	0.62	5.0								
Perfluorododecanoic Acid (PFI	U	0.69	5.0								
Perfluoroheptanoic Acid (PFHp	U	1.7	5.0								
Perfluorohexanesulfonic Acid (	U	0.9	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (I	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	1.9	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1.5	5.0								
N-Ethylperfluorooctanesulfona	1.091	1	5.0								J
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	1.5	5.0								
Hexafluoropropylene oxide din	U	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*94.16*	0	0	*149.4*	0	*63*	*50-150*	0			
Surr: 13C2-FtS 6:2	*110.7*	0	0	*152*	0	*72.8*	*50-150*	0			
Surr: 13C2-FtS 8:2	*105.6*	0	0	*153.3*	0	*68.9*	*50-150*	0			
Surr: 13C2-PFDA	*113.9*	0	0	*160*	0	*71.2*	*50-150*	0			
Surr: 13C2-PFDoA	*134*	0	0	*160*	0	*83.7*	*50-150*	0			
Surr: 13C2-PFHxA	*125.3*	0	0	*160*	0	*78.3*	*50-150*	0			
Surr: 13C2-PFHxDA	*106.7*	0	0	*160*	0	*66.7*	*50-150*	0			
Surr: 13C2-PFTeA	*134.7*	0	0	*160*	0	*84.2*	*50-150*	0			
Surr: 13C2-PFUnA	*132.3*	0	0	*160*	0	*82.7*	*50-150*	0			
Surr: 13C3-HFPO-DA	*112.1*	0	0	*160*	0	*70.1*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197492**	Instrument ID **LCMS2**			Method: **E537 Mod**				
Surr: 13C3-PFBS	*111.5*	0	0	*148.8*	0	*74.9*	*50-150*	0
Surr: 13C4-PFBA	*128.8*	0	0	*160*	0	*80.5*	*50-150*	0
Surr: 13C4-PFHpA	*139.3*	0	0	*160*	0	*87*	*50-150*	0
Surr: 13C4-PFOA	*151.5*	0	0	*160*	0	*94.7*	*50-150*	0
Surr: 13C4-PFOS	*141.5*	0	0	*152.8*	0	*92.6*	*50-150*	0
Surr: 13C5-PFNA	*142.1*	0	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C5-PFPeA	*113.5*	0	0	*160*	0	*71*	*50-150*	0
Surr: 13C8-FOSA	*86.88*	0	0	*160*	0	*54.3*	*50-150*	0
Surr: 18O2-PFHxS	*155*	0	0	*151.2*	0	*103*	*50-150*	0
Surr: d5-N-EtFOSA	*80.62*	0	0	*160*	0	*50.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*105.4*	0	0	*160*	0	*65.9*	*50-150*	0
Surr: d9-N-EtFOSE	*110.4*	0	0	*160*	0	*69*	*50-150*	0
Surr: d3-N-MeFOSA	*97.11*	0	0	*160*	0	*60.7*	*50-150*	0
Surr: d3-N-MeFOSAA	*118.2*	0	0	*160*	0	*73.9*	*50-150*	0
Surr: d7-N-MeFOSE	*104*	0	0	*160*	0	*65*	*50-150*	0

MBLK	Sample ID: **MBLK-197492-197492**			Units: **ng/L**			Analysis Date: **6/8/2022 07:20 PM**			
Client ID:		Run ID: **LCMS2_220608A**		SeqNo: **8499891**		Prep Date: **6/7/2022**		DF: **1**		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroundecanoic Acid (PFI	U	0.97	5.0								

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

LCS Sample ID: **LCS-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 09:29 AM**
Client ID: Run ID: **LCMS2_220607C** SeqNo: **8496009** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	31.59	0.94	5.0	29.9	0	106	63-143	0			
Fluorotelomer Sulphonic Acid	38.66	1.9	5.0	30.3	0	128	63-162	0			
Fluorotelomer Sulphonic Acid	25.48	1.1	5.0	30.7	0	83	61-165	0			
Perfluorobutanesulfonic Acid (	33.97	0.35	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	33.62	2.6	5.0	32	0	105	73-129	0			
Perfluorodecanesulfonic Acid	30.43	1.4	5.0	30.8	0	98.8	53-142	0			
Perfluorodecanoic Acid (PFDA	30.45	1.2	5.0	32	0	95.2	71-129	0			
Perfluorododecanesulfonic Aci	25.27	0.62	5.0	31	0	81.5	69-134	0			
Perfluorododecanoic Acid (PFI	29.12	0.69	5.0	32	0	91	72-134	0			
Perfluoroheptanoic Acid (PFH	37.5	1.7	5.0	32	0	117	72-130	0			
Perfluorohexanesulfonic Acid	23.03	0.9	5.0	29.1	0	79.1	68-131	0			
Perfluorohexanoic Acid (PFHx	33.96	1.2	5.0	32	0	106	72-129	0			
Perfluorononanesulfonic Acid	30.55	0.5	5.0	30.7	0	99.5	69-127	0			
Perfluorononanoic Acid (PFNA	12.84	0.87	5.0	32	0	40.1	69-130	0			S
Perfluorooctanesulfonamide (F	37.34	0.71	5.0	32	0	117	67-137	0			
Perfluorooctanesulfonic Acid (I	30.78	0.89	2.0	29.7	0	104	65-140	0			
Perfluorooctanoic Acid (PFOA)	31.49	0.63	2.0	32	0	98.4	71-133	0			
Perfluoropentanesulfonic Acid	22.05	0.56	5.0	30	0	73.5	71-127	0			
Perfluoropentanoic Acid (PFPe	35.58	1.3	5.0	32	0	111	72-129	0			
Perfluorotetradecanoic Acid (F	27.12	2.6	5.0	32	0	84.8	71-132	0			
Perfluorotridecanoic Acid (PFT	30.33	1.9	5.0	32	0	94.8	65-144	0			
N-ethylperfluoro-1-octanesulfo	32.69	1.2	5.0	32	0	102	70-130	0			
N-Ethylperfluorooctanesulfona	48.03	1.5	5.0	32	0	150	61-135	0			S
N-Ethylperfluorooctanesulfona	33.12	1	5.0	32	0	103	70-130	0			
N-methylperfluoro-1-octanesul	36.17	0.79	5.0	32	0	113	70-130	0			
N-Methylperfluorooctanesulfor	33.16	0.64	5.0	32	0	104	65-136	0			
Hexafluoropropylene oxide din	31	1.2	5.0	32	0	96.9	70-130	0			
4,8-Dioxa-3H-perfluorononano	26.48	0.56	5.0	30.1	0	88	70-130	0			
11Cl-Pf3OUdS	28.34	0.47	5.0	30.1	0	94.2	70-130	0			
9Cl-PF3ONS	29.08	0.45	5.0	29.8	0	97.6	70-130	0			
Surr: 13C2-FtS 4:2	*137.6*	0	0	*149.4*	0	*92.1*	*50-150*	0			
Surr: 13C2-FtS 6:2	*110.9*	0	0	*152*	0	*73*	*50-150*	0			
Surr: 13C2-FtS 8:2	*171.5*	0	0	*153.3*	0	*112*	*50-150*	0			
Surr: 13C2-PFDA	*161.8*	0	0	*160*	0	*101*	*50-150*	0			
Surr: 13C2-PFDoA	*206.9*	0	0	*160*	0	*129*	*50-150*	0			
Surr: 13C2-PFHxA	*155.2*	0	0	*160*	0	*97*	*50-150*	0			
Surr: 13C2-PFHxDA	*150.7*	0	0	*160*	0	*94.2*	*50-150*	0			
Surr: 13C2-PFTeA	*169.6*	0	0	*160*	0	*106*	*50-150*	0			
Surr: 13C2-PFUnA	*136.9*	0	0	*160*	0	*85.6*	*50-150*	0			
Surr: 13C3-HFPO-DA	*155*	0	0	*160*	0	*96.9*	*50-150*	0			
Surr: 13C3-PFBS	*139.9*	0	0	*148.8*	0	*94*	*50-150*	0			
Surr: 13C4-PFBA	*169.8*	0	0	*160*	0	*106*	*50-150*	0			
Surr: 13C4-PFHpA	*163.3*	0	0	*160*	0	*102*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C4-PFOA	*202.4*	0	0	*160*	0	*126*	*50-150*	0
Surr: 13C4-PFOS	*170.4*	0	0	*152.8*	0	*112*	*50-150*	0
Surr: 13C5-PFNA	*208.6*	0	0	*160*	0	*130*	*50-150*	0
Surr: 13C5-PFPeA	*153.6*	0	0	*160*	0	*96*	*50-150*	0
Surr: 13C8-FOSA	*123.3*	0	0	*160*	0	*77.1*	*50-150*	0
Surr: 18O2-PFHxS	*184.6*	0	0	*151.2*	0	*122*	*50-150*	0
Surr: d5-N-EtFOSA	*114.2*	0	0	*160*	0	*71.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*157*	0	0	*160*	0	*98.1*	*50-150*	0
Surr: d9-N-EtFOSE	*134.1*	0	0	*160*	0	*83.8*	*50-150*	0
Surr: d3-N-MeFOSA	*139.2*	0	0	*160*	0	*87*	*50-150*	0
Surr: d3-N-MeFOSAA	*141.2*	0	0	*160*	0	*88.3*	*50-150*	0
Surr: d7-N-MeFOSE	*129.9*	0	0	*160*	0	*81.2*	*50-150*	0

LCS Sample ID: **LCS-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 07:28 PM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499892** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	27.41	0.57	5.0	30.5	0	89.9	69-134	0			
Perfluoroundecanoic Acid (PFI	23.52	0.97	5.0	32	0	73.5	69-133	0			
N-Methylperfluorooctanesulfor	36.2	1.5	5.0	32	0	113	68-141	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

MS Sample ID: **22060134-34AMS** Units: **ng/L** Analysis Date: **6/8/2022 06:03 AM**
Client ID: Run ID: **LCMS2_220607C** SeqNo: **8495986** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	32.88	0.89	4.8	28.46	0	115	63-143	0			
Fluorotelomer Sulphonic Acid	32.88	1.8	4.8	28.85	0.4088	113	63-162	0			
Fluorotelomer Sulphonic Acid	32.52	1.1	4.8	29.23	0	111	61-165	0			
Perfluorobutanesulfonic Acid (	34.12	0.33	4.8	26.94	1.945	119	72-130	0			
Perfluorobutanoic Acid (PFBA)	40.99	2.5	4.8	30.46	7.133	111	73-129	0			
Perfluorodecanesulfonic Acid (	25.9	1.3	4.8	29.32	0	88.3	53-142	0			
Perfluorodecanoic Acid (PFDA	27.23	1.2	4.8	30.46	0	89.4	71-129	0			
Perfluorododecanoic Acid (PFI	34.13	0.66	4.8	30.46	0	112	72-134	0			
Perfluoroheptanoic Acid (PFHp	34.96	1.6	4.8	30.46	3.86	102	72-130	0			
Perfluorohexanesulfonic Acid (	31.42	0.86	4.8	27.7	0.7776	111	68-131	0			
Perfluorohexanoic Acid (PFHx	32.53	1.1	4.8	30.46	5.6	88.4	72-129	0			
Perfluorononanesulfonic Acid (	37.7	0.47	4.8	29.23	0	129	69-127	0			S
Perfluorononanoic Acid (PFNA	16.4	0.83	4.8	30.46	1.614	48.5	69-130	0			S
Perfluorooctanesulfonamide (F	37.07	0.68	4.8	30.46	0	122	67-137	0			
Perfluorooctanesulfonic Acid (I	42.65	0.85	1.9	28.27	15.27	96.8	65-140	0			
Perfluorooctanoic Acid (PFOA)	30.6	0.6	1.9	30.46	3.983	87.4	71-133	0			
Perfluoropentanesulfonic Acid	30.22	0.53	4.8	28.56	0	106	71-127	0			
Perfluoropentanoic Acid (PFPe	46.91	1.2	4.8	30.46	12.81	112	72-129	0			
Perfluorotetradecanoic Acid (F	30.68	2.5	4.8	30.46	0.713	98.4	71-132	0			
Perfluorotridecanoic Acid (PFT	27.61	1.8	4.8	30.46	0	90.6	65-144	0			
N-Ethylperfluorooctanesulfona	52.01	1.5	4.8	30.46	0	171	61-135	0			S
N-Methylperfluorooctanesulfor	39.58	0.61	4.8	30.46	0	130	65-136	0			
Hexafluoropropylene oxide din	30.14	1.1	4.8	30.46	0	98.9	70-130	0			
4,8-Dioxa-3H-perfluorononano	26.95	0.54	4.8	28.65	0	94	70-130	0			
11Cl-Pf3OUdS	24.68	0.44	4.8	28.65	0	86.1	70-130	0			
9Cl-PF3ONS	30.19	0.43	4.8	28.37	0	106	70-130	0			
Surr: 13C2-FtS 4:2	*94.9*	0	0	*142.3*	0	*66.7*	*50-150*	0			
Surr: 13C2-FtS 6:2	*110.5*	0	0	*144.7*	0	*76.3*	*50-150*	0			
Surr: 13C2-FtS 8:2	*82.91*	0	0	*145.9*	0	*56.8*	*50-150*	0			
Surr: 13C2-PFDA	*91.69*	0	0	*152.3*	0	*60.2*	*50-150*	0			
Surr: 13C2-PFDoA	*91.05*	0	0	*152.3*	0	*59.8*	*50-150*	0			
Surr: 13C2-PFHxA	*117.2*	0	0	*152.3*	0	*76.9*	*50-150*	0			
Surr: 13C2-PFTeA	*93.36*	0	0	*152.3*	0	*61.3*	*50-150*	0			
Surr: 13C2-PFUnA	*115.9*	0	0	*152.3*	0	*76.1*	*50-150*	0			
Surr: 13C3-HFPO-DA	*110.4*	0	0	*152.3*	0	*72.5*	*50-150*	0			
Surr: 13C3-PFBS	*90.35*	0	0	*141.7*	0	*63.8*	*50-150*	0			
Surr: 13C4-PFBA	*98.65*	0	0	*152.3*	0	*64.8*	*50-150*	0			
Surr: 13C4-PFHpA	*82.66*	0	0	*152.3*	0	*54.3*	*50-150*	0			
Surr: 13C4-PFOA	*97.24*	0	0	*152.3*	0	*63.8*	*50-150*	0			
Surr: 13C4-PFOS	*102.5*	0	0	*145.5*	0	*70.5*	*50-150*	0			
Surr: 13C5-PFNA	*101.9*	0	0	*152.3*	0	*66.9*	*50-150*	0			
Surr: 13C5-PFPeA	*96.16*	0	0	*152.3*	0	*63.1*	*50-150*	0			
Surr: 13C8-FOSA	*68.82*	0	0	*152.3*	0	*45.2*	*50-150*	0			*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 18O2-PFHxS	*96.11*	0	0	*143.9*	0	*66.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*76.93*	0	0	*152.3*	0	*50.5*	*50-150*	0
Surr: d3-N-MeFOSAA	*82.9*	0	0	*152.3*	0	*54.4*	*50-150*	0

MS Sample ID: **22060134-34AMS** Units: **ng/L** Analysis Date: **6/9/2022 12:00 AM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499922** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	19.85	0.54	4.8	29.04	0	68.4	69-134	0			S
Perfluoroundecanoic Acid (PFI	28.74	0.93	4.8	30.46	0	94.3	69-133	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

MSD Sample ID: **22060134-34AMSD** Units: **ng/L** Analysis Date: **6/8/2022 06:11 AM**
Client ID: Run ID: **LCMS2_220607C** SeqNo: **8495987** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	31.84	0.91	4.9	29.15	0	109	63-143	32.86	3.16	30	
Fluorotelomer Sulphonic Acid	35.51	1.9	4.9	29.54	0.4088	119	63-162	42.29	17.4	30	
Fluorotelomer Sulphonic Acid	36.66	1.1	4.9	29.93	0	122	61-165	34.85	5.08	30	
Perfluorobutanesulfonic Acid (	33.49	0.34	4.9	27.59	1.945	114	72-130	34.44	2.82	30	
Perfluorobutanoic Acid (PFBA)	39.93	2.5	4.9	31.2	7.133	105	73-129	40.14	0.526	30	
Perfluorodecanesulfonic Acid	29.36	1.3	4.9	30.03	0	97.8	53-142	41.31	33.8	30	R
Perfluorodecanoic Acid (PFDA	27.06	1.2	4.9	31.2	0	86.7	71-129	29.42	8.35	30	
Perfluorododecanoic Acid (PFI	29.93	0.67	4.9	31.2	0	95.9	72-134	27.14	9.77	30	
Perfluoroheptanoic Acid (PFH	33.63	1.7	4.9	31.2	3.86	95.4	72-130	37.61	11.2	30	
Perfluorohexanesulfonic Acid	30.6	0.88	4.9	28.37	0.7776	105	68-131	30.64	0.141	30	
Perfluorohexanoic Acid (PFHx	33.4	1.2	4.9	31.2	5.6	89.1	72-129	38.69	14.7	30	
Perfluorononanesulfonic Acid	33.95	0.48	4.9	29.93	0	113	69-127	32.33	4.87	30	
Perfluorononanoic Acid (PFNA	16.95	0.85	4.9	31.2	1.614	49.2	69-130	16.12	5.01	30	S
Perfluorooctanesulfonamide (F	35.16	0.69	4.9	31.2	0	113	67-137	39.03	10.4	30	
Perfluorooctanesulfonic Acid (I	40.68	0.87	1.9	28.96	15.27	87.8	65-140	44.94	9.95	30	
Perfluorooctanoic Acid (PFOA	29.96	0.61	1.9	31.2	3.983	83.3	71-133	33.98	12.6	30	
Perfluoropentanesulfonic Acid	27.8	0.54	4.9	29.25	0	95.1	71-127	30.61	9.63	30	
Perfluoropentanoic Acid (PFPe	47.03	1.2	4.9	31.2	12.81	110	72-129	47.27	0.505	30	
Perfluorotetradecanoic Acid (F	29.16	2.6	4.9	31.2	0.713	91.2	71-132	29.42	0.909	30	
Perfluorotridecanoic Acid (PFT	26.1	1.9	4.9	31.2	0	83.7	65-144	33.26	24.1	30	
N-Ethylperfluorooctanesulfona	47.28	1.5	4.9	31.2	0	152	61-135	43.74	7.77	30	S
N-Methylperfluorooctanesulfor	38.88	0.63	4.9	31.2	0	125	65-136	39.8	2.32	30	
Hexafluoropropylene oxide din	33.07	1.1	4.9	31.2	0	106	70-130	38.21	14.4	30	
4,8-Dioxa-3H-perfluorononano	25.91	0.55	4.9	29.35	0	88.3	70-130	34.33	28	30	
11Cl-Pf3OUdS	24.4	0.46	4.9	29.35	0	83.2	70-130	29.44	18.7	30	
9Cl-PF3ONS	28.43	0.44	4.9	29.05	0	97.9	70-130	31.16	9.16	30	
Surr: 13C2-FtS 4:2	*103.9*	0	0	*145.7*	0	*71.3*	*50-150*	123.6	*17.3*	*30*	
Surr: 13C2-FtS 6:2	*122.6*	0	0	*148.2*	0	*82.7*	*50-150*	110.8	*10.1*	*30*	
Surr: 13C2-FtS 8:2	*95.19*	0	0	*149.4*	0	*63.7*	*50-150*	151.6	*45.7*	*30*	*R*
Surr: 13C2-PFDA	*100.1*	0	0	*156*	0	*64.2*	*50-150*	160.6	*46.4*	*30*	*R*
Surr: 13C2-PFDoA	*99.88*	0	0	*156*	0	*64*	*50-150*	173.8	*54*	*30*	*R*
Surr: 13C2-PFHxA	*124.5*	0	0	*156*	0	*79.8*	*50-150*	144	*14.5*	*30*	
Surr: 13C2-PFTeA	*108.8*	0	0	*156*	0	*69.8*	*50-150*	109	*0.137*	*30*	
Surr: 13C2-PFUnA	*134*	0	0	*156*	0	*85.9*	*50-150*	125.1	*6.82*	*30*	
Surr: 13C3-HFPO-DA	*104.8*	0	0	*156*	0	*67.2*	*50-150*	148.3	*34.4*	*30*	*R*
Surr: 13C3-PFBS	*101.7*	0	0	*145.1*	0	*70.1*	*50-150*	116	*13.2*	*30*	
Surr: 13C4-PFBA	*110.8*	0	0	*156*	0	*71*	*50-150*	134.5	*19.3*	*30*	
Surr: 13C4-PFHpA	*97.13*	0	0	*156*	0	*62.3*	*50-150*	104.9	*7.69*	*30*	
Surr: 13C4-PFOA	*115.3*	0	0	*156*	0	*73.9*	*50-150*	139.3	*18.9*	*30*	
Surr: 13C4-PFOS	*113.9*	0	0	*149*	0	*76.5*	*50-150*	121.2	*6.19*	*30*	
Surr: 13C5-PFNA	*111.5*	0	0	*156*	0	*71.4*	*50-150*	152	*30.8*	*30*	*R*
Surr: 13C5-PFPeA	*104.1*	0	0	*156*	0	*66.7*	*50-150*	123.7	*17.2*	*30*	
Surr: 13C8-FOSA	*75.11*	0	0	*156*	0	*48.1*	*50-150*	103.9	*32.2*	*30*	*SR*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

QC BATCH REPORT

Batch ID: **197492**	Instrument ID **LCMS2**			Method: **E537 Mod**							
Surr: 18O2-PFHxS	*114.5*	0	0	*147.4*	0	*77.6*	*50-150*	118.2	*3.22*	*30*	
Surr: d5-N-EtFOSAA	*94.99*	0	0	*156*	0	*60.9*	*50-150*	138.6	*37.3*	*30*	*R*
Surr: d3-N-MeFOSAA	*89.49*	0	0	*156*	0	*57.4*	*50-150*	106.9	*17.8*	*30*	

MSD Sample ID: **22060134-34AMSD** Units: **ng/L** Analysis Date: **6/9/2022 12:09 AM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499923** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	22.59	0.55	4.9	29.74	0	76	69-134	19.85	12.9	30	
Perfluoroundecanoic Acid (PFI	28.1	0.95	4.9	31.2	0	90.1	69-133	28.74	2.25	30	

The following samples were analyzed in this batch: 22060570-02A 22060570-03A 22060570-04A 22060570-22A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 2

Chain of Custody Form

ALS Group USA, Corp

Work Order: _____

				Parameter/Method Request for Analysis	
Company Name	Gannett Fleming, Inc.	Purchase Order	55929.007	A	PFAS (537M)
		Company Name	Gannett Fleming, Inc.	B	
Send Report To	TONY MILLER	Invoice Attn	Accounts Payable	C	
Project Name	WRR - PFAS	Project #	55929.007	D	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303 Suite 303	E	
				F	
City State Zip	Madison, WI 53717-1338	City State Zip	Madison, WI 53717-1338	G	
Phone	608-354-7730	Phone	608-354-7730	H	
e-Mail Address	awmiller@gfnet.com	e-Mail Address	awmiller@gfnet.com	I	
				J	

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	G	H	I	J	Sample Notes
1	W-32	6/1/22	14:20	GW	7,8	2	✓										
2	W-35	↓	16:40	↓	↓	↓	✓										
3	W-31A	6/2/22	9:15	↓	↓	↓	✓										
4	W-31B	↓	9:20	↓	↓	↓	✓										
5																	
6																	
7																	
8																	
9																	
10																	

Notes: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 6-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Required Turnaround Time: ✓ Std 10 Wk days ___ 5 Wk days ___ 2 Wk days ___ 24 hr

Results Due:

Relinquised by	Date	Time	Received by	Date	Time
[signature]	6/2/22	16:00			

NOTES:

QC Reporting Level: (check box below)

- ✓ Level II: Standard QC
- Level III: Std QC + Raw data
- Level IV: SW846 CLP-Like
- Other:

ALS Group USA, Corp | 3352 128th Ave | | Holland Michigan 49424 | TEL (616) 399-6070

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Jun-22 09:30**

Work Order: **22060570** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 03-Jun-22 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Jun-22 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.9/2.9, 1.2/2.2 C	IR3	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/3/2022 2:15:48 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

17-Jun-2022

Anthony Miller
Gannett Fleming, Inc.
8040 Excelsior Drive
Suite 303
Madison, WI 53717-1338

Re: **WRR (55929.007)** Work Order: **22060570**

Dear Anthony, Revision: **1**

ALS Environmental received 4 samples on 03-Jun-2022 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 23.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Jodi Blouw

Electronically approved by: Jodi Blouw

Jodi Blouw

Report of Laboratory Analysis

Certificate No: WI: 399084510

ALS Group, USA

Date: 17-Jun-22

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: **22060570**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22060570-02	W-31A	Groundwater		6/2/2022 09:15	6/3/2022 09:30	☐
22060570-03	W-31B	Groundwater		6/2/2022 09:20	6/3/2022 09:30	☐
22060570-04	W-32	Groundwater		6/1/2022 14:20	6/3/2022 09:30	☐
22060570-22	W-35	Groundwater		6/1/2022 16:40	6/3/2022 09:30	☐

ALS Group, USA

Date: 17-Jun-22

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
WorkOrder: **22060570**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
ng/L	Nanograms per Liter

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Work Order: 22060570

Case Narrative

Samples for the above noted Work Order were received on 06/03/2022. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, sample condition, preservation, and temperature compliance.
In order to ensure compliance with NR 149 criteria, please note the following report format:
(1) The Limit of Detection (LOD) is reported as the MDL (Method Detection Limit)
(2) The Limit of Quantitation (LOQ) is reported as the PQL (Practical Quantitation Limit)
(3) All reported concentrations, including those for the LOD and LOQ, are adjusted for any required dilutions
(4) All reported concentrations, including those for the LOD and LOQ, are adjusted for moisture content when samples are reported on a dry weight basis.

Samples were analyzed according to the analytical methodology previously documented in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Detail as to the associated samples can be found at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, acronyms, and units utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Extractable Organics
Batch 197492, Method E537 Mod, Sample W-31A (22060570-02A): 13C4-PFOA, 13C2-FtS 8:2, 13C2-PFDoA, 13C3-HFPO-DA, d3-N-MeFOSA, d5-N-EtFOSAA failed in CCV/ICV (Target analytes passed in CCV/ICV).

Batch 197492, Method E537 Mod, Sample W-31B (22060570-03A): 13C4-PFOA, 13C2-FtS 8:2, 13C2-PFDoA, 13C3-HFPO-DA, d3-N-MeFOSA, d5-N-EtFOSAA failed in CCV/ICV (Target analytes passed in CCV/ICV).

Batch 197492, Method E537 Mod, Sample W-31A (22060570-02A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-PFDoA

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA failed in CCV/ICV (Target analyte passed in CCV/ICV)

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. 13C-PFHpA_IS

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS, 13C-8_2-FTS_IS

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. 13C4-PFBA, 13C4-PFHpA

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. d3-N-MeFOSAA, 13C2-FtS 4:2, 13C2-FtS 6:2, 13C2-FtS 8:2

Batch 197492, Method E537 Mod, Sample W-35 (22060570-22A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: 13C4-PFOA failed in CCV/ICV (Target analyte passed in CCV/ICV)

Batch 197492, Method E537 Mod, Sample W-35 (22060570-22A): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSA, d5-N-EtFOSA, d9-N-EtFOSE

Batch 197492, Method E537 Mod, Sample LCS-197492: The LCS recovery was below the lower control limit. The sample results for this batch may be biased low for this analyte: PFNA

Batch 197492, Method E537 Mod, Sample LCS-197492: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte: NEtFOSAA

Batch 197492, Method E537 Mod, Sample W-32 (22060570-04A): Dirty sample matrix. 5x dilution required for SPE extraction.

* rev1 - Revised report to remove samples not analyzed in this work order *

ALS Group, USA

Date: *17-Jun-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31A
Collection Date: 6/2/2022 09:15 AM

Work Order: 22060570
Lab ID: 22060570-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.97	5.2	ng/L	1	6/8/2022 08:31
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**10**		**2.0**	**5.2**	**ng/L**	1	6/8/2022 08:31
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.2	ng/L	1	6/8/2022 08:31
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		2.4	5.2	ng/L	1	6/8/2022 08:31
Perfluorobutanesulfonic Acid (PFBS)	**150**		**0.36**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorobutanoic Acid (PFBA)	**140**		**2.7**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.2	ng/L	1	6/8/2022 08:31
Perfluorodecanoic Acid (PFDA)	U		1.3	5.2	ng/L	1	6/8/2022 08:31
Perfluorododecanesulfonic Acid (PFDoS)	U		0.65	5.2	ng/L	1	6/8/2022 08:31
Perfluorododecanoic Acid (PFDoA)	U		0.72	5.2	ng/L	1	6/8/2022 08:31
Perfluoroheptanesulfonic Acid (PFHpS)	**22**		**0.59**	**5.2**	**ng/L**	1	6/9/2022 02:29
Perfluoroheptanoic Acid (PFHpA)	**31**		**1.8**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorohexadecanoic Acid (PFHxDA)	U		1.9	5.2	ng/L	1	6/8/2022 08:31
Perfluorohexanesulfonic Acid (PFHxS)	**120**		**0.94**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorohexanoic Acid (PFHxA)	**87**		**1.2**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorononanesulfonic Acid (PFNS)	U		0.52	5.2	ng/L	1	6/8/2022 08:31
Perfluorononanoic Acid (PFNA)	U		0.90	5.2	ng/L	1	6/8/2022 08:31
Perfluorooctadecanoic Acid (PFODA)	U		0.67	5.2	ng/L	1	6/8/2022 08:31
Perfluorooctanesulfonamide (PFOSA)	U		0.74	5.2	ng/L	1	6/8/2022 08:31
Perfluorooctanesulfonic Acid (PFOS)	**70**		**0.93**	**2.1**	**ng/L**	1	6/8/2022 08:31
Perfluorooctanoic Acid (PFOA)	**520**		**6.5**	**21**	**ng/L**	10	6/9/2022 12:15
Perfluoropentanesulfonic Acid (PFPeS)	**11**		**0.58**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluoropentanoic Acid (PFPeA)	**200**		**1.3**	**5.2**	**ng/L**	1	6/8/2022 08:31
Perfluorotetradecanoic Acid (PFTeA)	U		2.7	5.2	ng/L	1	6/8/2022 08:31
Perfluorotridecanoic Acid (PFTriA)	U		2.0	5.2	ng/L	1	6/8/2022 08:31
Perfluoroundecanoic Acid (PFUnA)	U		1.0	5.2	ng/L	1	6/9/2022 02:29
N-ethylperfluoro-1-octanesulfonamide	U		1.2	5.2	ng/L	1	6/8/2022 08:31
N-Ethylperfluorooctanesulfonamidoacetic Acid	**2.1**	J	**1.6**	**5.2**	**ng/L**	1	6/8/2022 08:31
N-Ethylperfluorooctanesulfonamidoethanol	U		1.1	5.2	ng/L	1	6/8/2022 08:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31A
Collection Date: 6/2/2022 09:15 AM

Work Order: 22060570
Lab ID: 22060570-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-methylperfluoro-1-octanesulfonamide	U		0.82	5.2	ng/L	1	6/8/2022 08:31
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.67	5.2	ng/L	1	6/8/2022 08:31
N-Methylperfluorooctanesulfonamidoethanol	U		1.6	5.2	ng/L	1	6/8/2022 08:31
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.2	ng/L	1	6/8/2022 08:31
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.58	5.2	ng/L	1	6/8/2022 08:31
11Cl-Pf3OUdS	U		0.48	5.2	ng/L	1	6/8/2022 08:31
9Cl-PF3ONS	U		0.47	5.2	ng/L	1	6/8/2022 08:31
Surr: 13C2-FtS 4:2	*143*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-FtS 6:2	*91.4*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-FtS 8:2	*133*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFDA	*118*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFDoA	*154*	S		*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFHxA	*107*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFHxDA	*102*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFTeA	*104*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C2-PFUnA	*97.3*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C3-HFPO-DA	*111*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C3-PFBS	*107*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFBA	*100*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFHpA	*79.7*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFOA	*118*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C4-PFOS	*108*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C5-PFNA	*132*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C5-PFPeA	*102*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 13C8-FOSA	*106*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: 18O2-PFHxS	*102*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d5-N-EtFOSA	*93.1*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d5-N-EtFOSAA	*113*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d9-N-EtFOSE	*96.9*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d3-N-MeFOSA	*100*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d3-N-MeFOSAA	*90.6*			*50-150*	*%REC*	1	6/8/2022 08:31
Surr: d7-N-MeFOSE	*91.1*			*50-150*	*%REC*	1	6/8/2022 08:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

ALS Group, USA

Date: *17-Jun-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31B
Collection Date: 6/2/2022 09:20 AM

Work Order: 22060570
Lab ID: 22060570-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		0.93	5.0	ng/L	1	6/8/2022 08:40
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	U		1.9	5.0	ng/L	1	6/8/2022 08:40
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.1	5.0	ng/L	1	6/8/2022 08:40
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		2.3	5.0	ng/L	1	6/8/2022 08:40
Perfluorobutanesulfonic Acid (PFBS)	**7.6**		**0.35**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorobutanoic Acid (PFBA)	**8.8**		**2.6**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorodecanesulfonic Acid (PFDS)	U		1.4	5.0	ng/L	1	6/8/2022 08:40
Perfluorodecanoic Acid (PFDA)	U		1.2	5.0	ng/L	1	6/8/2022 08:40
Perfluorododecanesulfonic Acid (PFDoS)	U		0.62	5.0	ng/L	1	6/8/2022 08:40
Perfluorododecanoic Acid (PFDoA)	U		0.69	5.0	ng/L	1	6/8/2022 08:40
Perfluoroheptanesulfonic Acid (PFHpS)	**6.2**		**0.56**	**5.0**	**ng/L**	1	6/9/2022 02:37
Perfluoroheptanoic Acid (PFHpA)	**2.1**	J	**1.7**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorohexadecanoic Acid (PFHxDA)	U		1.8	5.0	ng/L	1	6/8/2022 08:40
Perfluorohexanesulfonic Acid (PFHxS)	**24**		**0.90**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorohexanoic Acid (PFHxA)	**8.2**		**1.2**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorononanesulfonic Acid (PFNS)	U		0.49	5.0	ng/L	1	6/8/2022 08:40
Perfluorononanoic Acid (PFNA)	U		0.86	5.0	ng/L	1	6/8/2022 08:40
Perfluorooctadecanoic Acid (PFODA)	U		0.65	5.0	ng/L	1	6/8/2022 08:40
Perfluorooctanesulfonamide (PFOSA)	U		0.71	5.0	ng/L	1	6/8/2022 08:40
Perfluorooctanesulfonic Acid (PFOS)	**60**		**0.89**	**2.0**	**ng/L**	1	6/8/2022 08:40
Perfluorooctanoic Acid (PFOA)	**11**		**0.63**	**2.0**	**ng/L**	1	6/8/2022 08:40
Perfluoropentanesulfonic Acid (PFPeS)	**1.1**	J	**0.55**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluoropentanoic Acid (PFPeA)	**12**		**1.3**	**5.0**	**ng/L**	1	6/8/2022 08:40
Perfluorotetradecanoic Acid (PFTeA)	U		2.6	5.0	ng/L	1	6/8/2022 08:40
Perfluorotridecanoic Acid (PFTriA)	U		1.9	5.0	ng/L	1	6/8/2022 08:40
Perfluoroundecanoic Acid (PFUnA)	U		0.97	5.0	ng/L	1	6/9/2022 02:37
N-ethylperfluoro-1-octanesulfonamide	U		1.1	5.0	ng/L	1	6/8/2022 08:40
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		1.5	5.0	ng/L	1	6/8/2022 08:40
N-Ethylperfluorooctanesulfonamidoethanol	U		1.0	5.0	ng/L	1	6/8/2022 08:40
N-methylperfluoro-1-octanesulfonamide	U		0.79	5.0	ng/L	1	6/8/2022 08:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

ALS Group, USA

Date: *17-Jun-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-31B
Collection Date: 6/2/2022 09:20 AM

Work Order: 22060570
Lab ID: 22060570-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.64	5.0	ng/L	1	6/8/2022 08:40
N-Methylperfluorooctanesulfonamidoethanol	**3.9**	J	**1.5**	**5.0**	**ng/L**	1	6/8/2022 08:40
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.2	5.0	ng/L	1	6/8/2022 08:40
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.56	5.0	ng/L	1	6/8/2022 08:40
11Cl-Pf3OUdS	U		0.46	5.0	ng/L	1	6/8/2022 08:40
9Cl-PF3ONS	U		0.45	5.0	ng/L	1	6/8/2022 08:40
Surr: 13C2-FtS 4:2	*85.5*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-FtS 6:2	*81.2*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-FtS 8:2	*103*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFDA	*95.5*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFDoA	*118*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFHxA	*91.0*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFHxDA	*94.4*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFTeA	*103*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C2-PFUnA	*83.5*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C3-HFPO-DA	*90.6*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C3-PFBS	*89.9*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFBA	*91.0*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFHpA	*105*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFOA	*120*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C4-PFOS	*107*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C5-PFNA	*119*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C5-PFPeA	*87.8*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 13C8-FOSA	*75.6*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: 18O2-PFHxS	*127*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d5-N-EtFOSA	*69.9*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d5-N-EtFOSAA	*93.1*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d9-N-EtFOSE	*84.8*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d3-N-MeFOSA	*79.2*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d3-N-MeFOSAA	*78.1*			*50-150*	*%REC*	1	6/8/2022 08:40
Surr: d7-N-MeFOSE	*74.2*			*50-150*	*%REC*	1	6/8/2022 08:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

ALS Group, USA

Date: *17-Jun-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-32
Collection Date: 6/1/2022 02:20 PM

Work Order: 22060570
Lab ID: 22060570-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	U		4.7	25	ng/L	1	6/8/2022 09:54
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**13**	J	**9.6**	**25**	**ng/L**	1	6/8/2022 09:54
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		5.6	25	ng/L	1	6/8/2022 09:54
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		12	25	ng/L	1	6/8/2022 09:54
Perfluorobutanesulfonic Acid (PFBS)	**4,000**		**18**	**250**	**ng/L**	10	6/9/2022 12:24
Perfluorobutanoic Acid (PFBA)	**2,300**		**13**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorodecanesulfonic Acid (PFDS)	U		6.8	25	ng/L	1	6/8/2022 09:54
Perfluorodecanoic Acid (PFDA)	U		6.2	25	ng/L	1	6/8/2022 09:54
Perfluorododecanesulfonic Acid (PFDoS)	U		3.1	25	ng/L	1	6/8/2022 09:54
Perfluorododecanoic Acid (PFDoA)	U		3.5	25	ng/L	1	6/8/2022 09:54
Perfluoroheptanesulfonic Acid (PFHpS)	**14**	J	**2.8**	**25**	**ng/L**	1	6/9/2022 03:02
Perfluoroheptanoic Acid (PFHpA)	**600**		**8.6**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorohexadecanoic Acid (PFHxDA)	U		9.0	25	ng/L	1	6/8/2022 09:54
Perfluorohexanesulfonic Acid (PFHxS)	**120**		**4.5**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorohexanoic Acid (PFHxA)	**1,400**		**6.0**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorononanesulfonic Acid (PFNS)	U		2.5	25	ng/L	1	6/8/2022 09:54
Perfluorononanoic Acid (PFNA)	U		4.4	25	ng/L	1	6/8/2022 09:54
Perfluorooctadecanoic Acid (PFODA)	U		3.2	25	ng/L	1	6/8/2022 09:54
Perfluorooctanesulfonamide (PFOSA)	U		3.6	25	ng/L	1	6/8/2022 09:54
Perfluorooctanesulfonic Acid (PFOS)	**24**		**4.5**	**10**	**ng/L**	1	6/8/2022 09:54
Perfluorooctanoic Acid (PFOA)	**7,500**		**32**	**100**	**ng/L**	10	6/9/2022 12:24
Perfluoropentanesulfonic Acid (PFPeS)	**170**		**2.8**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluoropentanoic Acid (PFPeA)	**460**		**6.4**	**25**	**ng/L**	1	6/8/2022 09:54
Perfluorotetradecanoic Acid (PFTeA)	U		13	25	ng/L	1	6/8/2022 09:54
Perfluorotridecanoic Acid (PFTriA)	U		9.7	25	ng/L	1	6/8/2022 09:54
Perfluoroundecanoic Acid (PFUnA)	**6.5**	J	**4.9**	**25**	**ng/L**	1	6/9/2022 03:02
N-ethylperfluoro-1-octanesulfonamide	U		5.8	25	ng/L	1	6/8/2022 09:54
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		7.7	25	ng/L	1	6/8/2022 09:54
N-Ethylperfluorooctanesulfonamidoethanol	U		5.2	25	ng/L	1	6/8/2022 09:54
N-methylperfluoro-1-octanesulfonamide	U		4.0	25	ng/L	1	6/8/2022 09:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

ALS Group, USA

Date: *17-Jun-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-32
Collection Date: 6/1/2022 02:20 PM

Work Order: 22060570
Lab ID: 22060570-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-Methylperfluorooctanesulfonamidoacetic Acid	U		3.2	25	ng/L	1	6/8/2022 09:54
N-Methylperfluorooctanesulfonamidoethanol	U		7.5	25	ng/L	1	6/8/2022 09:54
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		5.8	25	ng/L	1	6/8/2022 09:54
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		2.8	25	ng/L	1	6/8/2022 09:54
11Cl-Pf3OUdS	U		2.3	25	ng/L	1	6/8/2022 09:54
9Cl-PF3ONS	U		2.2	25	ng/L	1	6/8/2022 09:54
Surr: 13C2-FtS 4:2	*399*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-FtS 6:2	*192*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-FtS 8:2	*275*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFDA	*110*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFDoA	*99.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFHxA	*81.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFHxDA	*88.4*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFTeA	*99.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C2-PFUnA	*87.9*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C3-HFPO-DA	*79.7*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C3-PFBS	*58.0*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFBA	*48.6*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFHpA	*44.9*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFOA	*67.0*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C4-PFOS	*98.9*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C5-PFNA	*103*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C5-PFPeA	*60.9*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 13C8-FOSA	*85.1*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: 18O2-PFHxS	*50.7*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d5-N-EtFOSA	*72.5*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d5-N-EtFOSAA	*105*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d9-N-EtFOSE	*71.8*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d3-N-MeFOSA	*75.3*			*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d3-N-MeFOSAA	*192*	S		*50-150*	*%REC*	1	6/8/2022 09:54
Surr: d7-N-MeFOSE	*68.5*			*50-150*	*%REC*	1	6/8/2022 09:54

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

ALS Group, USA

Date: *17-Jun-22*

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-35
Collection Date: 6/1/2022 04:40 PM

Work Order: 22060570
Lab ID: 22060570-22
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED		Method: **E537 MOD**			Prep: E537 Mod / 6/7/22		Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	**18**		**1.0**	**5.5**	**ng/L**	1	6/8/2022 10:02
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	**1,200**		**21**	**55**	**ng/L**	10	6/9/2022 12:32
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	U		1.2	5.5	ng/L	1	6/8/2022 10:02
Fluorotelomer Sulphonic Acid 10:2 (FtS 10:2)	U		2.6	5.5	ng/L	1	6/8/2022 10:02
Perfluorobutanesulfonic Acid (PFBS)	**230**		**0.38**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorobutanoic Acid (PFBA)	**250**		**2.8**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorodecanesulfonic Acid (PFDS)	U		1.5	5.5	ng/L	1	6/8/2022 10:02
Perfluorodecanoic Acid (PFDA)	U		1.4	5.5	ng/L	1	6/8/2022 10:02
Perfluorododecanesulfonic Acid (PFDoS)	U		0.68	5.5	ng/L	1	6/8/2022 10:02
Perfluorododecanoic Acid (PFDoA)	U		0.76	5.5	ng/L	1	6/8/2022 10:02
Perfluoroheptanesulfonic Acid (PFHpS)	**88**		**0.62**	**5.5**	**ng/L**	1	6/9/2022 03:10
Perfluoroheptanoic Acid (PFHpA)	**83**		**1.9**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorohexadecanoic Acid (PFHxDA)	U		2.0	5.5	ng/L	1	6/8/2022 10:02
Perfluorohexanesulfonic Acid (PFHxS)	**110**		**0.99**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorohexanoic Acid (PFHxA)	**250**		**1.3**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorononanesulfonic Acid (PFNS)	U		0.54	5.5	ng/L	1	6/8/2022 10:02
Perfluorononanoic Acid (PFNA)	**1.1**	J	**0.95**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluorooctadecanoic Acid (PFODA)	U		0.71	5.5	ng/L	1	6/8/2022 10:02
Perfluorooctanesulfonamide (PFOSA)	U		0.78	5.5	ng/L	1	6/8/2022 10:02
Perfluorooctanesulfonic Acid (PFOS)	**41**		**0.98**	**2.2**	**ng/L**	1	6/8/2022 10:02
Perfluorooctanoic Acid (PFOA)	**1,400**		**6.9**	**22**	**ng/L**	10	6/9/2022 12:32
Perfluoropentanesulfonic Acid (PFPeS)	**5.1**	J	**0.61**	**5.5**	**ng/L**	1	6/8/2022 10:02
Perfluoropentanoic Acid (PFPeA)	**660**		**14**	**55**	**ng/L**	10	6/9/2022 12:32
Perfluorotetradecanoic Acid (PFTeA)	U		2.9	5.5	ng/L	1	6/8/2022 10:02
Perfluorotridecanoic Acid (PFTriA)	U		2.1	5.5	ng/L	1	6/8/2022 10:02
Perfluoroundecanoic Acid (PFUnA)	U		1.1	5.5	ng/L	1	6/9/2022 03:10
N-ethylperfluoro-1-octanesulfonamide	U		1.3	5.5	ng/L	1	6/8/2022 10:02
N-Ethylperfluorooctanesulfonamidoacetic Acid	U		1.7	5.5	ng/L	1	6/8/2022 10:02
N-Ethylperfluorooctanesulfonamidoethanol	U		1.1	5.5	ng/L	1	6/8/2022 10:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

Revision: 1

Client: Gannett Fleming, Inc.
Project: WRR (55929.007)
Sample ID: W-35
Collection Date: 6/1/2022 04:40 PM

Work Order: 22060570
Lab ID: 22060570-22
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
N-methylperfluoro-1-octanesulfonamide	U		0.87	5.5	ng/L	1	6/8/2022 10:02
N-Methylperfluorooctanesulfonamidoacetic Acid	U		0.70	5.5	ng/L	1	6/8/2022 10:02
N-Methylperfluorooctanesulfonamidoethanol	U		1.6	5.5	ng/L	1	6/8/2022 10:02
Hexafluoropropylene oxide dimer acid (HFPO-DA)	U		1.3	5.5	ng/L	1	6/8/2022 10:02
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	U		0.61	5.5	ng/L	1	6/8/2022 10:02
11Cl-Pf3OUdS	U		0.51	5.5	ng/L	1	6/8/2022 10:02
9Cl-PF3ONS	U		0.49	5.5	ng/L	1	6/8/2022 10:02
Surr: 13C2-FtS 4:2	*131*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-FtS 6:2	*106*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-FtS 8:2	*80.8*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFDA	*68.9*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFDoA	*61.4*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFHxA	*73.9*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFHxDA	*50.5*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFTeA	*57.2*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C2-PFUnA	*85.5*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C3-HFPO-DA	*69.1*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C3-PFBS	*63.1*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFBA	*62.1*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFHpA	*57.5*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFOA	*65.7*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C4-PFOS	*69.9*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C5-PFNA	*71.6*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C5-PFPeA	*58.2*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 13C8-FOSA	*50.2*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: 18O2-PFHxS	*71.7*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d5-N-EtFOSA	*41.3*	S		*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d5-N-EtFOSAA	*71.3*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d9-N-EtFOSE	*49.7*	S		*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d3-N-MeFOSA	*49.4*	S		*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d3-N-MeFOSAA	*60.8*			*50-150*	*%REC*	1	6/8/2022 10:02
Surr: d7-N-MeFOSE	*50.1*			*50-150*	*%REC*	1	6/8/2022 10:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

MBLK Sample ID: **MBLK-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 09:21 AM**

Client ID: Run ID: **LCMS2_220607C** SeqNo: **8496008** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid (	U	0.94	5.0								
Fluorotelomer Sulphonic Acid (	U	1.9	5.0								
Fluorotelomer Sulphonic Acid (	U	1.1	5.0								
Fluorotelomer Sulphonic Acid	U	2.4	5.0								
Perfluorobutanesulfonic Acid (	U	0.35	5.0								
Perfluorobutanoic Acid (PFBA)	U	2.6	5.0								
Perfluorodecanesulfonic Acid (	U	1.4	5.0								
Perfluorodecanoic Acid (PFDA	U	1.2	5.0								
Perfluorododecanesulfonic Aci	U	0.62	5.0								
Perfluorododecanoic Acid (PFI	U	0.69	5.0								
Perfluoroheptanoic Acid (PFH	U	1.7	5.0								
Perfluorohexadecanoic Acid (F	U	1.8	5.0								
Perfluorohexanesulfonic Acid (	U	0.9	5.0								
Perfluorohexanoic Acid (PFHx	U	1.2	5.0								
Perfluorononanesulfonic Acid (	U	0.5	5.0								
Perfluorononanoic Acid (PFNA	U	0.87	5.0								
Perfluorooctadecanoic Acid (P	U	0.65	5.0								
Perfluorooctanesulfonamide (F	U	0.71	5.0								
Perfluorooctanesulfonic Acid (	U	0.89	2.0								
Perfluorooctanoic Acid (PFOA)	U	0.63	2.0								
Perfluoropentanesulfonic Acid	U	0.56	5.0								
Perfluoropentanoic Acid (PFPe	U	1.3	5.0								
Perfluorotetradecanoic Acid (F	U	2.6	5.0								
Perfluorotridecanoic Acid (PFT	U	1.9	5.0								
N-ethylperfluoro-1-octanesulfo	U	1.2	5.0								
N-Ethylperfluorooctanesulfona	U	1.5	5.0								
N-Ethylperfluorooctanesulfona	1.091	1	5.0								J
N-methylperfluoro-1-octanesul	U	0.79	5.0								
N-Methylperfluorooctanesulfor	U	0.64	5.0								
N-Methylperfluorooctanesulfor	U	1.5	5.0								
Hexafluoropropylene oxide din	U	1.2	5.0								
4,8-Dioxa-3H-perfluorononano	U	0.56	5.0								
11Cl-Pf3OUdS	U	0.47	5.0								
9Cl-PF3ONS	U	0.45	5.0								
Surr: 13C2-FtS 4:2	*94.16*	0	0	*149.4*	0	*63*	*50-150*	0			
Surr: 13C2-FtS 6:2	*110.7*	0	0	*152*	0	*72.8*	*50-150*	0			
Surr: 13C2-FtS 8:2	*105.6*	0	0	*153.3*	0	*68.9*	*50-150*	0			
Surr: 13C2-PFDA	*113.9*	0	0	*160*	0	*71.2*	*50-150*	0			
Surr: 13C2-PFDoA	*134*	0	0	*160*	0	*83.7*	*50-150*	0			
Surr: 13C2-PFHxA	*125.3*	0	0	*160*	0	*78.3*	*50-150*	0			
Surr: 13C2-PFHxDA	*106.7*	0	0	*160*	0	*66.7*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 1

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C2-PFTeA	*134.7*	0	0	*160*	0	*84.2*	*50-150*	0
Surr: 13C2-PFUnA	*132.3*	0	0	*160*	0	*82.7*	*50-150*	0
Surr: 13C3-HFPO-DA	*112.1*	0	0	*160*	0	*70.1*	*50-150*	0
Surr: 13C3-PFBS	*111.5*	0	0	*148.8*	0	*74.9*	*50-150*	0
Surr: 13C4-PFBA	*128.8*	0	0	*160*	0	*80.5*	*50-150*	0
Surr: 13C4-PFHpA	*139.3*	0	0	*160*	0	*87*	*50-150*	0
Surr: 13C4-PFOA	*151.5*	0	0	*160*	0	*94.7*	*50-150*	0
Surr: 13C4-PFOS	*141.5*	0	0	*152.8*	0	*92.6*	*50-150*	0
Surr: 13C5-PFNA	*142.1*	0	0	*160*	0	*88.8*	*50-150*	0
Surr: 13C5-PFPeA	*113.5*	0	0	*160*	0	*71*	*50-150*	0
Surr: 13C8-FOSA	*86.88*	0	0	*160*	0	*54.3*	*50-150*	0
Surr: 18O2-PFHxS	*155*	0	0	*151.2*	0	*103*	*50-150*	0
Surr: d5-N-EtFOSA	*80.62*	0	0	*160*	0	*50.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*105.4*	0	0	*160*	0	*65.9*	*50-150*	0
Surr: d9-N-EtFOSE	*110.4*	0	0	*160*	0	*69*	*50-150*	0
Surr: d3-N-MeFOSA	*97.11*	0	0	*160*	0	*60.7*	*50-150*	0
Surr: d3-N-MeFOSAA	*118.2*	0	0	*160*	0	*73.9*	*50-150*	0
Surr: d7-N-MeFOSE	*104*	0	0	*160*	0	*65*	*50-150*	0

MBLK Sample ID: **MBLK-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 07:20 PM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499891** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	U	0.57	5.0								
Perfluoroundecanoic Acid (PF	U	0.97	5.0								

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

LCS Sample ID: **LCS-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 09:29 AM**
Client ID: Run ID: **LCMS2_220607C** SeqNo: **8496009** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	31.59	0.94	5.0	29.9	0	106	63-143	0			
Fluorotelomer Sulphonic Acid	38.66	1.9	5.0	30.3	0	128	63-162	0			
Fluorotelomer Sulphonic Acid	25.48	1.1	5.0	30.7	0	83	61-165	0			
Fluorotelomer Sulphonic Acid	39.01	2.4	5.0	30.8	0	127	40-160	0			
Perfluorobutanesulfonic Acid (	33.97	0.35	5.0	28.3	0	120	72-130	0			
Perfluorobutanoic Acid (PFBA)	33.62	2.6	5.0	32	0	105	73-129	0			
Perfluorodecanesulfonic Acid (	30.43	1.4	5.0	30.8	0	98.8	53-142	0			
Perfluorodecanoic Acid (PFDA	30.45	1.2	5.0	32	0	95.2	71-129	0			
Perfluorododecanesulfonic Aci	25.27	0.62	5.0	31	0	81.5	69-134	0			
Perfluorododecanoic Acid (PFI	29.12	0.69	5.0	32	0	91	72-134	0			
Perfluoroheptanoic Acid (PFHp	37.5	1.7	5.0	32	0	117	72-130	0			
Perfluorohexadecanoic Acid (F	40.96	1.8	5.0	32	0	128	70-130	0			
Perfluorohexanesulfonic Acid (	23.03	0.9	5.0	29.1	0	79.1	68-131	0			
Perfluorohexanoic Acid (PFHx	33.96	1.2	5.0	32	0	106	72-129	0			
Perfluorononanesulfonic Acid (	30.55	0.5	5.0	30.7	0	99.5	69-127	0			
Perfluorononanoic Acid (PFNA	12.84	0.87	5.0	32	0	40.1	69-130	0			S
Perfluorooctadecanoic Acid (P	39.99	0.65	5.0	32	0	125	70-130	0			
Perfluorooctanesulfonamide (F	37.34	0.71	5.0	32	0	117	67-137	0			
Perfluorooctanesulfonic Acid (I	30.78	0.89	2.0	29.7	0	104	65-140	0			
Perfluorooctanoic Acid (PFOA)	31.49	0.63	2.0	32	0	98.4	71-133	0			
Perfluoropentanesulfonic Acid	22.05	0.56	5.0	30	0	73.5	71-127	0			
Perfluoropentanoic Acid (PFPe	35.58	1.3	5.0	32	0	111	72-129	0			
Perfluorotetradecanoic Acid (F	27.12	2.6	5.0	32	0	84.8	71-132	0			
Perfluorotridecanoic Acid (PFT	30.33	1.9	5.0	32	0	94.8	65-144	0			
N-ethylperfluoro-1-octanesulfo	32.69	1.2	5.0	32	0	102	70-130	0			
N-Ethylperfluorooctanesulfona	48.03	1.5	5.0	32	0	150	61-135	0			S
N-Ethylperfluorooctanesulfona	33.12	1	5.0	32	0	103	70-130	0			
N-methylperfluoro-1-octanesul	36.17	0.79	5.0	32	0	113	70-130	0			
N-Methylperfluorooctanesulfor	33.16	0.64	5.0	32	0	104	65-136	0			
Hexafluoropropylene oxide din	31	1.2	5.0	32	0	96.9	70-130	0			
4,8-Dioxa-3H-perfluorononano	26.48	0.56	5.0	30.1	0	88	70-130	0			
11Cl-Pf3OUdS	28.34	0.47	5.0	30.1	0	94.2	70-130	0			
9Cl-PF3ONS	29.08	0.45	5.0	29.8	0	97.6	70-130	0			
Surr: 13C2-FtS 4:2	*137.6*	0	0	*149.4*	0	*92.1*	*50-150*	0			
Surr: 13C2-FtS 6:2	*110.9*	0	0	*152*	0	*73*	*50-150*	0			
Surr: 13C2-FtS 8:2	*171.5*	0	0	*153.3*	0	*112*	*50-150*	0			
Surr: 13C2-PFDA	*161.8*	0	0	*160*	0	*101*	*50-150*	0			
Surr: 13C2-PFDoA	*206.9*	0	0	*160*	0	*129*	*50-150*	0			
Surr: 13C2-PFHxA	*155.2*	0	0	*160*	0	*97*	*50-150*	0			
Surr: 13C2-PFHxDA	*150.7*	0	0	*160*	0	*94.2*	*50-150*	0			
Surr: 13C2-PFTeA	*169.6*	0	0	*160*	0	*106*	*50-150*	0			
Surr: 13C2-PFUnA	*136.9*	0	0	*160*	0	*85.6*	*50-150*	0			
Surr: 13C3-HFPO-DA	*155*	0	0	*160*	0	*96.9*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 1

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 13C3-PFBS	*139.9*	0	0	*148.8*	0	*94*	*50-150*	0
Surr: 13C4-PFBA	*169.8*	0	0	*160*	0	*106*	*50-150*	0
Surr: 13C4-PFHpA	*163.3*	0	0	*160*	0	*102*	*50-150*	0
Surr: 13C4-PFOA	*202.4*	0	0	*160*	0	*126*	*50-150*	0
Surr: 13C4-PFOS	*170.4*	0	0	*152.8*	0	*112*	*50-150*	0
Surr: 13C5-PFNA	*208.6*	0	0	*160*	0	*130*	*50-150*	0
Surr: 13C5-PFPeA	*153.6*	0	0	*160*	0	*96*	*50-150*	0
Surr: 13C8-FOSA	*123.3*	0	0	*160*	0	*77.1*	*50-150*	0
Surr: 18O2-PFHxS	*184.6*	0	0	*151.2*	0	*122*	*50-150*	0
Surr: d5-N-EtFOSA	*114.2*	0	0	*160*	0	*71.4*	*50-150*	0
Surr: d5-N-EtFOSAA	*157*	0	0	*160*	0	*98.1*	*50-150*	0
Surr: d9-N-EtFOSE	*134.1*	0	0	*160*	0	*83.8*	*50-150*	0
Surr: d3-N-MeFOSA	*139.2*	0	0	*160*	0	*87*	*50-150*	0
Surr: d3-N-MeFOSAA	*141.2*	0	0	*160*	0	*88.3*	*50-150*	0
Surr: d7-N-MeFOSE	*129.9*	0	0	*160*	0	*81.2*	*50-150*	0

LCS Sample ID: **LCS-197492-197492** Units: **ng/L** Analysis Date: **6/8/2022 07:28 PM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499892** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	27.41	0.57	5.0	30.5	0	89.9	69-134	0			
Perfluoroundecanoic Acid (PFI	23.52	0.97	5.0	32	0	73.5	69-133	0			
N-Methylperfluorooctanesulfor	36.2	1.5	5.0	32	0	113	68-141	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 1

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

MS Sample ID: **22060134-34AMS** Units: **ng/L** Analysis Date: **6/8/2022 06:03 AM**
Client ID: Run ID: **LCMS2_220607C** SeqNo: **8495986** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	32.88	0.89	4.8	28.46	0	115	63-143	0			
Fluorotelomer Sulphonic Acid	32.88	1.8	4.8	28.85	0.4088	113	63-162	0			
Fluorotelomer Sulphonic Acid	32.52	1.1	4.8	29.23	0	111	61-165	0			
Perfluorobutanesulfonic Acid (	34.12	0.33	4.8	26.94	1.945	119	72-130	0			
Perfluorobutanoic Acid (PFBA)	40.99	2.5	4.8	30.46	7.133	111	73-129	0			
Perfluorodecanesulfonic Acid	25.9	1.3	4.8	29.32	0	88.3	53-142	0			
Perfluorodecanoic Acid (PFDA	27.23	1.2	4.8	30.46	0	89.4	71-129	0			
Perfluorododecanoic Acid (PFI	34.13	0.66	4.8	30.46	0	112	72-134	0			
Perfluoroheptanoic Acid (PFHp	34.96	1.6	4.8	30.46	3.86	102	72-130	0			
Perfluorohexanesulfonic Acid	31.42	0.86	4.8	27.7	0.7776	111	68-131	0			
Perfluorohexanoic Acid (PFHx	32.53	1.1	4.8	30.46	5.6	88.4	72-129	0			
Perfluorononanesulfonic Acid	37.7	0.47	4.8	29.23	0	129	69-127	0			S
Perfluorononanoic Acid (PFNA	16.4	0.83	4.8	30.46	1.614	48.5	69-130	0			S
Perfluorooctanesulfonamide (F	37.07	0.68	4.8	30.46	0	122	67-137	0			
Perfluorooctanesulfonic Acid (I	42.65	0.85	1.9	28.27	15.27	96.8	65-140	0			
Perfluorooctanoic Acid (PFOA)	30.6	0.6	1.9	30.46	3.983	87.4	71-133	0			
Perfluoropentanesulfonic Acid	30.22	0.53	4.8	28.56	0	106	71-127	0			
Perfluoropentanoic Acid (PFPe	46.91	1.2	4.8	30.46	12.81	112	72-129	0			
Perfluorotetradecanoic Acid (F	30.68	2.5	4.8	30.46	0.713	98.4	71-132	0			
Perfluorotridecanoic Acid (PFT	27.61	1.8	4.8	30.46	0	90.6	65-144	0			
N-Ethylperfluorooctanesulfona	52.01	1.5	4.8	30.46	0	171	61-135	0			S
N-Methylperfluorooctanesulfor	39.58	0.61	4.8	30.46	0	130	65-136	0			
Hexafluoropropylene oxide din	30.14	1.1	4.8	30.46	0	98.9	70-130	0			
4,8-Dioxa-3H-perfluorononano	26.95	0.54	4.8	28.65	0	94	70-130	0			
11Cl-Pf3OUdS	24.68	0.44	4.8	28.65	0	86.1	70-130	0			
9Cl-PF3ONS	30.19	0.43	4.8	28.37	0	106	70-130	0			
Surr: 13C2-FtS 4:2	*94.9*	0	0	*142.3*	0	*66.7*	*50-150*	0			
Surr: 13C2-FtS 6:2	*110.5*	0	0	*144.7*	0	*76.3*	*50-150*	0			
Surr: 13C2-FtS 8:2	*82.91*	0	0	*145.9*	0	*56.8*	*50-150*	0			
Surr: 13C2-PFDA	*91.69*	0	0	*152.3*	0	*60.2*	*50-150*	0			
Surr: 13C2-PFDoA	*91.05*	0	0	*152.3*	0	*59.8*	*50-150*	0			
Surr: 13C2-PFHxA	*117.2*	0	0	*152.3*	0	*76.9*	*50-150*	0			
Surr: 13C2-PFTeA	*93.36*	0	0	*152.3*	0	*61.3*	*50-150*	0			
Surr: 13C2-PFUnA	*115.9*	0	0	*152.3*	0	*76.1*	*50-150*	0			
Surr: 13C3-HFPO-DA	*110.4*	0	0	*152.3*	0	*72.5*	*50-150*	0			
Surr: 13C3-PFBS	*90.35*	0	0	*141.7*	0	*63.8*	*50-150*	0			
Surr: 13C4-PFBA	*98.65*	0	0	*152.3*	0	*64.8*	*50-150*	0			
Surr: 13C4-PFHpA	*82.66*	0	0	*152.3*	0	*54.3*	*50-150*	0			
Surr: 13C4-PFOA	*97.24*	0	0	*152.3*	0	*63.8*	*50-150*	0			
Surr: 13C4-PFOS	*102.5*	0	0	*145.5*	0	*70.5*	*50-150*	0			
Surr: 13C5-PFNA	*101.9*	0	0	*152.3*	0	*66.9*	*50-150*	0			
Surr: 13C5-PFPeA	*96.16*	0	0	*152.3*	0	*63.1*	*50-150*	0			
Surr: 13C8-FOSA	*68.82*	0	0	*152.3*	0	*45.2*	*50-150*	0			*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 1

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

Surr: 18O2-PFHxS	*96.11*	0	0	*143.9*	0	*66.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*76.93*	0	0	*152.3*	0	*50.5*	*50-150*	0
Surr: d3-N-MeFOSAA	*82.9*	0	0	*152.3*	0	*54.4*	*50-150*	0

MS Sample ID: **22060134-34AMS** Units: **ng/L** Analysis Date: **6/9/2022 12:00 AM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499922** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	19.85	0.54	4.8	29.04	0	68.4	69-134	0			S
Perfluoroundecanoic Acid (PFI	28.74	0.93	4.8	30.46	0	94.3	69-133	0			

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492** Instrument ID **LCMS2** Method: **E537 Mod**

MSD Sample ID: **22060134-34AMSD** Units: **ng/L** Analysis Date: **6/8/2022 06:11 AM**
Client ID: Run ID: **LCMS2_220607C** SeqNo: **8495987** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid	31.84	0.91	4.9	29.15	0	109	63-143	32.86	3.16	30	
Fluorotelomer Sulphonic Acid	35.51	1.9	4.9	29.54	0.4088	119	63-162	42.29	17.4	30	
Fluorotelomer Sulphonic Acid	36.66	1.1	4.9	29.93	0	122	61-165	34.85	5.08	30	
Perfluorobutanesulfonic Acid (	33.49	0.34	4.9	27.59	1.945	114	72-130	34.44	2.82	30	
Perfluorobutanoic Acid (PFBA)	39.93	2.5	4.9	31.2	7.133	105	73-129	40.14	0.526	30	
Perfluorodecanesulfonic Acid	29.36	1.3	4.9	30.03	0	97.8	53-142	41.31	33.8	30	R
Perfluorodecanoic Acid (PFDA	27.06	1.2	4.9	31.2	0	86.7	71-129	29.42	8.35	30	
Perfluorododecanoic Acid (PFI	29.93	0.67	4.9	31.2	0	95.9	72-134	27.14	9.77	30	
Perfluoroheptanoic Acid (PFH	33.63	1.7	4.9	31.2	3.86	95.4	72-130	37.61	11.2	30	
Perfluorohexanesulfonic Acid	30.6	0.88	4.9	28.37	0.7776	105	68-131	30.64	0.141	30	
Perfluorohexanoic Acid (PFHx	33.4	1.2	4.9	31.2	5.6	89.1	72-129	38.69	14.7	30	
Perfluorononanesulfonic Acid	33.95	0.48	4.9	29.93	0	113	69-127	32.33	4.87	30	
Perfluorononanoic Acid (PFNA	16.95	0.85	4.9	31.2	1.614	49.2	69-130	16.12	5.01	30	S
Perfluorooctanesulfonamide (F	35.16	0.69	4.9	31.2	0	113	67-137	39.03	10.4	30	
Perfluorooctanesulfonic Acid (I	40.68	0.87	1.9	28.96	15.27	87.8	65-140	44.94	9.95	30	
Perfluorooctanoic Acid (PFOA	29.96	0.61	1.9	31.2	3.983	83.3	71-133	33.98	12.6	30	
Perfluoropentanesulfonic Acid	27.8	0.54	4.9	29.25	0	95.1	71-127	30.61	9.63	30	
Perfluoropentanoic Acid (PFPe	47.03	1.2	4.9	31.2	12.81	110	72-129	47.27	0.505	30	
Perfluorotetradecanoic Acid (F	29.16	2.6	4.9	31.2	0.713	91.2	71-132	29.42	0.909	30	
Perfluorotridecanoic Acid (PFT	26.1	1.9	4.9	31.2	0	83.7	65-144	33.26	24.1	30	
N-Ethylperfluorooctanesulfona	47.28	1.5	4.9	31.2	0	152	61-135	43.74	7.77	30	S
N-Methylperfluorooctanesulfor	38.88	0.63	4.9	31.2	0	125	65-136	39.8	2.32	30	
Hexafluoropropylene oxide din	33.07	1.1	4.9	31.2	0	106	70-130	38.21	14.4	30	
4,8-Dioxa-3H-perfluorononano	25.91	0.55	4.9	29.35	0	88.3	70-130	34.33	28	30	
11Cl-Pf3OUdS	24.4	0.46	4.9	29.35	0	83.2	70-130	29.44	18.7	30	
9Cl-PF3ONS	28.43	0.44	4.9	29.05	0	97.9	70-130	31.16	9.16	30	
Surr: 13C2-FtS 4:2	*103.9*	0	0	*145.7*	0	*71.3*	*50-150*	123.6	*17.3*	*30*	
Surr: 13C2-FtS 6:2	*122.6*	0	0	*148.2*	0	*82.7*	*50-150*	110.8	*10.1*	*30*	
Surr: 13C2-FtS 8:2	*95.19*	0	0	*149.4*	0	*63.7*	*50-150*	151.6	*45.7*	*30*	*R*
Surr: 13C2-PFDA	*100.1*	0	0	*156*	0	*64.2*	*50-150*	160.6	*46.4*	*30*	*R*
Surr: 13C2-PFDoA	*99.88*	0	0	*156*	0	*64*	*50-150*	173.8	*54*	*30*	*R*
Surr: 13C2-PFHxA	*124.5*	0	0	*156*	0	*79.8*	*50-150*	144	*14.5*	*30*	
Surr: 13C2-PFTeA	*108.8*	0	0	*156*	0	*69.8*	*50-150*	109	*0.137*	*30*	
Surr: 13C2-PFUnA	*134*	0	0	*156*	0	*85.9*	*50-150*	125.1	*6.82*	*30*	
Surr: 13C3-HFPO-DA	*104.8*	0	0	*156*	0	*67.2*	*50-150*	148.3	*34.4*	*30*	*R*
Surr: 13C3-PFBS	*101.7*	0	0	*145.1*	0	*70.1*	*50-150*	116	*13.2*	*30*	
Surr: 13C4-PFBA	*110.8*	0	0	*156*	0	*71*	*50-150*	134.5	*19.3*	*30*	
Surr: 13C4-PFHpA	*97.13*	0	0	*156*	0	*62.3*	*50-150*	104.9	*7.69*	*30*	
Surr: 13C4-PFOA	*115.3*	0	0	*156*	0	*73.9*	*50-150*	139.3	*18.9*	*30*	
Surr: 13C4-PFOS	*113.9*	0	0	*149*	0	*76.5*	*50-150*	121.2	*6.19*	*30*	
Surr: 13C5-PFNA	*111.5*	0	0	*156*	0	*71.4*	*50-150*	152	*30.8*	*30*	*R*
Surr: 13C5-PFPeA	*104.1*	0	0	*156*	0	*66.7*	*50-150*	123.7	*17.2*	*30*	
Surr: 13C8-FOSA	*75.11*	0	0	*156*	0	*48.1*	*50-150*	103.9	*32.2*	*30*	*SR*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 1

Client: Gannett Fleming, Inc.
Work Order: 22060570
Project: WRR (55929.007)

QC BATCH REPORT

Batch ID: **197492**	Instrument ID **LCMS2**			Method: **E537 Mod**							
Surr: 18O2-PFHxS	*114.5*	0	0	*147.4*	0	*77.6*	*50-150*	118.2	*3.22*	*30*	
Surr: d5-N-EtFOSAA	*94.99*	0	0	*156*	0	*60.9*	*50-150*	138.6	*37.3*	*30*	*R*
Surr: d3-N-MeFOSAA	*89.49*	0	0	*156*	0	*57.4*	*50-150*	106.9	*17.8*	*30*	

MSD Sample ID: **22060134-34AMSD** Units: **ng/L** Analysis Date: **6/9/2022 12:09 AM**

Client ID: Run ID: **LCMS2_220608A** SeqNo: **8499923** Prep Date: **6/7/2022** DF: **1**

Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid	22.59	0.55	4.9	29.74	0	76	69-134	19.85	12.9	30	
Perfluoroundecanoic Acid (PFI	28.1	0.95	4.9	31.2	0	90.1	69-133	28.74	2.25	30	

The following samples were analyzed in this batch: 22060570-02A 22060570-03A 22060570-04A 22060570-22A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Revision: 1

Chain of Custody Form

ALS Group USA, Corp

Work Order: _____

				Parameter/Method Request for Analysis	
Company Name	Gannett Fleming, Inc.	Purchase Order	55929.007	A	PFAS (537M)
		Company Name	Gannett Fleming, Inc.	B	
Send Report To	TONY MILLER	Invoice Attn	Accounts Payable	C	
Project Name	WRR - PFAS	Project #	55929.007	D	
Address	8040 Excelsior Drive Suite 303	Address	8040 Excelsior Drive Suite 303 Suite 303	E	
				F	
City State Zip	Madison, WI 53717-1338	City State Zip	Madison, WI 53717-1338	G	
Phone	608-354-7730	Phone	608-354-7730	H	
e-Mail Address	awmiller@gfnet.com	e-Mail Address	awmiller@gfnet.com	I	
				J	

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	G	H	I	J	Sample Notes
1	W-32	6/1/22	14:20	GW	7,8	2	✓										
2	W-35	↓	16:40	↓	↓	↓	✓										
3	W-31A	6/2/22	9:15	↓	↓	↓	✓										
4	W-31B	↓	9:20	↓	↓	↓	✓										
5																	
6																	
7																	
8																	
9																	
10																	

Notes: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 6-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035

Required Turnaround Time: ✓ Std 10 Wk days ___ 5 Wk days ___ 2 Wk days ___ 24 hr

Results Due:

Relinquised by	Date	Time	Received by	Date	Time
[signature]	6/2/22	16:00			

NOTES:

QC Reporting Level: (check box below)

- ✓ Level II: Standard QC
- Level III: Std QC + Raw data
- Level IV: SW846 CLP-Like
- Other:

ALS Group USA, Corp | 3352 128th Ave | | Holland Michigan 49424 | TEL (616) 399-6070

ALS Group, USA

Sample Receipt Checklist

Client Name: **GANNETTFLEMING - WI** Date/Time Received: **03-Jun-22 09:30**

Work Order: **22060570** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 03-Jun-22 (Date) Reviewed by: Jodi Blouw (eSignature) 03-Jun-22 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.9/2.9, 1.2/2.2 C		IR3
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/3/2022 2:15:48 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: