Well 15 Feasibility Study for PFAS Removal: Bench-Scale Testing Report

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Final

Prepared For:

Madison Water Utility
119 E. Olin Avenue
Madison, Wisconsin

Prepared By:

TRC
708 Heartland Trail, Suite 3000
Madison, Wisconsin 53717

Evoqua Water Technologies

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 Introduction and Project Objectives

TRC Environmental Corporation (TRC), with laboratory experimental design and testing support from Evoqua Water Technologies (Evoqua), completed a feasibility study to assess viable water treatment technologies for Madison Water Utility's (MWU) Well 15. The well has not been operating since March 2019 due to concerns about per- and polyfluoroalkyl substances (PFAS) that were detected in this well. When the well was in operation, an air stripping system was used since 2013 to remove the volatile organic compounds (VOCs): tetrachloroethylene (PCE) and trichloroethylene (TCE).

The primary objective of this study was to evaluate select treatment technologies and develop capital and annual operating cost estimates for effective treatments that would (1) remove PFAS, PCE, and TCE, (2) return Well 15 to a production rate of 1000 gallons per minute (gpm), and (3) eliminate the use of the current air stripper. In the absence of state or federal drinking or groundwater criteria for PFAS, the minimum removal goal for PFAS within this study was >90% reduction of eleven individual PFAS compounds, PCE, and TCE. Cost estimates were developed for a range of treatment objectives including (1) greater than 90% removal of total PFAS, (2) greater than 90% removal for all detected individual PFAS compounds, (3) removal of total PFAS below 20 nanograms per liter (ng/L) and (4) removal of perfluorooctanoic acid (PFOA) and perfluorosulfonic acid (PFOS) below 2 ng/L. An evaluation of treatment for 1,4-dioxane was not included in this feasibility study.

This study evaluated the use of two types of treatment technologies: granular activated carbon (GAC) and ion exchange (IX) resin. To assess GAC treatment efficacy, Evoqua performed rapid small-scale column tests (RSSCTs) using two different GAC products: Evoqua Ultracarb 1240 Low Density (UC1240LD) and Cabot Norit GAC 1240 Plus (1240 Plus). As a comparison to the GAC adsorption technology, Evoqua performed analytical modeling to assess the predictive performance of IX resin. Results from the bench-scale testing and modeling were used to develop conceptual treatment designs, estimate capital costs and long-term operation and maintenance costs, and provide a recommended treatment design.

2.0 Methodology

The sample collection, sample shipment, and laboratory testing components of the Feasibility Study were conducted in accordance with TRC's prepared Bench-Scale Testing Work Plan (**Attachment A**) with the following exceptions:

- Baseline sample was analyzed on an expedited laboratory turnaround for VOCs, PFAS, and total suspended solids (TSS),
- Baseline sample was analyzed for VOCs by selective ion monitoring (SIM) for PCE and TCE and without SIM for a longer list of VOCs,
- The RSSCTs were started 23 calendar days following receipt of drummed Well 15 water samples by Evoqua, and
- Influent was spiked for PCE due to concerns over loss of this compound based on the baseline sampling results.

Sample collection occurred on November 12, 2020 immediately after Well 15 was purged for approximately seventy-two consecutive hours (November 9-12). Two 55-gallon drums were filled

with purged water and shipped on the day of collection to Evoqua's Bellefonte, PA laboratory for subsequent RSSCT testing. The 55-gallon drums arrived at Evoqua's lab on November 16, 2020. Four RSSCTs were completed between December 9 and 22, 2020 using the two representative carbons and Well 15 water. Prior to commencement of the RSSCTs, the Well 15 water was spiked with PCE to achieve a concentration near the historical concentration of PCE in the well of 4 micrograms per liter (µg/L). The Well 15 water was spiked with eight individual PFAS compounds at ten times historical concentrations in accordance to the Work Plan prior to commencement of the third and fourth RSSCTs. All influent and effluent samples collected throughout the four RSSCTs were shipped to and analyzed by Eurofins-Test America's laboratory in West Sacramento, CA. TRC reviewed the data for usability using the analytical data review checklist provided in the Work Plan. All data collected in this study is usable for its intended purpose.

All laboratory reports and analytical data review checklists completed for this study are included in **Appendix B**.

3.0 RSSCT and IX Modeling Results

As stated above, RSSCT testing and IX modeling were completed in Evoqua's Bellefonte, PA laboratory. Evoqua's RSSCT and modeling report is included in **Attachment C**. Additional RSSCT and IX modeling data summaries are included in **Table 1**, **Table 2, and Table 3**.

The following conclusions were drawn from the testing and modeling results:

- Both tested carbons, UC1240LD and 1240 Plus, demonstrated effective removal of TCE and PCE to levels below the laboratory's limit of detection (LOD) and showed no breakthrough of these compounds at any point during any of the RSSCTs in this study.
- Both tested GACs demonstrated effective removal of PFAS to levels below the laboratory's LOD and/or below the targeted effluent bed concentration (see Tables 1 and 2), at least for a time:
  - Both tested GACs demonstrated fast breakthrough of short-chained carboxylic acid PFAS compounds such as perfluorobutanoic acid (PFBA) and perfluoropentanoic acid (PFPeA). More bed volumes were passed through the 1240 Plus than the UC1240LD carbon before breakthrough for these short-chained carboxylic acid PFAS compounds based on the analytical testing results for both the low and high influent concentration RSSCTs.
  - For perfluorohexanoic acid (PFHxA), PFOA and the long-chain sulfonic acid PFAS compounds (perfluorohexanesulfonic acid (PFHxS) and PFOS), the UC1240LD carbon processed more bed volumes of both low and high concentration influent before breakthrough occurred than did 1240 Plus.
  - Both carbons showed a higher mass of total PFAS adsorbed before chemical breakthrough occurred (based on Influent Concentration x Bed Volumes Fed) during the high influent feed concentration RSSCTs. However, in spite of the higher mass of PFAS adsorbed when influent concentration was higher, the time until breakthrough (based on Bed Volumes Fed) was shortened during the high influent feed concentration tests, indicating that carbon changeout will be required more frequently if and when the influent concentration increases.

- Overall, based on 90% reduction of total PFAS[1] at the as-received influent concentrations, the 1240 Plus carbon offers 31,000 bed volumes (BV) of treatment capacity and the UC1240LD carbon offers 30,000 BVs. At 1,000 gpm, this is equivalent to 225 days of operation for 1240 Plus; the UC1240LD achieved seven fewer days of treatment capacity (218 days) before replacement would be necessary.

- For removal of 90% or more of the short-chained carboxylic acid PFAS compounds, specifically PFPeA, lead GAC vessel changeout with either GAC would be needed after approximately 13,000 BV treated (refer to Section 5d of Appendix C). For the shortest chain perflourocarboxylic acid in this study, PFBA, the number of bed volumes fed before breakthrough will likely be less than 7,000 BV for each carbon (refer to Section 5c of Appendix C), although due to low laboratory detection limits for PFBA, this treatment capacity estimate is not precise. At 1,000 gpm, 13,000 BV (for PFPeA) is equivalent to 95 days of treatment capacity, significantly shorter than for the total PFAS assessment. A more accurate estimate could be achieved with subsequent pilot testing prior to full scale system design.

- For removal of total PFAS to a target concentration of 20 ng/L, UC1240LD performed better than 1240 Plus at the as-received (low concentration) water quality condition, achieving 85,000 bed volumes of water treated before lead bed effluent concentration exceeded 20 ng/L total PFAS. The 1240 Plus achieved only 70,000 bed volumes treated. With spiked (high concentration) influent, due to the presence of higher concentrations of short-chain carboxylic acid PFAS compounds, 1240 Plus performed better, achieving 18,000 bed volumes of water treated before breakthrough versus only 11,000 BVs for UC1240LD.

- For removal of PFOA and PFOS to below a target concentration of 2 ng/L for each, both carbons perform nearly equally, with a slight advantage toward UC1240LD. Under as-received (low PFAS concentration) water quality, the UC1240LD will treat over 99,000 bed volumes before PFOS or PFOA breaks through the lead bed, whereas, 1240 Plus will achieve approximately 90,000 bed volumes treated before PFOS breakthrough.

- Based on test results, an empty bed contact time (EBCT) of 10.5 minutes was selected for GAC vessel sizing for full scale design. At a flow rate of 1,000 gpm one bed volume is equivalent to 10,500 gallons (39,742 L).

- IX resin, Dowex PSR2, was modelled to assess performance to remove PFAS in Well 15 raw water. To achieve 90% removal of total PFAS, the IX resin in the lead bed would require replacement approximately every 93 days (42,000 BV) with an EBCT of just over 3 minutes. Similar to GAC, the IX resin model predicts that the IX resin will experience contaminant breakthrough with less bed volumes fed for short-chain carboxylic acid PFAS compounds, particularly PFBA and PFPeA. Also, the IX resin will not remove uncharged VOCs like PCE and TCE. For VOC removal, either continued use of the existing air stripper or a GAC polishing vessel sized to accommodate 1,000 gpm would be required.

[1] Total PFAS is a sum of all PFAS compounds detected, and 10% breakthrough is reached when total PFAS effluent concentration = 10% of total PFAS influent concentration.

4.0 Treatment Design Recommendations

TRC used the laboratory carbon RSSCT testing results and IX modeling results, as reported by Evoqua and summarized in Section 3, to develop conceptual design recommendations for full-scale GAC and full-scale IX processes for potable water treatment.

4.1 Recommended Treatment Technology/Cost Analysis

GAC is the recommended treatment technology as it demonstrated efficacy to remove both PFAS, PCE, and TCE, whereas IX treatment does not remove PCE and TCE. As indicated in Section 3, GAC was shown in the RSSCTs to remove PFAS, PCE, and TCE present in the Well 15 influent. IX resin is designed to remove ionic PFAS compounds and will not remove uncharged VOCs such as PCE and TCE. Therefore, if IX treatment were selected, polishing using either the existing air stripper or secondary GAC bed(s) for PCE and TCE adsorption would be required.

Additionally, GAC treatment is predicted to be a more cost-effective technology than IX based on the RSSCT and model predictions. **Table 4** presents key system parameters for both GAC and IX technologies to treat Well 15 influent water at a rate of 1,000 gpm. **Table 4** also presents treatment system costs for both GAC and IX on the basis that BVs treated for each media allows less than 10% contaminant breakthrough for total PFAS[1]. Based on RSSCT results for GAC, the design GAC bed could treat 30,000-31,000 total BVs while allowing no more than 10% breakthrough of total PFAS (from the lead GAC bed). In comparison, based on IX modeling, the design IX bed could treat 42,000 total BVs while achieving the same PFAS reductions. Based on flow rate, the BV for each media vessel, and the predicted BVs treated for each media, GAC lead vessel media changeout will be required every 218-225 days whereas IX lead vessel media changeout will be required every 93 days. Due to the longer treatment duration and lower media cost for GAC, the annual and 50-year life cycle cost for GAC treatment is significantly less than IX. A more accurate estimate could be achieved with subsequent pilot testing prior to full scale system design.

Table 5 presents annual and 50-year life cycle costs for GAC assuming a most conservative treatment effectiveness based on as received (low concentration) influent and lead GAC changeout when less adsorbable PFAS compounds, specifically PFPeA, is detected in lead vessel effluent. In this case, breakthrough occurs at approximately 13,000 BVs, requiring GAC changeout every 93 days of operation at 1,000 gpm. This more conservative treatment requirement approximately doubles the 50-year life cycle costs for both GACs.

Tables 6 and **7** present annual and 50-year life cycle costs for GAC treatment systems that are less conservative in terms of treatment effectiveness. **Table 6** assumes media replacement occurs after total PFAS break-though is predicted to exceed 20 ng/L, and **Table 7** assumes media replacement occurs when either PFOA or PFOS in the treated effluent exceeds 2 ng/L. For both of these assessments, bed volumes fed were determined assuming lower concentration PFAS influent feedwater (as-received water quality). For 20 ng/L total PFAS, UC1240LD changeout would occur every 85,000 BVs, and for less than 2 ng/L PFOS and PFOA, UC1240LD changeout would occur after more than 99,000 BVs. Comparatively, 1240 Plus carbon changeouts would occur at 70,000 BVs and 90,000 BVs for the two scenarios, respectively.

[1] Total PFAS is a sum of all PFAS compounds detected, and 10% breakthrough is reached when total PFAS effluent concentration = 10% of total PFAS influent concentration.

4.2 Preliminary Treatment Design and Layout

Figure 1 illustrates an approximate system layout for GAC treatment at the Well 15 pump house. The treatment system will include an upfront bag filter unit (to remove total suspended solids), followed by two series-operated carbon contactor vessels. Additionally, a backwash tank would be installed to contain GAC backwash water, if/when backwashing becomes necessary. Note: the design layout shown on Figure 1 is presented to illustrate the space requirement needed to install, operate and service the treatment equipment, and is not intended as a design recommendation for system layout or placement.

This layout assumes the following:

- No system redundancy; if system shutdown or failure occurs, Well 15 would be turned off until the system was successfully restored.
- The GAC vessels are approximately 25.5 ft tall requiring building ceiling clearance of approximately 28-30 ft.
- Pre-filtration with bag filters have been added to remove potential solids from Well 15 that may prematurely foul the GAC bed; this premature fouling would require frequent backwashing and/or early media replacement. The dual bag filter assembly would be operated in parallel mode with each unit typically processing one-half of the total flow. Each unit, however, would be capable of processing 1,000 gpm, thereby allowing one unit to be shut down for filter element replacement while the other unit processes the full influent flow from Well 15.
- The layout includes a 25,000 gallon (approx.) backwash tank. This tank will be utilized during initial bed flushing (to remove GAC fines) and during periodic backwashing if necessary when differential pressure across the bed exceeds design limits.
- The enclosure is sized to allow tanker truck access for GAC removal/replacement during wintertime (sub-freezing) conditions.

4.3 Anticipated System Maintenance and Waste Handling

Based on the proposed GAC treatment system, the following system maintenance and waste handling will be required:

- Carbon replacement is predicted at three to eight-month intervals. Less frequent media replacement may be achieved by choosing a different treatment objective. For example, either targeting a proposed regulatory standard or exclusively focusing on PFOA or PFOS could potentially extend the replacement interval up to 24 months and reduce the annual operation and maintenance costs. Carbon would be hauled off site for regeneration (incineration). During each carbon replacement, the newly loaded carbon must be hydrated and backwashed to remove carbon fines that may prematurely impede flow if not removed.
- Bag filter elements, costing approximately $400 each, will require periodic removal, replacement, and disposal. A total of 24 filter elements (bags), 12 per vessel, would be disposed during each replacement event. The replacement frequency will depend upon TSS load and TSS particle size distributions.

- Based on industry averages, major system components such as the carbon pressure vessels, bag filter units, interconnecting steel piping, and backwash tank each have a life expectancy of approximately 30 years. The 50-year life cycle cost estimates presented in Tables 1 and 2 assume that these major system components will be replaced once.

5.0 Conclusion

The results of this study indicate that two GACs, UC1240LD and 1240 Plus, successfully removed PFAS, PCE, and TCE from Well 15 water on the bench-scale. Further, the study showed that both UC1240LD and 1240 Plus will remove PFAS, PCE, and TCE at native and elevated concentrations for these compounds, however, the treatment removal objective will affect the frequency of carbon changeouts and ultimately the lifecycle costs of the system. Both the studied carbons effectively removed PCE and TCE which would allow for the elimination of the air stripping system from the water treatment at Well 15 and the modeled PSR2 IX resin did not. A lead-lag GAC vessel system utilizing UC1240LD in the preliminary treatment design was the most cost-effective for the removal of PFAS, PCE, and TCE for the treatment removal objectives in this study.

Table 1: Treatment Media Comparisons: Bed Volumes Fed until Breakthrough to Achieve Target Effluent Concentration (As Received Influent)

			Influent Concentration Data			Treatment Media					
						Cabot Norit 1240 Plus		UC1240LD		PSR2 (IX Model Prediction)	
			As-Received		As-Received Average	Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or 5 ng/L)		Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or 5 ng/L)		Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or 5 ng/L)	
			(ng/L)	(ng/L)	(ng/L)	(2 ng/L)	(5 ng/L)	(2 ng/L)	(5 ng/L)	(2 ng/L)	(5 ng/L)
Carboxylic Acids	Perfluorobutanoic Acid	PFBA	2.5	2.4	2.45	**35,000**	NA	**10,000 or 25,000**	NA	20,000	NA
	Perfluoropentanoic Acid	PFPeA	4.6	4.7	4.65	29,350	NA	28,000	NA	38,000	NA
	Perfluorohexanoic Acid	PFHxA	4.8	4.8	4.8	49,076	NA	50,000	NA	**90,000**	NA
	Perfluorooctanoic Acid	PFOA	2.9	2.9	2.9	>98,000	NA	>99,000	NA	>250,000	NA
Sulfonic Acids	Perfluorobutanesulfonic Acid	PFBS	2.2	2.2	2.2	>98,000	NA	>99,000	NA	>250,000	NA
	Perfluoropentanesulfonic Acid	PFPeS	2.4	2.2	2.3	>98,000	NA	>99,000	NA	>250,000	NA
	Perfluorohexanesulfonic Acid	PFHxS	17	17	17	**39,000**	**65,000**	**60,000**	**93,000**	**>250,000**	**>250,000**
	Perfluorooctanesulfanic Acid	PFOS	5.7	6.4	6.05	**90,000**	>98,000	**>99,000**	>99,000	>250,000	>250,000
	Perfluorooctanesulfonamide	FOSA	<0.92	1.1	1.1						
Total Bed Volumes Fed while achieving less than 20 ng/L total PFAS (refer to Table 22 and Fig 30 of Appendix C)						70,000		85,000		>250,000	
	Hazard Quotient				0.929						

Table 2: Treatment Media Comparisons: Bed Volumes Fed until Breakthrough to Achieve Target Effluent Concentration (Spiked Influent)

			Influent Concentration Data			Treatment Media					
						Cabot Norit 1240 Plus		UC1240LD		PSR2 (IX Model Prediction)	
			Spiked		Spiked Average	Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or HQ<1)		Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or HQ<1)		Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or HQ<1)	
			(ng/L)	(ng/L)	(ng/L)	(2 ng/L)	(HQ<1)	(2 ng/L)	(HQ<1)	(2 ng/L)	(HQ<1)
Carboxylic Acids	Perfluorobutanoic Acid	PFBA	27	26	26.5	<7,000	NA	<5,000	NA	<6,000	NA
	Perfluoropentanoic Acid	PFPeA	44	44	44	**18,000**	NA	**15,786**	NA	20,000	NA
	Perfluorohexanoic Acid	PFHxA	58	49	53.5	**25,000**	NA	**29,000**	NA	40,000	NA
	Perfluorooctanoic Acid	PFOA	46	44	45	**45,000**	**>50,000**	**>50,000**	**>50,000**	**150,000**	**>250,000**
Sulfonic Acids	Perfluorobutanesulfonic Acid	PFBS	33	30	31.5	35,000	NA	35,000	NA	**250,000**	NA
	Perfluoropentanesulfonic Acid	PFPeS	2.7	2.3	2.5	>98,000	NA	>99,000	NA	>250,000	NA
	Perfluorohexanesulfonic Acid	PFHxS	160	150	155	**35,000**	**>50,000**	**42,000**	**>50,000**	**100,000**	**>250,000**
	Perfluorooctanesulfanic Acid	PFOS	40	40	40	>50,000	**>50,000**	>50,000	**>50,000**	**225,000**	**>250,000**
	Perfluorooctanesulfonamide	FOSA	<0.92	<0.92	<0.92						
Total Bed Volumes Fed while achieving less than 20 ng/L total PFAS (refer to Table 23 and Fig 31 of Appendix C)						18,000		11,000		20,000	
	Hazard Quotient				8.139						

To get to HQ<1, PFOA + PFOS <10 ng/L (total) and PFHxS <20 ng/L:

- Target PFOA = 5 ng/L; 5/45 = 90 percent removal or Ce/Ci = 0.11
- Target PFOS = 5 ng/L; 5/40 = 90 percent removal or Ce/Ci = 0.125
- Target PFHxS = 20 ng/L; 20/155 = 90 percent removal or Ci/Ce = 0.13

Critical HQ PFAS compounds that contribute significantly to the HQ calculation and detected in the influent RSSCT feedwater.

Table 3: Treatment Media Comparisons: Bed Volumes Fed until Breakthrough to Achieve Target Effluent Concentration (Well #15 Max Observed Concentration--see Table #2 Bench-Scale Testing Work Plan)

				Treatment Media					
				Cabot Norit 1240 Plus		UC1240LD		PSR2 (IX Model Prediction)	
			Maximum Observed Influent Concentration	Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or HQ<1)		Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or HQ<1)		Bed Volumes Fed until Breakthrough (to exceed 2 ng/L and/or HQ<1)	
			(ng/L)	(2 ng/L)	(HQ<1)	(2 ng/L)	(HQ<1)	(2 ng/L)	(HQ<1)
Carboxylic Acids	Perfluorobutanoic Acid	PFBA	3.0	34,300	NA	9,900	NA	<6,000	NA
	Perfluoropentanoic Acid	PFPeA	5.9	**29,000**	NA	**27,600**	NA	20,000	NA
	Perfluorohexanoic Acid	PFHxA	6.2	**48,400**	NA	**49,400**	NA	40,000	NA
	Perfluorooctanoic Acid	PFOA	6.1	**95,900**	**>50,000**	**96,200**	**>50,000**	**150,000**	**>250,000**
Sulfonic Acids	Perfluorobutanesulfonic Acid	PFBS	3.4	97,400	NA	97,300	NA	**250,000**	NA
	Perfluoropentanesulfonic Acid	PFPeS	NA	>98,000	NA	>99,000	NA	>250,000	NA
	Perfluorohexanesulfonic Acid	PFHxS	21.0	**38,900**	**>50,000**	**59,700**	**>50,000**	**100,000**	**>250,000**
	Perfluorooctanesulfanic Acid	PFOS	5.9	>90,000	**>50,000**	>99,000	**>50,000**	**225,000**	**>250,000**
	Perfluorooctanesulfonamide	FOSA	NA						
Total Bed Volumes Fed while achieving less than 20 ng/L total PFAS (refer to Table 23 and Fig 31 of Appendix C)				18,000		11,000		20,000	
	Hazard Quotient		1.127						

To get to HQ<1, PFOA + PFOS <10 ng/L (total) and PFHxS <20 ng/L:

- Target PFOA = 5 ng/L; 5/6.1 = 20 percent removal or Ce/Ci = 0.82
- Target PFOS = 5 ng/L; 5/5.9 = 15 percent removal or Ce/Ci = 0.85
- Target PFHxS = 20 ng/L; 20/21 = 5 percent removal or Ce/Ci = 0.95

Critical HQ PFAS compounds that contribute significantly to the HQ calculation and detected in the influent RSSCT feedwater.

BOLD Bed Volume data shows clear differences between the two GAC products; 1240LD appears to do better overall with longer chain carboxlic and sulfonic acids, whereas 1240+ performs better with shorter chain carboxylic acids only. They both perform equally well with shorter chain sulfonic acids.

BOLD Bed Volume Data for IX shows that IX performance is good with large chain carboxylic acids and short and long chain sulfonic acids.

NA: Influent concentration was not above the targeted assessment concentration, therefore, the analysis is not applicable for this PFAS constituent.

FOSA contributes to the Hazard Quotient Index but was not present at significant concentrations in either the as-received or spiked RSSCTs to accurate measure or predict breakthrough for this PFAS compound.

Table 4: GAC and IX Lifecycle Cost Comparison [Note 1]
City of Madison Well #15

Proposed Operation	**GAC (UC1240LD)**	**GAC (Norit 1240+)**	**IX (PSR2+)**
Bed Configuration (trains:beds)	1 X 2	1 X 2	1 x 2
Total Beds	2	2	2
Bed Area, (sq. ft.)	113.1	113.1	113.1
Bed Depth, (ft)	12.38	12.38	3.75
Bed Volume, (cf)	1400	1400	424
Proposed Flow, (gpm)	1000	1000	1000
EBCT, (min per bed)	10.47	10.47	3.17
Predicted Bed Volumes Treated	30,000	31,000	42,000
Predicted Service Life, (days)	218	225	93
Pretreatment TSS Filtration Required, (y/n)	Yes	Yes	Yes
Backwash Tank Required, (y/n)	Yes	Yes	No
Polish GAC or Air Stripping required for VOC Removal, (y/n)	No	No	Yes [Note 2]
Approximate Treatment Equipment Footprint Required, (sq. ft.)	2365	2365	2000
Ceiling Clearance, ft	30	30	22
Pressure Drop (media beds), psi (at 50-55 deg F)	31.6	31.6	23

Lifecycle Treatment Costs	**GAC (UC1240LD)**	**GAC (Norit 1240+)**	**IX (PSR2+)**
System Equipment Capital Cost (including loaded treatment media)	$670,000	$875,250	$812,250
Misc. System Construction Costs [Note 3]	$155,000	$155,000	$115,000
Approx. Media Cost ($/cf); includes GAC regeneration cost and est. IX media incineration [Note 4]	$53.93	$127.32	$434.79
Rebed Service Cost	$75,500	$178,250	$184,330
Bag Filter Element Replacement [Note 5]	$9,600	$9,600	$9,600
Annual O&M Cost	$136,000	$299,000	$733,000
O&M Cost (50 Yr NPV)	$3,499,000	$7,693,000	$18,860,000
Lifecycle Cost (50 Yr NPV) [Note 6]	$4,664,000	$9,148,000	$20,169,000

Note 1: Costs developed based on the results of Rapid Small Scale Column Tests (RSSCTs) based on Raw Well #15 Influent Water and Spiked Well #15 Influent Water; based on 10% total PFAS breakthru (lead GAC vessel).

Note 2: VOCs (TCE and PCE) are at low concentration, but not adsorbable by IX media; GAC polish units or Air Stripper capable of handling 1000 gpm will be required for VOC removal.

Note 3: Additional capital costs including piping ($50,000), TSS Removal ($45,000), backwash tank ($40,000), and equipment off-loading ($20,000).

Note 4: IX Resin Disposal Fee = $360/ton and $230/ton transportation based on Clean Harbors estimate (2019); resin bulk density = 43 lb/cf (dry) and with 25% moisture

Note 5: Assume 1 complete bag filter element replacement per year; 12 elements per unit and 2 units = 24 total; $400/each

Note 6: Assumes replacement of major capital equipment at Year 30.

i = 3%

Table 5: GAC Lifecycle Cost Comparison [Note 1]
City of Madison Well #15

Proposed Operation	**GAC (UC1240LD)**	**GAC (Norit 1240+)**
Bed Configuration (trains:beds)	1 X 2	1 X 2
Total Beds	2	2
Bed Area, (sq. ft.)	113.1	113.1
Bed Depth, (ft)	12.38	12.38
Bed Volume, (cf)	1400	1400
Proposed Flow, (gpm)	1000	1000
EBCT, (min per bed)	10.47	10.47
Predicted Bed Volumes Treated	13,000	13,000
Predicted Service Life, (days)	95	95
Pretreatment TSS Filtration Required, (y/n)	Yes	Yes
Backwash Tank Required, (y/n)	Yes	Yes
Polish GAC or Air Stripping required for VOC Removal, (y/n)	No	No
Approximate Treatment Equipment Footprint Required, (sq. ft.)	2365	2365
Ceiling Clearance, ft	30	30
Pressure Drop (media beds), psi (at 50-55 deg F)	31.6	31.6

Lifecycle Treatment Costs	**GAC (UC1240LD)**	**GAC (Norit 1240+)**
System Equipment Capital Cost (including loaded GAC)	$670,000	$875,250
Misc. System Construction Costs [Note 2]	$155,000	$155,000
Approx. Media Cost ($/cf); includes GAC regeneration cost	$53.93	$127.32
Rebed Service Cost	$75,500	$178,250
Bag Filter Element Replacement [Note 3]	$9,600	$9,600
Annual O&M Cost	$301,000	$698,000
O&M Cost (50 Yr NPV)	$7,745,000	$17,959,000
Lifecycle Cost (50 Yr NPV) [Note 4]	$8,910,000	$19,414,000

Note 1: Costs developed based on the results of Rapid Small Scale Column Tests (RSSCTs) based on Raw Well #15 Influent Water; based on 10% PFPeA breakthru (lead GAC vessel).

Note 2: Additional capital costs including piping ($50,000), TSS Removal ($45,000), backwash tank ($40,000), and equipment off-loading ($20,000).

Note 3: Assume 1 complete bag filter element replacement per year; 12 elements per unit and 2 units = 24 total; $400/each

Note 4: Assumes replacement of major capital equipment at Year 30.

i = 3%

Table 6: GAC Lifecycle Cost Comparison [Note 1]
City of Madison Well #15

Proposed Operation	**GAC (UC1240LD)**	**GAC (Norit 1240+)**
Bed Configuration (trains:beds)	1 X 2	1 X 2
Total Beds	2	2
Bed Area, (sq. ft.)	113.1	113.1
Bed Depth, (ft)	12.38	12.38
Bed Volume, (cf)	1400	1400
Proposed Flow, (gpm)	1000	1000
EBCT, (min per bed)	10.47	10.47
Predicted Bed Volumes Treated	85,000	70,000
Predicted Service Life, (days)	618	509
Pretreatment TSS Filtration Required, (y/n)	Yes	Yes
Backwash Tank Required, (y/n)	Yes	Yes
Polish GAC or Air Stripping required for VOC Removal, (y/n)	No	No
Approximate Treatment Equipment Footprint Required, (sq. ft.)	2365	2365
Ceiling Clearance, ft	30	30
Pressure Drop (media beds), psi (at 50-55 deg F)	31.6	31.6

Lifecycle Treatment Costs	**GAC (UC1240LD)**	**GAC (Norit 1240+)**
System Equipment Capital Cost (including loaded GAC)	$670,000	$875,250
Misc. System Construction Costs [Note 2]	$155,000	$155,000
Approx. Media Cost ($/cf); includes GAC regeneration cost	$53.93	$127.32
Rebed Service Cost	$75,500	$178,250
Bag Filter Element Replacement [Note 3]	$9,600	$9,600
Annual O&M Cost	$54,000	$137,000
O&M Cost (50 Yr NPV)	$1,389,000	$3,525,000
Lifecycle Cost (50 Yr NPV) [Note 4]	$2,554,000	$4,980,000

Note 1: Costs developed based on the results of Rapid Small Scale Column Tests (RSSCTs) based on As Received Well #15 Influent Water; based on lead GAC vessel breakthru when total PFAS reaches 20 ng/L.

Note 2: Additional capital costs including piping ($50,000), TSS Removal ($45,000), backwash tank ($40,000), and equipment off-loading ($20,000).

Note 3: Assume 1 complete bag filter element replacement per year; 12 elements per unit and 2 units = 24 total; $400/each

Note 4: Assumes replacement of major capital equipment at Year 30.

i = 3%

Table 7: GAC Lifecycle Cost Comparison [Note 1]
City of Madison Well #15

Proposed Operation	**GAC (UC1240LD)**	**GAC (Norit 1240+)**
Bed Configuration (trains:beds)	1 X 2	1 X 2
Total Beds	2	2
Bed Area, (sq. ft.)	113.1	113.1
Bed Depth, (ft)	12.38	12.38
Bed Volume, (cf)	1400	1400
Proposed Flow, (gpm)	1000	1000
EBCT, (min per bed)	10.47	10.47
Predicted Bed Volumes Treated	99,000	90,000
Predicted Service Life, (days)	720	655
Pretreatment TSS Filtration Required, (y/n)	Yes	Yes
Backwash Tank Required, (y/n)	Yes	Yes
Polish GAC or Air Stripping required for VOC Removal, (y/n)	No	No
Approximate Treatment Equipment Footprint Required, (sq. ft.)	2365	2365
Ceiling Clearance, ft	30	30
Pressure Drop (media beds), psi (at 50-55 deg F)	31.6	31.6

Lifecycle Treatment Costs	**GAC (UC1240LD)**	**GAC (Norit 1240+)**
System Equipment Capital Cost (including loaded GAC)	$670,000	$875,250
Misc. System Construction Costs [Note 2]	$155,000	$155,000
Approx. Media Cost ($/cf); includes GAC regeneration cost	$53.93	$127.32
Rebed Service Cost	$75,500	$178,250
Bag Filter Element Replacement [Note 3]	$9,600	$9,600
Annual O&M Cost	$48,000	$109,000
O&M Cost (50 Yr NPV)	$1,235,000	$2,805,000
Lifecycle Cost (50 Yr NPV) [Note 4]	$2,400,000	$4,260,000

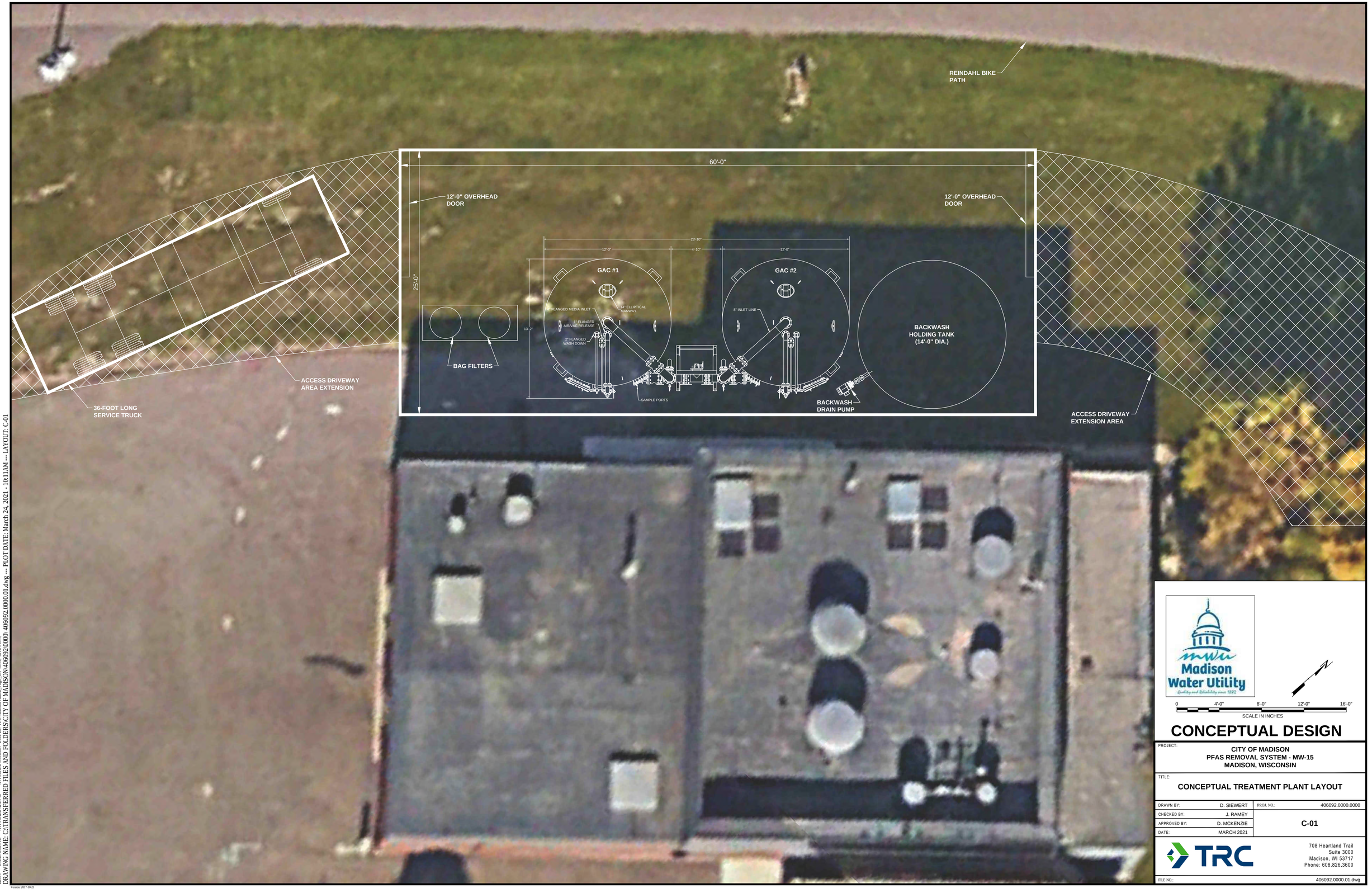
Note 1: Costs developed based on the results of Rapid Small Scale Column Tests (RSSCTs) based on As Received Well #15 Influent Water; based on lead GAC vessel breakthru when either PFOS or PFOA concentration exceeds 2 ng/L.

Note 2: Additional capital costs including piping ($50,000), TSS Removal ($45,000), backwash tank ($40,000), and equipment off-loading ($20,000).

Note 3: Assume 1 complete bag filter element replacement per year; 12 elements per unit and 2 units = 24 total; $400/each

Note 4: Assumes replacement of major capital equipment at Year 30.

i = 3%



Madison Water Utility
Quality and Reliability since 1882

0 4'-0" 8'-0" 12'-0" 16'-0"
SCALE IN INCHES

CONCEPTUAL DESIGN

PROJECT:
CITY OF MADISON
PFAS REMOVAL SYSTEM - MW-15
MADISON, WISCONSIN

TITLE:
CONCEPTUAL TREATMENT PLANT LAYOUT

DRAWN BY:	D. SIEWERT	PROJ. NO.:	406092.0000.0000
CHECKED BY:	J. RAMEY		
APPROVED BY:	D. MCKENZIE		C-01
DATE:	MARCH 2021		

TRC
708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

FILE NO.: 406092.0000.01.dwg

22:24 -- USER: DSiewert -- ATTACHED XREFS: -- ATTACHED IMAGES: 2102-207 TRC Madison Ranch, Page, dft COM, SITE PLAN
DRAWING NAME: C:\TRANSFERRED FILES AND FOLDERS\CITY OF MADISON\406092.0000\406092.0000.01.dwg -- PLOT DATE: March 24, 2021 - 10:11AM -- LAYOUT: C-01
Version: 2017-10-21

Appendix A: Well 15 Feasibility Study for PFAS Removal: Bench-Scale Testing Work Plan

Well 15 Feasibility Study for PFAS Removal: Bench-Scale Testing Work Plan

October 27, 2020

Prepared For:

Madison Water Utility
119 E. Olin Avenue
Madison, Wisconsin

Prepared By:

TRC
708 Heartland Trail, Suite 3000
Madison, Wisconsin 53717

Evoqua Water Technologies

TABLE OF CONTENTS

TABLES

APPENDICES

1.0 Introduction

This bench-scale testing work plan has been prepared by TRC Environmental Corporation (TRC) and Evoqua Water Technologies (Evoqua) to support a feasibility study for the evaluation of treatment technologies for Madison Water Utility's (MWU) Well 15. Well 15 has not been operating since March 2019 due to concerns about per- and polyfluoroalkyl substances (PFAS) that were detected in this well. Prior to this, an air stripping system had been used to remove volatile organic compounds (VOCs) tetrachloroethylene (PCE) and trichloroethylene (TCE) in this well since 2013. The objective of this feasibility study is to provide the most cost-effective treatment or combined treatment method to remove PFAS, PCE, and TCE to return Well 15 to 1,000 gallon per minute (gpm) production without the use of air stripping, if possible. The study will include bench-scale testing using rapid small-scale column testing (RSSCT) with two different granular activated carbons (GACs) and analytical modeling to assess the predictive performance of IX resin. The bench-scale testing and modeling results will be used to determine treatment design optimization, media breakthrough rates, and capital and operation and maintenance costs.

Based on NR 811.53 requirements for removal of organics, the minimum removal goal for PFAS is 99% reduction of eleven PFAS compounds (PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFPeS, PFHxS, PFHpS, PFOS, and FOSA). The removal goal for PCE and TCE is also 99%. Removal of these organic concentrations below the laboratory's limit of detection (LOD) will assume 99% removal. This work plan does not include details about the analytical modeling methods, but model results will be included in the final feasibility report. An evaluation of treatment for 1,4-dioxane is not included in this work plan or feasibility study.

2.0 Sample Collection Prior to Bench-Scale Testing

Prior to bench-scale testing, MWU will collect a water sample for baseline characterization of PFAS and VOCs and will collect two 55-gallon drums of representative water from Well 15 for use in the RSSCTs. It is TRC's understanding that Well 15 has not been in production for over a year and the air stripper has also been shut down during this time. To receive a representative sample, MWU will flush the system continuously for a period of three or four days prior to sampling and the flow rate of the well should be near the production flow rate at the time of sampling. MWU will sample the water while flushing once or twice for total suspended solids (TSS), which they will analyze in their laboratory and provide the results to TRC. The air stripper will not be operating during the time of sampling. MWU will record and provide TRC the amount of time the system is flushed, the flow rate, and any observances of water quality such as color and odor during sampling. MWU will also provide photo documentation of the sampling event to TRC for use in the final feasibility report.

MWU will ship the two 55-gallon drums of representative water from Well 15 to Evoqua's laboratory located at 201 S. Potter St. Bellefonte, PA 16823. The drums should be made of high-density polyethylene (HDPE) and be similar to Uline's S-10757BLU 55-gal Closed Top Drum. MWU will be responsible for procuring the drums for sample collection. The two drum samples should be shipped to Evoqua's laboratory immediately after being collected. Upon receipt of the drums and prior to starting the RSSCTs, Evoqua will store the drums below 6 degrees Celsius.

MWU will also sample Well 15 at the same time for a baseline characterization of PFAS, VOCs, and TSS and take a field blank for PFAS which will be shipped on ice directly to Eurofins-Test

America's (Eurofins) laboratory at 880 Riverside Parkway, West Sacramento, CA, 95605. TRC will coordinate with Eurofins laboratory prior to the sampling of Well 15 for MWU to receive the appropriate bottle ware and PFAS-free water for the field blank. The procedure for sample collection will be consistent with TRC's General Sampling and Analysis Procedures (Best Practices for PFAS Sampling) which is included in **Appendix A**. MWU will specify on the Chain of Custody that the Wisconsin PFAS Aqueous (non-potable water) Method Expectations and 36 PFAS compound list be used to analyze the sample and field blank for PFAS, and that EPA method 8260B and SM 2540D will be used to analyze the sample for VOCs and TSS, respectively. At the time of drafting this bench-scale testing workplan, Eurofins has applied for but not yet received Wisconsin Administrative Code Chapter NR 149 certification for the PFAS analysis, however, certification is expected to be announced in the near future. The standard laboratory turnaround time (TAT) for VOCs and PFAS is 10 and 15 business-days, respectively. MWU may request on the Chain of Custody (COC) that all analyses be reported with a five-business day turn-around time for an additional fee. This will allow TRC and MWU to confirm that PFAS and VOCs are present in the sample prior to starting the bench-scale study.

3.0 Bench-Scale Testing

Evoqua will conduct RSSCTs concurrently on two types of GAC: UltraCarb 1240 Low Density and Norit 1240 Plus to assess the removal of PFAS, PCE, and TCE and to evaluate media breakthrough rates. The first pair of RSSCT tests will be conducted using the unaltered drum samples collected from Well 15, and the second pair will be conducted using the drum samples spiked with ten times the observed PFAS concentrations in Well 15. Detailed information about the RSSCTs is provided below.

The RSSCT tests will commence no later than 10 calendar days following receipt of the drum samples in the laboratory. TRC, Evoqua, and MWU will agree upon the sampling date of Well 15 to select a time when Evoqua laboratory can accommodate this timeline. Prior to starting the first pair of RSSCTs, TRC will review the baseline characterization sample results with MWU. If PFAS and/or VOCs are not present in the baseline sample at expected concentrations, TRC and Evoqua will discuss options with MWU for spiking the first pair of RSSCT samples with PFAS and/or VOCs. If spiking of the initial samples is required, the cost will be provided to MWU for review and approval prior to commencement. The spiked concentrations will be 0.2 micrograms per liter (µg/L) and 3 µg/L for TCE and PCE, respectively.

No pre-treatment or filtering of the drum sample will be conducted prior to the column study unless TSS are measured at greater than 1 milligrams per liter (mg/L). If TSS is greater than 1 mg/L, pre-filtration will be completed with a 0.45-micron pleated cartridge filter. Carbon will be ground and sieved to 170 x 200 mesh and rinsed with distilled water prior to loading the columns. Carbon will be dried prior to loading into the columns, and columns will be loaded based on mass, which is calculated from the target volume of the RSSCT and the material density. Column diameter and bed depth are summarized in **Table 1**.

Table 1: RSSCT Conditions Based on Constant Diffusivity Equations

	UC1240LD	Norit GAC 1240 Plus	Units
Full-size media			
Particle Size	12 x 40	12 x 40	mesh
Diameter	10	10	ft
Volume of GAC	627	627	ft^3
Bed depth	8	8	ft
Flow rate, per vessel	500	500	gpm
Flow/area	6.37	6.37	gpm/ft^2
EBCT	9.4	9.4	min
RSSCT Conditions			
Mesh Size	170 x 200	170 x 200	
Particle Size	0.081	0.081	mm
Diameter	0.476	0.476	cm
Volume of GAC	0.356	0.356	ml
Bed depth	4.00	4.00	cm
Flow rate	12.7	12.7	ml/min
EBCT	0.056	0.056	min

Evoqua will perform the four (4) separate RSSCTs below:

- **RSSCT 1:** Evoqua UltraCarb 1240 Low Density (UC1240LD) at as-received PFAS concentrations
- **RSSCT 2:** Norit 1240 Plus at as-received PFAS concentrations
- **RSSCT 3**: Evoqua UltraCarb 1240 Low Density (UC1240LD) at 10x PFAS concentrations
- **RSSCT 4**: Norit 1240 Plus at 10x PFAS concentrations

The RSSCTs will be run concurrently in pairs with identical column set-ups and the same influent test water for the two different types of GAC. RSSCTs 1 and 2 will be run concurrently on unaltered source water. One influent sample will be collected at the start of the test and one will be collected at the end of the test. Following the completion of RSSCTs 1 and 2, RSSCTs 3 and 4 will be run concurrently using the influent water ten-times (10x) spiked with PFAS. One influent sample will be collected at the start of the test and one will be collected at the end of the test.

Evoqua will prepare the ten-times spiked PFAS samples using available analytical standards and water from Well 15. Analytical standards are available for eight of the ten PFAS compounds previously detected in Well 15, as listed below in **Table 2**. The ten-times spiked PFAS concentrations will be calculated based on the maximum observed concentrations from the February and March 2019 sample results from Well 15 included in the RFP, as listed in **Table 2** for the detected PFAS compounds corresponding to the available analytical standards.

Table 2: PFAS Chemicals for Spiking Groundwater

Compound	CAS #	Corresponding PFAS Compound from Analytical Results	Well 15 Maximum Concentration (ng/L)
heptafluorobutyric acid, 98%	375-22-4	PFBA	3.0
perfluoropentanoic acid, 97%	2706-90-3	PFPeA	5.9
undecafluorohexanoic acid, 97%	307-24-4	PFHxA	6.2
perfluoroheptanoic acid, 99%	375-85-9	PFHpA	2.6
sodium perfluorooctanoate, 97%	335-95-5	PFOA	6.1
nonafluorobutane-1-sulfonic acid, 97%	375-73-5	PFBS	3.4
tridecafluorohexane-1-sulfonic acid potassium salt, 98%	3871-99-6	PFHxS	21
heptadecaflurorooctanesulfonic acid potassium salt, 98%	2795-39-3	PFOS	5.9

The RSSCTs will be performed in a method similar to the Standard Practice for the Prediction of Contaminant Adsorption on GAC In Aqueous Systems Using Rapid Small-Scale Column Tests (ASTM D6586-03). Evoqua will perform the RSSCTs using their proprietary standard operating procedure (SOP) for RSSCTs and the test conditions defined in **Table 1**.

Effluent from the RSSCTs will be sampled in the same scheme for all RSSCTs as described below:

- For the as-received water, a total of 12 effluent samples will be collected at 5,000, 10,000, 15,000, 20,000, 30,000, 40,000, 50,000, 60,000, 70,000, 80,000, 90,000 and 100,000 bed volumes.
- For the spiked influent (10X the as-received PFAS concentration), a total of 7 effluent samples will be collected at 5,000, 10,000, 15,000, 20,000, 30,000, 40,000 and 50,000 bed volumes.

All influent and effluent samples for each RSSCT will be collected, stored, and shipped together on ice using next day delivery methods under chain of custody to Eurofins for PFAS and VOCs analysis immediately after completing the RSSCT. The samples will be submitted for VOC and PFAS analysis using a 10-day and 15-day TAT, respectively. It is anticipated that each RSSCT will take approximately four days to complete. Evoqua will store the collected samples in an access-controlled location at a temperature of below 6 degrees Celsius.

Samples will be named according to the following naming convention.

RSSCT # Sample Type (e.g., influent or effluent) - Bed Volume (e.g., 5K or 10K).

Data will be reported and sent to both TRC and Evoqua for data quality review prior to MWU receiving the results.

3.1 Data Quality Review Procedure

Eurofins will provide TRC with a final level II data report and electronic data deliverable (EDD) for each sample delivery group. TRC will review the initial baseline characterization data and RSSCT effluent data using TRC's data usability review checklist included in **Appendix B**. Any non-conformities in the data that affect the integrity of the study will be documented in the checklist and reviewed with Evoqua and MWU.

Appendix A: General Sampling and Analysis Procedures (Best Practices for PFAS Sampling)

General Sampling and Analysis Procedures
(Best practices for PFAS sampling)

1. Laboratory Selection: Selection depending on the matrix/ method of analysis:
    a. Contact the laboratory and review the following:
        i. Certification with NR 149 and confirm compound list
        ii. SOP for each matrix
        iii. Results of recent performance testing study
        iv. Reporting Limits and MDLs for each of the Wisconsin 36 PFAS compounds
    b. Communicate data quality objectives with the laboratory:
        i. Confirm subsampling procedure for highly concentrated samples
        ii. Confirm laboratory procedure for aqueous samples with high total solids (e.g., centrifuging or decanting for solids >1%, when is sample spiked, and are the solids analyzed)
        iii. Confirm homogenization, fortification, and extraction procedure for solid samples
2. Request Bottleware: Use the selected laboratory's recommended containers (HDPE or polypropylene per WI Criteria) and preservation (required for drinking water samples):
    a. Estimate the number of samples and include extra bottleware for breakage, etc.
    b. Blank Scheme:
        i. Equipment Blank(s): One blank for every set of equipment coming in contact with samples, per matrix. This blank is collected as a rinsate of the equipment using PFAS-free water. This blank should be collected after the decontamination process to be able to demonstrate effective decontamination and the lack of contamination coming from the equipment.
        ii. Field Blank: One blank for every day of sampling. This blank is collected by pouring PFAS-free water into a sampling container while at the sampling site.
    c. Request the laboratory provide PFAS-free water to be used for the equipment blank, field blank, and the final step of the decontamination process. The laboratory must be able to provide certification that the water is PFAS-free.
3. Sampling Procedure – Restricted Use Materials and Conditions:
    a. Sampling staff should be directed to avoid using any equipment or materials containing PTFE, low density polyethylene, or other fluoropolymers during sample handling or mobilization/demobilization.
    b. Sample volume collected should be as recommended by the laboratory.

c. Avoid the use of:

   i. Waterproof/water resistant paper products

   ii. Post-it® notes

   iii. Teflon® or Tyvek® materials

   iv. Aluminum foil

   v. PTFE tape

   vi. Cosmetics

   vii. Moisturizers and hand creams

   viii. Personal care products including gel soaps and shampoos the day of sampling

   ix. Insect repellants

   x. Sunscreens

   xi. Boots and other field clothing containing Gore-Tex™ or other waterproof/resistant material should not be worn (including rain gear). Polyurethane and polyvinyl chloride are acceptable.

   xii. Clothing laundered with fabric softeners, new clothing, stain resistant clothing. Clothing made of cotton is preferred. Clothing should be well laundered since purchased.

   xiii. Decon 90

   xiv. Chemical (blue) ice packs. Use wet ice.

   xv. Food and drink handling in the sampling area

d. Equipment decontamination will include a final rinse with laboratory certified PFAS-free water in a new, clean 5-gallon bucket, or dispensed from an HDPE spray bottle.

e. Sampling staff will wear nitrile gloves at all times while prepping sample containers, collecting samples, or handling samples. Avoid handling unnecessary items between donning gloves and handling or collecting the sample/sample containers. Don new gloves at any time during the sampling process if unnecessary items are contacted.

f. Gloves should be changed between every sample.

g. Field notes will be recorded on loose paper field forms maintained in aluminum or Masonite clipboards, or on a field tablet computer. Waterproof field books, plastic clipboards and spiral bound notebooks should not be used. Don new nitrile gloves between contacting the note-taking materials and handling the samples or sample containers.

h. Individual sample bottles should be labeled using ballpoint pens or Sharpies®.

i. A sample container should be opened immediately prior to sampling and capped immediately after sampling. Do not set the lid down.

j. Samples bottles should be individually bagged with Ziploc® bags and returned to the sampling cooler on ice after sampling.

k. The chain-of-custody should be filled out, signed, and placed in the cooler in a Ziploc® bag. Custody seals should be placed on the exterior of the cooler prior to delivering to the laboratory or shipping to the laboratory for next day receipt.

Appendix B: TRC Data Quality Review Checklist

Analytical Data Review Checklist

Site: Location: Client Name: Project #:	Laboratory: Lab Report #:	QA Reviewer: Peer Reviewer: Date:
Analytical Method(s):	Matrices Sampled:	Sample Collection Date(s):
Sampling Objective(s):		
Sample IDs:		

NOTE: Provide comments if any of the shaded boxes are checked.

	Review Item or Question	Y	N	NA	Comments[1]
Sample Traceability / Chain of Custody					
1	Were COC forms appropriately completed?				
2	Did the laboratory report correct sample IDs?				
3	Do the laboratory reported sample collection dates and times agree with the COC forms?				
Sample Preservation and Integrity					
4	Did samples arrive at the laboratory appropriately preserved?				
	Was the cooler temperature between 0-6°C?				
	Was acid used for preservation when required (e.g., aqueous VOC and metals samples)?				
	Were soil/sediment VOC samples preserved in the field or collected in EnCore® samplers?				

	Review Item or Question	Y	N	NA	Comments[1]
5	Were samples received by the laboratory in an acceptable condition (i.e., no breakages, leaks, etc.)?				
6	Were any issues noted by the laboratory upon receipt?				
7	Were sample preparation and analysis holding time requirements met?				
8	AIR ONLY: Were canisters received with an acceptable vacuum? Were the RPDs between the initial and final canister flow controller calibrations <20?				
Data Completeness					
9	Are results reported for all analytical methods requested?				
10	Are results reported for all samples submitted for analysis?				
11	Were the requested analytical methods used?				
12	Are results reported for all target analytes, but no additional analytes?				
13	Were soil/sediment results reported on a dry weight basis?				
14	If requested, were detected results below the reporting limit (i.e., "J" values) reported?				
15	Did we receive the required deliverables (e.g., EDD, Level 4 data, laboratory certification, etc.) in the correct formats?				
Sensitivity					
16	Do the reporting limits meet the project specifications (e.g., QAPP or Work Plan)?				

	Review Item or Question	Y	N	NA	Comments[1]
17	Were dilutions performed? If so, note sample(s) and parameter(s) affected and the dilution factor(s).				
18	Did the laboratory provide an adequate explanation as to why dilutions were performed?				
QC Results					
19	Were any target analytes detected in the method blanks? If yes, list contaminants, concentrations detected and associated samples.				
20	Does each analytical or preparation batch have its own method blank?				
21	Were any target analytes detected in the field blank(s) (e.g., trip blanks, equipment blanks)? If yes, list contaminants, concentrations detected and associated samples (or attach field blank results).				
22	Are there any potential false positive results based on questions 19 and/or 21? If concentrations of contaminants in associated samples are ≤10x the blank concentration, sample result is most likely a false positive. [2]				

	Review Item or Question	Y	N	NA	Comments[1]
23	Are LCS/LCSD recoveries within QC limits[3]? If no, list analytes affected, the LCS/LCSD recoveries and the affected samples.				
24	Does each analytical or preparation batch have its own LCS?				
25	Are LCS/LCSD RPDs within QC limits[3]? If no, list analytes affected, the RPDs and the affected samples.				
26	Are MS/MSD recoveries within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required. If no, list analytes affected, the MS/MSD recoveries and the sample that was spiked.				
27	Are MS/MSD RPDs within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required, If no, list analytes affected, the RPDs and the sample that was spiked.				
28	Are laboratory duplicate RPDs within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required. If no, list analytes affected, the RPDs and the sample that was prepared/analyzed in duplicate.				

	Review Item or Question	Y	N	NA	Comments[1]
29	Are field duplicate RPDs within QC limits? If no, list analytes affected, the RPDs and the associated samples. NOTE: Typical criteria[4] are RPD ≤50 for solid samples and RPD ≤30 for aqueous and air samples when results are >2x the reporting limit; otherwise these criteria are doubled. However, project-specific or regulatory-based criteria may supersede these criteria.				
30	ORGANIC ANALYSES ONLY: Are surrogate recoveries within QC limits[3]? If no, list samples, surrogate recoveries and analytes affected.				
31	PFAS ANALYSES ONLY: Are the sample results quantitated using isotope dilution?				
32	PFAS ANALYSES ONLY: Are recoveries of isotope dilution analytes within QC limits? If not, list the affected analyte(s) and potential impact on the sample(s).				
Laboratory Comments					
33	Did the case narrative describe any analytical anomalies (i.e., problems or unique occurrences)? If yes, list the comments that have potential impact to sample results (or attach case narrative and highlight the comments that have potential impact to sample results).				

	Review Item or Question	Y	N	NA	Comments[1]
34	Were any other potential data quality issues identified? If yes, describe issues.				
Do the Data Make Sense?					
35	Do any results look questionable? If yes, ASK THE LAB!				
36	Has the EDD been compared with the lab report?				

(1) Comments generally need to be addressed in the TRC deliverable presenting the laboratory data but this will be dependent on project requirements.
(2) Check if local or regional criteria for blank assessments are available; these will supersede criteria in this checklist.
(3) Use QC limits in QAPP, if available. If not, use QC limits provided by laboratory in data package.
(4) EPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Guidance/Procedures, April 22, 2013.

COC = Chain-of-Custody
EDD = Electronic Data Deliverable
LCS/LCSD = Laboratory Control Sample / Laboratory Control Sample Duplicate
MS/MSD = Matrix Spike / Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
QC = Quality Control
RPD = Relative Percent Difference = |(A-B)/((A+B)/2)|
VOC = Volatile Organic Compounds

NOTE: After data tables are created, check that reporting limits are below the project action levels (e.g., screening criteria, remediation standards, etc.) and compare data with historical results, if applicable.

Additional Comments:

Appendix B: Eurofins-Test America Analytical Reports and TRC Analytical Data Review Checklists

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-66708-1
Client Project/Site: Well #15 Feasibility Study - Baseline

For:
TRC Environmental Corporation.
150 N. Patrick Blvd.
Suite 180
Brookfield, Wisconsin 53045

Attn: Jeff Ramey

Authorized for release by:
11/18/2020 7:00:21 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
X	Surrogate recovery exceeds control limits

LCMS

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Reported value was between the limit of detection and the limit of quantitation.

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

Case Narrative

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Job ID: 320-66708-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

ob Narrative
320-66708-1

Comments
No additional comments.

Receipt
The samples were received on 11/13/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3º C.

Receipt Exceptions
The Chain-of-Custody (COC) was improperly completed. The container count listed for sample 1 was 9, however 14 containers were received. UW 15 (320-66708-1), FIELD BLANK (320-66708-2) and TRIP BLANK (320-66708-3)

The following samples were submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): FIELD BLANK (320-66708-2) and TRIP BLANK (320-66708-3) - added to COC and logged per client.

GC/MS VOA
Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 320-432864.

Method 8260C SIM: Surrogate Toluene-d8 (Surr) recovery for the following sample(s) was outside the upper control limit. The sample results confirmed the regular 8260 analysis. The sample was narrated and reported. UW 15 (320-66708-1).

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

LCMS
Method 537 (modified): The laboratory control sample (LCS) for preparation batch 320-431727 and analytical batch 320-431831 recovered outside control limits for the following analytes: Perfluoro-n-octadecanoic acid (PFODA). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data has been reported.

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

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-431727. 3535_PFC Aqueous

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

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Client Sample ID: UW 15
Lab Sample ID: 320-66708-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1.0		0.50	0.10	ug/L	1		8260B	Total/NA
Trichloroethene	0.28	J	0.50	0.10	ug/L	1		8260B	Total/NA
Tetrachloroethene	1.1		0.050	0.015	ug/L	1		8260C SIM	Total/NA
Trichloroethene	0.30		0.050	0.012	ug/L	1		8260C SIM	Total/NA
Perfluoropentanoic acid (PFPeA)	4.1		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.4		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.6		1.7	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.3		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.2		1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.2		1.7	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.87	J	1.7	0.84	ng/L	1		537 (modified)	Total/NA

Client Sample ID: FIELD BLANK
Lab Sample ID: 320-66708-2

No Detections.

Client Sample ID: TRIP BLANK
Lab Sample ID: 320-66708-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
1,3-Dichlorobenzene	0.088	J	0.50	0.086	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	0.095	J	0.50	0.083	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - Baseline

Job ID: 320-66708-1

Client Sample ID: UW 15
Date Collected: 11/12/20 07:15
Date Received: 11/13/20 10:00

Lab Sample ID: 320-66708-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.080		0.50	0.080	ug/L			11/18/20 12:58	1
Bromobenzene	<0.091		1.0	0.091	ug/L			11/18/20 12:58	1
Bromochloromethane	<0.18		1.0	0.18	ug/L			11/18/20 12:58	1
Bromodichloromethane	<0.14		0.50	0.14	ug/L			11/18/20 12:58	1
Bromoform	<0.19		1.0	0.19	ug/L			11/18/20 12:58	1
Bromomethane	<0.21		1.0	0.21	ug/L			11/18/20 12:58	1
Carbon tetrachloride	<0.12		0.50	0.12	ug/L			11/18/20 12:58	1
Chlorobenzene	<0.070		0.50	0.070	ug/L			11/18/20 12:58	1
Chloroethane	<0.24		1.0	0.24	ug/L			11/18/20 12:58	1
Chloroform	<0.12		1.0	0.12	ug/L			11/18/20 12:58	1
Chloromethane	<0.26		1.0	0.26	ug/L			11/18/20 12:58	1
2-Chlorotoluene	<0.11		0.50	0.11	ug/L			11/18/20 12:58	1
4-Chlorotoluene	<0.10		0.50	0.10	ug/L			11/18/20 12:58	1
cis-1,2-Dichloroethene	<0.18		0.50	0.18	ug/L			11/18/20 12:58	1
cis-1,3-Dichloropropene	<0.15		0.50	0.15	ug/L			11/18/20 12:58	1
1,2-Dibromo-3-Chloropropane	<0.20		1.0	0.20	ug/L			11/18/20 12:58	1
1,2-Dibromoethane (EDB)	<0.12		0.50	0.12	ug/L			11/18/20 12:58	1
Dibromomethane	<0.17		0.50	0.17	ug/L			11/18/20 12:58	1
1,2-Dichlorobenzene	<0.097		0.50	0.097	ug/L			11/18/20 12:58	1
1,3-Dichlorobenzene	<0.086		0.50	0.086	ug/L			11/18/20 12:58	1
1,4-Dichlorobenzene	<0.083		0.50	0.083	ug/L			11/18/20 12:58	1
Dichlorodifluoromethane	<0.32		1.0	0.32	ug/L			11/18/20 12:58	1
1,1-Dichloroethane	<0.10		0.50	0.10	ug/L			11/18/20 12:58	1
1,2-Dichloroethane	<0.14		0.50	0.14	ug/L			11/18/20 12:58	1
1,1-Dichloroethene	<0.13		0.50	0.13	ug/L			11/18/20 12:58	1
1,2-Dichloropropane	<0.15		0.50	0.15	ug/L			11/18/20 12:58	1
1,3-Dichloropropane	<0.10		1.0	0.10	ug/L			11/18/20 12:58	1
2,2-Dichloropropane	<0.46		1.0	0.46	ug/L			11/18/20 12:58	1
1,1-Dichloropropene	<0.12		0.50	0.12	ug/L			11/18/20 12:58	1
Ethylbenzene	<0.084		0.50	0.084	ug/L			11/18/20 12:58	1
Hexachlorobutadiene	<0.23		1.0	0.23	ug/L			11/18/20 12:58	1
Isopropylbenzene	<0.11		0.50	0.11	ug/L			11/18/20 12:58	1
Methylene Chloride	<0.16		1.0	0.16	ug/L			11/18/20 12:58	1
m-Xylene & p-Xylene	<0.27		0.50	0.27	ug/L			11/18/20 12:58	1
Naphthalene	<0.48		1.0	0.48	ug/L			11/18/20 12:58	1
n-Butylbenzene	<0.18		1.0	0.18	ug/L			11/18/20 12:58	1
N-Propylbenzene	<0.11		1.0	0.11	ug/L			11/18/20 12:58	1
o-Xylene	<0.14		0.50	0.14	ug/L			11/18/20 12:58	1
p-Isopropyltoluene	<0.15		1.0	0.15	ug/L			11/18/20 12:58	1
sec-Butylbenzene	<0.14		1.0	0.14	ug/L			11/18/20 12:58	1
Styrene	<0.13		0.50	0.13	ug/L			11/18/20 12:58	1
tert-Butylbenzene	<0.13		1.0	0.13	ug/L			11/18/20 12:58	1
1,1,1,2-Tetrachloroethane	<0.10		0.50	0.10	ug/L			11/18/20 12:58	1
1,1,2,2-Tetrachloroethane	<0.11		0.50	0.11	ug/L			11/18/20 12:58	1
Tetrachloroethene	**1.0**		0.50	0.10	ug/L			11/18/20 12:58	1
Toluene	<0.095		0.50	0.095	ug/L			11/18/20 12:58	1
trans-1,2-Dichloroethene	<0.11		0.50	0.11	ug/L			11/18/20 12:58	1
trans-1,3-Dichloropropene	<0.16		0.50	0.16	ug/L			11/18/20 12:58	1
1,2,3-Trichlorobenzene	<0.40		1.0	0.40	ug/L			11/18/20 12:58	1

Client Sample ID: UW 15

Date Collected: 11/12/20 07:15
Date Received: 11/13/20 10:00

Lab Sample ID: 320-66708-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	<0.25		1.0	0.25	ug/L			11/18/20 12:58	1
1,1,1-Trichloroethane	<0.10		0.50	0.10	ug/L			11/18/20 12:58	1
1,1,2-Trichloroethane	<0.12		0.50	0.12	ug/L			11/18/20 12:58	1
Trichloroethene	**0.28**	**J**	0.50	0.10	ug/L			11/18/20 12:58	1
Trichlorofluoromethane	<0.13		1.0	0.13	ug/L			11/18/20 12:58	1
1,2,3-Trichloropropane	<0.13		1.0	0.13	ug/L			11/18/20 12:58	1
1,2,4-Trimethylbenzene	<0.32		1.0	0.32	ug/L			11/18/20 12:58	1
1,3,5-Trimethylbenzene	<0.16		0.50	0.16	ug/L			11/18/20 12:58	1
Vinyl chloride	<0.18		0.50	0.18	ug/L			11/18/20 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*74 - 120*		*11/18/20 12:58*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 123*		*11/18/20 12:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*72 - 123*		*11/18/20 12:58*	*1*
Toluene-d8 (Surr)	*92*		*78 - 120*		*11/18/20 12:58*	*1*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**1.1**		0.050	0.015	ug/L			11/18/20 15:02	1
Trichloroethene	**0.30**		0.050	0.012	ug/L			11/18/20 15:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*121*	*X*	*80 - 119*		*11/18/20 15:02*	*1*
Toluene-d8 (Surr)	*114*	*X*	*89 - 112*		*11/18/20 15:02*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.3	2.1	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoropentanoic acid (PFPeA)	**4.1**		1.7	0.42	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorohexanoic acid (PFHxA)	**4.4**		1.7	0.50	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoroheptanoic acid (PFHpA)	**1.8**		1.7	0.21	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorooctanoic acid (PFOA)	**2.6**		1.7	0.73	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoroundecanoic acid (PFUnA)	<0.94		1.7	0.94	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.7	1.1	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.76		1.7	0.76	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.81	*	1.7	0.81	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorobutanesulfonic acid (PFBS)	**2.3**		1.7	0.17	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoropentanesulfonic acid (PFPeS)	**2.2**		1.7	0.26	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorohexanesulfonic acid (PFHxS)	**15**		1.7	0.49	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.16		1.7	0.16	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorooctanesulfonic acid (PFOS)	**4.2**		1.7	0.46	ng/L		11/13/20 19:26	11/14/20 10:34	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - Baseline

Job ID: 320-66708-1

Client Sample ID: UW 15
Date Collected: 11/12/20 07:15
Date Received: 11/13/20 10:00

Lab Sample ID: 320-66708-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorododecanesulfonic acid (PFDoS)	<0.83		1.7	0.83	ng/L		11/13/20 19:26	11/14/20 10:34	1
Perfluorooctanesulfonamide (FOSA)	**0.87**	**J**	1.7	0.84	ng/L		11/13/20 19:26	11/14/20 10:34	1
NEtFOSA	<0.75		1.7	0.75	ng/L		11/13/20 19:26	11/14/20 10:34	1
NMeFOSA	<0.37		1.7	0.37	ng/L		11/13/20 19:26	11/14/20 10:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<1.0		4.3	1.0	ng/L		11/13/20 19:26	11/14/20 10:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.1		4.3	1.1	ng/L		11/13/20 19:26	11/14/20 10:34	1
NMeFOSE	<1.2		3.4	1.2	ng/L		11/13/20 19:26	11/14/20 10:34	1
NEtFOSE	<0.73		1.7	0.73	ng/L		11/13/20 19:26	11/14/20 10:34	1
4:2 FTS	<0.21		1.7	0.21	ng/L		11/13/20 19:26	11/14/20 10:34	1
6:2 FTS	<2.1		4.3	2.1	ng/L		11/13/20 19:26	11/14/20 10:34	1
8:2 FTS	<0.39		1.7	0.39	ng/L		11/13/20 19:26	11/14/20 10:34	1
10:2 FTS	<0.57		1.7	0.57	ng/L		11/13/20 19:26	11/14/20 10:34	1
DONA	<0.34		1.7	0.34	ng/L		11/13/20 19:26	11/14/20 10:34	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		11/13/20 19:26	11/14/20 10:34	1
F-53B Major	<0.21		1.7	0.21	ng/L		11/13/20 19:26	11/14/20 10:34	1
F-53B Minor	<0.27		1.7	0.27	ng/L		11/13/20 19:26	11/14/20 10:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C5 PFPeA	*96*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C2 PFHxA	*95*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C4 PFHpA	*98*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C4 PFOA	*100*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C5 PFNA	*96*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C2 PFDA	*93*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C2 PFUnA	*97*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C2 PFDoA	*91*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C2 PFHxDA	*109*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C3 PFBS	*100*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
18O2 PFHxS	*109*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C4 PFOS	*114*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C8 FOSA	*108*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
d3-NMeFOSAA	*90*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
d5-NEtFOSAA	*94*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
d-N-MeFOSA-M	*69*		*20 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
d-N-EtFOSA-M	*43*		*20 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
d7-N-MeFOSE-M	*34*		*10 - 120*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
d9-N-EtFOSE-M	*31*		*10 - 120*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
M2-4:2 FTS	*91*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
M2-6:2 FTS	*89*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
M2-8:2 FTS	*94*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:34*	*1*

Client Sample Results

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Client Sample ID: UW 15 **Lab Sample ID: 320-66708-1**
Date Collected: 11/12/20 07:15 **Matrix: Water**
Date Received: 11/13/20 10:00

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.3		1.3	1.3	mg/L			11/16/20 14:05	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - Baseline

Job ID: 320-66708-1

Client Sample ID: FIELD BLANK

Date Collected: 11/12/20 07:15
Date Received: 11/13/20 10:00

Lab Sample ID: 320-66708-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.5		5.2	2.5	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoropentanoic acid (PFPeA)	<0.51		2.1	0.51	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorohexanoic acid (PFHxA)	<0.60		2.1	0.60	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoroheptanoic acid (PFHpA)	<0.26		2.1	0.26	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorooctanoic acid (PFOA)	<0.89		2.1	0.89	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorononanoic acid (PFNA)	<0.28		2.1	0.28	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorodecanoic acid (PFDA)	<0.32		2.1	0.32	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.1	1.1	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorododecanoic acid (PFDoA)	<0.57		2.1	0.57	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorotridecanoic acid (PFTriA)	<1.4		2.1	1.4	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorotetradecanoic acid (PFTeA)	<0.76		2.1	0.76	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.93		2.1	0.93	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.98	*	2.1	0.98	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		2.1	0.21	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoropentanesulfonic acid (PFPeS)	<0.31		2.1	0.31	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorohexanesulfonic acid (PFHxS)	<0.59		2.1	0.59	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		2.1	0.20	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorooctanesulfonic acid (PFOS)	<0.56		2.1	0.56	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorononanesulfonic acid (PFNS)	<0.39		2.1	0.39	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorodecanesulfonic acid (PFDS)	<0.33		2.1	0.33	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorododecanesulfonic acid (PFDoS)	<1.0		2.1	1.0	ng/L		11/13/20 19:26	11/14/20 10:43	1
Perfluorooctanesulfonamide (FOSA)	<1.0		2.1	1.0	ng/L		11/13/20 19:26	11/14/20 10:43	1
NEtFOSA	<0.91		2.1	0.91	ng/L		11/13/20 19:26	11/14/20 10:43	1
NMeFOSA	<0.45		2.1	0.45	ng/L		11/13/20 19:26	11/14/20 10:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<1.3		5.2	1.3	ng/L		11/13/20 19:26	11/14/20 10:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.4		5.2	1.4	ng/L		11/13/20 19:26	11/14/20 10:43	1
NMeFOSE	<1.5		4.2	1.5	ng/L		11/13/20 19:26	11/14/20 10:43	1
NEtFOSE	<0.89		2.1	0.89	ng/L		11/13/20 19:26	11/14/20 10:43	1
4:2 FTS	<0.25		2.1	0.25	ng/L		11/13/20 19:26	11/14/20 10:43	1
6:2 FTS	<2.6		5.2	2.6	ng/L		11/13/20 19:26	11/14/20 10:43	1
8:2 FTS	<0.48		2.1	0.48	ng/L		11/13/20 19:26	11/14/20 10:43	1
10:2 FTS	<0.70		2.1	0.70	ng/L		11/13/20 19:26	11/14/20 10:43	1
DONA	<0.42		2.1	0.42	ng/L		11/13/20 19:26	11/14/20 10:43	1
HFPO-DA (GenX)	<1.6		4.2	1.6	ng/L		11/13/20 19:26	11/14/20 10:43	1
F-53B Major	<0.25		2.1	0.25	ng/L		11/13/20 19:26	11/14/20 10:43	1
F-53B Minor	<0.33		2.1	0.33	ng/L		11/13/20 19:26	11/14/20 10:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*103*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*
13C5 PFPeA	*95*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*
13C2 PFHxA	*93*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*
13C4 PFHpA	*96*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*
13C4 PFOA	*98*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*
13C5 PFNA	*92*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*
13C2 PFDA	*92*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:43*	*1*

Client: TRC Environmental Corporation.
Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Client Sample ID: FIELD BLANK
Lab Sample ID: 320-66708-2
Date Collected: 11/12/20 07:15
Matrix: Water
Date Received: 11/13/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	98		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C2 PFDoA	94		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C2 PFTeDA	99		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C2 PFHxDA	105		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C3 PFBS	103		25 - 150	11/13/20 19:26	11/14/20 10:43	1
18O2 PFHxS	103		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C4 PFOS	110		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C8 FOSA	107		25 - 150	11/13/20 19:26	11/14/20 10:43	1
d3-NMeFOSAA	85		25 - 150	11/13/20 19:26	11/14/20 10:43	1
d5-NEtFOSAA	86		25 - 150	11/13/20 19:26	11/14/20 10:43	1
d-N-MeFOSA-M	86		20 - 150	11/13/20 19:26	11/14/20 10:43	1
d-N-EtFOSA-M	63		20 - 150	11/13/20 19:26	11/14/20 10:43	1
d7-N-MeFOSE-M	37		10 - 120	11/13/20 19:26	11/14/20 10:43	1
d9-N-EtFOSE-M	33		10 - 120	11/13/20 19:26	11/14/20 10:43	1
M2-4:2 FTS	91		25 - 150	11/13/20 19:26	11/14/20 10:43	1
M2-6:2 FTS	87		25 - 150	11/13/20 19:26	11/14/20 10:43	1
M2-8:2 FTS	98		25 - 150	11/13/20 19:26	11/14/20 10:43	1
13C3 HFPO-DA	88		25 - 150	11/13/20 19:26	11/14/20 10:43	1

Client Sample ID: TRIP BLANK
Lab Sample ID: 320-66708-3

Date Collected: 11/12/20 00:00
Matrix: Water
Date Received: 11/13/20 10:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.080		0.50	0.080	ug/L			11/18/20 12:11	1
Bromobenzene	<0.091		1.0	0.091	ug/L			11/18/20 12:11	1
Bromochloromethane	<0.18		1.0	0.18	ug/L			11/18/20 12:11	1
Bromodichloromethane	<0.14		0.50	0.14	ug/L			11/18/20 12:11	1
Bromoform	<0.19		1.0	0.19	ug/L			11/18/20 12:11	1
Bromomethane	<0.21		1.0	0.21	ug/L			11/18/20 12:11	1
Carbon tetrachloride	<0.12		0.50	0.12	ug/L			11/18/20 12:11	1
Chlorobenzene	<0.070		0.50	0.070	ug/L			11/18/20 12:11	1
Chloroethane	<0.24		1.0	0.24	ug/L			11/18/20 12:11	1
Chloroform	<0.12		1.0	0.12	ug/L			11/18/20 12:11	1
Chloromethane	<0.26		1.0	0.26	ug/L			11/18/20 12:11	1
2-Chlorotoluene	<0.11		0.50	0.11	ug/L			11/18/20 12:11	1
4-Chlorotoluene	<0.10		0.50	0.10	ug/L			11/18/20 12:11	1
cis-1,2-Dichloroethene	<0.18		0.50	0.18	ug/L			11/18/20 12:11	1
cis-1,3-Dichloropropene	<0.15		0.50	0.15	ug/L			11/18/20 12:11	1
1,2-Dibromo-3-Chloropropane	<0.20		1.0	0.20	ug/L			11/18/20 12:11	1
1,2-Dibromoethane (EDB)	<0.12		0.50	0.12	ug/L			11/18/20 12:11	1
Dibromomethane	<0.17		0.50	0.17	ug/L			11/18/20 12:11	1
1,2-Dichlorobenzene	<0.097		0.50	0.097	ug/L			11/18/20 12:11	1
1,3-Dichlorobenzene	**0.088**	**J**	0.50	0.086	ug/L			11/18/20 12:11	1
1,4-Dichlorobenzene	**0.095**	**J**	0.50	0.083	ug/L			11/18/20 12:11	1
Dichlorodifluoromethane	<0.32		1.0	0.32	ug/L			11/18/20 12:11	1
1,1-Dichloroethane	<0.10		0.50	0.10	ug/L			11/18/20 12:11	1
1,2-Dichloroethane	<0.14		0.50	0.14	ug/L			11/18/20 12:11	1
1,1-Dichloroethene	<0.13		0.50	0.13	ug/L			11/18/20 12:11	1
1,2-Dichloropropane	<0.15		0.50	0.15	ug/L			11/18/20 12:11	1
1,3-Dichloropropane	<0.10		1.0	0.10	ug/L			11/18/20 12:11	1
2,2-Dichloropropane	<0.46		1.0	0.46	ug/L			11/18/20 12:11	1
1,1-Dichloropropene	<0.12		0.50	0.12	ug/L			11/18/20 12:11	1
Ethylbenzene	<0.084		0.50	0.084	ug/L			11/18/20 12:11	1
Hexachlorobutadiene	<0.23		1.0	0.23	ug/L			11/18/20 12:11	1
Isopropylbenzene	<0.11		0.50	0.11	ug/L			11/18/20 12:11	1
Methylene Chloride	<0.16		1.0	0.16	ug/L			11/18/20 12:11	1
m-Xylene & p-Xylene	<0.27		0.50	0.27	ug/L			11/18/20 12:11	1
Naphthalene	<0.48		1.0	0.48	ug/L			11/18/20 12:11	1
n-Butylbenzene	<0.18		1.0	0.18	ug/L			11/18/20 12:11	1
N-Propylbenzene	<0.11		1.0	0.11	ug/L			11/18/20 12:11	1
o-Xylene	<0.14		0.50	0.14	ug/L			11/18/20 12:11	1
p-Isopropyltoluene	<0.15		1.0	0.15	ug/L			11/18/20 12:11	1
sec-Butylbenzene	<0.14		1.0	0.14	ug/L			11/18/20 12:11	1
Styrene	<0.13		0.50	0.13	ug/L			11/18/20 12:11	1
tert-Butylbenzene	<0.13		1.0	0.13	ug/L			11/18/20 12:11	1
1,1,1,2-Tetrachloroethane	<0.10		0.50	0.10	ug/L			11/18/20 12:11	1
1,1,2,2-Tetrachloroethane	<0.11		0.50	0.11	ug/L			11/18/20 12:11	1
Tetrachloroethene	<0.10		0.50	0.10	ug/L			11/18/20 12:11	1
Toluene	<0.095		0.50	0.095	ug/L			11/18/20 12:11	1
trans-1,2-Dichloroethene	<0.11		0.50	0.11	ug/L			11/18/20 12:11	1
trans-1,3-Dichloropropene	<0.16		0.50	0.16	ug/L			11/18/20 12:11	1
1,2,3-Trichlorobenzene	<0.40		1.0	0.40	ug/L			11/18/20 12:11	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - Baseline

Job ID: 320-66708-1

Client Sample ID: TRIP BLANK

Date Collected: 11/12/20 00:00
Date Received: 11/13/20 10:00

Lab Sample ID: 320-66708-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	<0.25		1.0	0.25	ug/L			11/18/20 12:11	1
1,1,1-Trichloroethane	<0.10		0.50	0.10	ug/L			11/18/20 12:11	1
1,1,2-Trichloroethane	<0.12		0.50	0.12	ug/L			11/18/20 12:11	1
Trichloroethene	<0.10		0.50	0.10	ug/L			11/18/20 12:11	1
Trichlorofluoromethane	<0.13		1.0	0.13	ug/L			11/18/20 12:11	1
1,2,3-Trichloropropane	<0.13		1.0	0.13	ug/L			11/18/20 12:11	1
1,2,4-Trimethylbenzene	<0.32		1.0	0.32	ug/L			11/18/20 12:11	1
1,3,5-Trimethylbenzene	<0.16		0.50	0.16	ug/L			11/18/20 12:11	1
Vinyl chloride	<0.18		0.50	0.18	ug/L			11/18/20 12:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*74 - 120*		*11/18/20 12:11*	*1*
Dibromofluoromethane (Surr)	*87*		*80 - 123*		*11/18/20 12:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*		*72 - 123*		*11/18/20 12:11*	*1*
Toluene-d8 (Surr)	*87*		*78 - 120*		*11/18/20 12:11*	*1*

Surrogate Summary

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - Baseline

Job ID: 320-66708-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(74-120)	(80-123)	(72-123)	(78-120)
320-66708-1	UW 15	93	88	88	92
320-66708-3	TRIP BLANK	89	87	83	87
LCS 320-432864/3	Lab Control Sample	93	88	88	93
LCSD 320-432864/4	Lab Control Sample Dup	92	87	87	91
MB 320-432864/7	Method Blank	93	88	87	91

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	
Lab Sample ID	Client Sample ID	(80-119)	(89-112)	
320-66708-1	UW 15	121 X	114 X	
LCS 320-432981/3	Lab Control Sample	120 X	121 X	
LCSD 320-432981/4	Lab Control Sample Dup	122 X	123 X	
MB 320-432981/6	Method Blank	106	84 X	

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-66708-1	UW 15	96	96	95	98	100	96	93	97
320-66708-2	FIELD BLANK	103	95	93	96	98	92	92	98
LCS 320-431727/2-A	Lab Control Sample	94	101	99	93	98	94	96	102
LCSD 320-431727/3-A	Lab Control Sample Dup	103	103	93	100	104	98	106	101
MB 320-431727/1-A	Method Blank	104	101	95	103	99	97	100	101

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	PFHxDA	C3PFBS	PFHxS	PFOS	PFOSA	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-66708-1	UW 15	91	98	109	100	109	114	108	90
320-66708-2	FIELD BLANK	94	99	105	103	103	110	107	85
LCS 320-431727/2-A	Lab Control Sample	94	92	99	96	99	103	105	88
LCSD 320-431727/3-A	Lab Control Sample Dup	96	101	107	102	106	112	103	93
MB 320-431727/1-A	Method Blank	98	108	117	101	111	113	108	91

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	dMeFOSA	dEtFOSA	NMFM	NEFM	M242FTS	M262FTS	M282FTS
Lab Sample ID	Client Sample ID	(25-150)	(20-150)	(20-150)	(10-120)	(10-120)	(25-150)	(25-150)	(25-150)
320-66708-1	UW 15	94	69	43	34	31	91	89	94
320-66708-2	FIELD BLANK	86	86	63	37	33	91	87	98
LCS 320-431727/2-A	Lab Control Sample	87	73	51	36	33	93	84	88
LCSD 320-431727/3-A	Lab Control Sample Dup	99	86	71	39	31	86	97	105
MB 320-431727/1-A	Method Blank	98	83	59	30	24	90	91	94

		Percent Isotope Dilution Recovery (Acceptance Limits)
		HFPODA
Lab Sample ID	Client Sample ID	(25-150)
320-66708-1	UW 15	88
320-66708-2	FIELD BLANK	88
LCS 320-431727/2-A	Lab Control Sample	92
LCSD 320-431727/3-A	Lab Control Sample Dup	95
MB 320-431727/1-A	Method Blank	93

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M

Isotope Dilution Summary

Client: TRC Environmental Corporation.
Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 320-432864/7
Matrix: Water
Analysis Batch: 432864

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.080		0.50	0.080	ug/L			11/18/20 11:31	1
Bromobenzene	<0.091		1.0	0.091	ug/L			11/18/20 11:31	1
Bromochloromethane	<0.18		1.0	0.18	ug/L			11/18/20 11:31	1
Bromodichloromethane	<0.14		0.50	0.14	ug/L			11/18/20 11:31	1
Bromoform	<0.19		1.0	0.19	ug/L			11/18/20 11:31	1
Bromomethane	<0.21		1.0	0.21	ug/L			11/18/20 11:31	1
Carbon tetrachloride	<0.12		0.50	0.12	ug/L			11/18/20 11:31	1
Chlorobenzene	<0.070		0.50	0.070	ug/L			11/18/20 11:31	1
Chloroethane	<0.24		1.0	0.24	ug/L			11/18/20 11:31	1
Chloroform	<0.12		1.0	0.12	ug/L			11/18/20 11:31	1
Chloromethane	<0.26		1.0	0.26	ug/L			11/18/20 11:31	1
2-Chlorotoluene	<0.11		0.50	0.11	ug/L			11/18/20 11:31	1
4-Chlorotoluene	<0.10		0.50	0.10	ug/L			11/18/20 11:31	1
cis-1,2-Dichloroethene	<0.18		0.50	0.18	ug/L			11/18/20 11:31	1
cis-1,3-Dichloropropene	<0.15		0.50	0.15	ug/L			11/18/20 11:31	1
1,2-Dibromo-3-Chloropropane	<0.20		1.0	0.20	ug/L			11/18/20 11:31	1
1,2-Dibromoethane (EDB)	<0.12		0.50	0.12	ug/L			11/18/20 11:31	1
Dibromomethane	<0.17		0.50	0.17	ug/L			11/18/20 11:31	1
1,2-Dichlorobenzene	<0.097		0.50	0.097	ug/L			11/18/20 11:31	1
1,3-Dichlorobenzene	<0.086		0.50	0.086	ug/L			11/18/20 11:31	1
1,4-Dichlorobenzene	<0.083		0.50	0.083	ug/L			11/18/20 11:31	1
Dichlorodifluoromethane	<0.32		1.0	0.32	ug/L			11/18/20 11:31	1
1,1-Dichloroethane	<0.10		0.50	0.10	ug/L			11/18/20 11:31	1
1,2-Dichloroethane	<0.14		0.50	0.14	ug/L			11/18/20 11:31	1
1,1-Dichloroethene	<0.13		0.50	0.13	ug/L			11/18/20 11:31	1
1,2-Dichloropropane	<0.15		0.50	0.15	ug/L			11/18/20 11:31	1
1,3-Dichloropropane	<0.10		1.0	0.10	ug/L			11/18/20 11:31	1
2,2-Dichloropropane	<0.46		1.0	0.46	ug/L			11/18/20 11:31	1
1,1-Dichloropropene	<0.12		0.50	0.12	ug/L			11/18/20 11:31	1
Ethylbenzene	<0.084		0.50	0.084	ug/L			11/18/20 11:31	1
Hexachlorobutadiene	<0.23		1.0	0.23	ug/L			11/18/20 11:31	1
Isopropylbenzene	<0.11		0.50	0.11	ug/L			11/18/20 11:31	1
Methylene Chloride	<0.16		1.0	0.16	ug/L			11/18/20 11:31	1
m-Xylene & p-Xylene	<0.27		0.50	0.27	ug/L			11/18/20 11:31	1
Naphthalene	<0.48		1.0	0.48	ug/L			11/18/20 11:31	1
n-Butylbenzene	<0.18		1.0	0.18	ug/L			11/18/20 11:31	1
N-Propylbenzene	<0.11		1.0	0.11	ug/L			11/18/20 11:31	1
o-Xylene	<0.14		0.50	0.14	ug/L			11/18/20 11:31	1
p-Isopropyltoluene	<0.15		1.0	0.15	ug/L			11/18/20 11:31	1
sec-Butylbenzene	<0.14		1.0	0.14	ug/L			11/18/20 11:31	1
Styrene	<0.13		0.50	0.13	ug/L			11/18/20 11:31	1
tert-Butylbenzene	<0.13		1.0	0.13	ug/L			11/18/20 11:31	1
1,1,1,2-Tetrachloroethane	<0.10		0.50	0.10	ug/L			11/18/20 11:31	1
1,1,2,2-Tetrachloroethane	<0.11		0.50	0.11	ug/L			11/18/20 11:31	1
Tetrachloroethene	<0.10		0.50	0.10	ug/L			11/18/20 11:31	1
Toluene	<0.095		0.50	0.095	ug/L			11/18/20 11:31	1
trans-1,2-Dichloroethene	<0.11		0.50	0.11	ug/L			11/18/20 11:31	1
trans-1,3-Dichloropropene	<0.16		0.50	0.16	ug/L			11/18/20 11:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 320-432864/7
Matrix: Water
Analysis Batch: 432864

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<0.40		1.0	0.40	ug/L			11/18/20 11:31	1
1,2,4-Trichlorobenzene	<0.25		1.0	0.25	ug/L			11/18/20 11:31	1
1,1,1-Trichloroethane	<0.10		0.50	0.10	ug/L			11/18/20 11:31	1
1,1,2-Trichloroethane	<0.12		0.50	0.12	ug/L			11/18/20 11:31	1
Trichloroethene	<0.10		0.50	0.10	ug/L			11/18/20 11:31	1
Trichlorofluoromethane	<0.13		1.0	0.13	ug/L			11/18/20 11:31	1
1,2,3-Trichloropropane	<0.13		1.0	0.13	ug/L			11/18/20 11:31	1
1,2,4-Trimethylbenzene	<0.32		1.0	0.32	ug/L			11/18/20 11:31	1
1,3,5-Trimethylbenzene	<0.16		0.50	0.16	ug/L			11/18/20 11:31	1
Vinyl chloride	<0.18		0.50	0.18	ug/L			11/18/20 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*74 - 120*		*11/18/20 11:31*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 123*		*11/18/20 11:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*72 - 123*		*11/18/20 11:31*	*1*
Toluene-d8 (Surr)	*91*		*78 - 120*		*11/18/20 11:31*	*1*

Lab Sample ID: LCS 320-432864/3
Matrix: Water
Analysis Batch: 432864

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	20.7		ug/L		104	79 - 120
Bromobenzene	20.0	20.3		ug/L		102	80 - 120
Bromochloromethane	20.0	20.6		ug/L		103	80 - 120
Bromodichloromethane	20.0	20.8		ug/L		104	80 - 124
Bromoform	20.0	20.8		ug/L		104	80 - 120
Bromomethane	20.0	19.4		ug/L		97	65 - 132
Carbon tetrachloride	20.0	20.9		ug/L		104	78 - 124
Chlorobenzene	20.0	20.3		ug/L		101	78 - 120
Chloroethane	20.0	19.1		ug/L		95	65 - 123
Chloroform	20.0	20.4		ug/L		102	80 - 120
Chloromethane	20.0	18.3		ug/L		92	62 - 129
2-Chlorotoluene	20.0	19.3		ug/L		97	79 - 120
4-Chlorotoluene	20.0	19.8		ug/L		99	80 - 121
cis-1,2-Dichloroethene	20.0	20.3		ug/L		102	78 - 120
cis-1,3-Dichloropropene	20.0	21.2		ug/L		106	80 - 131
1,2-Dibromo-3-Chloropropane	20.0	20.2		ug/L		101	66 - 121
1,2-Dibromoethane (EDB)	20.0	21.3		ug/L		106	78 - 120
Dibromomethane	20.0	21.4		ug/L		107	80 - 121
1,2-Dichlorobenzene	20.0	20.2		ug/L		101	77 - 120
1,3-Dichlorobenzene	20.0	20.0		ug/L		100	78 - 120
1,4-Dichlorobenzene	20.0	20.2		ug/L		101	74 - 120
Dichlorodifluoromethane	20.0	16.0		ug/L		80	39 - 161
1,1-Dichloroethane	20.0	19.9		ug/L		99	79 - 120
1,2-Dichloroethane	20.0	21.3		ug/L		106	77 - 128
1,1-Dichloroethene	20.0	19.6		ug/L		98	74 - 120
1,2-Dichloropropane	20.0	21.8		ug/L		109	75 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 320-432864/3
Matrix: Water
Analysis Batch: 432864

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichloropropane	20.0	21.2		ug/L		106	79 - 120
2,2-Dichloropropane	20.0	21.1		ug/L		106	75 - 127
1,1-Dichloropropene	20.0	20.5		ug/L		102	77 - 120
Ethylbenzene	20.0	20.3		ug/L		102	80 - 120
Hexachlorobutadiene	20.0	20.6		ug/L		103	69 - 120
Isopropylbenzene	20.0	20.2		ug/L		101	80 - 121
Methylene Chloride	20.0	20.5		ug/L		102	77 - 120
m-Xylene & p-Xylene	20.0	20.3		ug/L		102	80 - 121
Naphthalene	20.0	22.3		ug/L		111	56 - 143
n-Butylbenzene	20.0	20.0		ug/L		100	72 - 120
N-Propylbenzene	20.0	19.8		ug/L		99	76 - 120
o-Xylene	20.0	20.0		ug/L		100	80 - 124
p-Isopropyltoluene	20.0	20.2		ug/L		101	76 - 120
sec-Butylbenzene	20.0	19.9		ug/L		99	77 - 120
Styrene	20.0	20.9		ug/L		104	80 - 120
tert-Butylbenzene	20.0	19.8		ug/L		99	78 - 120
1,1,1,2-Tetrachloroethane	20.0	19.8		ug/L		99	79 - 120
1,1,2,2-Tetrachloroethane	20.0	20.5		ug/L		102	74 - 137
Tetrachloroethene	20.0	20.8		ug/L		104	74 - 120
Toluene	20.0	21.8		ug/L		109	79 - 126
trans-1,2-Dichloroethene	20.0	20.8		ug/L		104	76 - 120
trans-1,3-Dichloropropene	20.0	21.6		ug/L		108	75 - 133
1,2,3-Trichlorobenzene	20.0	22.0		ug/L		110	47 - 162
1,2,4-Trichlorobenzene	20.0	21.8		ug/L		109	61 - 130
1,1,1-Trichloroethane	20.0	20.5		ug/L		103	79 - 121
1,1,2-Trichloroethane	20.0	22.2		ug/L		111	79 - 127
Trichloroethene	20.0	19.9		ug/L		100	74 - 120
Trichlorofluoromethane	20.0	20.8		ug/L		104	60 - 135
1,2,3-Trichloropropane	20.0	20.7		ug/L		103	73 - 120
1,2,4-Trimethylbenzene	20.0	19.9		ug/L		100	76 - 120
1,3,5-Trimethylbenzene	20.0	19.8		ug/L		99	79 - 120
Vinyl chloride	20.0	19.2		ug/L		96	68 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*74 - 120*
Dibromofluoromethane (Surr)	*88*		*80 - 123*
1,2-Dichloroethane-d4 (Surr)	*88*		*72 - 123*
Toluene-d8 (Surr)	*93*		*78 - 120*

Lab Sample ID: LCSD 320-432864/4
Matrix: Water
Analysis Batch: 432864

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	20.4		ug/L		102	79 - 120	2	21
Bromobenzene	20.0	20.1		ug/L		101	80 - 120	1	17
Bromochloromethane	20.0	20.3		ug/L		101	80 - 120	2	19
Bromodichloromethane	20.0	20.6		ug/L		103	80 - 124	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 320-432864/4
Matrix: Water
Analysis Batch: 432864

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromoform	20.0	20.8		ug/L		104	80 - 120	0	16
Bromomethane	20.0	19.3		ug/L		97	65 - 132	1	40
Carbon tetrachloride	20.0	20.4		ug/L		102	78 - 124	2	25
Chlorobenzene	20.0	20.2		ug/L		101	78 - 120	1	15
Chloroethane	20.0	19.0		ug/L		95	65 - 123	0	40
Chloroform	20.0	20.1		ug/L		101	80 - 120	1	22
Chloromethane	20.0	18.5		ug/L		92	62 - 129	1	25
2-Chlorotoluene	20.0	19.4		ug/L		97	79 - 120	0	19
4-Chlorotoluene	20.0	19.6		ug/L		98	80 - 121	1	19
cis-1,2-Dichloroethene	20.0	19.8		ug/L		99	78 - 120	3	18
cis-1,3-Dichloropropene	20.0	21.0		ug/L		105	80 - 131	1	24
1,2-Dibromo-3-Chloropropane	20.0	20.0		ug/L		100	66 - 121	1	33
1,2-Dibromoethane (EDB)	20.0	21.3		ug/L		106	78 - 120	0	15
Dibromomethane	20.0	21.0		ug/L		105	80 - 121	2	17
1,2-Dichlorobenzene	20.0	20.2		ug/L		101	77 - 120	0	19
1,3-Dichlorobenzene	20.0	20.1		ug/L		100	78 - 120	1	17
1,4-Dichlorobenzene	20.0	20.3		ug/L		102	74 - 120	1	15
Dichlorodifluoromethane	20.0	15.8		ug/L		79	39 - 161	1	51
1,1-Dichloroethane	20.0	19.7		ug/L		98	79 - 120	1	21
1,2-Dichloroethane	20.0	21.1		ug/L		106	77 - 128	1	25
1,1-Dichloroethene	20.0	19.6		ug/L		98	74 - 120	0	22
1,2-Dichloropropane	20.0	21.3		ug/L		106	75 - 125	2	27
1,3-Dichloropropane	20.0	21.2		ug/L		106	79 - 120	0	15
2,2-Dichloropropane	20.0	20.4		ug/L		102	75 - 127	3	25
1,1-Dichloropropene	20.0	20.1		ug/L		101	77 - 120	2	20
Ethylbenzene	20.0	20.1		ug/L		100	80 - 120	1	15
Hexachlorobutadiene	20.0	20.9		ug/L		105	69 - 120	1	30
Isopropylbenzene	20.0	20.1		ug/L		101	80 - 121	0	17
Methylene Chloride	20.0	20.4		ug/L		102	77 - 120	1	20
m-Xylene & p-Xylene	20.0	20.2		ug/L		101	80 - 121	1	15
Naphthalene	20.0	22.5		ug/L		113	56 - 143	1	48
n-Butylbenzene	20.0	20.0		ug/L		100	72 - 120	0	25
N-Propylbenzene	20.0	19.7		ug/L		98	76 - 120	1	26
o-Xylene	20.0	20.0		ug/L		100	80 - 124	0	18
p-Isopropyltoluene	20.0	20.1		ug/L		100	76 - 120	1	18
sec-Butylbenzene	20.0	19.9		ug/L		99	77 - 120	0	19
Styrene	20.0	20.8		ug/L		104	80 - 120	1	15
tert-Butylbenzene	20.0	19.9		ug/L		100	78 - 120	1	19
1,1,1,2-Tetrachloroethane	20.0	19.4		ug/L		97	79 - 120	2	23
1,1,2,2-Tetrachloroethane	20.0	20.2		ug/L		101	74 - 137	1	27
Tetrachloroethene	20.0	20.8		ug/L		104	74 - 120	0	18
Toluene	20.0	21.4		ug/L		107	79 - 126	1	20
trans-1,2-Dichloroethene	20.0	20.5		ug/L		102	76 - 120	2	20
trans-1,3-Dichloropropene	20.0	21.4		ug/L		107	75 - 133	1	29
1,2,3-Trichlorobenzene	20.0	22.0		ug/L		110	47 - 162	0	45
1,2,4-Trichlorobenzene	20.0	21.7		ug/L		109	61 - 130	0	40
1,1,1-Trichloroethane	20.0	20.2		ug/L		101	79 - 121	2	25
1,1,2-Trichloroethane	20.0	22.1		ug/L		110	79 - 127	1	30
Trichloroethene	20.0	20.0		ug/L		100	74 - 120	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 320-432864/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432864

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichlorofluoromethane			20.0	20.4		ug/L		102	60 - 135	2	41
1,2,3-Trichloropropane			20.0	20.6		ug/L		103	73 - 120	0	22
1,2,4-Trimethylbenzene			20.0	19.9		ug/L		100	76 - 120	0	17
1,3,5-Trimethylbenzene			20.0	19.7		ug/L		98	79 - 120	0	20
Vinyl chloride			20.0	18.7		ug/L		93	68 - 121	3	33

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*74 - 120*
Dibromofluoromethane (Surr)	*87*		*80 - 123*
1,2-Dichloroethane-d4 (Surr)	*87*		*72 - 123*
Toluene-d8 (Surr)	*91*		*78 - 120*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 320-432981/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432981

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			11/18/20 14:19	1
Trichloroethene	<0.012		0.050	0.012	ug/L			11/18/20 14:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*80 - 119*		*11/18/20 14:19*	*1*
Toluene-d8 (Surr)	*84*	*X*	*89 - 112*		*11/18/20 14:19*	*1*

Lab Sample ID: LCS 320-432981/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432981

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	1.98		ug/L		99	74 - 129		
Trichloroethene			2.00	2.10		ug/L		105	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*120*	*X*	*80 - 119*
Toluene-d8 (Surr)	*121*	*X*	*89 - 112*

Lab Sample ID: LCSD 320-432981/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432981

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	1.94		ug/L		97	74 - 129	2	20
Trichloroethene			2.00	2.10		ug/L		105	79 - 123	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*122*	*X*	*80 - 119*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 320-432981/4
Matrix: Water
Analysis Batch: 432981

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	*123*	*X*	*89 - 112*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-431727/1-A
Matrix: Water
Analysis Batch: 431831

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431727

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		11/13/20 19:26	11/14/20 10:06	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		11/13/20 19:26	11/14/20 10:06	1
NEtFOSA	<0.87		2.0	0.87	ng/L		11/13/20 19:26	11/14/20 10:06	1
NMeFOSA	<0.43		2.0	0.43	ng/L		11/13/20 19:26	11/14/20 10:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<1.2		5.0	1.2	ng/L		11/13/20 19:26	11/14/20 10:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.3		5.0	1.3	ng/L		11/13/20 19:26	11/14/20 10:06	1
NMeFOSE	<1.4		4.0	1.4	ng/L		11/13/20 19:26	11/14/20 10:06	1
NEtFOSE	<0.85		2.0	0.85	ng/L		11/13/20 19:26	11/14/20 10:06	1
4:2 FTS	<0.24		2.0	0.24	ng/L		11/13/20 19:26	11/14/20 10:06	1
6:2 FTS	<2.5		5.0	2.5	ng/L		11/13/20 19:26	11/14/20 10:06	1
8:2 FTS	<0.46		2.0	0.46	ng/L		11/13/20 19:26	11/14/20 10:06	1
10:2 FTS	<0.67		2.0	0.67	ng/L		11/13/20 19:26	11/14/20 10:06	1
DONA	<0.40		2.0	0.40	ng/L		11/13/20 19:26	11/14/20 10:06	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		11/13/20 19:26	11/14/20 10:06	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-431727/1-A
Matrix: Water
Analysis Batch: 431831

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431727

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.24		2.0	0.24	ng/L		11/13/20 19:26	11/14/20 10:06	1
F-53B Minor	<0.32		2.0	0.32	ng/L		11/13/20 19:26	11/14/20 10:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C5 PFPeA	*101*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C2 PFHxA	*95*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C4 PFHpA	*103*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C4 PFOA	*99*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C5 PFNA	*97*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C2 PFDA	*100*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C2 PFUnA	*101*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C2 PFDoA	*98*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C2 PFTeDA	*108*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C2 PFHxDA	*117*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C3 PFBS	*101*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
18O2 PFHxS	*111*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C4 PFOS	*113*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C8 FOSA	*108*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
d3-NMeFOSAA	*91*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
d5-NEtFOSAA	*98*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
d-N-MeFOSA-M	*83*		*20 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
d-N-EtFOSA-M	*59*		*20 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
d7-N-MeFOSE-M	*30*		*10 - 120*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
d9-N-EtFOSE-M	*24*		*10 - 120*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
M2-4:2 FTS	*90*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
M2-6:2 FTS	*91*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
M2-8:2 FTS	*94*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*11/13/20 19:26*	*11/14/20 10:06*	*1*

Lab Sample ID: LCS 320-431727/2-A
Matrix: Water
Analysis Batch: 431831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	47.3		ng/L		118	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	38.2		ng/L		96	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	45.8		ng/L		114	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	45.6		ng/L		114	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	42.1		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	40.0	48.7		ng/L		122	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	45.2		ng/L		113	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	38.0		ng/L		95	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	43.5		ng/L		109	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	46.2		ng/L		115	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	48.5		ng/L		121	70 - 130

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-431727/2-A
Matrix: Water
Analysis Batch: 431831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431727

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	45.0		ng/L		112	76 - 136
Perfluoro-n-octadecanoic acid (PFODA)	40.0	58.4	*	ng/L		146	58 - 145
Perfluorobutanesulfonic acid (PFBS)	35.4	40.3		ng/L		114	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	37.5	45.3		ng/L		121	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.3		ng/L		103	59 - 119
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.9		ng/L		110	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	41.3		ng/L		111	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	40.5		ng/L		106	75 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	39.9		ng/L		103	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	38.7	34.8		ng/L		90	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	44.8		ng/L		112	73 - 133
NMeFOSA	40.0	42.0		ng/L		105	67 - 154
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	43.9		ng/L		110	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	42.6		ng/L		107	76 - 136
NMeFOSE	40.0	43.0		ng/L		107	70 - 130
NEtFOSE	40.0	44.7		ng/L		112	71 - 131
4:2 FTS	37.4	45.4		ng/L		122	79 - 139
6:2 FTS	37.9	37.4		ng/L		99	59 - 175
8:2 FTS	38.3	42.3		ng/L		110	75 - 135
10:2 FTS	38.6	33.3		ng/L		86	64 - 142
DONA	37.7	38.4		ng/L		102	79 - 139
HFPO-DA (GenX)	40.0	42.7		ng/L		107	51 - 173
F-53B Major	37.3	38.5		ng/L		103	75 - 135
F-53B Minor	37.7	33.1		ng/L		88	54 - 114

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*94*		*25 - 150*
13C5 PFPeA	*101*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*93*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*96*		*25 - 150*
13C2 PFUnA	*102*		*25 - 150*
13C2 PFDoA	*94*		*25 - 150*
13C2 PFTeDA	*92*		*25 - 150*
13C2 PFHxDA	*99*		*25 - 150*
13C3 PFBS	*96*		*25 - 150*
18O2 PFHxS	*99*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-431727/2-A
Matrix: Water
Analysis Batch: 431831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431727

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFOS	103		25 - 150
13C8 FOSA	105		25 - 150
d3-NMeFOSAA	88		25 - 150
d5-NEtFOSAA	87		25 - 150
d-N-MeFOSA-M	73		20 - 150
d-N-EtFOSA-M	51		20 - 150
d7-N-MeFOSE-M	36		10 - 120
d9-N-EtFOSE-M	33		10 - 120
M2-4:2 FTS	93		25 - 150
M2-6:2 FTS	84		25 - 150
M2-8:2 FTS	88		25 - 150
13C3 HFPO-DA	92		25 - 150

Lab Sample ID: LCSD 320-431727/3-A
Matrix: Water
Analysis Batch: 431831

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 431727

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	42.7		ng/L		107	76 - 136	10	30
Perfluoropentanoic acid (PFPeA)			40.0	40.1		ng/L		100	71 - 131	5	30
Perfluorohexanoic acid (PFHxA)			40.0	46.9		ng/L		117	73 - 133	2	30
Perfluoroheptanoic acid (PFHpA)			40.0	44.0		ng/L		110	72 - 132	4	30
Perfluorooctanoic acid (PFOA)			40.0	39.2		ng/L		98	70 - 130	7	30
Perfluorononanoic acid (PFNA)			40.0	46.0		ng/L		115	75 - 135	6	30
Perfluorodecanoic acid (PFDA)			40.0	42.7		ng/L		107	76 - 136	6	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.6		ng/L		94	68 - 128	1	30
Perfluorododecanoic acid (PFDoA)			40.0	43.9		ng/L		110	71 - 131	1	30
Perfluorotridecanoic acid (PFTriA)			40.0	49.6		ng/L		124	71 - 131	7	30
Perfluorotetradecanoic acid (PFTeA)			40.0	46.8		ng/L		117	70 - 130	3	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	42.0		ng/L		105	76 - 136	7	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	53.2		ng/L		133	58 - 145	9	30
Perfluorobutanesulfonic acid (PFBS)			35.4	40.4		ng/L		114	67 - 127	0	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	44.8		ng/L		120	66 - 126	1	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	38.6		ng/L		106	59 - 119	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	42.4		ng/L		111	76 - 136	1	30
Perfluorooctanesulfonic acid (PFOS)			37.1	40.6		ng/L		109	70 - 130	2	30
Perfluorononanesulfonic acid (PFNS)			38.4	43.7		ng/L		114	75 - 135	8	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.9		ng/L		101	71 - 131	3	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-431727/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 431831 **Prep Batch: 431727**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorododecanesulfonic acid (PFDoS)			38.7	35.5		ng/L		92	67 - 127	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	47.7		ng/L		119	73 - 133	6	30
NMeFOSA			40.0	44.4		ng/L		111	67 - 154	5	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	43.0		ng/L		108	76 - 136	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	41.1		ng/L		103	76 - 136	4	30
NMeFOSE			40.0	44.6		ng/L		111	70 - 130	4	30
NEtFOSE			40.0	40.4		ng/L		101	71 - 131	10	30
4:2 FTS			37.4	43.3		ng/L		116	79 - 139	5	30
6:2 FTS			37.9	37.3		ng/L		98	59 - 175	0	30
8:2 FTS			38.3	39.1		ng/L		102	75 - 135	8	30
10:2 FTS			38.6	28.9		ng/L		75	64 - 142	14	30
DONA			37.7	39.0		ng/L		103	79 - 139	2	30
HFPO-DA (GenX)			40.0	44.0		ng/L		110	51 - 173	3	30
F-53B Major			37.3	38.4		ng/L		103	75 - 135	0	30
F-53B Minor			37.7	36.9		ng/L		98	54 - 114	11	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*103*		*25 - 150*
13C5 PFPeA	*103*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*104*		*25 - 150*
13C5 PFNA	*98*		*25 - 150*
13C2 PFDA	*106*		*25 - 150*
13C2 PFUnA	*101*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFTeDA	*101*		*25 - 150*
13C2 PFHxDA	*107*		*25 - 150*
13C3 PFBS	*102*		*25 - 150*
18O2 PFHxS	*106*		*25 - 150*
13C4 PFOS	*112*		*25 - 150*
13C8 FOSA	*103*		*25 - 150*
d3-NMeFOSAA	*93*		*25 - 150*
d5-NEtFOSAA	*99*		*25 - 150*
d-N-MeFOSA-M	*86*		*20 - 150*
d-N-EtFOSA-M	*71*		*20 - 150*
d7-N-MeFOSE-M	*39*		*10 - 120*
d9-N-EtFOSE-M	*31*		*10 - 120*
M2-4:2 FTS	*86*		*25 - 150*
M2-6:2 FTS	*97*		*25 - 150*
M2-8:2 FTS	*105*		*25 - 150*
13C3 HFPO-DA	*95*		*25 - 150*

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

Lab Sample ID: MB 320-432218/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432218

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.0		5.0	5.0	mg/L			11/16/20 14:05	1

Lab Sample ID: LCS 320-432218/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432218

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	985.6		mg/L		99	85 - 115

Lab Sample ID: LCSD 320-432218/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 432218

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	1000	1006		mg/L		101	85 - 115	2	20

QC Association Summary

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

GC/MS VOA

Analysis Batch: 432864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66708-1	UW 15	Total/NA	Water	8260B	
320-66708-3	TRIP BLANK	Total/NA	Water	8260B	
MB 320-432864/7	Method Blank	Total/NA	Water	8260B	
LCS 320-432864/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 320-432864/4	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 432981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66708-1	UW 15	Total/NA	Water	8260C SIM	
MB 320-432981/6	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-432981/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-432981/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

LCMS

Prep Batch: 431727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66708-1	UW 15	Total/NA	Water	3535	
320-66708-2	FIELD BLANK	Total/NA	Water	3535	
MB 320-431727/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-431727/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-431727/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 431831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66708-1	UW 15	Total/NA	Water	537 (modified)	431727
320-66708-2	FIELD BLANK	Total/NA	Water	537 (modified)	431727
MB 320-431727/1-A	Method Blank	Total/NA	Water	537 (modified)	431727
LCS 320-431727/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	431727
LCSD 320-431727/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	431727

General Chemistry

Analysis Batch: 432218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66708-1	UW 15	Total/NA	Water	SM 2540D	
MB 320-432218/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 320-432218/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 320-432218/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Client Sample ID: UW 15 — Lab Sample ID: 320-66708-1

Date Collected: 11/12/20 07:15 — **Matrix: Water**
Date Received: 11/13/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	1 uL	1 uL	432864	11/18/20 12:58	EMJ	TAL SAC
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	432981	11/18/20 15:02	BAJ	TAL SAC
Total/NA	Prep	3535			291.4 mL	10.00 mL	431727	11/13/20 19:26	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			431831	11/14/20 10:34	VPM	TAL SAC
Total/NA	Analysis	SM 2540D		1	1000 mL	250 mL	432218	11/16/20 14:05	KDB	TAL SAC

Client Sample ID: FIELD BLANK — Lab Sample ID: 320-66708-2

Date Collected: 11/12/20 07:15 — **Matrix: Water**
Date Received: 11/13/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			240 mL	10.00 mL	431727	11/13/20 19:26	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			431831	11/14/20 10:43	VPM	TAL SAC

Client Sample ID: TRIP BLANK — Lab Sample ID: 320-66708-3

Date Collected: 11/12/20 00:00 — **Matrix: Water**
Date Received: 11/13/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	1 uL	1 uL	432864	11/18/20 12:11	EMJ	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: TRC Environmental Corporation. Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-21

Method Summary

Client: TRC Environmental Corporation.
Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAC
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL SAC
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030B	Purge and Trap	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: TRC Environmental Corporation.
Job ID: 320-66708-1
Project/Site: Well #15 Feasibility Study - Baseline

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-66708-1	UW 15	Water	11/12/20 07:15	11/13/20 10:00	
320-66708-2	FIELD BLANK	Water	11/12/20 07:15	11/13/20 10:00	
320-66708-3	TRIP BLANK	Water	11/12/20 00:00	11/13/20 10:00	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: J. Grande	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 320-34436-8548.1
Client Contact: Jeff Ramey	Phone: 608-261-9101	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of 1
Company: TRC Environmental Corporation		Analysis Requested		Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested: 11-18-2020			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Brookfield	TAT Requested (days): 3 days			
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			Other:
Email: jramey@trccompanies.com	WO #:			
Project Name: Well #15 Feasibility Study - Baseline	Project #: 32016125			
Site: Well 15 - 3900 E Washington Ave	SSOW#:			

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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	8260C_SIM - VOC - SIM	2540D - Solids, Total Suspended (TSS)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A	A	N		
* Well 15	11-12-20	7:15	G	Water	N		1	1	1	1	9	2 extra PFAS, 1 extra TSS
				Water								
				Water								
				Water								
				Water								

320-66708 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Jessica Grande	11-12-2020 9:00			11/13/20 1000	EAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: 964618	Cooler Temperature(s) °C and Other Remarks: 2.3

* container count incorrect MAN 11/13/20

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: TRC Environmental Corporation. Job Number: 320-66708-1

Login Number: 66708 **List Source: Eurofins TestAmerica, Sacramento**
List Number: 1
Creator: Thompson, Sarah W

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	969618
Sample custody seals, if present, are intact.	N/A	
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	
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.	False	Received extra samples not listed on COC. Added per client
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.	N/A	
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Data Review Checklist

Site: Well 15 Baseline Characterization Location: Madison, WI Client Name: City of Madison Water Utility Project #: 406092.0003	Laboratory: Eurofins-TestAmerica-West Sacramento, CA Lab Report #: 320-66708-1	QA Reviewer: Jeff Ramey Peer Reviewer: Mike Ursin Date: 11/19/2020
Analytical Method(s): Method 537 (modified) – PFAS SW-846 8260B – VOCs SW-846 8260C SIM – PCE/TCE SM 2540D - TSS	Matrices Sampled: Groundwater	Sample Collection Date(s): November 20, 2020
Sampling Objective(s): Feasibility Study		
Sample ID: UW-15		

NOTE: Provide comments if any of the shaded boxes are checked.

	Review Item or Question	Y	N	NA	Comments[1]
Sample Traceability / Chain of Custody					
1	Were COC forms appropriately completed?		x		The lab noted that container count on the COC was incorrect and that 14 sample containers were received by the lab and not 9 as was listed on the COC. Samples were taken for a field blank for PFAS and a trip blank for VOCs but were not listed on the COC. These samples were added for analysis accordingly by TRC. Sample times are not listed for the field blank and trip blank but are assumed to have been taken at the time of taking sample UW-15. The baseline characterization sample was specified as UW-15 on the COC and not MW-15.
2	Did the laboratory report correct sample IDs?	x			See #1
3	Do the laboratory reported sample collection dates and times agree with the COC forms?	x			See #1

Analytical Data Review Checklist

	Review Item or Question	Y	N	NA	Comments[1]
Sample Preservation and Integrity					
4	Did samples arrive at the laboratory appropriately preserved?	x			
	Was the cooler temperature between 0-6°C?	x			
	Was acid used for preservation when required (e.g., aqueous VOC and metals samples)?	x			
	Were soil/sediment VOC samples preserved in the field or collected in EnCore® samplers?			x	
5	Were samples received by the laboratory in an acceptable condition (i.e., no breakages, leaks, etc.)?	x			
6	Were any issues noted by the laboratory upon receipt?	x			Extra bottles received, see #1
7	Were sample preparation and analysis holding time requirements met?	x			
8	AIR ONLY: Were canisters received with an acceptable vacuum? Were the RPDs between the initial and final canister flow controller calibrations <20?			x	
Data Completeness					
9	Are results reported for all analytical methods requested?	x			See #1
10	Are results reported for all samples submitted for analysis?	x			See #1
11	Were the requested analytical methods used?	x			
12	Are results reported for all target analytes, but no additional analytes?	x			
13	Were soil/sediment results reported on a dry weight basis?			x	

Analytical Data Review Checklist

	Review Item or Question	Y	N	NA	Comments[1]
14	If requested, were detected results below the reporting limit (i.e., "J" values) reported?	x			
15	Did we receive the required deliverables (e.g., EDD, Level 4 data, laboratory certification, etc.) in the correct formats?	x			Level 2 and 4 report and EDD
Sensitivity					
16	Do the reporting limits meet the project specifications (e.g., QAPP or Work Plan)?		x		LOQ for PFAAs expected to be </= 2 ng/L per analyte. PFBA LOQ/ LOD for sample UW-15 was (4.3 ng/L / 2.1 ng/L). **Sample UW-15 was non-detect (<2.1 ng/L) for PFBA.**
17	Were dilutions performed? If so, note sample(s) and parameter(s) affected and the dilution factor(s).		x		
18	Did the laboratory provide an adequate explanation as to why dilutions were performed?			x	
QC Results					
19	Were any target analytes detected in the method blanks? If yes, list contaminants, concentrations detected and associated samples.		x		
20	Does each analytical or preparation batch have its own method blank?	x			
21	Were any target analytes detected in the field blank(s) (e.g., trip blanks, equipment blanks)? If yes, list contaminants, concentrations detected and associated samples (or attach field blank results).	x			**1,4-diclorobenzene (0.095 ug/L) and 1,3-dichlorobenzene (0.088 ug/L) were detected at estimated concentrations in the Trip Blank.**

	Review Item or Question	Y	N	NA	Comments[1]
22	Are there any potential false positive results based on questions 19 and/or 21? If concentrations of contaminants in associated samples are ≤10x the blank concentration, sample result is most likely a false positive. [2]		x		1,4-diclorobenzene and 1,3-dichlorobenzene were not detected in sample UW-15; no data are affected
23	Are LCS/LCSD recoveries within QC limits[3]? If no, list analytes affected, the LCS/LCSD recoveries and the affected samples.		x		PFODA in LCS 320-431727/2-A recovered above QC limit (146%). Data are not affected as PFODA was not detected in sample UW-15.
24	Does each analytical or preparation batch have its own LCS?	x			
25	Are LCS/LCSD RPDs within QC limits[3]? If no, list analytes affected, the RPDs and the affected samples.	x			
26	Are MS/MSD recoveries within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required. If no, list analytes affected, the MS/MSD recoveries and the sample that was spiked.			x	
27	Are MS/MSD RPDs within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required, If no, list analytes affected, the RPDs and the sample that was spiked.			x	

Analytical Data Review Checklist

	Review Item or Question	Y	N	NA	Comments[1]
28	Are laboratory duplicate RPDs within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required. If no, list analytes affected, the RPDs and the sample that was prepared/analyzed in duplicate.			x	No duplicate sample
29	Are field duplicate RPDs within QC limits? If no, list analytes affected, the RPDs and the associated samples. NOTE: Typical criteria[4] are RPD ≤50 for solid samples and RPD ≤30 for aqueous and air samples when results are >2x the reporting limit; otherwise these criteria are doubled. However, project-specific or regulatory-based criteria may supersede these criteria.			x	
30	ORGANIC ANALYSES ONLY: Are surrogate recoveries within QC limits[3]? If no, list samples, surrogate recoveries and analytes affected.		x		**UW-15 detected surrgogates dibromofluoromethane (121%) and toluene-d8 (114%) above QC limits for the 8260C SIM analysis. PCE and TCE detections in UW-15 are potentially biased high in the 8260 SIM sample.** MB 320-432981/6 detected surrogate toluene-d8 (84%) below QC limits for the 8260C SIM analysis. No data are affected. **LCS 320-432981/3 detected surrogates dibromodifluoromethane (120%) and toluene-d8 (121%) above QC limits for the 8260C SIM analysis. PCE and TCE detections in UW-15 are potentially biased high in the 8260 SIM sample.** **LCSD 320-432981/4 detected surrogates dibromodifluoromethane (122%) and toluene-d8 (123%) above QC limits for the 8260C SIM analysis. PCE and TCE detections in UW-15 are potentially biased high in the 8260 SIM sample.**
31	PFAS ANALYSES ONLY: Are the sample results quantitated using isotope dilution?	x			

	Review Item or Question	Y	N	N A	Comments[1]
32	PFAS ANALYSES ONLY: Are recoveries of isotope dilution analytes within QC limits? If not, list the affected analyte(s) and potential impact on the sample(s).	x			
Laboratory Comments					
33	Did the case narrative describe any analytical anomalies (i.e., problems or unique occurrences)? If yes, list the comments that have potential impact to sample results (or attach case narrative and highlight the comments that have potential impact to sample results).		x		
34	Were any other potential data quality issues identified? If yes, describe issues.		x		
Do the Data Make Sense?					
35	Do any results look questionable? If yes, ASK THE LAB!		x		
36	Has the EDD been compared with the lab report?		x		

(1) Comments generally need to be addressed in the TRC deliverable presenting the laboratory data but this will be dependent on project requirements.
(2) Check if local or regional criteria for blank assessments are available; these will supersede criteria in this checklist.
(3) Use QC limits in QAPP, if available. If not, use QC limits provided by laboratory in data package.
(4) EPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Guidance/Procedures, April 22, 2013.

COC = Chain-of-Custody
EDD = Electronic Data Deliverable
LCS/LCSD = Laboratory Control Sample / Laboratory Control Sample Duplicate
MS/MSD = Matrix Spike / Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
QC = Quality Control
RPD = Relative Percent Difference = |(A-B)/((A+B)/2)|
VOC = Volatile Organic Compounds

NOTE: After data tables are created, check that reporting limits are below the project action levels (e.g., screening criteria, remediation standards, etc.) and compare data with historical results, if applicable.

Additional Comments:

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-67908-1
Client Project/Site: Well #15 Feasibility Study - RSSCT 1

For:
TRC Environmental Corporation.
150 N. Patrick Blvd.
Suite 180
Brookfield, Wisconsin 53045

Attn: Jeff Ramey

Authorized for release by:
12/31/2020 1:52:50 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

LCMS

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

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

Job ID: 320-67908-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-67908-1

Comments
No additional comments.

Receipt
The samples were received on 12/15/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5º C.

Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA
Method 8260C SIM: The following samples were analyzed outside of analytical holding time due to instrument malfunction: MWU-IN-01 (320-67908-1) and RSSCT 1-EF-5K (320-67908-2).

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-445633.

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 320-445692.

Method 8260C SIM: The following samples were analyzed outside of analytical holding time due to instrument malfunction .: RSSCT 1-EF-70K (320-67908-10), RSSCT 1-EF-80K (320-67908-11), RSSCT 1-EF-90K (320-67908-12) and RSSCT 1-EF-100K (320-67908-13).

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 320-447118.

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

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-442919. 3535_PFC Aqueous

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

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Client Sample ID: MWU-IN-01 — Lab Sample ID: 320-67908-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1.1	H	0.050	0.015	ug/L	1		8260C SIM	Total/NA
Trichloroethene	0.11	H	0.050	0.012	ug/L	1		8260C SIM	Total/NA
Perfluorobutanoic acid (PFBA)	2.5	J	4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.6		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.8		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.8	J	1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.9		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.4		1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	17		1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.27	J	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.7		1.9	0.51	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-5K — Lab Sample ID: 320-67908-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonamide (FOSA)	1.4	J	2.0	0.98	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-10K — Lab Sample ID: 320-67908-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.64	J	1.9	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.5	J	1.9	0.91	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-15K — Lab Sample ID: 320-67908-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.67	J	1.9	0.47	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-20K — Lab Sample ID: 320-67908-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	1.2	J	2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.0	J	2.0	0.97	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-30K — Lab Sample ID: 320-67908-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	2.0		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.0	J	2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.25	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.31	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.99	J	2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.65	J	2.0	0.54	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-40K — Lab Sample ID: 320-67908-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.5		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.6	J	1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.50	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-40K (Continued) — Lab Sample ID: 320-67908-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.59	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.34	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.1		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.80	J	1.9	0.52	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-50K — Lab Sample ID: 320-67908-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.0		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.0		2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.60	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.72	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.40	J	2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.6		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.1	J	2.0	0.54	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-60K — Lab Sample ID: 320-67908-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.9	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.2		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.4		2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.77	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.0	J	2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.87	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.68	J	2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.9		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.1	J	2.0	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.2	J	2.0	0.98	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-70K — Lab Sample ID: 320-67908-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.7		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.8		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.94	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.2	J	1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.82	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.3		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.4	J	1.8	0.49	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-80K — Lab Sample ID: 320-67908-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.6	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.6		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.8		2.0	0.57	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RSSCT 1-EF-80K (Continued) — Lab Sample ID: 320-67908-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.96	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.3	J	2.0	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.92	J	2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.8		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.6	J	2.0	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.99	J	2.0	0.97	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-90K — Lab Sample ID: 320-67908-12

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	4.9	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.9		2.0	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.2		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	2.0	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.5	J	2.0	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.99	J	2.0	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.6		2.0	0.56	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.8	J	2.0	0.53	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 1-EF-100K — Lab Sample ID: 320-67908-13

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.1		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.3		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.5	J	1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.1		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		1.9	0.51	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 320-67908-14

No Detections.

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Client Sample ID: MWU-IN-01
Date Collected: 12/09/20 18:53
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-1
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	1.1	H	0.050	0.015	ug/L			12/24/20 13:20	1
Trichloroethene	0.11	H	0.050	0.012	ug/L			12/24/20 13:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/24/20 13:20*	*1*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/24/20 13:20*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.5	J	4.7	2.3	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoropentanoic acid (PFPeA)	4.6		1.9	0.46	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorohexanoic acid (PFHxA)	4.8		1.9	0.54	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoroheptanoic acid (PFHpA)	1.8	J	1.9	0.23	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorooctanoic acid (PFOA)	2.9		1.9	0.80	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorododecanoic acid (PFDoA)	<0.52		1.9	0.52	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.83		1.9	0.83	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.88		1.9	0.88	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorobutanesulfonic acid (PFBS)	2.2		1.9	0.19	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoropentanesulfonic acid (PFPeS)	2.4		1.9	0.28	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorohexanesulfonic acid (PFHxS)	17		1.9	0.53	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.27	J	1.9	0.18	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorooctanesulfonic acid (PFOS)	5.7		1.9	0.51	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorododecanesulfonic acid (PFDoS)	<0.91		1.9	0.91	ng/L		12/16/20 11:36	12/17/20 01:25	1
Perfluorooctanesulfonamide (FOSA)	<0.92		1.9	0.92	ng/L		12/16/20 11:36	12/17/20 01:25	1
NEtFOSA	<0.82		1.9	0.82	ng/L		12/16/20 11:36	12/17/20 01:25	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/16/20 11:36	12/17/20 01:25	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		12/16/20 11:36	12/17/20 01:25	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		12/16/20 11:36	12/17/20 01:25	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/16/20 11:36	12/17/20 01:25	1
NEtFOSE	<0.80		1.9	0.80	ng/L		12/16/20 11:36	12/17/20 01:25	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 01:25	1
6:2 FTS	<2.3		4.7	2.3	ng/L		12/16/20 11:36	12/17/20 01:25	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/16/20 11:36	12/17/20 01:25	1
10:2 FTS	<0.63		1.9	0.63	ng/L		12/16/20 11:36	12/17/20 01:25	1
DONA	<0.38		1.9	0.38	ng/L		12/16/20 11:36	12/17/20 01:25	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/16/20 11:36	12/17/20 01:25	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 01:25	1

Client Sample ID: MWU-IN-01 — Lab Sample ID: 320-67908-1

Date Collected: 12/09/20 18:53 — **Matrix: Water**
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 01:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C5 PFPeA	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C2 PFHxA	*104*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C4 PFHpA	*110*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C4 PFOA	*112*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C5 PFNA	*105*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C2 PFDA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C2 PFUnA	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C2 PFDoA	*114*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C2 PFTeDA	*120*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C2 PFHxDA	*115*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C3 PFBS	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
18O2 PFHxS	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C4 PFOS	*100*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C8 FOSA	*110*		*10 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
d5-NEtFOSAA	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
d-N-MeFOSA-M	*103*		*10 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
d-N-EtFOSA-M	*95*		*10 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
d7-N-MeFOSE-M	*74*		*10 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
d9-N-EtFOSE-M	*60*		*10 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
M2-4:2 FTS	*87*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
M2-6:2 FTS	*89*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
M2-8:2 FTS	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*
13C3 HFPO-DA	*100*		*25 - 150*	*12/16/20 11:36*	*12/17/20 01:25*	*1*

Client Sample ID: RSSCT 1-EF-5K

Date Collected: 12/09/20 22:39
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-2

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/24/20 13:45	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/24/20 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/24/20 13:45*	*1*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/24/20 13:45*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/16/20 11:36	12/17/20 01:34	1
Perfluorooctanesulfonamide (FOSA)	**1.4**	**J**	2.0	0.98	ng/L		12/16/20 11:36	12/17/20 01:34	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:36	12/17/20 01:34	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 01:34	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 01:34	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 01:34	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 01:34	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 01:34	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 01:34	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 01:34	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 01:34	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:36	12/17/20 01:34	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 01:34	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 01:34	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 01:34	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 01:34	1

Client Sample ID: RSSCT 1-EF-5K
Date Collected: 12/09/20 22:39
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-2
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	91		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C5 PFPeA	86		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C2 PFHxA	97		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C4 PFHpA	102		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C4 PFOA	99		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C5 PFNA	99		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C2 PFDA	101		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C2 PFUnA	100		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C2 PFDoA	106		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C2 PFTeDA	107		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C2 PFHxDA	109		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C3 PFBS	92		25 - 150	12/16/20 11:36	12/17/20 01:34	1
18O2 PFHxS	89		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C4 PFOS	93		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C8 FOSA	100		10 - 150	12/16/20 11:36	12/17/20 01:34	1
d3-NMeFOSAA	78		25 - 150	12/16/20 11:36	12/17/20 01:34	1
d5-NEtFOSAA	81		25 - 150	12/16/20 11:36	12/17/20 01:34	1
d-N-MeFOSA-M	88		10 - 150	12/16/20 11:36	12/17/20 01:34	1
d-N-EtFOSA-M	87		10 - 150	12/16/20 11:36	12/17/20 01:34	1
d7-N-MeFOSE-M	67		10 - 150	12/16/20 11:36	12/17/20 01:34	1
d9-N-EtFOSE-M	57		10 - 150	12/16/20 11:36	12/17/20 01:34	1
M2-4:2 FTS	75		25 - 150	12/16/20 11:36	12/17/20 01:34	1
M2-6:2 FTS	84		25 - 150	12/16/20 11:36	12/17/20 01:34	1
M2-8:2 FTS	83		25 - 150	12/16/20 11:36	12/17/20 01:34	1
13C3 HFPO-DA	95		25 - 150	12/16/20 11:36	12/17/20 01:34	1

Client Sample ID: RSSCT 1-EF-10K
Date Collected: 12/10/20 03:18
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-3
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 14:09	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*80 - 119*		*12/24/20 14:09*	*1*
Toluene-d8 (Surr)	*98*		*89 - 112*		*12/24/20 14:09*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.2		4.7	2.2	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoropentanoic acid (PFPeA)	<0.46		1.9	0.46	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.83		1.9	0.83	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.88		1.9	0.88	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.9	0.53	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorooctanesulfonic acid (PFOS)	**0.64**	**J**	1.9	0.50	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorododecanesulfonic acid (PFDoS)	<0.91		1.9	0.91	ng/L		12/16/20 11:36	12/17/20 01:43	1
Perfluorooctanesulfonamide (FOSA)	**1.5**	**J**	1.9	0.91	ng/L		12/16/20 11:36	12/17/20 01:43	1
NEtFOSA	<0.81		1.9	0.81	ng/L		12/16/20 11:36	12/17/20 01:43	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/16/20 11:36	12/17/20 01:43	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		12/16/20 11:36	12/17/20 01:43	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		12/16/20 11:36	12/17/20 01:43	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/16/20 11:36	12/17/20 01:43	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/16/20 11:36	12/17/20 01:43	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/16/20 11:36	12/17/20 01:43	1
6:2 FTS	<2.3		4.7	2.3	ng/L		12/16/20 11:36	12/17/20 01:43	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/16/20 11:36	12/17/20 01:43	1
10:2 FTS	<0.63		1.9	0.63	ng/L		12/16/20 11:36	12/17/20 01:43	1
DONA	<0.37		1.9	0.37	ng/L		12/16/20 11:36	12/17/20 01:43	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/16/20 11:36	12/17/20 01:43	1
F-53B Major	<0.22		1.9	0.22	ng/L		12/16/20 11:36	12/17/20 01:43	1
F-53B Minor	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 01:43	1

Client Sample ID: RSSCT 1-EF-10K
Date Collected: 12/10/20 03:18
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-3
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C5 PFPeA	91		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C2 PFHxA	100		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C4 PFHpA	102		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C4 PFOA	103		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C5 PFNA	99		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C2 PFDA	96		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C2 PFUnA	99		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C2 PFDoA	108		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C2 PFTeDA	113		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C2 PFHxDA	114		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C3 PFBS	91		25 - 150	12/16/20 11:36	12/17/20 01:43	1
18O2 PFHxS	94		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C4 PFOS	96		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C8 FOSA	98		10 - 150	12/16/20 11:36	12/17/20 01:43	1
d3-NMeFOSAA	79		25 - 150	12/16/20 11:36	12/17/20 01:43	1
d5-NEtFOSAA	85		25 - 150	12/16/20 11:36	12/17/20 01:43	1
d-N-MeFOSA-M	97		10 - 150	12/16/20 11:36	12/17/20 01:43	1
d-N-EtFOSA-M	91		10 - 150	12/16/20 11:36	12/17/20 01:43	1
d7-N-MeFOSE-M	62		10 - 150	12/16/20 11:36	12/17/20 01:43	1
d9-N-EtFOSE-M	62		10 - 150	12/16/20 11:36	12/17/20 01:43	1
M2-4:2 FTS	75		25 - 150	12/16/20 11:36	12/17/20 01:43	1
M2-6:2 FTS	82		25 - 150	12/16/20 11:36	12/17/20 01:43	1
M2-8:2 FTS	88		25 - 150	12/16/20 11:36	12/17/20 01:43	1
13C3 HFPO-DA	96		25 - 150	12/16/20 11:36	12/17/20 01:43	1

Client Sample ID: RSSCT 1-EF-15K
Date Collected: 12/10/20 07:57
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-4
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 14:34	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*12/24/20 14:34*	*1*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/24/20 14:34*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.3		4.8	2.3	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoropentanoic acid (PFPeA)	**0.67**	**J**	1.9	0.47	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorohexanoic acid (PFHxA)	<0.56		1.9	0.56	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorooctanoic acid (PFOA)	<0.82		1.9	0.82	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorotetradecanoic acid (PFTeA)	<0.71		1.9	0.71	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.86		1.9	0.86	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.91		1.9	0.91	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		1.9	0.29	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorohexanesulfonic acid (PFHxS)	<0.55		1.9	0.55	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorooctanesulfonic acid (PFOS)	<0.52		1.9	0.52	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorononanesulfonic acid (PFNS)	<0.36		1.9	0.36	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorododecanesulfonic acid (PFDoS)	<0.94		1.9	0.94	ng/L		12/16/20 11:36	12/17/20 01:53	1
Perfluorooctanesulfonamide (FOSA)	<0.95		1.9	0.95	ng/L		12/16/20 11:36	12/17/20 01:53	1
NEtFOSA	<0.84		1.9	0.84	ng/L		12/16/20 11:36	12/17/20 01:53	1
NMeFOSA	<0.42		1.9	0.42	ng/L		12/16/20 11:36	12/17/20 01:53	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:36	12/17/20 01:53	1
NEtFOSAA	<1.3		4.8	1.3	ng/L		12/16/20 11:36	12/17/20 01:53	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:36	12/17/20 01:53	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:36	12/17/20 01:53	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 01:53	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:36	12/17/20 01:53	1
8:2 FTS	<0.45		1.9	0.45	ng/L		12/16/20 11:36	12/17/20 01:53	1
10:2 FTS	<0.65		1.9	0.65	ng/L		12/16/20 11:36	12/17/20 01:53	1
DONA	<0.39		1.9	0.39	ng/L		12/16/20 11:36	12/17/20 01:53	1
HFPO-DA (GenX)	<1.5		3.9	1.5	ng/L		12/16/20 11:36	12/17/20 01:53	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 01:53	1
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:36	12/17/20 01:53	1

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-15K
Lab Sample ID: 320-67908-4
Date Collected: 12/10/20 07:57
Matrix: Water
Date Received: 12/15/20 10:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C5 PFPeA	92		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C2 PFHxA	104		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C4 PFHpA	103		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C4 PFOA	109		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C5 PFNA	104		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C2 PFDA	107		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C2 PFUnA	103		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C2 PFDoA	110		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C2 PFTeDA	115		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C2 PFHxDA	113		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C3 PFBS	94		25 - 150	12/16/20 11:36	12/17/20 01:53	1
18O2 PFHxS	100		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C4 PFOS	100		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C8 FOSA	106		10 - 150	12/16/20 11:36	12/17/20 01:53	1
d3-NMeFOSAA	84		25 - 150	12/16/20 11:36	12/17/20 01:53	1
d5-NEtFOSAA	92		25 - 150	12/16/20 11:36	12/17/20 01:53	1
d-N-MeFOSA-M	103		10 - 150	12/16/20 11:36	12/17/20 01:53	1
d-N-EtFOSA-M	99		10 - 150	12/16/20 11:36	12/17/20 01:53	1
d7-N-MeFOSE-M	73		10 - 150	12/16/20 11:36	12/17/20 01:53	1
d9-N-EtFOSE-M	70		10 - 150	12/16/20 11:36	12/17/20 01:53	1
M2-4:2 FTS	79		25 - 150	12/16/20 11:36	12/17/20 01:53	1
M2-6:2 FTS	88		25 - 150	12/16/20 11:36	12/17/20 01:53	1
M2-8:2 FTS	93		25 - 150	12/16/20 11:36	12/17/20 01:53	1
13C3 HFPO-DA	100		25 - 150	12/16/20 11:36	12/17/20 01:53	1

Client Sample ID: RSSCT 1-EF-20K
Lab Sample ID: 320-67908-5

Date Collected: 12/10/20 12:50
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 20:10	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/24/20 20:10*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/24/20 20:10*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoropentanoic acid (PFPeA)	**1.2**	**J**	2.0	0.49	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorododecanesulfonic acid (PFDoS)	<0.96		2.0	0.96	ng/L		12/16/20 11:36	12/17/20 02:02	1
Perfluorooctanesulfonamide (FOSA)	**1.0**	**J**	2.0	0.97	ng/L		12/16/20 11:36	12/17/20 02:02	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:36	12/17/20 02:02	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 02:02	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 02:02	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 02:02	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 02:02	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 02:02	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 02:02	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 02:02	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 02:02	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:36	12/17/20 02:02	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 02:02	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 02:02	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 02:02	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 02:02	1

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-20K
Lab Sample ID: 320-67908-5
Date Collected: 12/10/20 12:50
Matrix: Water
Date Received: 12/15/20 10:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	95		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C5 PFPeA	91		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C2 PFHxA	100		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C4 PFHpA	102		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C4 PFOA	110		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C5 PFNA	101		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C2 PFDA	99		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C2 PFUnA	104		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C2 PFDoA	106		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C2 PFTeDA	119		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C2 PFHxDA	108		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C3 PFBS	92		25 - 150	12/16/20 11:36	12/17/20 02:02	1
18O2 PFHxS	97		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C4 PFOS	98		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C8 FOSA	104		10 - 150	12/16/20 11:36	12/17/20 02:02	1
d3-NMeFOSAA	83		25 - 150	12/16/20 11:36	12/17/20 02:02	1
d5-NEtFOSAA	90		25 - 150	12/16/20 11:36	12/17/20 02:02	1
d-N-MeFOSA-M	99		10 - 150	12/16/20 11:36	12/17/20 02:02	1
d-N-EtFOSA-M	94		10 - 150	12/16/20 11:36	12/17/20 02:02	1
d7-N-MeFOSE-M	70		10 - 150	12/16/20 11:36	12/17/20 02:02	1
d9-N-EtFOSE-M	60		10 - 150	12/16/20 11:36	12/17/20 02:02	1
M2-4:2 FTS	81		25 - 150	12/16/20 11:36	12/17/20 02:02	1
M2-6:2 FTS	83		25 - 150	12/16/20 11:36	12/17/20 02:02	1
M2-8:2 FTS	90		25 - 150	12/16/20 11:36	12/17/20 02:02	1
13C3 HFPO-DA	98		25 - 150	12/16/20 11:36	12/17/20 02:02	1

Client Sample ID: RSSCT 1-EF-30K
Date Collected: 12/10/20 21:54
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-6
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 20:35	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 20:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*12/24/20 20:35*	*1*
Toluene-d8 (Surr)	*91*		*89 - 112*		*12/24/20 20:35*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoropentanoic acid (PFPeA)	**2.0**		2.0	0.49	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorohexanoic acid (PFHxA)	**1.0**	**J**	2.0	0.58	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoroheptanoic acid (PFHpA)	**0.25**	**J**	2.0	0.25	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.90		2.0	0.90	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.95		2.0	0.95	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorobutanesulfonic acid (PFBS)	**0.31**	**J**	2.0	0.20	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorohexanesulfonic acid (PFHxS)	**0.99**	**J**	2.0	0.57	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorooctanesulfonic acid (PFOS)	**0.65**	**J**	2.0	0.54	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorododecanesulfonic acid (PFDoS)	<0.98		2.0	0.98	ng/L		12/16/20 11:36	12/17/20 02:12	1
Perfluorooctanesulfonamide (FOSA)	<0.99		2.0	0.99	ng/L		12/16/20 11:36	12/17/20 02:12	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:36	12/17/20 02:12	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 02:12	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 02:12	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 02:12	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 02:12	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 02:12	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 02:12	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 02:12	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 02:12	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:36	12/17/20 02:12	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 02:12	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 02:12	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 02:12	1

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-30K
Lab Sample ID: 320-67908-6
Date Collected: 12/10/20 21:54
Matrix: Water
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 02:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C5 PFPeA	*82*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C2 PFHxA	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C4 PFHpA	*95*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C4 PFOA	*95*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C5 PFNA	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C2 PFDA	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C2 PFUnA	*85*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C2 PFDoA	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C2 PFTeDA	*105*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C2 PFHxDA	*99*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C3 PFBS	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
18O2 PFHxS	*88*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C4 PFOS	*85*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C8 FOSA	*96*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
d3-NMeFOSAA	*74*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
d5-NEtFOSAA	*81*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
d-N-MeFOSA-M	*88*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
d-N-EtFOSA-M	*84*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
d7-N-MeFOSE-M	*67*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
d9-N-EtFOSE-M	*52*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
M2-4:2 FTS	*71*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
M2-6:2 FTS	*78*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
M2-8:2 FTS	*77*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:12*	*1*

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Client Sample ID: RSSCT 1-EF-40K

Date Collected: 12/11/20 08:07
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-7

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 20:59	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 20:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/24/20 20:59*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/24/20 20:59*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.8	2.3	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoropentanoic acid (PFPeA)	**2.5**		1.9	0.47	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorohexanoic acid (PFHxA)	**1.6**	**J**	1.9	0.56	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoroheptanoic acid (PFHpA)	**0.50**	**J**	1.9	0.24	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorooctanoic acid (PFOA)	<0.82		1.9	0.82	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.86		1.9	0.86	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.90		1.9	0.90	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorobutanesulfonic acid (PFBS)	**0.59**	**J**	1.9	0.19	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoropentanesulfonic acid (PFPeS)	**0.34**	**J**	1.9	0.29	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorohexanesulfonic acid (PFHxS)	**2.1**		1.9	0.55	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorooctanesulfonic acid (PFOS)	**0.80**	**J**	1.9	0.52	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorononanesulfonic acid (PFNS)	<0.36		1.9	0.36	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorododecanesulfonic acid (PFDoS)	<0.93		1.9	0.93	ng/L		12/16/20 11:36	12/17/20 02:21	1
Perfluorooctanesulfonamide (FOSA)	<0.94		1.9	0.94	ng/L		12/16/20 11:36	12/17/20 02:21	1
NEtFOSA	<0.84		1.9	0.84	ng/L		12/16/20 11:36	12/17/20 02:21	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:36	12/17/20 02:21	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:36	12/17/20 02:21	1
NEtFOSAA	<1.3		4.8	1.3	ng/L		12/16/20 11:36	12/17/20 02:21	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/16/20 11:36	12/17/20 02:21	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:36	12/17/20 02:21	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 02:21	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:36	12/17/20 02:21	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:36	12/17/20 02:21	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/16/20 11:36	12/17/20 02:21	1
DONA	<0.38		1.9	0.38	ng/L		12/16/20 11:36	12/17/20 02:21	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/16/20 11:36	12/17/20 02:21	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 02:21	1

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-40K
Lab Sample ID: 320-67908-7
Date Collected: 12/11/20 08:07
Matrix: Water
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:36	12/17/20 02:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C5 PFPeA	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C2 PFHxA	*99*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C4 PFHpA	*104*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C4 PFOA	*104*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C5 PFNA	*100*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C2 PFDA	*96*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C2 PFUnA	*94*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C2 PFDoA	*108*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C2 PFTeDA	*116*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C2 PFHxDA	*113*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C3 PFBS	*89*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
18O2 PFHxS	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C4 PFOS	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C8 FOSA	*98*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
d3-NMeFOSAA	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
d-N-MeFOSA-M	*97*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
d-N-EtFOSA-M	*93*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
d7-N-MeFOSE-M	*66*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
d9-N-EtFOSE-M	*59*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
M2-4:2 FTS	*71*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
M2-6:2 FTS	*81*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
M2-8:2 FTS	*83*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*
13C3 HFPO-DA	*94*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:21*	*1*

Client Sample ID: RSSCT 1-EF-50K
Date Collected: 12/11/20 16:31
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-8
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 21:23	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 21:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*12/24/20 21:23*	*1*
Toluene-d8 (Surr)	*91*		*89 - 112*		*12/24/20 21:23*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	5.0	2.4	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoropentanoic acid (PFPeA)	**3.0**		2.0	0.49	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorohexanoic acid (PFHxA)	**2.0**		2.0	0.58	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoroheptanoic acid (PFHpA)	**0.60**	**J**	2.0	0.25	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorooctanoic acid (PFOA)	<0.84		2.0	0.84	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.88		2.0	0.88	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.93		2.0	0.93	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorobutanesulfonic acid (PFBS)	**0.72**	**J**	2.0	0.20	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoropentanesulfonic acid (PFPeS)	**0.40**	**J**	2.0	0.30	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorohexanesulfonic acid (PFHxS)	**2.6**		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorooctanesulfonic acid (PFOS)	**1.1**	**J**	2.0	0.54	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorododecanesulfonic acid (PFDoS)	<0.96		2.0	0.96	ng/L		12/16/20 11:36	12/17/20 02:59	1
Perfluorooctanesulfonamide (FOSA)	<0.97		2.0	0.97	ng/L		12/16/20 11:36	12/17/20 02:59	1
NEtFOSA	<0.86		2.0	0.86	ng/L		12/16/20 11:36	12/17/20 02:59	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 02:59	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 02:59	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 02:59	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 02:59	1
NEtFOSE	<0.84		2.0	0.84	ng/L		12/16/20 11:36	12/17/20 02:59	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 02:59	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 02:59	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 02:59	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:36	12/17/20 02:59	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 02:59	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 02:59	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 02:59	1

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-50K
Lab Sample ID: 320-67908-8
Date Collected: 12/11/20 16:31
Matrix: Water
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 02:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*87*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C5 PFPeA	*84*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C2 PFHxA	*95*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C4 PFHpA	*96*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C4 PFOA	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C5 PFNA	*101*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C2 PFDA	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C2 PFUnA	*97*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C2 PFDoA	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C2 PFTeDA	*108*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C2 PFHxDA	*113*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C3 PFBS	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
18O2 PFHxS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C4 PFOS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C8 FOSA	*100*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
d3-NMeFOSAA	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
d5-NEtFOSAA	*87*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
d-N-MeFOSA-M	*98*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
d-N-EtFOSA-M	*95*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
d7-N-MeFOSE-M	*65*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
d9-N-EtFOSE-M	*59*		*10 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
M2-4:2 FTS	*72*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
M2-6:2 FTS	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
M2-8:2 FTS	*82*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 02:59*	*1*

Client Sample ID: RSSCT 1-EF-60K
Date Collected: 12/12/20 01:49
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-9
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 21:48	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*12/24/20 21:48*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/24/20 21:48*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.9**	**J**	5.0	2.4	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoropentanoic acid (PFPeA)	**3.2**		2.0	0.49	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorohexanoic acid (PFHxA)	**2.4**		2.0	0.58	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoroheptanoic acid (PFHpA)	**0.77**	**J**	2.0	0.25	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorooctanoic acid (PFOA)	**1.0**	**J**	2.0	0.85	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorobutanesulfonic acid (PFBS)	**0.87**	**J**	2.0	0.20	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoropentanesulfonic acid (PFPeS)	**0.68**	**J**	2.0	0.30	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorohexanesulfonic acid (PFHxS)	**3.9**		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorooctanesulfonic acid (PFOS)	**1.1**	**J**	2.0	0.54	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/16/20 11:36	12/17/20 03:08	1
Perfluorooctanesulfonamide (FOSA)	**1.2**	**J**	2.0	0.98	ng/L		12/16/20 11:36	12/17/20 03:08	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:36	12/17/20 03:08	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 03:08	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 03:08	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 03:08	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 03:08	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 03:08	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 03:08	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 03:08	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 03:08	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:36	12/17/20 03:08	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 03:08	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 03:08	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Client Sample ID: RSSCT 1-EF-60K
Date Collected: 12/12/20 01:49
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-9
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 03:08	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 03:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C5 PFPeA	*78*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C2 PFHxA	*87*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C4 PFHpA	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C4 PFOA	*94*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C5 PFNA	*89*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C2 PFDA	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C2 PFUnA	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C2 PFDoA	*101*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C2 PFTeDA	*107*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C2 PFHxDA	*104*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C3 PFBS	*83*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
18O2 PFHxS	*85*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C4 PFOS	*83*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C8 FOSA	*90*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
d3-NMeFOSAA	*71*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
d5-NEtFOSAA	*79*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
d-N-MeFOSA-M	*87*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
d-N-EtFOSA-M	*82*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
d7-N-MeFOSE-M	*64*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
d9-N-EtFOSE-M	*57*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
M2-4:2 FTS	*68*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
M2-6:2 FTS	*75*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
M2-8:2 FTS	*79*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*
13C3 HFPO-DA	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:08*	*1*

Client Sample ID: RSSCT 1-EF-70K
Lab Sample ID: 320-67908-10

Date Collected: 12/12/20 11:07
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 15:54	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/30/20 15:54*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/30/20 15:54*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.6	2.2	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoropentanoic acid (PFPeA)	**3.7**		1.8	0.45	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorohexanoic acid (PFHxA)	**2.8**		1.8	0.53	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoroheptanoic acid (PFHpA)	**0.94**	**J**	1.8	0.23	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorooctanoic acid (PFOA)	**1.2**	**J**	1.8	0.77	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.81		1.8	0.81	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.86		1.8	0.86	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorobutanesulfonic acid (PFBS)	**1.0**	**J**	1.8	0.18	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoropentanesulfonic acid (PFPeS)	**0.82**	**J**	1.8	0.27	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorohexanesulfonic acid (PFHxS)	**5.3**		1.8	0.52	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorooctanesulfonic acid (PFOS)	**1.4**	**J**	1.8	0.49	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		12/16/20 11:36	12/17/20 03:17	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		12/16/20 11:36	12/17/20 03:17	1
NEtFOSA	<0.79		1.8	0.79	ng/L		12/16/20 11:36	12/17/20 03:17	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/16/20 11:36	12/17/20 03:17	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/16/20 11:36	12/17/20 03:17	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/16/20 11:36	12/17/20 03:17	1
NMeFOSE	<1.3		3.6	1.3	ng/L		12/16/20 11:36	12/17/20 03:17	1
NEtFOSE	<0.77		1.8	0.77	ng/L		12/16/20 11:36	12/17/20 03:17	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/16/20 11:36	12/17/20 03:17	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/16/20 11:36	12/17/20 03:17	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/16/20 11:36	12/17/20 03:17	1
10:2 FTS	<0.61		1.8	0.61	ng/L		12/16/20 11:36	12/17/20 03:17	1
DONA	<0.36		1.8	0.36	ng/L		12/16/20 11:36	12/17/20 03:17	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		12/16/20 11:36	12/17/20 03:17	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/16/20 11:36	12/17/20 03:17	1

Client Sample ID: RSSCT 1-EF-70K
Date Collected: 12/12/20 11:07
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-10
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.29		1.8	0.29	ng/L		12/16/20 11:36	12/17/20 03:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C5 PFPeA	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C2 PFHxA	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C4 PFHpA	*103*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C4 PFOA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C5 PFNA	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C2 PFDA	*109*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C2 PFUnA	*97*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C2 PFDoA	*108*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C2 PFTeDA	*112*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C2 PFHxDA	*121*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C3 PFBS	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
18O2 PFHxS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C4 PFOS	*97*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C8 FOSA	*104*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
d3-NMeFOSAA	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
d5-NEtFOSAA	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
d-N-MeFOSA-M	*97*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
d-N-EtFOSA-M	*93*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
d7-N-MeFOSE-M	*63*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
d9-N-EtFOSE-M	*51*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
M2-4:2 FTS	*75*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
M2-6:2 FTS	*83*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
M2-8:2 FTS	*84*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*
13C3 HFPO-DA	*97*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:17*	*1*

Client Sample ID: RSSCT 1-EF-80K
Lab Sample ID: 320-67908-11

Date Collected: 12/12/20 20:26
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 16:18	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 16:18*	*1*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/30/20 16:18*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.6**	**J**	5.0	2.4	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoropentanoic acid (PFPeA)	**3.6**		2.0	0.49	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorohexanoic acid (PFHxA)	**2.8**		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoroheptanoic acid (PFHpA)	**0.96**	**J**	2.0	0.25	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorooctanoic acid (PFOA)	**1.3**	**J**	2.0	0.84	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorotetradecanoic acid (PFTeA)	<0.72		2.0	0.72	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.88		2.0	0.88	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.93		2.0	0.93	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorobutanesulfonic acid (PFBS)	**1.2**	**J**	2.0	0.20	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoropentanesulfonic acid (PFPeS)	**0.92**	**J**	2.0	0.30	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorohexanesulfonic acid (PFHxS)	**5.8**		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorooctanesulfonic acid (PFOS)	**1.6**	**J**	2.0	0.54	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorododecanesulfonic acid (PFDoS)	<0.96		2.0	0.96	ng/L		12/16/20 11:36	12/17/20 03:27	1
Perfluorooctanesulfonamide (FOSA)	**0.99**	**J**	2.0	0.97	ng/L		12/16/20 11:36	12/17/20 03:27	1
NEtFOSA	<0.86		2.0	0.86	ng/L		12/16/20 11:36	12/17/20 03:27	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 03:27	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 03:27	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 03:27	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 03:27	1
NEtFOSE	<0.84		2.0	0.84	ng/L		12/16/20 11:36	12/17/20 03:27	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 03:27	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 03:27	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 03:27	1
10:2 FTS	<0.66		2.0	0.66	ng/L		12/16/20 11:36	12/17/20 03:27	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 03:27	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 03:27	1

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-80K
Lab Sample ID: 320-67908-11
Date Collected: 12/12/20 20:26
Matrix: Water
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 03:27	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 03:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C5 PFPeA	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C2 PFHxA	*103*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C4 PFHpA	*105*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C4 PFOA	*110*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C5 PFNA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C2 PFDA	*104*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C2 PFUnA	*105*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C2 PFDoA	*108*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C2 PFTeDA	*127*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C2 PFHxDA	*114*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C3 PFBS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
18O2 PFHxS	*95*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C4 PFOS	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C8 FOSA	*107*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
d5-NEtFOSAA	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
d-N-MeFOSA-M	*108*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
d-N-EtFOSA-M	*103*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
d7-N-MeFOSE-M	*77*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
d9-N-EtFOSE-M	*59*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
M2-4:2 FTS	*76*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
M2-6:2 FTS	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
M2-8:2 FTS	*88*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*
13C3 HFPO-DA	*100*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:27*	*1*

Client Sample ID: RSSCT 1-EF-90K **Lab Sample ID: 320-67908-12**
Date Collected: 12/13/20 06:16 **Matrix: Water**
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 16:42	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 16:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 16:42*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/30/20 16:42*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.9	2.3	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoropentanoic acid (PFPeA)	**3.9**		2.0	0.48	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorohexanoic acid (PFHxA)	**3.2**		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoroheptanoic acid (PFHpA)	**1.1**	**J**	2.0	0.24	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorooctanoic acid (PFOA)	**1.5**	**J**	2.0	0.83	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorononanoic acid (PFNA)	<0.26		2.0	0.26	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorodecanoic acid (PFDA)	<0.30		2.0	0.30	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	0.54	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.71		2.0	0.71	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.87		2.0	0.87	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.92		2.0	0.92	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	2.0	0.20	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoropentanesulfonic acid (PFPeS)	**0.99**	**J**	2.0	0.29	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorohexanesulfonic acid (PFHxS)	**6.6**		2.0	0.56	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorooctanesulfonic acid (PFOS)	**1.8**	**J**	2.0	0.53	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorononanesulfonic acid (PFNS)	<0.36		2.0	0.36	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.95		2.0	0.95	ng/L		12/16/20 11:36	12/17/20 03:36	1
Perfluorooctanesulfonamide (FOSA)	<0.96		2.0	0.96	ng/L		12/16/20 11:36	12/17/20 03:36	1
NEtFOSA	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 03:36	1
NMeFOSA	<0.42		2.0	0.42	ng/L		12/16/20 11:36	12/17/20 03:36	1
NMeFOSAA	<1.2		4.9	1.2	ng/L		12/16/20 11:36	12/17/20 03:36	1
NEtFOSAA	<1.3		4.9	1.3	ng/L		12/16/20 11:36	12/17/20 03:36	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:36	12/17/20 03:36	1
NEtFOSE	<0.83		2.0	0.83	ng/L		12/16/20 11:36	12/17/20 03:36	1
4:2 FTS	<0.23		2.0	0.23	ng/L		12/16/20 11:36	12/17/20 03:36	1
6:2 FTS	<2.4		4.9	2.4	ng/L		12/16/20 11:36	12/17/20 03:36	1
8:2 FTS	<0.45		2.0	0.45	ng/L		12/16/20 11:36	12/17/20 03:36	1
10:2 FTS	<0.65		2.0	0.65	ng/L		12/16/20 11:36	12/17/20 03:36	1
DONA	<0.39		2.0	0.39	ng/L		12/16/20 11:36	12/17/20 03:36	1
HFPO-DA (GenX)	<1.5		3.9	1.5	ng/L		12/16/20 11:36	12/17/20 03:36	1
F-53B Major	<0.23		2.0	0.23	ng/L		12/16/20 11:36	12/17/20 03:36	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Client Sample ID: RSSCT 1-EF-90K
Date Collected: 12/13/20 06:16
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-12
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 03:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C5 PFPeA	*87*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C2 PFHxA	*101*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C4 PFHpA	*100*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C4 PFOA	*105*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C5 PFNA	*104*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C2 PFDA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C2 PFUnA	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C2 PFDoA	*103*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C2 PFTeDA	*121*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C2 PFHxDA	*123*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C3 PFBS	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
18O2 PFHxS	*97*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C4 PFOS	*100*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C8 FOSA	*106*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
d3-NMeFOSAA	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
d5-NEtFOSAA	*87*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
d-N-MeFOSA-M	*101*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
d-N-EtFOSA-M	*95*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
d7-N-MeFOSE-M	*72*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
d9-N-EtFOSE-M	*54*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
M2-4:2 FTS	*72*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
M2-6:2 FTS	*84*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
M2-8:2 FTS	*88*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*
13C3 HFPO-DA	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:36*	*1*

Client Sample ID: RSSCT 1-EF-100K
Lab Sample ID: 320-67908-13

Date Collected: 12/13/20 15:05
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 17:07	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/30/20 17:07*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/30/20 17:07*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.8	2.3	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoropentanoic acid (PFPeA)	**4.1**		1.9	0.47	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorohexanoic acid (PFHxA)	**3.3**		1.9	0.55	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoroheptanoic acid (PFHpA)	**1.1**	**J**	1.9	0.24	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorooctanoic acid (PFOA)	**1.5**	**J**	1.9	0.81	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorododecanoic acid (PFDoA)	<0.52		1.9	0.52	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.85		1.9	0.85	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.90		1.9	0.90	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	1.9	0.19	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoropentanesulfonic acid (PFPeS)	**1.0**	**J**	1.9	0.29	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorohexanesulfonic acid (PFHxS)	**7.1**		1.9	0.54	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorooctanesulfonic acid (PFOS)	**2.6**		1.9	0.51	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.92		1.9	0.92	ng/L		12/16/20 11:36	12/17/20 03:46	1
Perfluorooctanesulfonamide (FOSA)	<0.93		1.9	0.93	ng/L		12/16/20 11:36	12/17/20 03:46	1
NEtFOSA	<0.83		1.9	0.83	ng/L		12/16/20 11:36	12/17/20 03:46	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:36	12/17/20 03:46	1
NMeFOSAA	<1.1		4.8	1.1	ng/L		12/16/20 11:36	12/17/20 03:46	1
NEtFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:36	12/17/20 03:46	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/16/20 11:36	12/17/20 03:46	1
NEtFOSE	<0.81		1.9	0.81	ng/L		12/16/20 11:36	12/17/20 03:46	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 03:46	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:36	12/17/20 03:46	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:36	12/17/20 03:46	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/16/20 11:36	12/17/20 03:46	1
DONA	<0.38		1.9	0.38	ng/L		12/16/20 11:36	12/17/20 03:46	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/16/20 11:36	12/17/20 03:46	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:36	12/17/20 03:46	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Client Sample ID: RSSCT 1-EF-100K
Date Collected: 12/13/20 15:05
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67908-13
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.30		1.9	0.30	ng/L		12/16/20 11:36	12/17/20 03:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*89*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C5 PFPeA	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C2 PFHxA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C4 PFHpA	*101*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C4 PFOA	*102*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C5 PFNA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C2 PFDA	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C2 PFUnA	*95*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C2 PFDoA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C2 PFHxDA	*117*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C3 PFBS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
18O2 PFHxS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C4 PFOS	*89*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C8 FOSA	*96*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
d3-NMeFOSAA	*76*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
d5-NEtFOSAA	*83*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
d-N-MeFOSA-M	*95*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
d-N-EtFOSA-M	*95*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
d7-N-MeFOSE-M	*67*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
d9-N-EtFOSE-M	*61*		*10 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
M2-4:2 FTS	*72*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
M2-6:2 FTS	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
M2-8:2 FTS	*79*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 03:46*	*1*

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: Trip Blank
Lab Sample ID: 320-67908-14
Date Collected: 12/13/20 00:00
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 19:21	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*12/24/20 19:21*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/24/20 19:21*	*1*

Surrogate Summary

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 1

Job ID: 320-67908-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		DBFM	TOL										
Lab Sample ID	Client Sample ID	(80-119)	(89-112)										
320-67908-1	MWU-IN-01	100	97										
320-67908-2	RSSCT 1-EF-5K	97	97										
320-67908-3	RSSCT 1-EF-10K	102	98										
320-67908-4	RSSCT 1-EF-15K	99	97										
320-67908-5	RSSCT 1-EF-20K	97	93										
320-67908-6	RSSCT 1-EF-30K	94	91										
320-67908-7	RSSCT 1-EF-40K	97	92										
320-67908-8	RSSCT 1-EF-50K	95	91										
320-67908-9	RSSCT 1-EF-60K	96	93										
320-67908-10	RSSCT 1-EF-70K	98	96										
320-67908-11	RSSCT 1-EF-80K	100	97										
320-67908-12	RSSCT 1-EF-90K	100	95										
320-67908-13	RSSCT 1-EF-100K	97	95										
320-67908-14	Trip Blank	95	92										
LCS 320-445633/5	Lab Control Sample	97	97										
LCS 320-445692/4	Lab Control Sample	96	98										
LCS 320-447118/3	Lab Control Sample	96	94										
LCSD 320-445633/6	Lab Control Sample Dup	95	96										
LCSD 320-445692/5	Lab Control Sample Dup	98	96										
LCSD 320-447118/4	Lab Control Sample Dup	98	96										
MB 320-445633/8	Method Blank	98	100										
MB 320-445692/7	Method Blank	94	94										
MB 320-447118/7	Method Blank	100	96										

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-67908-1	MWU-IN-01	93	90	104	110	112	105	106	102
320-67908-2	RSSCT 1-EF-5K	91	86	97	102	99	99	101	100
320-67908-3	RSSCT 1-EF-10K	92	91	100	102	103	99	96	99
320-67908-4	RSSCT 1-EF-15K	96	92	104	103	109	104	107	103
320-67908-5	RSSCT 1-EF-20K	95	91	100	102	110	101	99	104
320-67908-6	RSSCT 1-EF-30K	85	82	91	95	95	91	86	85
320-67908-7	RSSCT 1-EF-40K	91	92	99	104	104	100	96	94
320-67908-8	RSSCT 1-EF-50K	87	84	95	96	102	101	98	97
320-67908-9	RSSCT 1-EF-60K	82	78	87	90	94	89	91	90
320-67908-10	RSSCT 1-EF-70K	92	86	98	103	106	102	109	97
320-67908-11	RSSCT 1-EF-80K	94	91	103	105	110	106	104	105
320-67908-12	RSSCT 1-EF-90K	94	87	101	100	105	104	106	102
320-67908-13	RSSCT 1-EF-100K	89	80	93	101	102	93	98	95
LCS 320-442919/2-A	Lab Control Sample	87	84	90	93	98	92	94	88
LCSD 320-442919/3-A	Lab Control Sample Dup	91	93	96	100	102	97	94	99
MB 320-442919/1-A	Method Blank	90	92	92	97	101	98	93	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)
320-67908-1	MWU-IN-01	114	120	115	93	102	100	110	83
320-67908-2	RSSCT 1-EF-5K	106	107	109	92	89	93	100	78
320-67908-3	RSSCT 1-EF-10K	108	113	114	91	94	96	98	79
320-67908-4	RSSCT 1-EF-15K	110	115	113	94	100	100	106	84
320-67908-5	RSSCT 1-EF-20K	106	119	108	92	97	98	104	83
320-67908-6	RSSCT 1-EF-30K	98	105	99	86	88	85	96	74
320-67908-7	RSSCT 1-EF-40K	108	116	113	89	93	92	98	80
320-67908-8	RSSCT 1-EF-50K	102	108	113	90	91	91	100	80
320-67908-9	RSSCT 1-EF-60K	101	107	104	83	85	83	90	71
320-67908-10	RSSCT 1-EF-70K	108	112	121	92	91	97	104	80
320-67908-11	RSSCT 1-EF-80K	108	127	114	91	95	98	107	85
320-67908-12	RSSCT 1-EF-90K	103	121	123	92	97	100	106	80
320-67908-13	RSSCT 1-EF-100K	106	106	117	91	91	89	96	76
LCS 320-442919/2-A	Lab Control Sample	103	104	110	87	88	90	93	75
LCSD 320-442919/3-A	Lab Control Sample Dup	108	113	115	89	94	96	97	79
MB 320-442919/1-A	Method Blank	106	113	99	94	91	91	96	79

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
320-67908-1	MWU-IN-01	91	103	95	74	60	87	89	90
320-67908-2	RSSCT 1-EF-5K	81	88	87	67	57	75	84	83
320-67908-3	RSSCT 1-EF-10K	85	97	91	62	62	75	82	88
320-67908-4	RSSCT 1-EF-15K	92	103	99	73	70	79	88	93
320-67908-5	RSSCT 1-EF-20K	90	99	94	70	60	81	83	90
320-67908-6	RSSCT 1-EF-30K	81	88	84	67	52	71	78	77
320-67908-7	RSSCT 1-EF-40K	85	97	93	66	59	71	81	83
320-67908-8	RSSCT 1-EF-50K	87	98	95	65	59	72	80	82
320-67908-9	RSSCT 1-EF-60K	79	87	82	64	57	68	75	79
320-67908-10	RSSCT 1-EF-70K	86	97	93	63	51	75	83	84
320-67908-11	RSSCT 1-EF-80K	90	108	103	77	59	76	86	88

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
320-67908-12	RSSCT 1-EF-90K	87	101	95	72	54	72	84	88
320-67908-13	RSSCT 1-EF-100K	83	95	95	67	61	72	80	79
LCS 320-442919/2-A	Lab Control Sample	77	93	93	58	56	70	79	89
LCSD 320-442919/3-A	Lab Control Sample Dup	81	93	96	73	59	76	83	90
MB 320-442919/1-A	Method Blank	81	88	95	72	60	78	80	86

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	HFPODA (25-150)
320-67908-1	MWU-IN-01	100
320-67908-2	RSSCT 1-EF-5K	95
320-67908-3	RSSCT 1-EF-10K	96
320-67908-4	RSSCT 1-EF-15K	100
320-67908-5	RSSCT 1-EF-20K	98
320-67908-6	RSSCT 1-EF-30K	88
320-67908-7	RSSCT 1-EF-40K	94
320-67908-8	RSSCT 1-EF-50K	93
320-67908-9	RSSCT 1-EF-60K	86
320-67908-10	RSSCT 1-EF-70K	97
320-67908-11	RSSCT 1-EF-80K	100
320-67908-12	RSSCT 1-EF-90K	98
320-67908-13	RSSCT 1-EF-100K	93
LCS 320-442919/2-A	Lab Control Sample	88
LCSD 320-442919/3-A	Lab Control Sample Dup	96
MB 320-442919/1-A	Method Blank	93

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Isotope Dilution Summary

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

HFPODA = 13C3 HFPO-DA

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 320-445633/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445633

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 12:56	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 12:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/24/20 12:56*	*1*
Toluene-d8 (Surr)	*100*		*89 - 112*		*12/24/20 12:56*	*1*

Lab Sample ID: LCS 320-445633/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445633

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.08		ug/L		104	74 - 129		
Trichloroethene			2.00	1.90		ug/L		95	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*80 - 119*
Toluene-d8 (Surr)	*97*		*89 - 112*

Lab Sample ID: LCSD 320-445633/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445633

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.07		ug/L		103	74 - 129	0	20
Trichloroethene			2.00	1.89		ug/L		94	79 - 123	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: MB 320-445692/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445692

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 18:57	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 18:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*12/24/20 18:57*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*12/24/20 18:57*	*1*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 320-445692/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445692

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.05		ug/L		102	74 - 129		
Trichloroethene			2.00	1.83		ug/L		92	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 119*
Toluene-d8 (Surr)	*98*		*89 - 112*

Lab Sample ID: LCSD 320-445692/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445692

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.22		ug/L		111	74 - 129	8	20
Trichloroethene			2.00	2.01		ug/L		101	79 - 123	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: MB 320-447118/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447118

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/30/20 12:58	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/30/20 12:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 12:58*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/30/20 12:58*	*1*

Lab Sample ID: LCS 320-447118/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447118

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.10		ug/L		105	74 - 129		
Trichloroethene			2.00	1.84		ug/L		92	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 119*
Toluene-d8 (Surr)	*94*		*89 - 112*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 320-447118/4
Matrix: Water
Analysis Batch: 447118

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.20		ug/L		110	74 - 129	5	20
Trichloroethene			2.00	1.92		ug/L		96	79 - 123	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-442919/1-A
Matrix: Water
Analysis Batch: 443189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442919

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/16/20 11:36	12/17/20 00:56	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		12/16/20 11:36	12/17/20 00:56	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:36	12/17/20 00:56	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:36	12/17/20 00:56	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:36	12/17/20 00:56	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:36	12/17/20 00:56	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:36	12/17/20 00:56	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:36	12/17/20 00:56	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 00:56	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:36	12/17/20 00:56	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:36	12/17/20 00:56	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-442919/1-A
Matrix: Water
Analysis Batch: 443189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442919

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:36	12/17/20 00:56	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:36	12/17/20 00:56	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:36	12/17/20 00:56	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:36	12/17/20 00:56	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:36	12/17/20 00:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C5 PFPeA	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C2 PFHxA	*92*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C4 PFHpA	*97*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C4 PFOA	*101*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C5 PFNA	*98*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C2 PFDA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C2 PFUnA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C2 PFDoA	*106*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C2 PFTeDA	*113*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C2 PFHxDA	*99*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C3 PFBS	*94*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
18O2 PFHxS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C4 PFOS	*91*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C8 FOSA	*96*		*10 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
d3-NMeFOSAA	*79*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
d5-NEtFOSAA	*81*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
d-N-MeFOSA-M	*88*		*10 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
d-N-EtFOSA-M	*95*		*10 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
d7-N-MeFOSE-M	*72*		*10 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
d9-N-EtFOSE-M	*60*		*10 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
M2-4:2 FTS	*78*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
M2-6:2 FTS	*80*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
M2-8:2 FTS	*86*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*12/16/20 11:36*	*12/17/20 00:56*	*1*

Lab Sample ID: LCS 320-442919/2-A
Matrix: Water
Analysis Batch: 443189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.5		ng/L		104	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	39.4		ng/L		99	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	40.2		ng/L		101	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.5		ng/L		104	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	36.9		ng/L		92	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.0		ng/L		102	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.0		ng/L		102	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	41.6		ng/L		104	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	39.8		ng/L		100	60 - 135

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-442919/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 443189 **Prep Batch: 442919**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorotridecanoic acid (PFTriA)	40.0	39.2		ng/L		98	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	44.7		ng/L		112	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	39.0		ng/L		98	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	43.3		ng/L		108	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.4	35.6		ng/L		101	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	42.9		ng/L		114	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.2		ng/L		99	60 - 135
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.8		ng/L		102	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.1	37.4		ng/L		101	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.4	40.0		ng/L		104	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	40.5		ng/L		105	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	42.0		ng/L		108	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	43.0		ng/L		108	60 - 135
NEtFOSA	40.0	36.9		ng/L		92	60 - 135
NMeFOSA	40.0	37.1		ng/L		93	60 - 135
NMeFOSAA	40.0	41.3		ng/L		103	60 - 135
NEtFOSAA	40.0	40.0		ng/L		100	60 - 135
NMeFOSE	40.0	44.7		ng/L		112	60 - 135
NEtFOSE	40.0	39.8		ng/L		100	60 - 135
4:2 FTS	37.4	39.2		ng/L		105	60 - 135
6:2 FTS	37.9	37.9		ng/L		100	60 - 135
8:2 FTS	38.3	39.5		ng/L		103	60 - 135
10:2 FTS	38.6	43.7		ng/L		113	60 - 135
DONA	37.7	44.2		ng/L		117	60 - 135
HFPO-DA (GenX)	40.0	42.3		ng/L		106	60 - 135
F-53B Major	37.3	40.9		ng/L		110	60 - 135
F-53B Minor	37.7	42.8		ng/L		114	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*87*		*25 - 150*
13C5 PFPeA	*84*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C4 PFHpA	*93*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*92*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*88*		*25 - 150*
13C2 PFDoA	*103*		*25 - 150*
13C2 PFTeDA	*104*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-442919/2-A
Matrix: Water
Analysis Batch: 443189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442919

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxDA	*110*		*25 - 150*
13C3 PFBS	*87*		*25 - 150*
18O2 PFHxS	*88*		*25 - 150*
13C4 PFOS	*90*		*25 - 150*
13C8 FOSA	*93*		*10 - 150*
d3-NMeFOSAA	*75*		*25 - 150*
d5-NEtFOSAA	*77*		*25 - 150*
d-N-MeFOSA-M	*93*		*10 - 150*
d-N-EtFOSA-M	*93*		*10 - 150*
d7-N-MeFOSE-M	*58*		*10 - 150*
d9-N-EtFOSE-M	*56*		*10 - 150*
M2-4:2 FTS	*70*		*25 - 150*
M2-6:2 FTS	*79*		*25 - 150*
M2-8:2 FTS	*89*		*25 - 150*
13C3 HFPO-DA	*88*		*25 - 150*

Lab Sample ID: LCSD 320-442919/3-A
Matrix: Water
Analysis Batch: 443189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442919

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.5		ng/L		104	60 - 135	0	30
Perfluoropentanoic acid (PFPeA)			40.0	38.0		ng/L		95	60 - 135	4	30
Perfluorohexanoic acid (PFHxA)			40.0	42.0		ng/L		105	60 - 135	4	30
Perfluoroheptanoic acid (PFHpA)			40.0	40.0		ng/L		100	60 - 135	4	30
Perfluorooctanoic acid (PFOA)			40.0	38.6		ng/L		97	60 - 135	4	30
Perfluorononanoic acid (PFNA)			40.0	41.3		ng/L		103	60 - 135	1	30
Perfluorodecanoic acid (PFDA)			40.0	42.5		ng/L		106	60 - 135	4	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.3		ng/L		93	60 - 135	11	30
Perfluorododecanoic acid (PFDoA)			40.0	39.3		ng/L		98	60 - 135	1	30
Perfluorotridecanoic acid (PFTriA)			40.0	46.0		ng/L		115	60 - 135	16	30
Perfluorotetradecanoic acid (PFTeA)			40.0	36.1		ng/L		90	60 - 135	21	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	37.4		ng/L		94	60 - 135	4	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	43.9		ng/L		110	60 - 135	2	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.9		ng/L		102	60 - 135	1	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	41.4		ng/L		110	60 - 135	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.3		ng/L		97	60 - 135	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.1		ng/L		103	60 - 135	1	30
Perfluorooctanesulfonic acid (PFOS)			37.1	36.5		ng/L		98	60 - 135	2	30
Perfluorononanesulfonic acid (PFNS)			38.4	40.1		ng/L		105	60 - 135	0	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-442919/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 443189 **Prep Batch: 442919**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorodecanesulfonic acid (PFDS)			38.6	40.1		ng/L		104	60 - 135	1	30
Perfluorododecanesulfonic acid (PFDoS)			38.7	42.8		ng/L		110	60 - 135	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	43.7		ng/L		109	60 - 135	1	30
NEtFOSA			40.0	36.9		ng/L		92	60 - 135	0	30
NMeFOSA			40.0	40.6		ng/L		101	60 - 135	9	30
NMeFOSAA			40.0	41.4		ng/L		103	60 - 135	0	30
NEtFOSAA			40.0	39.9		ng/L		100	60 - 135	0	30
NMeFOSE			40.0	39.6		ng/L		99	60 - 135	12	30
NEtFOSE			40.0	40.6		ng/L		101	60 - 135	2	30
4:2 FTS			37.4	38.6		ng/L		103	60 - 135	2	30
6:2 FTS			37.9	36.0		ng/L		95	60 - 135	5	30
8:2 FTS			38.3	40.8		ng/L		106	60 - 135	3	30
10:2 FTS			38.6	42.7		ng/L		111	60 - 135	2	30
DONA			37.7	43.1		ng/L		114	60 - 135	2	30
HFPO-DA (GenX)			40.0	41.5		ng/L		104	60 - 135	2	30
F-53B Major			37.3	41.6		ng/L		112	60 - 135	2	30
F-53B Minor			37.7	41.7		ng/L		111	60 - 135	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*91*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*102*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*99*		*25 - 150*
13C2 PFDoA	*108*		*25 - 150*
13C2 PFTeDA	*113*		*25 - 150*
13C2 PFHxDA	*115*		*25 - 150*
13C3 PFBS	*89*		*25 - 150*
18O2 PFHxS	*94*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
13C8 FOSA	*97*		*10 - 150*
d3-NMeFOSAA	*79*		*25 - 150*
d5-NEtFOSAA	*81*		*25 - 150*
d-N-MeFOSA-M	*93*		*10 - 150*
d-N-EtFOSA-M	*96*		*10 - 150*
d7-N-MeFOSE-M	*73*		*10 - 150*
d9-N-EtFOSE-M	*59*		*10 - 150*
M2-4:2 FTS	*76*		*25 - 150*
M2-6:2 FTS	*83*		*25 - 150*
M2-8:2 FTS	*90*		*25 - 150*
13C3 HFPO-DA	*96*		*25 - 150*

GC/MS VOA

Analysis Batch: 445633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67908-1	MWU-IN-01	Total/NA	Water	8260C SIM	
320-67908-2	RSSCT 1-EF-5K	Total/NA	Water	8260C SIM	
320-67908-3	RSSCT 1-EF-10K	Total/NA	Water	8260C SIM	
320-67908-4	RSSCT 1-EF-15K	Total/NA	Water	8260C SIM	
MB 320-445633/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-445633/5	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-445633/6	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 445692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67908-5	RSSCT 1-EF-20K	Total/NA	Water	8260C SIM	
320-67908-6	RSSCT 1-EF-30K	Total/NA	Water	8260C SIM	
320-67908-7	RSSCT 1-EF-40K	Total/NA	Water	8260C SIM	
320-67908-8	RSSCT 1-EF-50K	Total/NA	Water	8260C SIM	
320-67908-9	RSSCT 1-EF-60K	Total/NA	Water	8260C SIM	
320-67908-14	Trip Blank	Total/NA	Water	8260C SIM	
MB 320-445692/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-445692/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-445692/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 447118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67908-10	RSSCT 1-EF-70K	Total/NA	Water	8260C SIM	
320-67908-11	RSSCT 1-EF-80K	Total/NA	Water	8260C SIM	
320-67908-12	RSSCT 1-EF-90K	Total/NA	Water	8260C SIM	
320-67908-13	RSSCT 1-EF-100K	Total/NA	Water	8260C SIM	
MB 320-447118/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447118/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447118/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

LCMS

Prep Batch: 442919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67908-1	MWU-IN-01	Total/NA	Water	3535	
320-67908-2	RSSCT 1-EF-5K	Total/NA	Water	3535	
320-67908-3	RSSCT 1-EF-10K	Total/NA	Water	3535	
320-67908-4	RSSCT 1-EF-15K	Total/NA	Water	3535	
320-67908-5	RSSCT 1-EF-20K	Total/NA	Water	3535	
320-67908-6	RSSCT 1-EF-30K	Total/NA	Water	3535	
320-67908-7	RSSCT 1-EF-40K	Total/NA	Water	3535	
320-67908-8	RSSCT 1-EF-50K	Total/NA	Water	3535	
320-67908-9	RSSCT 1-EF-60K	Total/NA	Water	3535	
320-67908-10	RSSCT 1-EF-70K	Total/NA	Water	3535	
320-67908-11	RSSCT 1-EF-80K	Total/NA	Water	3535	
320-67908-12	RSSCT 1-EF-90K	Total/NA	Water	3535	
320-67908-13	RSSCT 1-EF-100K	Total/NA	Water	3535	
MB 320-442919/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-442919/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-442919/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

QC Association Summary

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

LCMS

Analysis Batch: 443189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67908-1	MWU-IN-01	Total/NA	Water	537 (modified)	442919
320-67908-2	RSSCT 1-EF-5K	Total/NA	Water	537 (modified)	442919
320-67908-3	RSSCT 1-EF-10K	Total/NA	Water	537 (modified)	442919
320-67908-4	RSSCT 1-EF-15K	Total/NA	Water	537 (modified)	442919
320-67908-5	RSSCT 1-EF-20K	Total/NA	Water	537 (modified)	442919
320-67908-6	RSSCT 1-EF-30K	Total/NA	Water	537 (modified)	442919
320-67908-7	RSSCT 1-EF-40K	Total/NA	Water	537 (modified)	442919
320-67908-8	RSSCT 1-EF-50K	Total/NA	Water	537 (modified)	442919
320-67908-9	RSSCT 1-EF-60K	Total/NA	Water	537 (modified)	442919
320-67908-10	RSSCT 1-EF-70K	Total/NA	Water	537 (modified)	442919
320-67908-11	RSSCT 1-EF-80K	Total/NA	Water	537 (modified)	442919
320-67908-12	RSSCT 1-EF-90K	Total/NA	Water	537 (modified)	442919
320-67908-13	RSSCT 1-EF-100K	Total/NA	Water	537 (modified)	442919
MB 320-442919/1-A	Method Blank	Total/NA	Water	537 (modified)	442919
LCS 320-442919/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	442919
LCSD 320-442919/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	442919

Client Sample ID: MWU-IN-01 — Lab Sample ID: 320-67908-1

Date Collected: 12/09/20 18:53 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 13:20	SS	TAL SAC
Total/NA	Prep	3535			266.6 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 01:25	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-5K — Lab Sample ID: 320-67908-2

Date Collected: 12/09/20 22:39 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 13:45	SS	TAL SAC
Total/NA	Prep	3535			249.5 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 01:34	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-10K — Lab Sample ID: 320-67908-3

Date Collected: 12/10/20 03:18 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 14:09	SS	TAL SAC
Total/NA	Prep	3535			267.8 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 01:43	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-15K — Lab Sample ID: 320-67908-4

Date Collected: 12/10/20 07:57 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 14:34	SS	TAL SAC
Total/NA	Prep	3535			257.9 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 01:53	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-20K — Lab Sample ID: 320-67908-5

Date Collected: 12/10/20 12:50 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 20:10	AP1	TAL SAC
Total/NA	Prep	3535			251.3 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 02:02	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-30K — Lab Sample ID: 320-67908-6

Date Collected: 12/10/20 21:54 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 20:35	AP1	TAL SAC

Client Sample ID: RSSCT 1-EF-30K — Lab Sample ID: 320-67908-6

Date Collected: 12/10/20 21:54 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.6 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 02:12	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-40K — Lab Sample ID: 320-67908-7

Date Collected: 12/11/20 08:07 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 20:59	AP1	TAL SAC
Total/NA	Prep	3535			259.9 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 02:21	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-50K — Lab Sample ID: 320-67908-8

Date Collected: 12/11/20 16:31 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 21:23	AP1	TAL SAC
Total/NA	Prep	3535			251.6 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 02:59	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-60K — Lab Sample ID: 320-67908-9

Date Collected: 12/12/20 01:49 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 21:48	AP1	TAL SAC
Total/NA	Prep	3535			251.2 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 03:08	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-70K — Lab Sample ID: 320-67908-10

Date Collected: 12/12/20 11:07 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 15:54	AP1	TAL SAC
Total/NA	Prep	3535			274.6 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 03:17	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-80K — Lab Sample ID: 320-67908-11

Date Collected: 12/12/20 20:26 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 16:18	AP1	TAL SAC

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Client Sample ID: RSSCT 1-EF-80K — Lab Sample ID: 320-67908-11

Date Collected: 12/12/20 20:26 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			252.2 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 03:27	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-90K — Lab Sample ID: 320-67908-12

Date Collected: 12/13/20 06:16 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 16:42	AP1	TAL SAC
Total/NA	Prep	3535			256.3 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 03:36	RS1	TAL SAC

Client Sample ID: RSSCT 1-EF-100K — Lab Sample ID: 320-67908-13

Date Collected: 12/13/20 15:05 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 17:07	AP1	TAL SAC
Total/NA	Prep	3535			262.3 mL	10.0 mL	442919	12/16/20 11:36	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443189	12/17/20 03:46	RS1	TAL SAC

Client Sample ID: Trip Blank — Lab Sample ID: 320-67908-14

Date Collected: 12/13/20 00:00 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 19:21	AP1	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: TRC Environmental Corporation. Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-21

Method Summary

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Method	Method Description	Protocol	Laboratory
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL SAC
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: TRC Environmental Corporation.
Job ID: 320-67908-1
Project/Site: Well #15 Feasibility Study - RSSCT 1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-67908-1	MWU-IN-01	Water	12/09/20 18:53	12/15/20 10:00	
320-67908-2	RSSCT 1-EF-5K	Water	12/09/20 22:39	12/15/20 10:00	
320-67908-3	RSSCT 1-EF-10K	Water	12/10/20 03:18	12/15/20 10:00	
320-67908-4	RSSCT 1-EF-15K	Water	12/10/20 07:57	12/15/20 10:00	
320-67908-5	RSSCT 1-EF-20K	Water	12/10/20 12:50	12/15/20 10:00	
320-67908-6	RSSCT 1-EF-30K	Water	12/10/20 21:54	12/15/20 10:00	
320-67908-7	RSSCT 1-EF-40K	Water	12/11/20 08:07	12/15/20 10:00	
320-67908-8	RSSCT 1-EF-50K	Water	12/11/20 16:31	12/15/20 10:00	
320-67908-9	RSSCT 1-EF-60K	Water	12/12/20 01:49	12/15/20 10:00	
320-67908-10	RSSCT 1-EF-70K	Water	12/12/20 11:07	12/15/20 10:00	
320-67908-11	RSSCT 1-EF-80K	Water	12/12/20 20:26	12/15/20 10:00	
320-67908-12	RSSCT 1-EF-90K	Water	12/13/20 06:16	12/15/20 10:00	
320-67908-13	RSSCT 1-EF-100K	Water	12/13/20 15:05	12/15/20 10:00	
320-67908-14	Trip Blank	Water	12/13/20 00:00	12/15/20 10:00	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing Solutions

Client Information	Sampler: Kyle Trewitz	Lab PM: Fredrick, Sandie	Carrier Tracking No(s): 712549436887	COC No: 320-34437-8549.1
Client Contact: Jeff Ramey	Phone: 724-772-1407	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of 2
Company: TRC Environmental Corporation				Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested:		Analysis Requested	Preservation Codes:
City: Brookfield	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			Other:
Email: jramey@trccompanies.com	WO #:			
Project Name: Well #15 Feasibility Study - RSSCT 1	Project #: 32016125			
Site:	SSOW#:			

320-67908 Chain of Custody

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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MWH-IN-01	12/09/20	18:53	G	Water			N	A	6	
RSSCT 1-EF - 5K	12/09	22:39	G	Water			N	A	6	
RSSCT 1-EF - 10K	12/10	3:18	G	Water			N	A	6	
RSSCT 1-EF - 15K	12/10	7:57	G	Water			N	A	6	
RSSCT 1-EF - 20K	12/10	12:50	G	Water			N	A	6	
RSSCT 1-EF - 30K	12/10	21:54	G	Water			N	A	6	
RSSCT 1-EF - 40K	12/11	8:07	G	Water			N	A	6	
RSSCT 1-EF - 50K	12/11	16:31	G	Water			N	A	6	
RSSCT 1-EF - 60K	12/12	1:49	G	Water			N	A	6	
RSSCT 1-EF - 70K	12/12	11:07	G	Water			N	A	6	
RSSCT 1-EF - 80K	12/12	20:26	G	Water			N	A	6	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 12/14/20 15:45	Company: EWT	Received by:	Date/Time: 12/15/20 1000	Company: Eurofins
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 916707 | Cooler Temperature(s) °C and Other Remarks: 0.9/1.5°C

1/4 vial with headspace. DLT 12/15/20

Ver: 01/16/2019

12/31/2020

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins

Client Information	Sampler: Kyle Trevitz	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 320-34437-8549.2
Client Contact: Jeff Ramey	Phone: 724-772-1407	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 2 of 2
Company: TRC Environmental Corporation.				Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested:			
City: Brookfield	TAT Requested (days):			
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			
Email: jramey@trccompanies.com	WO #:			
Project Name: Well #15 Feasibility Study - RSSCT 1	Project #: 32016125			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, 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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
RSSCT 1-EF-90K	12/13/20	6:16	G	Water			N	A	6	
RSSCT 1-EF-100K	12/13/20	15:05	G	Water			N	A	6	
				Water						
				Water						
				Water						
* TRIP Blank										

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

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/14/20 15:45	EWT		12/15/20	Pace
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.: 969707 | Cooler Temperature(s) °C and Other Remarks: 0.4/1.5°

Ver: 01/16/2019

* TRIP Blank not on COC - Received 12/15/20

Fredrick, Sandie

From: Ramey, Jeff <JRamey@trcsolutions.com>
Sent: Wednesday, December 16, 2020 9:29 AM
To: Fredrick, Sandie
Cc: Ursin, Mike; Trewitz, Kyle E
Subject: RE: [EXTERNAL] Eurofins TestAmerica Sample Login Confirmation files from 320-67908 Well #15 Feasibility Study - RSSCT 1

Importance: High

EXTERNAL EMAIL*

Hi Sandie,
Could you please re-log the all of the VOCs for SIM PCE and TCE? I believe this pre-populated COC was created before we committed to the SIM option.

All VOCs for this project will b e SIM (we have 4 RSSCTs being run).

Thank you,

Jeff Ramey
Senior Project Manager

Updated Phone Number – Cell Phone Only – 414-294-9247

TRC

150 North Patrick Blvd, Suite 180, Brookfield, WI 53045
C 414-294-9247 | **F** 262-879-1220
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Sandie Fredrick <sandra.fredrick@eurofinset.com>
Sent: Wednesday, December 16, 2020 9:05 AM
To: Ramey, Jeff <JRamey@trcsolutions.com>
Subject: [EXTERNAL] Eurofins TestAmerica Sample Login Confirmation files from 320-67908 Well #15 Feasibility Study - RSSCT 1

Hello Jeff,

Have a great week!

Attached, please find the Sample Confirmation files for job 320-67908; Well #15 Feasibility Study - RSSCT 1

Please feel free to contact me if you have any questions.

Thank you.

Sandie Fredrick
Project Manager

TestAmerica Laboratories, Inc.
Phone: 920-261-1660

E-mail: sandra.fredrick@eurofinset.com
www.eurofinsus.com/env

Reference: [320-305412]
Attachments: 3

Please let us know if we met your expectations by rating the service you received from Eurofins TestAmerica on this project by visiting our website at: Project Feedback

Login Sample Receipt Checklist

Client: TRC Environmental Corporation. Job Number: 320-67908-1

Login Number: 67908 **List Source: Eurofins TestAmerica, Sacramento**
List Number: 1
Creator: Oropeza, Salvador

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	969707
Sample custody seals, if present, are intact.	N/A	
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	
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.	False	Refer to Job Narrative for details.
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.	N/A	
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	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-67910-1
Client Project/Site: Well #15 Feasibility Study - RSSCT 2

For:
TRC Environmental Corporation.
150 N. Patrick Blvd.
Suite 180
Brookfield, Wisconsin 53045

Attn: Jeff Ramey

Authorized for release by:
1/4/2021 4:39:05 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

LCMS

Qualifier	Qualifier Description
^c	CCV Recovery is outside acceptance limits.
J	Reported value was between the limit of detection and the limit of quantitation.

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

Job ID: 320-67910-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-67910-1

Comments
No additional comments.

Receipt
The samples were received on 12/15/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.0º C.

Receipt Exceptions
A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA
Method 8260C SIM: The following sample was analyzed outside of analytical holding time due to instrument malfunction: RSSCT 2-EF-5K (320-67910-1), RSSCT 2-EF-50K (320-67910-7), RSSCT 2-EF-60K (320-67910-8), RSSCT 2-EF-70K (320-67910-9).RSSCT 2-EF-80K (320-67910-10), RSSCT 2-EF-90K (320-67910-11), RSSCT 2-EF-100K (320-67910-12), MWU-IN-02 (320-67910-13) and TRIP BLANK (320-67910-14).

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-445633.

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 320-445692.

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 320-447118.

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-447644.

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

LCMS
Method 537 (modified): The continuing calibration verification (CCV) associated with batch preparation batch 320-443355 recovered above the upper control limit for 10:2 FTS. The sample associated with this CCV was non-detect for the affected analyte; therefore, the data have been reported: RSSCT 2-EF-20K (320-67910-4) and (CCV 320-443355/1).

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-442921. 3535_PFC Aqueous

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

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-5K — Lab Sample ID: 320-67910-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonamide (FOSA)	2.4		2.0	0.96	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-10K — Lab Sample ID: 320-67910-2

No Detections.

Client Sample ID: RSSCT 2-EF-15K — Lab Sample ID: 320-67910-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.7	J	4.9	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.69	J	1.9	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.6	J	1.9	0.95	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-20K — Lab Sample ID: 320-67910-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.70	J	1.9	0.47	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-30K — Lab Sample ID: 320-67910-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.7	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.1		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.67	J	2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.25	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.60	J	2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	3.1		2.0	0.97	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-40K — Lab Sample ID: 320-67910-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.7	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.6		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.34	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.46	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.80	J	2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.8	J	2.0	0.99	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-50K — Lab Sample ID: 320-67910-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.7		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.9		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.37	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.75	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	1.9	0.55	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-60K — Lab Sample ID: 320-67910-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.4	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.7		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.7		2.0	0.58	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: RSSCT 2-EF-60K (Continued) — Lab Sample ID: 320-67910-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.48	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.44	J	2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.9	J	2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.57	J	2.0	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.6	J	2.0	0.97	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-70K — Lab Sample ID: 320-67910-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.6	J	4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.7		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.1		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.61	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.58	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.51	J	1.8	0.49	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-80K — Lab Sample ID: 320-67910-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.6	J	4.9	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.2		2.0	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.7		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.78	J	2.0	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.6	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.74	J	2.0	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.4		2.0	0.56	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.58	J	2.0	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	2.1		2.0	0.96	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-90K — Lab Sample ID: 320-67910-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.0		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.1		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.87	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	J	1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.98	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.5		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.70	J	1.9	0.52	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 2-EF-100K — Lab Sample ID: 320-67910-12

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.4	J	4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.8		1.9	0.47	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-100K (Continued)
Lab Sample ID: 320-67910-12

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	4.2		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.97	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.2	J	1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.9		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.0	J	1.9	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.5		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.0	J	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	2.0		1.9	0.94	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MWU-IN-02
Lab Sample ID: 320-67910-13

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	5.7	H	0.050	0.015	ug/L	1		8260C SIM	Total/NA
Trichloroethene	0.13	H	0.050	0.012	ug/L	1		8260C SIM	Total/NA
Perfluorobutanoic acid (PFBA)	2.4	J	5.0	2.4	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.7		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.8		2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.9		2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.2		2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.2		2.0	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	17		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.0	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.4		2.0	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.1	J	2.0	0.99	ng/L	1		537 (modified)	Total/NA

Client Sample ID: TRIP BLANK
Lab Sample ID: 320-67910-14

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: RSSCT 2-EF-5K
Lab Sample ID: 320-67910-1

Date Collected: 12/09/20 22:39
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/24/20 14:58	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/24/20 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*12/24/20 14:58*	*1*
Toluene-d8 (Surr)	*99*		*89 - 112*		*12/24/20 14:58*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.3		4.9	2.3	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoropentanoic acid (PFPeA)	<0.48		2.0	0.48	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorohexanoic acid (PFHxA)	<0.57		2.0	0.57	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoroheptanoic acid (PFHpA)	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorooctanoic acid (PFOA)	<0.83		2.0	0.83	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorononanoic acid (PFNA)	<0.26		2.0	0.26	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorodecanoic acid (PFDA)	<0.30		2.0	0.30	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	0.54	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorotetradecanoic acid (PFTeA)	<0.71		2.0	0.71	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.87		2.0	0.87	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.92		2.0	0.92	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		2.0	0.29	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorohexanesulfonic acid (PFHxS)	<0.56		2.0	0.56	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0	0.53	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorononanesulfonic acid (PFNS)	<0.36		2.0	0.36	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorododecanesulfonic acid (PFDoS)	<0.95		2.0	0.95	ng/L		12/16/20 11:43	12/17/20 05:29	1
Perfluorooctanesulfonamide (FOSA)	**2.4**		2.0	0.96	ng/L		12/16/20 11:43	12/17/20 05:29	1
NEtFOSA	<0.85		2.0	0.85	ng/L		12/16/20 11:43	12/17/20 05:29	1
NMeFOSA	<0.42		2.0	0.42	ng/L		12/16/20 11:43	12/17/20 05:29	1
NMeFOSAA	<1.2		4.9	1.2	ng/L		12/16/20 11:43	12/17/20 05:29	1
NEtFOSAA	<1.3		4.9	1.3	ng/L		12/16/20 11:43	12/17/20 05:29	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 05:29	1
NEtFOSE	<0.83		2.0	0.83	ng/L		12/16/20 11:43	12/17/20 05:29	1
4:2 FTS	<0.23		2.0	0.23	ng/L		12/16/20 11:43	12/17/20 05:29	1
6:2 FTS	<2.4		4.9	2.4	ng/L		12/16/20 11:43	12/17/20 05:29	1
8:2 FTS	<0.45		2.0	0.45	ng/L		12/16/20 11:43	12/17/20 05:29	1
10:2 FTS	<0.65		2.0	0.65	ng/L		12/16/20 11:43	12/17/20 05:29	1
DONA	<0.39		2.0	0.39	ng/L		12/16/20 11:43	12/17/20 05:29	1
HFPO-DA (GenX)	<1.5		3.9	1.5	ng/L		12/16/20 11:43	12/17/20 05:29	1
F-53B Major	<0.23		2.0	0.23	ng/L		12/16/20 11:43	12/17/20 05:29	1
F-53B Minor	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 05:29	1

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-5K
Lab Sample ID: 320-67910-1
Date Collected: 12/09/20 22:39
Matrix: Water
Date Received: 12/15/20 10:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	91		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C5 PFPeA	91		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C2 PFHxA	95		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C4 PFHpA	101		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C4 PFOA	101		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C5 PFNA	102		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C2 PFDA	101		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C2 PFUnA	94		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C2 PFDoA	100		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C2 PFTeDA	113		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C2 PFHxDA	104		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C3 PFBS	93		25 - 150	12/16/20 11:43	12/17/20 05:29	1
18O2 PFHxS	93		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C4 PFOS	92		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C8 FOSA	99		10 - 150	12/16/20 11:43	12/17/20 05:29	1
d3-NMeFOSAA	79		25 - 150	12/16/20 11:43	12/17/20 05:29	1
d5-NEtFOSAA	87		25 - 150	12/16/20 11:43	12/17/20 05:29	1
d-N-MeFOSA-M	99		10 - 150	12/16/20 11:43	12/17/20 05:29	1
d-N-EtFOSA-M	91		10 - 150	12/16/20 11:43	12/17/20 05:29	1
d7-N-MeFOSE-M	65		10 - 150	12/16/20 11:43	12/17/20 05:29	1
d9-N-EtFOSE-M	54		10 - 150	12/16/20 11:43	12/17/20 05:29	1
M2-4:2 FTS	66		25 - 150	12/16/20 11:43	12/17/20 05:29	1
M2-6:2 FTS	78		25 - 150	12/16/20 11:43	12/17/20 05:29	1
M2-8:2 FTS	78		25 - 150	12/16/20 11:43	12/17/20 05:29	1
13C3 HFPO-DA	93		25 - 150	12/16/20 11:43	12/17/20 05:29	1

Client Sample ID: RSSCT 2-EF-10K
Date Collected: 12/10/20 03:18
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-2
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 15:22	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/24/20 15:22*	*1*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/24/20 15:22*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.3		4.8	2.3	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoropentanoic acid (PFPeA)	<0.47		1.9	0.47	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorohexanoic acid (PFHxA)	<0.56		1.9	0.56	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorooctanoic acid (PFOA)	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.85		1.9	0.85	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.90		1.9	0.90	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		1.9	0.29	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorohexanesulfonic acid (PFHxS)	<0.55		1.9	0.55	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorooctanesulfonic acid (PFOS)	<0.52		1.9	0.52	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorododecanesulfonic acid (PFDoS)	<0.93		1.9	0.93	ng/L		12/16/20 11:43	12/17/20 05:38	1
Perfluorooctanesulfonamide (FOSA)	<0.94		1.9	0.94	ng/L		12/16/20 11:43	12/17/20 05:38	1
NEtFOSA	<0.83		1.9	0.83	ng/L		12/16/20 11:43	12/17/20 05:38	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:43	12/17/20 05:38	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 05:38	1
NEtFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 05:38	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/16/20 11:43	12/17/20 05:38	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 05:38	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 05:38	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:43	12/17/20 05:38	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:43	12/17/20 05:38	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/16/20 11:43	12/17/20 05:38	1
DONA	<0.38		1.9	0.38	ng/L		12/16/20 11:43	12/17/20 05:38	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/16/20 11:43	12/17/20 05:38	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 05:38	1
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 05:38	1

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-10K
Lab Sample ID: 320-67910-2
Date Collected: 12/10/20 03:18
Matrix: Water
Date Received: 12/15/20 10:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C5 PFPeA	90		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C2 PFHxA	98		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C4 PFHpA	102		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C4 PFOA	108		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C5 PFNA	100		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C2 PFDA	101		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C2 PFUnA	99		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C2 PFDoA	112		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C2 PFTeDA	113		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C2 PFHxDA	120		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C3 PFBS	97		25 - 150	12/16/20 11:43	12/17/20 05:38	1
18O2 PFHxS	96		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C4 PFOS	97		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C8 FOSA	104		10 - 150	12/16/20 11:43	12/17/20 05:38	1
d3-NMeFOSAA	82		25 - 150	12/16/20 11:43	12/17/20 05:38	1
d5-NEtFOSAA	91		25 - 150	12/16/20 11:43	12/17/20 05:38	1
d-N-MeFOSA-M	106		10 - 150	12/16/20 11:43	12/17/20 05:38	1
d-N-EtFOSA-M	99		10 - 150	12/16/20 11:43	12/17/20 05:38	1
d7-N-MeFOSE-M	77		10 - 150	12/16/20 11:43	12/17/20 05:38	1
d9-N-EtFOSE-M	62		10 - 150	12/16/20 11:43	12/17/20 05:38	1
M2-4:2 FTS	75		25 - 150	12/16/20 11:43	12/17/20 05:38	1
M2-6:2 FTS	84		25 - 150	12/16/20 11:43	12/17/20 05:38	1
M2-8:2 FTS	89		25 - 150	12/16/20 11:43	12/17/20 05:38	1
13C3 HFPO-DA	95		25 - 150	12/16/20 11:43	12/17/20 05:38	1

Client Sample ID: RSSCT 2-EF-15K
Date Collected: 12/10/20 07:57
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-3
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 15:47	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 15:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*80 - 119*		*12/24/20 15:47*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/24/20 15:47*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.7**	**J**	4.9	2.3	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoropentanoic acid (PFPeA)	**0.69**	**J**	1.9	0.48	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorohexanoic acid (PFHxA)	<0.56		1.9	0.56	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorooctanoic acid (PFOA)	<0.83		1.9	0.83	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorododecanoic acid (PFDoA)	<0.54		1.9	0.54	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorotetradecanoic acid (PFTeA)	<0.71		1.9	0.71	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.87		1.9	0.87	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.91		1.9	0.91	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		1.9	0.29	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorohexanesulfonic acid (PFHxS)	<0.55		1.9	0.55	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		1.9	0.53	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorononanesulfonic acid (PFNS)	<0.36		1.9	0.36	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorododecanesulfonic acid (PFDoS)	<0.94		1.9	0.94	ng/L		12/16/20 11:43	12/17/20 05:48	1
Perfluorooctanesulfonamide (FOSA)	**1.6**	**J**	1.9	0.95	ng/L		12/16/20 11:43	12/17/20 05:48	1
NEtFOSA	<0.85		1.9	0.85	ng/L		12/16/20 11:43	12/17/20 05:48	1
NMeFOSA	<0.42		1.9	0.42	ng/L		12/16/20 11:43	12/17/20 05:48	1
NMeFOSAA	<1.2		4.9	1.2	ng/L		12/16/20 11:43	12/17/20 05:48	1
NEtFOSAA	<1.3		4.9	1.3	ng/L		12/16/20 11:43	12/17/20 05:48	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 05:48	1
NEtFOSE	<0.83		1.9	0.83	ng/L		12/16/20 11:43	12/17/20 05:48	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 05:48	1
6:2 FTS	<2.4		4.9	2.4	ng/L		12/16/20 11:43	12/17/20 05:48	1
8:2 FTS	<0.45		1.9	0.45	ng/L		12/16/20 11:43	12/17/20 05:48	1
10:2 FTS	<0.65		1.9	0.65	ng/L		12/16/20 11:43	12/17/20 05:48	1
DONA	<0.39		1.9	0.39	ng/L		12/16/20 11:43	12/17/20 05:48	1
HFPO-DA (GenX)	<1.5		3.9	1.5	ng/L		12/16/20 11:43	12/17/20 05:48	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 05:48	1
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 05:48	1

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-15K
Lab Sample ID: 320-67910-3
Date Collected: 12/10/20 07:57
Matrix: Water
Date Received: 12/15/20 10:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C5 PFPeA	90		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C2 PFHxA	95		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C4 PFHpA	100		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C4 PFOA	100		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C5 PFNA	100		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C2 PFDA	95		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C2 PFUnA	98		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C2 PFDoA	97		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C2 PFTeDA	110		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C2 PFHxDA	108		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C3 PFBS	87		25 - 150	12/16/20 11:43	12/17/20 05:48	1
18O2 PFHxS	91		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C4 PFOS	92		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C8 FOSA	97		10 - 150	12/16/20 11:43	12/17/20 05:48	1
d3-NMeFOSAA	79		25 - 150	12/16/20 11:43	12/17/20 05:48	1
d5-NEtFOSAA	87		25 - 150	12/16/20 11:43	12/17/20 05:48	1
d-N-MeFOSA-M	98		10 - 150	12/16/20 11:43	12/17/20 05:48	1
d-N-EtFOSA-M	95		10 - 150	12/16/20 11:43	12/17/20 05:48	1
d7-N-MeFOSE-M	69		10 - 150	12/16/20 11:43	12/17/20 05:48	1
d9-N-EtFOSE-M	57		10 - 150	12/16/20 11:43	12/17/20 05:48	1
M2-4:2 FTS	71		25 - 150	12/16/20 11:43	12/17/20 05:48	1
M2-6:2 FTS	79		25 - 150	12/16/20 11:43	12/17/20 05:48	1
M2-8:2 FTS	87		25 - 150	12/16/20 11:43	12/17/20 05:48	1
13C3 HFPO-DA	96		25 - 150	12/16/20 11:43	12/17/20 05:48	1

Client Sample ID: RSSCT 2-EF-20K
Lab Sample ID: 320-67910-4

Date Collected: 12/10/20 12:50
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 16:11	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/24/20 16:11*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*12/24/20 16:11*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.3		4.8	2.3	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoropentanoic acid (PFPeA)	**0.70**	**J**	1.9	0.47	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorohexanoic acid (PFHxA)	<0.56		1.9	0.56	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorooctanoic acid (PFOA)	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.86		1.9	0.86	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.91		1.9	0.91	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		1.9	0.29	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorohexanesulfonic acid (PFHxS)	<0.55		1.9	0.55	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorooctanesulfonic acid (PFOS)	<0.52		1.9	0.52	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorononanesulfonic acid (PFNS)	<0.36		1.9	0.36	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorododecanesulfonic acid (PFDoS)	<0.94		1.9	0.94	ng/L		12/16/20 11:43	12/17/20 11:07	1
Perfluorooctanesulfonamide (FOSA)	<0.95		1.9	0.95	ng/L		12/16/20 11:43	12/17/20 11:07	1
NEtFOSA	<0.84		1.9	0.84	ng/L		12/16/20 11:43	12/17/20 11:07	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:43	12/17/20 11:07	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 11:07	1
NEtFOSAA	<1.3		4.8	1.3	ng/L		12/16/20 11:43	12/17/20 11:07	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 11:07	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 11:07	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 11:07	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:43	12/17/20 11:07	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:43	12/17/20 11:07	1
10:2 FTS	<0.65	^c	1.9	0.65	ng/L		12/16/20 11:43	12/17/20 11:07	1
DONA	<0.39		1.9	0.39	ng/L		12/16/20 11:43	12/17/20 11:07	1
HFPO-DA (GenX)	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 11:07	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 11:07	1
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 11:07	1

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-20K
Lab Sample ID: 320-67910-4
Date Collected: 12/10/20 12:50
Matrix: Water
Date Received: 12/15/20 10:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C5 PFPeA	87		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C2 PFHxA	96		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C4 PFHpA	104		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C4 PFOA	107		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C5 PFNA	101		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C2 PFDA	110		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C2 PFUnA	107		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C2 PFDoA	101		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C2 PFTeDA	112		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C2 PFHxDA	119		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C3 PFBS	96		25 - 150	12/16/20 11:43	12/17/20 11:07	1
18O2 PFHxS	96		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C4 PFOS	99		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C8 FOSA	106		10 - 150	12/16/20 11:43	12/17/20 11:07	1
d3-NMeFOSAA	90		25 - 150	12/16/20 11:43	12/17/20 11:07	1
d5-NEtFOSAA	96		25 - 150	12/16/20 11:43	12/17/20 11:07	1
d-N-MeFOSA-M	100		10 - 150	12/16/20 11:43	12/17/20 11:07	1
d-N-EtFOSA-M	97		10 - 150	12/16/20 11:43	12/17/20 11:07	1
d7-N-MeFOSE-M	71		10 - 150	12/16/20 11:43	12/17/20 11:07	1
d9-N-EtFOSE-M	59		10 - 150	12/16/20 11:43	12/17/20 11:07	1
M2-4:2 FTS	84		25 - 150	12/16/20 11:43	12/17/20 11:07	1
M2-6:2 FTS	94		25 - 150	12/16/20 11:43	12/17/20 11:07	1
M2-8:2 FTS	96		25 - 150	12/16/20 11:43	12/17/20 11:07	1
13C3 HFPO-DA	98		25 - 150	12/16/20 11:43	12/17/20 11:07	1

Client Sample ID: RSSCT 2-EF-30K
Lab Sample ID: 320-67910-5

Date Collected: 12/10/20 21:54
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 22:12	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 22:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/24/20 22:12*	*1*
Toluene-d8 (Surr)	*91*		*89 - 112*		*12/24/20 22:12*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.7**	**J**	5.0	2.4	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoropentanoic acid (PFPeA)	**2.1**		2.0	0.49	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorohexanoic acid (PFHxA)	**0.67**	**J**	2.0	0.58	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorooctanoic acid (PFOA)	<0.84		2.0	0.84	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.88		2.0	0.88	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.93		2.0	0.93	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorobutanesulfonic acid (PFBS)	**0.25**	**J**	2.0	0.20	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorohexanesulfonic acid (PFHxS)	**0.60**	**J**	2.0	0.57	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorododecanesulfonic acid (PFDoS)	<0.96		2.0	0.96	ng/L		12/16/20 11:43	12/17/20 06:07	1
Perfluorooctanesulfonamide (FOSA)	**3.1**		2.0	0.97	ng/L		12/16/20 11:43	12/17/20 06:07	1
NEtFOSA	<0.86		2.0	0.86	ng/L		12/16/20 11:43	12/17/20 06:07	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:43	12/17/20 06:07	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:43	12/17/20 06:07	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:43	12/17/20 06:07	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:43	12/17/20 06:07	1
NEtFOSE	<0.84		2.0	0.84	ng/L		12/16/20 11:43	12/17/20 06:07	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 06:07	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:43	12/17/20 06:07	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:43	12/17/20 06:07	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:43	12/17/20 06:07	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:43	12/17/20 06:07	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:43	12/17/20 06:07	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 06:07	1

Client Sample ID: RSSCT 2-EF-30K
Date Collected: 12/10/20 21:54
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 06:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C5 PFPeA	*89*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C2 PFHxA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C4 PFHpA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C4 PFOA	*101*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C5 PFNA	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C2 PFDA	*99*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C2 PFUnA	*87*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C2 PFDoA	*104*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C2 PFTeDA	*113*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C2 PFHxDA	*108*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C3 PFBS	*92*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
18O2 PFHxS	*91*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C4 PFOS	*91*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C8 FOSA	*98*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
d3-NMeFOSAA	*79*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
d-N-MeFOSA-M	*98*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
d-N-EtFOSA-M	*93*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
d7-N-MeFOSE-M	*52*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
d9-N-EtFOSE-M	*40*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
M2-4:2 FTS	*74*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
M2-6:2 FTS	*87*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
M2-8:2 FTS	*84*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:07*	*1*

Client Sample ID: RSSCT 2-EF-40K
Date Collected: 12/11/20 08:07
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-6
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 22:36	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 22:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/24/20 22:36*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/24/20 22:36*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.7**	**J**	5.0	2.4	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoropentanoic acid (PFPeA)	**3.6**		2.0	0.49	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	2.0	0.58	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoroheptanoic acid (PFHpA)	**0.34**	**J**	2.0	0.25	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorooctanoic acid (PFOA)	<0.86		2.0	0.86	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.90		2.0	0.90	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.95		2.0	0.95	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorobutanesulfonic acid (PFBS)	**0.46**	**J**	2.0	0.20	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorohexanesulfonic acid (PFHxS)	**0.80**	**J**	2.0	0.57	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorododecanesulfonic acid (PFDoS)	<0.98		2.0	0.98	ng/L		12/16/20 11:43	12/17/20 06:16	1
Perfluorooctanesulfonamide (FOSA)	**1.8**	**J**	2.0	0.99	ng/L		12/16/20 11:43	12/17/20 06:16	1
NEtFOSA	<0.88		2.0	0.88	ng/L		12/16/20 11:43	12/17/20 06:16	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:43	12/17/20 06:16	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:43	12/17/20 06:16	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:43	12/17/20 06:16	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:43	12/17/20 06:16	1
NEtFOSE	<0.86		2.0	0.86	ng/L		12/16/20 11:43	12/17/20 06:16	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 06:16	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:43	12/17/20 06:16	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:43	12/17/20 06:16	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:43	12/17/20 06:16	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:43	12/17/20 06:16	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:43	12/17/20 06:16	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 06:16	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: RSSCT 2-EF-40K
Date Collected: 12/11/20 08:07
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 06:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C5 PFPeA	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C2 PFHxA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C4 PFHpA	*101*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C4 PFOA	*108*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C5 PFNA	*104*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C2 PFDA	*102*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C2 PFUnA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C2 PFDoA	*114*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C2 PFTeDA	*114*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C2 PFHxDA	*115*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C3 PFBS	*93*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
18O2 PFHxS	*102*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C4 PFOS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C8 FOSA	*108*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
d3-NMeFOSAA	*82*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
d5-NEtFOSAA	*87*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
d-N-MeFOSA-M	*106*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
d-N-EtFOSA-M	*105*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
d7-N-MeFOSE-M	*68*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
d9-N-EtFOSE-M	*51*		*10 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
M2-4:2 FTS	*76*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
M2-6:2 FTS	*83*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
M2-8:2 FTS	*84*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*
13C3 HFPO-DA	*99*		*25 - 150*	*12/16/20 11:43*	*12/17/20 06:16*	*1*

Client Sample ID: RSSCT 2-EF-50K
Lab Sample ID: 320-67910-7

Date Collected: 12/11/20 16:31
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/31/20 14:04	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/31/20 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/31/20 14:04*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*12/31/20 14:04*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.8	2.3	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoropentanoic acid (PFPeA)	**4.7**		1.9	0.47	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorohexanoic acid (PFHxA)	**1.9**		1.9	0.56	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoroheptanoic acid (PFHpA)	**0.37**	**J**	1.9	0.24	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorooctanoic acid (PFOA)	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.86		1.9	0.86	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.91		1.9	0.91	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorobutanesulfonic acid (PFBS)	**0.75**	**J**	1.9	0.19	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		1.9	0.29	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorohexanesulfonic acid (PFHxS)	**1.3**	**J**	1.9	0.55	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorooctanesulfonic acid (PFOS)	<0.52		1.9	0.52	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorononanesulfonic acid (PFNS)	<0.36		1.9	0.36	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorododecanesulfonic acid (PFDoS)	<0.94		1.9	0.94	ng/L		12/16/20 11:43	12/17/20 06:25	1
Perfluorooctanesulfonamide (FOSA)	<0.95		1.9	0.95	ng/L		12/16/20 11:43	12/17/20 06:25	1
NEtFOSA	<0.84		1.9	0.84	ng/L		12/16/20 11:43	12/17/20 06:25	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:43	12/17/20 06:25	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 06:25	1
NEtFOSAA	<1.3		4.8	1.3	ng/L		12/16/20 11:43	12/17/20 06:25	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 06:25	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 06:25	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 06:25	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:43	12/17/20 06:25	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:43	12/17/20 06:25	1
10:2 FTS	<0.65		1.9	0.65	ng/L		12/16/20 11:43	12/17/20 06:25	1
DONA	<0.39		1.9	0.39	ng/L		12/16/20 11:43	12/17/20 06:25	1
HFPO-DA (GenX)	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 06:25	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 06:25	1
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 06:25	1

Client Sample ID: RSSCT 2-EF-50K
Date Collected: 12/11/20 16:31
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-7
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	89		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C5 PFPeA	87		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C2 PFHxA	97		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C4 PFHpA	101		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C4 PFOA	104		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C5 PFNA	97		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C2 PFDA	98		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C2 PFUnA	90		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C2 PFDoA	100		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C2 PFTeDA	107		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C2 PFHxDA	110		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C3 PFBS	88		25 - 150	12/16/20 11:43	12/17/20 06:25	1
18O2 PFHxS	89		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C4 PFOS	90		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C8 FOSA	101		10 - 150	12/16/20 11:43	12/17/20 06:25	1
d3-NMeFOSAA	80		25 - 150	12/16/20 11:43	12/17/20 06:25	1
d5-NEtFOSAA	87		25 - 150	12/16/20 11:43	12/17/20 06:25	1
d-N-MeFOSA-M	96		10 - 150	12/16/20 11:43	12/17/20 06:25	1
d-N-EtFOSA-M	92		10 - 150	12/16/20 11:43	12/17/20 06:25	1
d7-N-MeFOSE-M	54		10 - 150	12/16/20 11:43	12/17/20 06:25	1
d9-N-EtFOSE-M	46		10 - 150	12/16/20 11:43	12/17/20 06:25	1
M2-4:2 FTS	71		25 - 150	12/16/20 11:43	12/17/20 06:25	1
M2-6:2 FTS	80		25 - 150	12/16/20 11:43	12/17/20 06:25	1
M2-8:2 FTS	80		25 - 150	12/16/20 11:43	12/17/20 06:25	1
13C3 HFPO-DA	93		25 - 150	12/16/20 11:43	12/17/20 06:25	1

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-60K
Lab Sample ID: 320-67910-8
Date Collected: 12/12/20 01:49
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 13:22	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*12/30/20 13:22*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/30/20 13:22*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.4**	**J**	5.0	2.4	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoropentanoic acid (PFPeA)	**4.7**		2.0	0.49	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorohexanoic acid (PFHxA)	**2.7**		2.0	0.58	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoroheptanoic acid (PFHpA)	**0.48**	**J**	2.0	0.25	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorooctanoic acid (PFOA)	<0.84		2.0	0.84	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.88		2.0	0.88	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.93		2.0	0.93	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	2.0	0.20	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoropentanesulfonic acid (PFPeS)	**0.44**	**J**	2.0	0.30	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorohexanesulfonic acid (PFHxS)	**1.9**	**J**	2.0	0.57	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorooctanesulfonic acid (PFOS)	**0.57**	**J**	2.0	0.54	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorododecanesulfonic acid (PFDoS)	<0.96		2.0	0.96	ng/L		12/16/20 11:43	12/17/20 07:03	1
Perfluorooctanesulfonamide (FOSA)	**1.6**	**J**	2.0	0.97	ng/L		12/16/20 11:43	12/17/20 07:03	1
NEtFOSA	<0.86		2.0	0.86	ng/L		12/16/20 11:43	12/17/20 07:03	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:43	12/17/20 07:03	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:43	12/17/20 07:03	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:43	12/17/20 07:03	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:43	12/17/20 07:03	1
NEtFOSE	<0.84		2.0	0.84	ng/L		12/16/20 11:43	12/17/20 07:03	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 07:03	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:43	12/17/20 07:03	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:43	12/17/20 07:03	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:43	12/17/20 07:03	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:43	12/17/20 07:03	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:43	12/17/20 07:03	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: RSSCT 2-EF-60K
Date Collected: 12/12/20 01:49
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-8
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 07:03	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 07:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C5 PFPeA	*90*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C2 PFHxA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C4 PFHpA	*104*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C4 PFOA	*107*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C5 PFNA	*101*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C2 PFDA	*101*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C2 PFUnA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C2 PFDoA	*115*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C2 PFTeDA	*115*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C2 PFHxDA	*112*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C3 PFBS	*93*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
18O2 PFHxS	*96*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C4 PFOS	*98*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C8 FOSA	*105*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
d3-NMeFOSAA	*84*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
d-N-MeFOSA-M	*105*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
d-N-EtFOSA-M	*99*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
d7-N-MeFOSE-M	*68*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
d9-N-EtFOSE-M	*51*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
M2-4:2 FTS	*73*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
M2-6:2 FTS	*83*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
M2-8:2 FTS	*91*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*
13C3 HFPO-DA	*99*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:03*	*1*

Client Sample ID: RSSCT 2-EF-70K
Lab Sample ID: 320-67910-9

Date Collected: 12/12/20 11:07
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/31/20 14:28	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/31/20 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/31/20 14:28*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/31/20 14:28*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.6**	**J**	4.5	2.2	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoropentanoic acid (PFPeA)	**4.7**		1.8	0.44	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorohexanoic acid (PFHxA)	**3.1**		1.8	0.53	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoroheptanoic acid (PFHpA)	**0.61**	**J**	1.8	0.23	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorooctanoic acid (PFOA)	<0.77		1.8	0.77	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.81		1.8	0.81	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.85		1.8	0.85	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	1.8	0.18	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoropentanesulfonic acid (PFPeS)	**0.58**	**J**	1.8	0.27	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorohexanesulfonic acid (PFHxS)	**2.7**		1.8	0.52	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorooctanesulfonic acid (PFOS)	**0.51**	**J**	1.8	0.49	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		12/16/20 11:43	12/17/20 07:12	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		12/16/20 11:43	12/17/20 07:12	1
NEtFOSA	<0.79		1.8	0.79	ng/L		12/16/20 11:43	12/17/20 07:12	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/16/20 11:43	12/17/20 07:12	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		12/16/20 11:43	12/17/20 07:12	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		12/16/20 11:43	12/17/20 07:12	1
NMeFOSE	<1.3		3.6	1.3	ng/L		12/16/20 11:43	12/17/20 07:12	1
NEtFOSE	<0.77		1.8	0.77	ng/L		12/16/20 11:43	12/17/20 07:12	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/16/20 11:43	12/17/20 07:12	1
6:2 FTS	<2.3		4.5	2.3	ng/L		12/16/20 11:43	12/17/20 07:12	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/16/20 11:43	12/17/20 07:12	1
10:2 FTS	<0.61		1.8	0.61	ng/L		12/16/20 11:43	12/17/20 07:12	1
DONA	<0.36		1.8	0.36	ng/L		12/16/20 11:43	12/17/20 07:12	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		12/16/20 11:43	12/17/20 07:12	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/16/20 11:43	12/17/20 07:12	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: RSSCT 2-EF-70K
Date Collected: 12/12/20 11:07
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-9
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.29		1.8	0.29	ng/L		12/16/20 11:43	12/17/20 07:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C5 PFPeA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C2 PFHxA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C4 PFHpA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C4 PFOA	*107*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C5 PFNA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C2 PFDA	*106*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C2 PFUnA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C2 PFDoA	*116*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C2 PFTeDA	*117*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C2 PFHxDA	*111*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C3 PFBS	*99*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
18O2 PFHxS	*97*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C4 PFOS	*98*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C8 FOSA	*108*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
d3-NMeFOSAA	*86*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
d5-NEtFOSAA	*87*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
d-N-MeFOSA-M	*106*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
d-N-EtFOSA-M	*101*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
d7-N-MeFOSE-M	*59*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
d9-N-EtFOSE-M	*47*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
M2-4:2 FTS	*76*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
M2-6:2 FTS	*86*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
M2-8:2 FTS	*87*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*
13C3 HFPO-DA	*99*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:12*	*1*

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-80K
Lab Sample ID: 320-67910-10
Date Collected: 12/12/20 20:26
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 14:11	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/30/20 14:11*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/30/20 14:11*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.6**	**J**	4.9	2.3	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoropentanoic acid (PFPeA)	**5.2**		2.0	0.48	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorohexanoic acid (PFHxA)	**3.7**		2.0	0.57	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoroheptanoic acid (PFHpA)	**0.78**	**J**	2.0	0.24	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorooctanoic acid (PFOA)	<0.83		2.0	0.83	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorononanoic acid (PFNA)	<0.26		2.0	0.26	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorodecanoic acid (PFDA)	<0.30		2.0	0.30	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	0.54	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorotetradecanoic acid (PFTeA)	<0.71		2.0	0.71	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.87		2.0	0.87	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.92		2.0	0.92	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorobutanesulfonic acid (PFBS)	**1.6**	**J**	2.0	0.20	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoropentanesulfonic acid (PFPeS)	**0.74**	**J**	2.0	0.29	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorohexanesulfonic acid (PFHxS)	**3.4**		2.0	0.56	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorooctanesulfonic acid (PFOS)	**0.58**	**J**	2.0	0.53	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorononanesulfonic acid (PFNS)	<0.36		2.0	0.36	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorododecanesulfonic acid (PFDoS)	<0.95		2.0	0.95	ng/L		12/16/20 11:43	12/17/20 07:22	1
Perfluorooctanesulfonamide (FOSA)	**2.1**		2.0	0.96	ng/L		12/16/20 11:43	12/17/20 07:22	1
NEtFOSA	<0.85		2.0	0.85	ng/L		12/16/20 11:43	12/17/20 07:22	1
NMeFOSA	<0.42		2.0	0.42	ng/L		12/16/20 11:43	12/17/20 07:22	1
NMeFOSAA	<1.2		4.9	1.2	ng/L		12/16/20 11:43	12/17/20 07:22	1
NEtFOSAA	<1.3		4.9	1.3	ng/L		12/16/20 11:43	12/17/20 07:22	1
NMeFOSE	<1.4		3.9	1.4	ng/L		12/16/20 11:43	12/17/20 07:22	1
NEtFOSE	<0.83		2.0	0.83	ng/L		12/16/20 11:43	12/17/20 07:22	1
4:2 FTS	<0.23		2.0	0.23	ng/L		12/16/20 11:43	12/17/20 07:22	1
6:2 FTS	<2.4		4.9	2.4	ng/L		12/16/20 11:43	12/17/20 07:22	1
8:2 FTS	<0.45		2.0	0.45	ng/L		12/16/20 11:43	12/17/20 07:22	1
10:2 FTS	<0.66		2.0	0.66	ng/L		12/16/20 11:43	12/17/20 07:22	1
DONA	<0.39		2.0	0.39	ng/L		12/16/20 11:43	12/17/20 07:22	1
HFPO-DA (GenX)	<1.5		3.9	1.5	ng/L		12/16/20 11:43	12/17/20 07:22	1

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-80K
Lab Sample ID: 320-67910-10
Date Collected: 12/12/20 20:26
Matrix: Water
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.23		2.0	0.23	ng/L		12/16/20 11:43	12/17/20 07:22	1
F-53B Minor	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 07:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C5 PFPeA	*86*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C2 PFHxA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C4 PFHpA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C4 PFOA	*104*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C5 PFNA	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C2 PFDA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C2 PFUnA	*97*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C2 PFDoA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C2 PFTeDA	*114*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C2 PFHxDA	*106*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C3 PFBS	*91*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
18O2 PFHxS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C4 PFOS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C8 FOSA	*104*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
d3-NMeFOSAA	*82*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
d5-NEtFOSAA	*83*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
d-N-MeFOSA-M	*97*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
d-N-EtFOSA-M	*95*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
d7-N-MeFOSE-M	*59*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
d9-N-EtFOSE-M	*48*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
M2-4:2 FTS	*72*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
M2-6:2 FTS	*81*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
M2-8:2 FTS	*84*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*
13C3 HFPO-DA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:22*	*1*

Client Sample ID: RSSCT 2-EF-90K
Lab Sample ID: 320-67910-11

Date Collected: 12/13/20 06:16
Matrix: Water
Date Received: 12/15/20 10:00

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 14:35	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 14:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 14:35*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/30/20 14:35*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.8	2.3	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoropentanoic acid (PFPeA)	**5.0**		1.9	0.47	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorohexanoic acid (PFHxA)	**4.1**		1.9	0.56	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoroheptanoic acid (PFHpA)	**0.87**	**J**	1.9	0.24	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorooctanoic acid (PFOA)	**1.1**	**J**	1.9	0.82	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.85		1.9	0.85	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.90		1.9	0.90	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorobutanesulfonic acid (PFBS)	**1.8**	**J**	1.9	0.19	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoropentanesulfonic acid (PFPeS)	**0.98**	**J**	1.9	0.29	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorohexanesulfonic acid (PFHxS)	**4.5**		1.9	0.55	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorooctanesulfonic acid (PFOS)	**0.70**	**J**	1.9	0.52	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorododecanesulfonic acid (PFDoS)	<0.93		1.9	0.93	ng/L		12/16/20 11:43	12/17/20 07:31	1
Perfluorooctanesulfonamide (FOSA)	<0.94		1.9	0.94	ng/L		12/16/20 11:43	12/17/20 07:31	1
NEtFOSA	<0.83		1.9	0.83	ng/L		12/16/20 11:43	12/17/20 07:31	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:43	12/17/20 07:31	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 07:31	1
NEtFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 07:31	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/16/20 11:43	12/17/20 07:31	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 07:31	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 07:31	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:43	12/17/20 07:31	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:43	12/17/20 07:31	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/16/20 11:43	12/17/20 07:31	1
DONA	<0.38		1.9	0.38	ng/L		12/16/20 11:43	12/17/20 07:31	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/16/20 11:43	12/17/20 07:31	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 07:31	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: RSSCT 2-EF-90K
Date Collected: 12/13/20 06:16
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-11
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 07:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C5 PFPeA	*90*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C2 PFHxA	*102*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C4 PFHpA	*104*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C4 PFOA	*107*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C5 PFNA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C2 PFDA	*107*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C2 PFUnA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C2 PFDoA	*106*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C2 PFTeDA	*127*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C2 PFHxDA	*118*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C3 PFBS	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
18O2 PFHxS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C4 PFOS	*97*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C8 FOSA	*112*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
d5-NEtFOSAA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
d-N-MeFOSA-M	*103*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
d-N-EtFOSA-M	*103*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
d7-N-MeFOSE-M	*65*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
d9-N-EtFOSE-M	*52*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
M2-4:2 FTS	*75*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
M2-6:2 FTS	*87*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
M2-8:2 FTS	*88*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*
13C3 HFPO-DA	*101*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:31*	*1*

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: RSSCT 2-EF-100K

Date Collected: 12/13/20 15:05
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-12

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/30/20 14:59	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/30/20 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 14:59*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/30/20 14:59*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.4**	**J**	4.8	2.3	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoropentanoic acid (PFPeA)	**4.8**		1.9	0.47	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorohexanoic acid (PFHxA)	**4.2**		1.9	0.56	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoroheptanoic acid (PFHpA)	**0.97**	**J**	1.9	0.24	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorooctanoic acid (PFOA)	**1.2**	**J**	1.9	0.82	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorodecanoic acid (PFDA)	<0.30		1.9	0.30	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoroundecanoic acid (PFUnA)	<1.1		1.9	1.1	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorododecanoic acid (PFDoA)	<0.53		1.9	0.53	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorotridecanoic acid (PFTriA)	<1.3		1.9	1.3	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorotetradecanoic acid (PFTeA)	<0.70		1.9	0.70	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.86		1.9	0.86	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.90		1.9	0.90	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorobutanesulfonic acid (PFBS)	**1.9**		1.9	0.19	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoropentanesulfonic acid (PFPeS)	**1.0**	**J**	1.9	0.29	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorohexanesulfonic acid (PFHxS)	**5.5**		1.9	0.55	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorooctanesulfonic acid (PFOS)	**1.0**	**J**	1.9	0.52	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorononanesulfonic acid (PFNS)	<0.36		1.9	0.36	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorododecanesulfonic acid (PFDoS)	<0.93		1.9	0.93	ng/L		12/16/20 11:43	12/17/20 07:40	1
Perfluorooctanesulfonamide (FOSA)	**2.0**		1.9	0.94	ng/L		12/16/20 11:43	12/17/20 07:40	1
NEtFOSA	<0.84		1.9	0.84	ng/L		12/16/20 11:43	12/17/20 07:40	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/16/20 11:43	12/17/20 07:40	1
NMeFOSAA	<1.2		4.8	1.2	ng/L		12/16/20 11:43	12/17/20 07:40	1
NEtFOSAA	<1.3		4.8	1.3	ng/L		12/16/20 11:43	12/17/20 07:40	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/16/20 11:43	12/17/20 07:40	1
NEtFOSE	<0.82		1.9	0.82	ng/L		12/16/20 11:43	12/17/20 07:40	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 07:40	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/16/20 11:43	12/17/20 07:40	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/16/20 11:43	12/17/20 07:40	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/16/20 11:43	12/17/20 07:40	1
DONA	<0.38		1.9	0.38	ng/L		12/16/20 11:43	12/17/20 07:40	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/16/20 11:43	12/17/20 07:40	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: RSSCT 2-EF-100K

Date Collected: 12/13/20 15:05
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-12

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.23		1.9	0.23	ng/L		12/16/20 11:43	12/17/20 07:40	1
F-53B Minor	<0.31		1.9	0.31	ng/L		12/16/20 11:43	12/17/20 07:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C5 PFPeA	*89*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C2 PFHxA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C4 PFHpA	*102*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C4 PFOA	*105*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C5 PFNA	*102*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C2 PFDA	*102*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C2 PFUnA	*99*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C2 PFDoA	*112*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C2 PFTeDA	*122*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C2 PFHxDA	*107*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C3 PFBS	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
18O2 PFHxS	*93*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C4 PFOS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C8 FOSA	*107*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
d3-NMeFOSAA	*79*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
d5-NEtFOSAA	*86*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
d-N-MeFOSA-M	*103*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
d-N-EtFOSA-M	*100*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
d7-N-MeFOSE-M	*61*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
d9-N-EtFOSE-M	*51*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
M2-4:2 FTS	*74*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
M2-6:2 FTS	*82*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
M2-8:2 FTS	*90*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*
13C3 HFPO-DA	*98*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:40*	*1*

Client Sample ID: MWU-IN-02
Date Collected: 12/13/20 16:15
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-13
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**5.7**	**H**	0.050	0.015	ug/L			12/30/20 15:24	1
Trichloroethene	**0.13**	**H**	0.050	0.012	ug/L			12/30/20 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*12/30/20 15:24*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/30/20 15:24*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.4**	**J**	5.0	2.4	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoropentanoic acid (PFPeA)	**4.7**		2.0	0.49	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorohexanoic acid (PFHxA)	**4.8**		2.0	0.58	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoroheptanoic acid (PFHpA)	**1.9**	**J**	2.0	0.25	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorooctanoic acid (PFOA)	**2.9**		2.0	0.85	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorobutanesulfonic acid (PFBS)	**2.2**		2.0	0.20	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoropentanesulfonic acid (PFPeS)	**2.2**		2.0	0.30	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorohexanesulfonic acid (PFHxS)	**17**		2.0	0.57	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.0	0.19	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorooctanesulfonic acid (PFOS)	**6.4**		2.0	0.54	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorododecanesulfonic acid (PFDoS)	<0.98		2.0	0.98	ng/L		12/16/20 11:43	12/17/20 07:50	1
Perfluorooctanesulfonamide (FOSA)	**1.1**	**J**	2.0	0.99	ng/L		12/16/20 11:43	12/17/20 07:50	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:43	12/17/20 07:50	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:43	12/17/20 07:50	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:43	12/17/20 07:50	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:43	12/17/20 07:50	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:43	12/17/20 07:50	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:43	12/17/20 07:50	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 07:50	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:43	12/17/20 07:50	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:43	12/17/20 07:50	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:43	12/17/20 07:50	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:43	12/17/20 07:50	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:43	12/17/20 07:50	1

Client Sample ID: MWU-IN-02 Lab Sample ID: 320-67910-13

Date Collected: 12/13/20 16:15 **Matrix: Water**
Date Received: 12/15/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 07:50	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 07:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C5 PFPeA	*82*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C2 PFHxA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C4 PFHpA	*98*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C4 PFOA	*105*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C5 PFNA	*98*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C2 PFDA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C2 PFUnA	*96*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C2 PFDoA	*109*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C2 PFTeDA	*114*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C2 PFHxDA	*113*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C3 PFBS	*92*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
18O2 PFHxS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C4 PFOS	*95*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C8 FOSA	*102*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
d3-NMeFOSAA	*82*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
d5-NEtFOSAA	*86*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
d-N-MeFOSA-M	*107*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
d-N-EtFOSA-M	*105*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
d7-N-MeFOSE-M	*67*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
d9-N-EtFOSE-M	*53*		*10 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
M2-4:2 FTS	*79*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
M2-6:2 FTS	*84*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
M2-8:2 FTS	*90*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*
13C3 HFPO-DA	*94*		*25 - 150*	*12/16/20 11:43*	*12/17/20 07:50*	*1*

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 2

Job ID: 320-67910-1

Client Sample ID: TRIP BLANK
Date Collected: 12/09/20 00:00
Date Received: 12/15/20 10:00

Lab Sample ID: 320-67910-14
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			12/24/20 19:46	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			12/24/20 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*12/24/20 19:46*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/24/20 19:46*	*1*

Surrogate Summary

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DBFM	TOL								
Lab Sample ID	Client Sample ID	(80-119)	(89-112)								
320-67910-1	RSSCT 2-EF-5K	99	99								
320-67910-2	RSSCT 2-EF-10K	100	97								
320-67910-3	RSSCT 2-EF-15K	102	95								
320-67910-4	RSSCT 2-EF-20K	97	94								
320-67910-5	RSSCT 2-EF-30K	97	91								
320-67910-6	RSSCT 2-EF-40K	98	92								
320-67910-7	RSSCT 2-EF-50K	97	94								
320-67910-8	RSSCT 2-EF-60K	96	95								
320-67910-9	RSSCT 2-EF-70K	97	92								
320-67910-10	RSSCT 2-EF-80K	98	95								
320-67910-11	RSSCT 2-EF-90K	100	96								
320-67910-12	RSSCT 2-EF-100K	100	96								
320-67910-13	MWU-IN-02	101	95								
320-67910-14	TRIP BLANK	94	92								
LCS 320-445633/5	Lab Control Sample	97	97								
LCS 320-445692/4	Lab Control Sample	96	98								
LCS 320-447118/3	Lab Control Sample	96	94								
LCS 320-447644/4	Lab Control Sample	91	93								
LCSD 320-445633/6	Lab Control Sample Dup	95	96								
LCSD 320-445692/5	Lab Control Sample Dup	98	96								
LCSD 320-447118/4	Lab Control Sample Dup	98	96								
LCSD 320-447644/5	Lab Control Sample Dup	99	97								
MB 320-445633/8	Method Blank	98	100								
MB 320-445692/7	Method Blank	94	94								
MB 320-447118/7	Method Blank	100	96								
MB 320-447644/7	Method Blank	98	96								

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-67910-1	RSSCT 2-EF-5K	91	91	95	101	101	102	101	94
320-67910-2	RSSCT 2-EF-10K	92	90	98	102	108	100	101	99
320-67910-3	RSSCT 2-EF-15K	92	90	95	100	100	100	95	98
320-67910-4	RSSCT 2-EF-20K	94	87	96	104	107	101	110	107
320-67910-5	RSSCT 2-EF-30K	90	89	94	100	101	95	99	87
320-67910-6	RSSCT 2-EF-40K	97	95	103	101	108	104	102	100
320-67910-7	RSSCT 2-EF-50K	89	87	97	101	104	97	98	90
320-67910-8	RSSCT 2-EF-60K	94	90	100	104	107	101	101	100
320-67910-9	RSSCT 2-EF-70K	94	94	103	100	107	103	106	103
320-67910-10	RSSCT 2-EF-80K	91	86	100	100	104	95	100	97
320-67910-11	RSSCT 2-EF-90K	94	90	102	104	107	103	107	103
320-67910-12	RSSCT 2-EF-100K	92	89	100	102	105	102	102	99
320-67910-13	MWU-IN-02	90	82	94	98	105	98	100	96
LCS 320-442921/2-A	Lab Control Sample	95	93	97	99	108	101	101	97
LCSD 320-442921/3-A	Lab Control Sample Dup	94	93	99	104	104	99	103	98
MB 320-442921/1-A	Method Blank	93	92	100	103	109	105	105	99

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)
320-67910-1	RSSCT 2-EF-5K	100	113	104	93	93	92	99	79
320-67910-2	RSSCT 2-EF-10K	112	113	120	97	96	97	104	82
320-67910-3	RSSCT 2-EF-15K	97	110	108	87	91	92	97	79
320-67910-4	RSSCT 2-EF-20K	101	112	119	96	96	99	106	90
320-67910-5	RSSCT 2-EF-30K	104	113	108	92	91	91	98	79
320-67910-6	RSSCT 2-EF-40K	114	114	115	93	102	95	108	82
320-67910-7	RSSCT 2-EF-50K	100	107	110	88	89	90	101	80
320-67910-8	RSSCT 2-EF-60K	115	115	112	93	96	98	105	84
320-67910-9	RSSCT 2-EF-70K	116	117	111	99	97	98	108	86
320-67910-10	RSSCT 2-EF-80K	103	114	106	91	95	95	104	82
320-67910-11	RSSCT 2-EF-90K	106	127	118	94	95	97	112	85
320-67910-12	RSSCT 2-EF-100K	112	122	107	94	93	95	107	79
320-67910-13	MWU-IN-02	109	114	113	92	95	95	102	82
LCS 320-442921/2-A	Lab Control Sample	101	115	109	94	93	94	98	82
LCSD 320-442921/3-A	Lab Control Sample Dup	106	122	119	91	92	96	99	80
MB 320-442921/1-A	Method Blank	110	117	113	93	96	98	101	82

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
320-67910-1	RSSCT 2-EF-5K	87	99	91	65	54	66	78	78
320-67910-2	RSSCT 2-EF-10K	91	106	99	77	62	75	84	89
320-67910-3	RSSCT 2-EF-15K	87	98	95	69	57	71	79	87
320-67910-4	RSSCT 2-EF-20K	96	100	97	71	59	84	94	96
320-67910-5	RSSCT 2-EF-30K	88	98	93	52	40	74	87	84
320-67910-6	RSSCT 2-EF-40K	87	106	105	68	51	76	83	84
320-67910-7	RSSCT 2-EF-50K	87	96	92	54	46	71	80	80
320-67910-8	RSSCT 2-EF-60K	88	105	99	68	51	73	83	91
320-67910-9	RSSCT 2-EF-70K	87	106	101	59	47	76	86	87
320-67910-10	RSSCT 2-EF-80K	83	97	95	59	48	72	81	84
320-67910-11	RSSCT 2-EF-90K	94	103	103	65	52	75	87	88

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
320-67910-12	RSSCT 2-EF-100K	86	103	100	61	51	74	82	90
320-67910-13	MWU-IN-02	86	107	105	67	53	79	84	90
LCS 320-442921/2-A	Lab Control Sample	84	99	100	71	50	78	86	96
LCSD 320-442921/3-A	Lab Control Sample Dup	85	99	102	75	63	73	85	84
MB 320-442921/1-A	Method Blank	86	100	101	74	57	74	84	90

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	HFPODA (25-150)
320-67910-1	RSSCT 2-EF-5K	93
320-67910-2	RSSCT 2-EF-10K	95
320-67910-3	RSSCT 2-EF-15K	96
320-67910-4	RSSCT 2-EF-20K	98
320-67910-5	RSSCT 2-EF-30K	93
320-67910-6	RSSCT 2-EF-40K	99
320-67910-7	RSSCT 2-EF-50K	93
320-67910-8	RSSCT 2-EF-60K	99
320-67910-9	RSSCT 2-EF-70K	99
320-67910-10	RSSCT 2-EF-80K	94
320-67910-11	RSSCT 2-EF-90K	101
320-67910-12	RSSCT 2-EF-100K	98
320-67910-13	MWU-IN-02	94
LCS 320-442921/2-A	Lab Control Sample	100
LCSD 320-442921/3-A	Lab Control Sample Dup	98
MB 320-442921/1-A	Method Blank	97

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Isotope Dilution Summary

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

HFPODA = 13C3 HFPO-DA

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 320-445633/8
Matrix: Water
Analysis Batch: 445633

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 12:56	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 12:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/24/20 12:56*	*1*
Toluene-d8 (Surr)	*100*		*89 - 112*		*12/24/20 12:56*	*1*

Lab Sample ID: LCS 320-445633/5
Matrix: Water
Analysis Batch: 445633

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.08		ug/L		104	74 - 129		
Trichloroethene			2.00	1.90		ug/L		95	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*80 - 119*
Toluene-d8 (Surr)	*97*		*89 - 112*

Lab Sample ID: LCSD 320-445633/6
Matrix: Water
Analysis Batch: 445633

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.07		ug/L		103	74 - 129	0	20
Trichloroethene			2.00	1.89		ug/L		94	79 - 123	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: MB 320-445692/7
Matrix: Water
Analysis Batch: 445692

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/24/20 18:57	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/24/20 18:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*12/24/20 18:57*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*12/24/20 18:57*	*1*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 320-445692/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445692

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.05		ug/L		102	74 - 129		
Trichloroethene			2.00	1.83		ug/L		92	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 119*
Toluene-d8 (Surr)	*98*		*89 - 112*

Lab Sample ID: LCSD 320-445692/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 445692

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.22		ug/L		111	74 - 129	8	20
Trichloroethene			2.00	2.01		ug/L		101	79 - 123	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: MB 320-447118/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447118

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/30/20 12:58	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/30/20 12:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 12:58*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/30/20 12:58*	*1*

Lab Sample ID: LCS 320-447118/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447118

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.10		ug/L		105	74 - 129		
Trichloroethene			2.00	1.84		ug/L		92	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 119*
Toluene-d8 (Surr)	*94*		*89 - 112*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 320-447118/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447118

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.20		ug/L		110	74 - 129	5	20
Trichloroethene			2.00	1.92		ug/L		96	79 - 123	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: MB 320-447644/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447644

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 13:39	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 13:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/31/20 13:39*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/31/20 13:39*	*1*

Lab Sample ID: LCS 320-447644/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447644

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tetrachloroethene			2.00	2.04		ug/L		102	74 - 129
Trichloroethene			2.00	1.87		ug/L		93	79 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*91*		*80 - 119*
Toluene-d8 (Surr)	*93*		*89 - 112*

Lab Sample ID: LCSD 320-447644/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447644

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.12		ug/L		106	74 - 129	4	20
Trichloroethene			2.00	1.95		ug/L		98	79 - 123	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*80 - 119*
Toluene-d8 (Surr)	*97*		*89 - 112*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-442921/1-A
Matrix: Water
Analysis Batch: 443196

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442921

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/16/20 11:43	12/17/20 05:01	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		12/16/20 11:43	12/17/20 05:01	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/16/20 11:43	12/17/20 05:01	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/16/20 11:43	12/17/20 05:01	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/16/20 11:43	12/17/20 05:01	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/16/20 11:43	12/17/20 05:01	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/16/20 11:43	12/17/20 05:01	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/16/20 11:43	12/17/20 05:01	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 05:01	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/16/20 11:43	12/17/20 05:01	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/16/20 11:43	12/17/20 05:01	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/16/20 11:43	12/17/20 05:01	1
DONA	<0.40		2.0	0.40	ng/L		12/16/20 11:43	12/17/20 05:01	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/16/20 11:43	12/17/20 05:01	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/16/20 11:43	12/17/20 05:01	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/16/20 11:43	12/17/20 05:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*
13C5 PFPeA	*92*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*
13C2 PFHxA	*100*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*
13C4 PFHpA	*103*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*
13C4 PFOA	*109*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*
13C5 PFNA	*105*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*
13C2 PFDA	*105*		*25 - 150*	*12/16/20 11:43*	*12/17/20 05:01*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-442921/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 443196 **Prep Batch: 442921**

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	99		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C2 PFDoA	110		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C2 PFTeDA	117		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C2 PFHxDA	113		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C3 PFBS	93		25 - 150	12/16/20 11:43	12/17/20 05:01	1
18O2 PFHxS	96		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C4 PFOS	98		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C8 FOSA	101		10 - 150	12/16/20 11:43	12/17/20 05:01	1
d3-NMeFOSAA	82		25 - 150	12/16/20 11:43	12/17/20 05:01	1
d5-NEtFOSAA	86		25 - 150	12/16/20 11:43	12/17/20 05:01	1
d-N-MeFOSA-M	100		10 - 150	12/16/20 11:43	12/17/20 05:01	1
d-N-EtFOSA-M	101		10 - 150	12/16/20 11:43	12/17/20 05:01	1
d7-N-MeFOSE-M	74		10 - 150	12/16/20 11:43	12/17/20 05:01	1
d9-N-EtFOSE-M	57		10 - 150	12/16/20 11:43	12/17/20 05:01	1
M2-4:2 FTS	74		25 - 150	12/16/20 11:43	12/17/20 05:01	1
M2-6:2 FTS	84		25 - 150	12/16/20 11:43	12/17/20 05:01	1
M2-8:2 FTS	90		25 - 150	12/16/20 11:43	12/17/20 05:01	1
13C3 HFPO-DA	97		25 - 150	12/16/20 11:43	12/17/20 05:01	1

Lab Sample ID: LCS 320-442921/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 443196 **Prep Batch: 442921**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.3		ng/L		103	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	39.8		ng/L		99	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	43.2		ng/L		108	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.9		ng/L		105	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	38.4		ng/L		96	60 - 135
Perfluorononanoic acid (PFNA)	40.0	40.6		ng/L		102	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.4		ng/L		104	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	39.4		ng/L		99	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	43.6		ng/L		109	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	47.5		ng/L		119	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.5		ng/L		106	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	40.4		ng/L		101	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	48.2		ng/L		121	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.4	36.4		ng/L		103	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	42.7		ng/L		114	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.6		ng/L		101	60 - 135
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.6		ng/L		109	60 - 135

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-442921/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 443196 **Prep Batch: 442921**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	37.1	38.6		ng/L		104	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.4	40.6		ng/L		106	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	41.3		ng/L		107	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	43.1		ng/L		111	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	44.4		ng/L		111	60 - 135
NEtFOSA	40.0	38.2		ng/L		95	60 - 135
NMeFOSA	40.0	39.9		ng/L		100	60 - 135
NMeFOSAA	40.0	41.1		ng/L		103	60 - 135
NEtFOSAA	40.0	40.6		ng/L		102	60 - 135
NMeFOSE	40.0	38.3		ng/L		96	60 - 135
NEtFOSE	40.0	41.3		ng/L		103	60 - 135
4:2 FTS	37.4	41.0		ng/L		110	60 - 135
6:2 FTS	37.9	35.4		ng/L		93	60 - 135
8:2 FTS	38.3	39.9		ng/L		104	60 - 135
10:2 FTS	38.6	46.3		ng/L		120	60 - 135
DONA	37.7	45.9		ng/L		122	60 - 135
HFPO-DA (GenX)	40.0	42.6		ng/L		107	60 - 135
F-53B Major	37.3	41.5		ng/L		111	60 - 135
F-53B Minor	37.7	43.7		ng/L		116	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*95*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*97*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*108*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C2 PFDA	*101*		*25 - 150*
13C2 PFUnA	*97*		*25 - 150*
13C2 PFDoA	*101*		*25 - 150*
13C2 PFTeDA	*115*		*25 - 150*
13C2 PFHxDA	*109*		*25 - 150*
13C3 PFBS	*94*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*94*		*25 - 150*
13C8 FOSA	*98*		*10 - 150*
d3-NMeFOSAA	*82*		*25 - 150*
d5-NEtFOSAA	*84*		*25 - 150*
d-N-MeFOSA-M	*99*		*10 - 150*
d-N-EtFOSA-M	*100*		*10 - 150*
d7-N-MeFOSE-M	*71*		*10 - 150*
d9-N-EtFOSE-M	*50*		*10 - 150*
M2-4:2 FTS	*78*		*25 - 150*
M2-6:2 FTS	*86*		*25 - 150*
M2-8:2 FTS	*96*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-442921/2-A
Matrix: Water
Analysis Batch: 443196

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442921

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	100		25 - 150

Lab Sample ID: LCSD 320-442921/3-A
Matrix: Water
Analysis Batch: 443196

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442921

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.1		ng/L		103	60 - 135	0	30
Perfluoropentanoic acid (PFPeA)			40.0	37.8		ng/L		95	60 - 135	5	30
Perfluorohexanoic acid (PFHxA)			40.0	41.6		ng/L		104	60 - 135	4	30
Perfluoroheptanoic acid (PFHpA)			40.0	41.4		ng/L		103	60 - 135	1	30
Perfluorooctanoic acid (PFOA)			40.0	38.7		ng/L		97	60 - 135	1	30
Perfluorononanoic acid (PFNA)			40.0	43.0		ng/L		108	60 - 135	6	30
Perfluorodecanoic acid (PFDA)			40.0	42.3		ng/L		106	60 - 135	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.9		ng/L		100	60 - 135	1	30
Perfluorododecanoic acid (PFDoA)			40.0	38.3		ng/L		96	60 - 135	13	30
Perfluorotridecanoic acid (PFTriA)			40.0	51.4		ng/L		128	60 - 135	8	30
Perfluorotetradecanoic acid (PFTeA)			40.0	40.1		ng/L		100	60 - 135	6	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	38.1		ng/L		95	60 - 135	6	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	44.1		ng/L		110	60 - 135	9	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.8		ng/L		101	60 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	42.5		ng/L		113	60 - 135	1	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.9		ng/L		101	60 - 135	1	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	38.9		ng/L		102	60 - 135	7	30
Perfluorooctanesulfonic acid (PFOS)			37.1	36.6		ng/L		99	60 - 135	5	30
Perfluorononanesulfonic acid (PFNS)			38.4	39.4		ng/L		103	60 - 135	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	40.1		ng/L		104	60 - 135	3	30
Perfluorododecanesulfonic acid (PFDoS)			38.7	42.1		ng/L		109	60 - 135	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	44.1		ng/L		110	60 - 135	1	30
NEtFOSA			40.0	36.4		ng/L		91	60 - 135	5	30
NMeFOSA			40.0	39.7		ng/L		99	60 - 135	0	30
NMeFOSAA			40.0	41.8		ng/L		105	60 - 135	2	30
NEtFOSAA			40.0	39.8		ng/L		100	60 - 135	2	30
NMeFOSE			40.0	41.6		ng/L		104	60 - 135	8	30
NEtFOSE			40.0	36.0		ng/L		90	60 - 135	14	30
4:2 FTS			37.4	39.3		ng/L		105	60 - 135	4	30
6:2 FTS			37.9	35.0		ng/L		92	60 - 135	1	30
8:2 FTS			38.3	40.9		ng/L		107	60 - 135	2	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-442921/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 443196 **Prep Batch: 442921**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 FTS			38.6	47.5		ng/L		123	60 - 135	3	30
DONA			37.7	42.9		ng/L		114	60 - 135	7	30
HFPO-DA (GenX)			40.0	43.5		ng/L		109	60 - 135	2	30
F-53B Major			37.3	42.1		ng/L		113	60 - 135	1	30
F-53B Minor			37.7	43.1		ng/L		114	60 - 135	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*94*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*104*		*25 - 150*
13C4 PFOA	*104*		*25 - 150*
13C5 PFNA	*99*		*25 - 150*
13C2 PFDA	*103*		*25 - 150*
13C2 PFUnA	*98*		*25 - 150*
13C2 PFDoA	*106*		*25 - 150*
13C2 PFTeDA	*122*		*25 - 150*
13C2 PFHxDA	*119*		*25 - 150*
13C3 PFBS	*91*		*25 - 150*
18O2 PFHxS	*92*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
13C8 FOSA	*99*		*10 - 150*
d3-NMeFOSAA	*80*		*25 - 150*
d5-NEtFOSAA	*85*		*25 - 150*
d-N-MeFOSA-M	*99*		*10 - 150*
d-N-EtFOSA-M	*102*		*10 - 150*
d7-N-MeFOSE-M	*75*		*10 - 150*
d9-N-EtFOSE-M	*63*		*10 - 150*
M2-4:2 FTS	*73*		*25 - 150*
M2-6:2 FTS	*85*		*25 - 150*
M2-8:2 FTS	*84*		*25 - 150*
13C3 HFPO-DA	*98*		*25 - 150*

GC/MS VOA

Analysis Batch: 445633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-1	RSSCT 2-EF-5K	Total/NA	Water	8260C SIM	
320-67910-2	RSSCT 2-EF-10K	Total/NA	Water	8260C SIM	
320-67910-3	RSSCT 2-EF-15K	Total/NA	Water	8260C SIM	
320-67910-4	RSSCT 2-EF-20K	Total/NA	Water	8260C SIM	
MB 320-445633/8	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-445633/5	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-445633/6	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 445692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-5	RSSCT 2-EF-30K	Total/NA	Water	8260C SIM	
320-67910-6	RSSCT 2-EF-40K	Total/NA	Water	8260C SIM	
320-67910-14	TRIP BLANK	Total/NA	Water	8260C SIM	
MB 320-445692/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-445692/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-445692/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 447118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-8	RSSCT 2-EF-60K	Total/NA	Water	8260C SIM	
320-67910-10	RSSCT 2-EF-80K	Total/NA	Water	8260C SIM	
320-67910-11	RSSCT 2-EF-90K	Total/NA	Water	8260C SIM	
320-67910-12	RSSCT 2-EF-100K	Total/NA	Water	8260C SIM	
320-67910-13	MWU-IN-02	Total/NA	Water	8260C SIM	
MB 320-447118/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447118/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447118/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 447644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-7	RSSCT 2-EF-50K	Total/NA	Water	8260C SIM	
320-67910-9	RSSCT 2-EF-70K	Total/NA	Water	8260C SIM	
MB 320-447644/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447644/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447644/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

LCMS

Prep Batch: 442921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-1	RSSCT 2-EF-5K	Total/NA	Water	3535	
320-67910-2	RSSCT 2-EF-10K	Total/NA	Water	3535	
320-67910-3	RSSCT 2-EF-15K	Total/NA	Water	3535	
320-67910-4	RSSCT 2-EF-20K	Total/NA	Water	3535	
320-67910-5	RSSCT 2-EF-30K	Total/NA	Water	3535	
320-67910-6	RSSCT 2-EF-40K	Total/NA	Water	3535	
320-67910-7	RSSCT 2-EF-50K	Total/NA	Water	3535	
320-67910-8	RSSCT 2-EF-60K	Total/NA	Water	3535	
320-67910-9	RSSCT 2-EF-70K	Total/NA	Water	3535	
320-67910-10	RSSCT 2-EF-80K	Total/NA	Water	3535	
320-67910-11	RSSCT 2-EF-90K	Total/NA	Water	3535	

LCMS (Continued)

Prep Batch: 442921 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-12	RSSCT 2-EF-100K	Total/NA	Water	3535	
320-67910-13	MWU-IN-02	Total/NA	Water	3535	
MB 320-442921/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-442921/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-442921/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 443196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-1	RSSCT 2-EF-5K	Total/NA	Water	537 (modified)	442921
320-67910-2	RSSCT 2-EF-10K	Total/NA	Water	537 (modified)	442921
320-67910-3	RSSCT 2-EF-15K	Total/NA	Water	537 (modified)	442921
320-67910-5	RSSCT 2-EF-30K	Total/NA	Water	537 (modified)	442921
320-67910-6	RSSCT 2-EF-40K	Total/NA	Water	537 (modified)	442921
320-67910-7	RSSCT 2-EF-50K	Total/NA	Water	537 (modified)	442921
320-67910-8	RSSCT 2-EF-60K	Total/NA	Water	537 (modified)	442921
320-67910-9	RSSCT 2-EF-70K	Total/NA	Water	537 (modified)	442921
320-67910-10	RSSCT 2-EF-80K	Total/NA	Water	537 (modified)	442921
320-67910-11	RSSCT 2-EF-90K	Total/NA	Water	537 (modified)	442921
320-67910-12	RSSCT 2-EF-100K	Total/NA	Water	537 (modified)	442921
320-67910-13	MWU-IN-02	Total/NA	Water	537 (modified)	442921
MB 320-442921/1-A	Method Blank	Total/NA	Water	537 (modified)	442921
LCS 320-442921/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	442921
LCSD 320-442921/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	442921

Analysis Batch: 443355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-67910-4	RSSCT 2-EF-20K	Total/NA	Water	537 (modified)	442921

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-5K — Lab Sample ID: 320-67910-1

Date Collected: 12/09/20 22:39 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 14:58	SS	TAL SAC
Total/NA	Prep	3535			256.2 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 05:29	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-10K — Lab Sample ID: 320-67910-2

Date Collected: 12/10/20 03:18 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 15:22	SS	TAL SAC
Total/NA	Prep	3535			260.6 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 05:38	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-15K — Lab Sample ID: 320-67910-3

Date Collected: 12/10/20 07:57 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 15:47	SS	TAL SAC
Total/NA	Prep	3535			257 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 05:48	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-20K — Lab Sample ID: 320-67910-4

Date Collected: 12/10/20 12:50 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445633	12/24/20 16:11	SS	TAL SAC
Total/NA	Prep	3535			259.1 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443355	12/17/20 11:07	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-30K — Lab Sample ID: 320-67910-5

Date Collected: 12/10/20 21:54 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 22:12	AP1	TAL SAC
Total/NA	Prep	3535			251.7 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 06:07	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-40K — Lab Sample ID: 320-67910-6

Date Collected: 12/11/20 08:07 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 22:36	AP1	TAL SAC

Client Sample ID: RSSCT 2-EF-40K — Lab Sample ID: 320-67910-6

Date Collected: 12/11/20 08:07 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.5 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 06:16	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-50K — Lab Sample ID: 320-67910-7

Date Collected: 12/11/20 16:31 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 14:04	SS	TAL SAC
Total/NA	Prep	3535			259.2 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 06:25	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-60K — Lab Sample ID: 320-67910-8

Date Collected: 12/12/20 01:49 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 13:22	AP1	TAL SAC
Total/NA	Prep	3535			251.5 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 07:03	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-70K — Lab Sample ID: 320-67910-9

Date Collected: 12/12/20 11:07 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 14:28	SS	TAL SAC
Total/NA	Prep	3535			275.4 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 07:12	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-80K — Lab Sample ID: 320-67910-10

Date Collected: 12/12/20 20:26 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 14:11	AP1	TAL SAC
Total/NA	Prep	3535			255.4 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 07:22	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-90K — Lab Sample ID: 320-67910-11

Date Collected: 12/13/20 06:16 **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 14:35	AP1	TAL SAC

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Client Sample ID: RSSCT 2-EF-90K — Lab Sample ID: 320-67910-11

Date Collected: 12/13/20 06:16 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			260.6 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 07:31	MNV	TAL SAC

Client Sample ID: RSSCT 2-EF-100K — Lab Sample ID: 320-67910-12

Date Collected: 12/13/20 15:05 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 14:59	AP1	TAL SAC
Total/NA	Prep	3535			259.9 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 07:40	MNV	TAL SAC

Client Sample ID: MWU-IN-02 — Lab Sample ID: 320-67910-13

Date Collected: 12/13/20 16:15 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 15:24	AP1	TAL SAC
Total/NA	Prep	3535			248.7 mL	10.0 mL	442921	12/16/20 11:43	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			443196	12/17/20 07:50	MNV	TAL SAC

Client Sample ID: TRIP BLANK — Lab Sample ID: 320-67910-14

Date Collected: 12/09/20 00:00 — **Matrix: Water**
Date Received: 12/15/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	445692	12/24/20 19:46	AP1	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: TRC Environmental Corporation. Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-21

Method Summary

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Method	Method Description	Protocol	Laboratory
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL SAC
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: TRC Environmental Corporation.
Job ID: 320-67910-1
Project/Site: Well #15 Feasibility Study - RSSCT 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-67910-1	RSSCT 2-EF-5K	Water	12/09/20 22:39	12/15/20 10:00	
320-67910-2	RSSCT 2-EF-10K	Water	12/10/20 03:18	12/15/20 10:00	
320-67910-3	RSSCT 2-EF-15K	Water	12/10/20 07:57	12/15/20 10:00	
320-67910-4	RSSCT 2-EF-20K	Water	12/10/20 12:50	12/15/20 10:00	
320-67910-5	RSSCT 2-EF-30K	Water	12/10/20 21:54	12/15/20 10:00	
320-67910-6	RSSCT 2-EF-40K	Water	12/11/20 08:07	12/15/20 10:00	
320-67910-7	RSSCT 2-EF-50K	Water	12/11/20 16:31	12/15/20 10:00	
320-67910-8	RSSCT 2-EF-60K	Water	12/12/20 01:49	12/15/20 10:00	
320-67910-9	RSSCT 2-EF-70K	Water	12/12/20 11:07	12/15/20 10:00	
320-67910-10	RSSCT 2-EF-80K	Water	12/12/20 20:26	12/15/20 10:00	
320-67910-11	RSSCT 2-EF-90K	Water	12/13/20 06:16	12/15/20 10:00	
320-67910-12	RSSCT 2-EF-100K	Water	12/13/20 15:05	12/15/20 10:00	
320-67910-13	MWU-IN-02	Water	12/13/20 16:15	12/15/20 10:00	
320-67910-14	TRIP BLANK	Water	12/09/20 00:00	12/15/20 10:00	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins

Client Information	Sampler: Kyle Trewitz	Lab PM: Fredrick, Sandie	Carrier Tracking No(s): 7125 4943 6867	COC No: 320-34438-8550.1
Client Contact: Jeff Ramey	Phone: 724-772-1407	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of 2
Company: TRC Environmental Corporation.		Analysis Requested		Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested:			Preservation Codes:
City: Brookfield	TAT Requested (days):			A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			
Email: jramey@trccompanies.com	WO #:			Other:
Project Name: Well #15 Feasibility Study - RSSCT 2	Project #: 32016125			
Site:	SSOW#:			

320-67910 Chain of Custody

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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	Total Number of cont.	Special Instructions/Note:
			Preservation Code:				N	A		
RSSLT 2-EF-5K	12/9/20	22:39	G	Water			N	A	6	
RSSLT 2-EF-10K	12/10	3:18	G	Water			N	A	6	
RSSLT 2-EF-15K	12/10	7:57	G	Water			N	A	6	
RSSLT 2-EF-20K	12/10	12:50	G	Water			N	A	6	
RSSLT 2-EF-30K	12/10	21:54	G	Water			N	A	6	
RSSLT 2-EF-40K	12/11	8:07	G	Water			N	A	6	
RSSLT 2-EF-50K	12/11	16:31	G	Water			N	A	6	
RSSLT2-EF-60K	12/12	1:49	G	Water			N	A	6	
RSSLT 2-EF-70K	12/12	11:07	G	Water			N	A	6	
RSSLT2-EF-80K	12/12	20:26	G	Water			N	A	6	
* RSSLT2-EF-~~80~~ 90K	12/13	6:16	G	Water			N	A	6	

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

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)

Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/14/20 15:45	EWT		12/15/20 1400	ETHSc
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.: 969706
Cooler Temperature(s) °C and Other Remarks: 0.4/1.0

1/4 Vial with headspace. DH 12/15/20

Ver: 01/16/2019

Eurofins TestAmerica, Sacramento
860 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins

Client Information	Sampler: Kyle Trewitz	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 320-34438-8550.2
Client Contact: Jeff Ramey	Phone: 724-772-1407	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 2 of 2
Company: TRC Environmental Corporation.				Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested:			
City: Brookfield	TAT Requested (days):			
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			
Email: jramey@trccompanies.com	WO #:			
Project Name: Well #15 Feasibility Study - RSSCT 2	Project #: 32016125			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, 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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
RSSLT2-EF-100K	12/13/20	15:05	G	Water			N	A	6	
MWLL-IN-02	12/13/20	16:15	G	Water			N	A	6	
				Water						
				Water						
				Water						
* Trip Blank										

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

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12/14/20 15:45	EWT		12/15/20 1050	Eurofins
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.: 965706 | Cooler Temperature(s) °C and Other Remarks: 0.4/1.0

* Trip Blank Received Not on Coc. Relinquished

Ver: 01/16/2019

Fredrick, Sandie

From: Ramey, Jeff <JRamey@trcsolutions.com>
Sent: Wednesday, December 16, 2020 9:29 AM
To: Fredrick, Sandie
Cc: Ursin, Mike; Trewitz, Kyle E
Subject: RE: [EXTERNAL] Eurofins TestAmerica Sample Login Confirmation files from 320-67908 Well #15 Feasibility Study - RSSCT 1

Importance: High

EXTERNAL EMAIL*

Hi Sandie,
Could you please re-log the all of the VOCs for SIM PCE and TCE? I believe this pre-populated COC was created before we committed to the SIM option.

All VOCs for this project will b e SIM (we have 4 RSSCTs being run).

Thank you,

Jeff Ramey
Senior Project Manager

Updated Phone Number – Cell Phone Only – 414-294-9247

TRC
150 North Patrick Blvd, Suite 180, Brookfield, WI 53045
C 414-294-9247 | **F** 262-879-1220
LinkedIn | Twitter | Blog | TRCcompanies.com

From: Sandie Fredrick <sandra.fredrick@eurofinset.com>
Sent: Wednesday, December 16, 2020 9:05 AM
To: Ramey, Jeff <JRamey@trcsolutions.com>
Subject: [EXTERNAL] Eurofins TestAmerica Sample Login Confirmation files from 320-67908 Well #15 Feasibility Study - RSSCT 1

Hello Jeff,

Have a great week!

Attached, please find the Sample Confirmation files for job 320-67908; Well #15 Feasibility Study - RSSCT 1

Please feel free to contact me if you have any questions.

Thank you.

Sandie Fredrick
Project Manager

TestAmerica Laboratories, Inc.
Phone: 920-261-1660

E-mail: sandra.fredrick@eurofinset.com
www.eurofinsus.com/env

Reference: [320-305412]
Attachments: 3

Please let us know if we met your expectations by rating the service you received from Eurofins TestAmerica on this project by visiting our website at: Project Feedback

Login Sample Receipt Checklist

Client: TRC Environmental Corporation. Job Number: 320-67910-1

Login Number: 67910 **List Source: Eurofins TestAmerica, Sacramento**
List Number: 1
Creator: Oropeza, Salvador

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	969706
Sample custody seals, if present, are intact.	N/A	
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	
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.	False	Refer to Job Narrative for details.
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.	N/A	
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").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-68214-1
Client Project/Site: Well #15 Feasibility Study - RSSCT 3

For:
TRC Environmental Corporation.
150 N. Patrick Blvd.
Suite 180
Brookfield, Wisconsin 53045

Attn: Jeff Ramey

Authorized for release by:
1/7/2021 5:04:00 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

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

Case Narrative

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-68214-1

Comments
No additional comments.

Receipt
The samples were received on 12/22/2020 11:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.9º C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): RSSCT 3 - EF - 10K (320-68214-3). The container labels listed incorrect.

Sample #3- Client label time is missing for 1 of 2 poly while the COC is listed as 2:18. Logged in according to the COC.

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

GC/MS VOA
Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 320-447118.

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-447644.

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-447884.

Method 8260C SIM: The trip blank associated with this job (320-68214-9) was canceled as the original analysis did not have reportable results due to instrument malfunction and there were no more vials available for reanalysis.

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

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-445505. Method: 3535_PFC Matrix: Water

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

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Client Sample ID: RSSCT 3 - IN - 01
Lab Sample ID: 320-68214-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3.8		0.050	0.015	ug/L	1		8260C SIM	Total/NA
Trichloroethene	0.16		0.050	0.012	ug/L	1		8260C SIM	Total/NA
Perfluorobutanoic acid (PFBA)	27		4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	44		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	58		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	23		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	46		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	33		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.7		1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	160		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.4	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	40		1.8	0.49	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 3 - EF - 5K
Lab Sample ID: 320-68214-2

No Detections.

Client Sample ID: RSSCT 3 - EF - 10K
Lab Sample ID: 320-68214-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.8	J	4.7	2.3	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 3 - EF - 15K
Lab Sample ID: 320-68214-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.89	J	1.9	0.47	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 3 - EF - 20K
Lab Sample ID: 320-68214-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	19		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.2		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.80	J	1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.23	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 3 - EF - 30K
Lab Sample ID: 320-68214-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	25		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	8.6		1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.9		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.48	J	1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.87	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.0	J	1.9	0.53	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 3 - EF - 40K
Lab Sample ID: 320-68214-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	28		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	17		1.9	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	8.0		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.5	J	1.9	0.23	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: RSSCT 3 - EF - 40K (Continued) Lab Sample ID: 320-68214-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.4		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.9	0.53	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 3 - EF - 50K Lab Sample ID: 320-68214-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	28		4.7	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	24		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	14		1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.7		1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.0		1.9	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.1		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.8		1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.62	J	1.9	0.50	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Client Sample ID: RSSCT 3 - IN - 01

Date Collected: 12/18/20 21:00
Date Received: 12/22/20 11:15

Lab Sample ID: 320-68214-1

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**3.8**		0.050	0.015	ug/L			12/30/20 17:31	1
Trichloroethene	**0.16**		0.050	0.012	ug/L			12/30/20 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*12/30/20 17:31*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/30/20 17:31*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**27**		4.5	2.2	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoropentanoic acid (PFPeA)	**44**		1.8	0.45	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorohexanoic acid (PFHxA)	**58**		1.8	0.53	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoroheptanoic acid (PFHpA)	**23**		1.8	0.23	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorooctanoic acid (PFOA)	**46**		1.8	0.77	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.81		1.8	0.81	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.85		1.8	0.85	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorobutanesulfonic acid (PFBS)	**33**		1.8	0.18	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoropentanesulfonic acid (PFPeS)	**2.7**		1.8	0.27	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorohexanesulfonic acid (PFHxS)	**160**		1.8	0.52	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.4**	**J**	1.8	0.17	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorooctanesulfonic acid (PFOS)	**40**		1.8	0.49	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		12/23/20 18:34	12/27/20 23:50	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		12/23/20 18:34	12/27/20 23:50	1
NEtFOSA	<0.79		1.8	0.79	ng/L		12/23/20 18:34	12/27/20 23:50	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/23/20 18:34	12/27/20 23:50	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		12/23/20 18:34	12/27/20 23:50	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		12/23/20 18:34	12/27/20 23:50	1
NMeFOSE	<1.3		3.6	1.3	ng/L		12/23/20 18:34	12/27/20 23:50	1
NEtFOSE	<0.77		1.8	0.77	ng/L		12/23/20 18:34	12/27/20 23:50	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/23/20 18:34	12/27/20 23:50	1
6:2 FTS	<2.3		4.5	2.3	ng/L		12/23/20 18:34	12/27/20 23:50	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/23/20 18:34	12/27/20 23:50	1
10:2 FTS	<0.61		1.8	0.61	ng/L		12/23/20 18:34	12/27/20 23:50	1
DONA	<0.36		1.8	0.36	ng/L		12/23/20 18:34	12/27/20 23:50	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		12/23/20 18:34	12/27/20 23:50	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/23/20 18:34	12/27/20 23:50	1

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Client Sample ID: RSSCT 3 - IN - 01 **Lab Sample ID: 320-68214-1**
Date Collected: 12/18/20 21:00 **Matrix: Water**
Date Received: 12/22/20 11:15

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.29		1.8	0.29	ng/L		12/23/20 18:34	12/27/20 23:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C5 PFPeA	*94*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C2 PFHxA	*93*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C4 PFHpA	*99*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C4 PFOA	*103*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C5 PFNA	*102*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C2 PFDA	*103*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C2 PFUnA	*100*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C2 PFDoA	*90*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C2 PFTeDA	*109*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C2 PFHxDA	*111*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C3 PFBS	*95*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
18O2 PFHxS	*96*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C4 PFOS	*92*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C8 FOSA	*93*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
d3-NMeFOSAA	*89*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
d5-NEtFOSAA	*97*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
d-N-MeFOSA-M	*88*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
d-N-EtFOSA-M	*79*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
d7-N-MeFOSE-M	*61*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
d9-N-EtFOSE-M	*50*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
M2-4:2 FTS	*80*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
M2-6:2 FTS	*86*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
M2-8:2 FTS	*92*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:50*	*1*

Client Sample ID: RSSCT 3 - EF - 5K

Lab Sample ID: 320-68214-2
Date Collected: 12/18/20 21:39
Matrix: Water
Date Received: 12/22/20 11:15

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 14:53	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*12/31/20 14:53*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/31/20 14:53*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.2		4.6	2.2	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoropentanoic acid (PFPeA)	<0.45		1.8	0.45	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorohexanoic acid (PFHxA)	<0.53		1.8	0.53	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.8	0.23	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorooctanoic acid (PFOA)	<0.78		1.8	0.78	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.8	0.51	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorotetradecanoic acid (PFTeA)	<0.67		1.8	0.67	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.82		1.8	0.82	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.86		1.8	0.86	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.8	0.28	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorohexanesulfonic acid (PFHxS)	<0.52		1.8	0.52	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.8	0.50	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorododecanesulfonic acid (PFDoS)	<0.89		1.8	0.89	ng/L		12/23/20 18:34	12/27/20 23:59	1
Perfluorooctanesulfonamide (FOSA)	<0.90		1.8	0.90	ng/L		12/23/20 18:34	12/27/20 23:59	1
NEtFOSA	<0.80		1.8	0.80	ng/L		12/23/20 18:34	12/27/20 23:59	1
NMeFOSA	<0.40		1.8	0.40	ng/L		12/23/20 18:34	12/27/20 23:59	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/23/20 18:34	12/27/20 23:59	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/23/20 18:34	12/27/20 23:59	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/23/20 18:34	12/27/20 23:59	1
NEtFOSE	<0.78		1.8	0.78	ng/L		12/23/20 18:34	12/27/20 23:59	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/23/20 18:34	12/27/20 23:59	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/23/20 18:34	12/27/20 23:59	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/23/20 18:34	12/27/20 23:59	1
10:2 FTS	<0.62		1.8	0.62	ng/L		12/23/20 18:34	12/27/20 23:59	1
DONA	<0.37		1.8	0.37	ng/L		12/23/20 18:34	12/27/20 23:59	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/23/20 18:34	12/27/20 23:59	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/23/20 18:34	12/27/20 23:59	1
F-53B Minor	<0.29		1.8	0.29	ng/L		12/23/20 18:34	12/27/20 23:59	1

Client: TRC Environmental Corporation.
Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Client Sample ID: RSSCT 3 - EF - 5K
Lab Sample ID: 320-68214-2
Date Collected: 12/18/20 21:39
Matrix: Water
Date Received: 12/22/20 11:15

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	95		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C5 PFPeA	96		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C2 PFHxA	97		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C4 PFHpA	101		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C4 PFOA	100		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C5 PFNA	100		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C2 PFDA	97		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C2 PFUnA	100		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C2 PFDoA	90		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C2 PFTeDA	104		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C2 PFHxDA	96		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C3 PFBS	94		25 - 150	12/23/20 18:34	12/27/20 23:59	1
18O2 PFHxS	96		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C4 PFOS	92		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C8 FOSA	89		10 - 150	12/23/20 18:34	12/27/20 23:59	1
d3-NMeFOSAA	90		25 - 150	12/23/20 18:34	12/27/20 23:59	1
d5-NEtFOSAA	92		25 - 150	12/23/20 18:34	12/27/20 23:59	1
d-N-MeFOSA-M	100		10 - 150	12/23/20 18:34	12/27/20 23:59	1
d-N-EtFOSA-M	91		10 - 150	12/23/20 18:34	12/27/20 23:59	1
d7-N-MeFOSE-M	64		10 - 150	12/23/20 18:34	12/27/20 23:59	1
d9-N-EtFOSE-M	50		10 - 150	12/23/20 18:34	12/27/20 23:59	1
M2-4:2 FTS	81		25 - 150	12/23/20 18:34	12/27/20 23:59	1
M2-6:2 FTS	89		25 - 150	12/23/20 18:34	12/27/20 23:59	1
M2-8:2 FTS	91		25 - 150	12/23/20 18:34	12/27/20 23:59	1
13C3 HFPO-DA	94		25 - 150	12/23/20 18:34	12/27/20 23:59	1

Client Sample ID: RSSCT 3 - EF - 10K

Lab Sample ID: 320-68214-3
Date Collected: 12/19/20 02:18
Matrix: Water
Date Received: 12/22/20 11:15

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 15:17	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/31/20 15:17*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/31/20 15:17*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.8**	**J**	4.7	2.3	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoropentanoic acid (PFPeA)	<0.47		1.9	0.47	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorohexanoic acid (PFHxA)	<0.55		1.9	0.55	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorooctanoic acid (PFOA)	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorododecanoic acid (PFDoA)	<0.52		1.9	0.52	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorotetradecanoic acid (PFTeA)	<0.69		1.9	0.69	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.85		1.9	0.85	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.89		1.9	0.89	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorohexanesulfonic acid (PFHxS)	<0.54		1.9	0.54	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorooctanesulfonic acid (PFOS)	<0.51		1.9	0.51	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorododecanesulfonic acid (PFDoS)	<0.92		1.9	0.92	ng/L		12/23/20 18:34	12/28/20 00:08	1
Perfluorooctanesulfonamide (FOSA)	<0.93		1.9	0.93	ng/L		12/23/20 18:34	12/28/20 00:08	1
NEtFOSA	<0.83		1.9	0.83	ng/L		12/23/20 18:34	12/28/20 00:08	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/23/20 18:34	12/28/20 00:08	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		12/23/20 18:34	12/28/20 00:08	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		12/23/20 18:34	12/28/20 00:08	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/23/20 18:34	12/28/20 00:08	1
NEtFOSE	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 00:08	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/23/20 18:34	12/28/20 00:08	1
6:2 FTS	<2.4		4.7	2.4	ng/L		12/23/20 18:34	12/28/20 00:08	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/23/20 18:34	12/28/20 00:08	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/23/20 18:34	12/28/20 00:08	1
DONA	<0.38		1.9	0.38	ng/L		12/23/20 18:34	12/28/20 00:08	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/23/20 18:34	12/28/20 00:08	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/23/20 18:34	12/28/20 00:08	1
F-53B Minor	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:08	1

Client Sample ID: RSSCT 3 - EF - 10K

Lab Sample ID: 320-68214-3

Date Collected: 12/19/20 02:18

Matrix: Water

Date Received: 12/22/20 11:15

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	103		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C5 PFPeA	105		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C2 PFHxA	104		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C4 PFHpA	111		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C4 PFOA	113		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C5 PFNA	108		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C2 PFDA	104		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C2 PFUnA	99		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C2 PFDoA	90		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C2 PFTeDA	99		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C2 PFHxDA	111		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C3 PFBS	103		25 - 150	12/23/20 18:34	12/28/20 00:08	1
18O2 PFHxS	104		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C4 PFOS	101		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C8 FOSA	100		10 - 150	12/23/20 18:34	12/28/20 00:08	1
d3-NMeFOSAA	89		25 - 150	12/23/20 18:34	12/28/20 00:08	1
d5-NEtFOSAA	97		25 - 150	12/23/20 18:34	12/28/20 00:08	1
d-N-MeFOSA-M	94		10 - 150	12/23/20 18:34	12/28/20 00:08	1
d-N-EtFOSA-M	87		10 - 150	12/23/20 18:34	12/28/20 00:08	1
d7-N-MeFOSE-M	62		10 - 150	12/23/20 18:34	12/28/20 00:08	1
d9-N-EtFOSE-M	50		10 - 150	12/23/20 18:34	12/28/20 00:08	1
M2-4:2 FTS	94		25 - 150	12/23/20 18:34	12/28/20 00:08	1
M2-6:2 FTS	100		25 - 150	12/23/20 18:34	12/28/20 00:08	1
M2-8:2 FTS	95		25 - 150	12/23/20 18:34	12/28/20 00:08	1
13C3 HFPO-DA	107		25 - 150	12/23/20 18:34	12/28/20 00:08	1

Client Sample ID: RSSCT 3 - EF - 15K

Lab Sample ID: 320-68214-4
Date Collected: 12/19/20 06:57
Matrix: Water
Date Received: 12/22/20 11:15

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 15:42	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/31/20 15:42*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/31/20 15:42*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**		4.8	2.3	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoropentanoic acid (PFPeA)	**0.89**	**J**	1.9	0.47	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorohexanoic acid (PFHxA)	<0.55		1.9	0.55	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoroheptanoic acid (PFHpA)	<0.24		1.9	0.24	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorooctanoic acid (PFOA)	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorononanoic acid (PFNA)	<0.26		1.9	0.26	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorododecanoic acid (PFDoA)	<0.52		1.9	0.52	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorotetradecanoic acid (PFTeA)	<0.69		1.9	0.69	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.85		1.9	0.85	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.89		1.9	0.89	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoropentanesulfonic acid (PFPeS)	<0.29		1.9	0.29	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.54		1.9	0.54	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorooctanesulfonic acid (PFOS)	<0.51		1.9	0.51	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorododecanesulfonic acid (PFDoS)	<0.92		1.9	0.92	ng/L		12/23/20 18:34	12/28/20 00:18	1
Perfluorooctanesulfonamide (FOSA)	<0.93		1.9	0.93	ng/L		12/23/20 18:34	12/28/20 00:18	1
NEtFOSA	<0.83		1.9	0.83	ng/L		12/23/20 18:34	12/28/20 00:18	1
NMeFOSA	<0.41		1.9	0.41	ng/L		12/23/20 18:34	12/28/20 00:18	1
NMeFOSAA	<1.1		4.8	1.1	ng/L		12/23/20 18:34	12/28/20 00:18	1
NEtFOSAA	<1.2		4.8	1.2	ng/L		12/23/20 18:34	12/28/20 00:18	1
NMeFOSE	<1.3		3.8	1.3	ng/L		12/23/20 18:34	12/28/20 00:18	1
NEtFOSE	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 00:18	1
4:2 FTS	<0.23		1.9	0.23	ng/L		12/23/20 18:34	12/28/20 00:18	1
6:2 FTS	<2.4		4.8	2.4	ng/L		12/23/20 18:34	12/28/20 00:18	1
8:2 FTS	<0.44		1.9	0.44	ng/L		12/23/20 18:34	12/28/20 00:18	1
10:2 FTS	<0.64		1.9	0.64	ng/L		12/23/20 18:34	12/28/20 00:18	1
DONA	<0.38		1.9	0.38	ng/L		12/23/20 18:34	12/28/20 00:18	1
HFPO-DA (GenX)	<1.4		3.8	1.4	ng/L		12/23/20 18:34	12/28/20 00:18	1
F-53B Major	<0.23		1.9	0.23	ng/L		12/23/20 18:34	12/28/20 00:18	1
F-53B Minor	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:18	1

Client Sample ID: RSSCT 3 - EF - 15K
Lab Sample ID: 320-68214-4

Date Collected: 12/19/20 06:57
Matrix: Water
Date Received: 12/22/20 11:15

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C5 PFPeA	99		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C2 PFHxA	97		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C4 PFHpA	104		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C4 PFOA	105		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C5 PFNA	102		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C2 PFDA	95		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C2 PFUnA	96		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C2 PFDoA	87		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C2 PFTeDA	98		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C2 PFHxDA	93		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C3 PFBS	96		25 - 150	12/23/20 18:34	12/28/20 00:18	1
18O2 PFHxS	94		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C4 PFOS	97		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C8 FOSA	92		10 - 150	12/23/20 18:34	12/28/20 00:18	1
d3-NMeFOSAA	83		25 - 150	12/23/20 18:34	12/28/20 00:18	1
d5-NEtFOSAA	82		25 - 150	12/23/20 18:34	12/28/20 00:18	1
d-N-MeFOSA-M	93		10 - 150	12/23/20 18:34	12/28/20 00:18	1
d-N-EtFOSA-M	83		10 - 150	12/23/20 18:34	12/28/20 00:18	1
d7-N-MeFOSE-M	66		10 - 150	12/23/20 18:34	12/28/20 00:18	1
d9-N-EtFOSE-M	54		10 - 150	12/23/20 18:34	12/28/20 00:18	1
M2-4:2 FTS	82		25 - 150	12/23/20 18:34	12/28/20 00:18	1
M2-6:2 FTS	89		25 - 150	12/23/20 18:34	12/28/20 00:18	1
M2-8:2 FTS	91		25 - 150	12/23/20 18:34	12/28/20 00:18	1
13C3 HFPO-DA	102		25 - 150	12/23/20 18:34	12/28/20 00:18	1

Client Sample ID: RSSCT 3 - EF - 20K
Lab Sample ID: 320-68214-5
Date Collected: 12/19/20 11:36
Matrix: Water
Date Received: 12/22/20 11:15

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 16:06	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/31/20 16:06*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/31/20 16:06*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**19**		4.6	2.2	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoropentanoic acid (PFPeA)	**2.2**		1.8	0.45	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorohexanoic acid (PFHxA)	**0.80**	**J**	1.8	0.53	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.8	0.23	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorooctanoic acid (PFOA)	<0.78		1.8	0.78	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorotetradecanoic acid (PFTeA)	<0.67		1.8	0.67	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.82		1.8	0.82	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.86		1.8	0.86	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorobutanesulfonic acid (PFBS)	**0.23**	**J**	1.8	0.18	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.8	0.28	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorohexanesulfonic acid (PFHxS)	<0.52		1.8	0.52	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.8	0.50	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorododecanesulfonic acid (PFDoS)	<0.89		1.8	0.89	ng/L		12/23/20 18:34	12/28/20 00:27	1
Perfluorooctanesulfonamide (FOSA)	<0.90		1.8	0.90	ng/L		12/23/20 18:34	12/28/20 00:27	1
NEtFOSA	<0.80		1.8	0.80	ng/L		12/23/20 18:34	12/28/20 00:27	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/23/20 18:34	12/28/20 00:27	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/23/20 18:34	12/28/20 00:27	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/23/20 18:34	12/28/20 00:27	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/23/20 18:34	12/28/20 00:27	1
NEtFOSE	<0.78		1.8	0.78	ng/L		12/23/20 18:34	12/28/20 00:27	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/23/20 18:34	12/28/20 00:27	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/23/20 18:34	12/28/20 00:27	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/23/20 18:34	12/28/20 00:27	1
10:2 FTS	<0.61		1.8	0.61	ng/L		12/23/20 18:34	12/28/20 00:27	1
DONA	<0.37		1.8	0.37	ng/L		12/23/20 18:34	12/28/20 00:27	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/23/20 18:34	12/28/20 00:27	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/23/20 18:34	12/28/20 00:27	1
F-53B Minor	<0.29		1.8	0.29	ng/L		12/23/20 18:34	12/28/20 00:27	1

Client: TRC Environmental Corporation.
Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Client Sample ID: RSSCT 3 - EF - 20K
Lab Sample ID: 320-68214-5
Date Collected: 12/19/20 11:36
Matrix: Water
Date Received: 12/22/20 11:15

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	88		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C5 PFPeA	93		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C2 PFHxA	89		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C4 PFHpA	98		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C4 PFOA	99		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C5 PFNA	99		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C2 PFDA	99		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C2 PFUnA	95		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C2 PFDoA	89		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C2 PFTeDA	97		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C2 PFHxDA	99		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C3 PFBS	89		25 - 150	12/23/20 18:34	12/28/20 00:27	1
18O2 PFHxS	92		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C4 PFOS	92		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C8 FOSA	87		10 - 150	12/23/20 18:34	12/28/20 00:27	1
d3-NMeFOSAA	82		25 - 150	12/23/20 18:34	12/28/20 00:27	1
d5-NEtFOSAA	88		25 - 150	12/23/20 18:34	12/28/20 00:27	1
d-N-MeFOSA-M	93		10 - 150	12/23/20 18:34	12/28/20 00:27	1
d-N-EtFOSA-M	84		10 - 150	12/23/20 18:34	12/28/20 00:27	1
d7-N-MeFOSE-M	60		10 - 150	12/23/20 18:34	12/28/20 00:27	1
d9-N-EtFOSE-M	55		10 - 150	12/23/20 18:34	12/28/20 00:27	1
M2-4:2 FTS	77		25 - 150	12/23/20 18:34	12/28/20 00:27	1
M2-6:2 FTS	75		25 - 150	12/23/20 18:34	12/28/20 00:27	1
M2-8:2 FTS	89		25 - 150	12/23/20 18:34	12/28/20 00:27	1
13C3 HFPO-DA	93		25 - 150	12/23/20 18:34	12/28/20 00:27	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Client Sample ID: RSSCT 3 - EF - 30K

Date Collected: 12/19/20 20:54
Date Received: 12/22/20 11:15

Lab Sample ID: 320-68214-6

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 16:31	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 16:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/31/20 16:31*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/31/20 16:31*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**25**		4.6	2.2	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoropentanoic acid (PFPeA)	**8.6**		1.9	0.45	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorohexanoic acid (PFHxA)	**2.9**		1.9	0.54	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoroheptanoic acid (PFHpA)	**0.48**	**J**	1.9	0.23	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.82		1.9	0.82	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.87		1.9	0.87	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorobutanesulfonic acid (PFBS)	**0.87**	**J**	1.9	0.19	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorohexanesulfonic acid (PFHxS)	**1.0**	**J**	1.9	0.53	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.9	0.34	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		12/23/20 18:34	12/28/20 00:36	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		12/23/20 18:34	12/28/20 00:36	1
NEtFOSA	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 00:36	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/23/20 18:34	12/28/20 00:36	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/23/20 18:34	12/28/20 00:36	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/23/20 18:34	12/28/20 00:36	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/23/20 18:34	12/28/20 00:36	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/23/20 18:34	12/28/20 00:36	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/23/20 18:34	12/28/20 00:36	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/23/20 18:34	12/28/20 00:36	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/23/20 18:34	12/28/20 00:36	1
10:2 FTS	<0.62		1.9	0.62	ng/L		12/23/20 18:34	12/28/20 00:36	1
DONA	<0.37		1.9	0.37	ng/L		12/23/20 18:34	12/28/20 00:36	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/23/20 18:34	12/28/20 00:36	1
F-53B Major	<0.22		1.9	0.22	ng/L		12/23/20 18:34	12/28/20 00:36	1
F-53B Minor	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:36	1

Client Sample ID: RSSCT 3 - EF - 30K

Lab Sample ID: 320-68214-6

Date Collected: 12/19/20 20:54

Matrix: Water

Date Received: 12/22/20 11:15

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	93		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C5 PFPeA	96		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C2 PFHxA	95		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C4 PFHpA	100		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C4 PFOA	97		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C5 PFNA	98		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C2 PFDA	95		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C2 PFUnA	98		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C2 PFDoA	91		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C2 PFTeDA	106		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C2 PFHxDA	98		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C3 PFBS	91		25 - 150	12/23/20 18:34	12/28/20 00:36	1
18O2 PFHxS	93		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C4 PFOS	96		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C8 FOSA	91		10 - 150	12/23/20 18:34	12/28/20 00:36	1
d3-NMeFOSAA	87		25 - 150	12/23/20 18:34	12/28/20 00:36	1
d5-NEtFOSAA	89		25 - 150	12/23/20 18:34	12/28/20 00:36	1
d-N-MeFOSA-M	96		10 - 150	12/23/20 18:34	12/28/20 00:36	1
d-N-EtFOSA-M	89		10 - 150	12/23/20 18:34	12/28/20 00:36	1
d7-N-MeFOSE-M	67		10 - 150	12/23/20 18:34	12/28/20 00:36	1
d9-N-EtFOSE-M	53		10 - 150	12/23/20 18:34	12/28/20 00:36	1
M2-4:2 FTS	81		25 - 150	12/23/20 18:34	12/28/20 00:36	1
M2-6:2 FTS	90		25 - 150	12/23/20 18:34	12/28/20 00:36	1
M2-8:2 FTS	87		25 - 150	12/23/20 18:34	12/28/20 00:36	1
13C3 HFPO-DA	96		25 - 150	12/23/20 18:34	12/28/20 00:36	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Client Sample ID: RSSCT 3 - EF - 40K

Date Collected: 12/20/20 06:13
Date Received: 12/22/20 11:15

Lab Sample ID: 320-68214-7

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 16:56	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 16:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*12/31/20 16:56*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/31/20 16:56*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**28**		4.6	2.2	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoropentanoic acid (PFPeA)	**17**		1.9	0.45	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorohexanoic acid (PFHxA)	**8.0**		1.9	0.54	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoroheptanoic acid (PFHpA)	**1.5**	**J**	1.9	0.23	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorooctanoic acid (PFOA)	**1.4**	**J**	1.9	0.79	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.83		1.9	0.83	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.87		1.9	0.87	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorobutanesulfonic acid (PFBS)	**2.4**		1.9	0.19	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorohexanesulfonic acid (PFHxS)	**3.3**		1.9	0.53	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.9	0.34	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		12/23/20 18:34	12/28/20 00:46	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		12/23/20 18:34	12/28/20 00:46	1
NEtFOSA	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 00:46	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/23/20 18:34	12/28/20 00:46	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/23/20 18:34	12/28/20 00:46	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/23/20 18:34	12/28/20 00:46	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/23/20 18:34	12/28/20 00:46	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/23/20 18:34	12/28/20 00:46	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/23/20 18:34	12/28/20 00:46	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/23/20 18:34	12/28/20 00:46	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/23/20 18:34	12/28/20 00:46	1
10:2 FTS	<0.62		1.9	0.62	ng/L		12/23/20 18:34	12/28/20 00:46	1
DONA	<0.37		1.9	0.37	ng/L		12/23/20 18:34	12/28/20 00:46	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/23/20 18:34	12/28/20 00:46	1
F-53B Major	<0.22		1.9	0.22	ng/L		12/23/20 18:34	12/28/20 00:46	1
F-53B Minor	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 00:46	1

Client Sample ID: RSSCT 3 - EF - 40K

Lab Sample ID: 320-68214-7

Date Collected: 12/20/20 06:13

Matrix: Water

Date Received: 12/22/20 11:15

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	93		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C5 PFPeA	99		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C2 PFHxA	97		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C4 PFHpA	102		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C4 PFOA	106		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C5 PFNA	104		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C2 PFDA	100		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C2 PFUnA	98		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C2 PFDoA	90		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C2 PFTeDA	108		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C2 PFHxDA	84		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C3 PFBS	98		25 - 150	12/23/20 18:34	12/28/20 00:46	1
18O2 PFHxS	94		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C4 PFOS	95		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C8 FOSA	89		10 - 150	12/23/20 18:34	12/28/20 00:46	1
d3-NMeFOSAA	87		25 - 150	12/23/20 18:34	12/28/20 00:46	1
d5-NEtFOSAA	91		25 - 150	12/23/20 18:34	12/28/20 00:46	1
d-N-MeFOSA-M	102		10 - 150	12/23/20 18:34	12/28/20 00:46	1
d-N-EtFOSA-M	93		10 - 150	12/23/20 18:34	12/28/20 00:46	1
d7-N-MeFOSE-M	67		10 - 150	12/23/20 18:34	12/28/20 00:46	1
d9-N-EtFOSE-M	60		10 - 150	12/23/20 18:34	12/28/20 00:46	1
M2-4:2 FTS	81		25 - 150	12/23/20 18:34	12/28/20 00:46	1
M2-6:2 FTS	84		25 - 150	12/23/20 18:34	12/28/20 00:46	1
M2-8:2 FTS	86		25 - 150	12/23/20 18:34	12/28/20 00:46	1
13C3 HFPO-DA	101		25 - 150	12/23/20 18:34	12/28/20 00:46	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Client Sample ID: RSSCT 3 - EF - 50K

Date Collected: 12/20/20 15:31
Date Received: 12/22/20 11:15

Lab Sample ID: 320-68214-8

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/03/21 12:42	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/03/21 12:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*01/03/21 12:42*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*01/03/21 12:42*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**28**		4.7	2.2	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoropentanoic acid (PFPeA)	**24**		1.9	0.46	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorohexanoic acid (PFHxA)	**14**		1.9	0.54	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoroheptanoic acid (PFHpA)	**2.7**		1.9	0.23	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorooctanoic acid (PFOA)	**3.0**		1.9	0.79	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.83		1.9	0.83	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.87		1.9	0.87	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorobutanesulfonic acid (PFBS)	**5.1**		1.9	0.19	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorohexanesulfonic acid (PFHxS)	**6.8**		1.9	0.53	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorooctanesulfonic acid (PFOS)	**0.62**	**J**	1.9	0.50	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.9	0.34	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		12/23/20 18:34	12/28/20 01:23	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		12/23/20 18:34	12/28/20 01:23	1
NEtFOSA	<0.81		1.9	0.81	ng/L		12/23/20 18:34	12/28/20 01:23	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/23/20 18:34	12/28/20 01:23	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		12/23/20 18:34	12/28/20 01:23	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		12/23/20 18:34	12/28/20 01:23	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/23/20 18:34	12/28/20 01:23	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/23/20 18:34	12/28/20 01:23	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/23/20 18:34	12/28/20 01:23	1
6:2 FTS	<2.3		4.7	2.3	ng/L		12/23/20 18:34	12/28/20 01:23	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/23/20 18:34	12/28/20 01:23	1
10:2 FTS	<0.62		1.9	0.62	ng/L		12/23/20 18:34	12/28/20 01:23	1
DONA	<0.37		1.9	0.37	ng/L		12/23/20 18:34	12/28/20 01:23	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/23/20 18:34	12/28/20 01:23	1
F-53B Major	<0.22		1.9	0.22	ng/L		12/23/20 18:34	12/28/20 01:23	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Client Sample ID: RSSCT 3 - EF - 50K
Date Collected: 12/20/20 15:31
Date Received: 12/22/20 11:15

Lab Sample ID: 320-68214-8
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.30		1.9	0.30	ng/L		12/23/20 18:34	12/28/20 01:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C5 PFPeA	*96*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C2 PFHxA	*98*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C4 PFHpA	*102*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C4 PFOA	*99*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C5 PFNA	*102*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C2 PFDA	*99*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C2 PFUnA	*94*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C2 PFDoA	*95*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C2 PFHxDA	*101*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C3 PFBS	*95*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
18O2 PFHxS	*98*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C4 PFOS	*94*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C8 FOSA	*92*		*10 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
d5-NEtFOSAA	*95*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
d-N-MeFOSA-M	*95*		*10 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
d-N-EtFOSA-M	*85*		*10 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
d7-N-MeFOSE-M	*59*		*10 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
d9-N-EtFOSE-M	*50*		*10 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
M2-4:2 FTS	*81*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
M2-6:2 FTS	*84*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
M2-8:2 FTS	*85*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*
13C3 HFPO-DA	*100*		*25 - 150*	*12/23/20 18:34*	*12/28/20 01:23*	*1*

Surrogate Summary

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 3

Job ID: 320-68214-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
		DBFM	TOL								
Lab Sample ID	Client Sample ID	(80-119)	(89-112)								
320-68214-1	RSSCT 3 - IN - 01	99	93								
320-68214-2	RSSCT 3 - EF - 5K	95	92								
320-68214-3	RSSCT 3 - EF - 10K	97	95								
320-68214-4	RSSCT 3 - EF - 15K	98	93								
320-68214-5	RSSCT 3 - EF - 20K	97	93								
320-68214-6	RSSCT 3 - EF - 30K	97	93								
320-68214-7	RSSCT 3 - EF - 40K	96	92								
320-68214-8	RSSCT 3 - EF - 50K	97	94								
LCS 320-447118/3	Lab Control Sample	96	94								
LCS 320-447644/4	Lab Control Sample	91	93								
LCS 320-447884/4	Lab Control Sample	95	96								
LCSD 320-447118/4	Lab Control Sample Dup	98	96								
LCSD 320-447644/5	Lab Control Sample Dup	99	97								
LCSD 320-447884/5	Lab Control Sample Dup	97	94								
MB 320-447118/7	Method Blank	100	96								
MB 320-447644/7	Method Blank	98	96								
MB 320-447884/7	Method Blank	94	95								

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-68214-1	RSSCT 3 - IN - 01	93	94	93	99	103	102	103	100
320-68214-2	RSSCT 3 - EF - 5K	95	96	97	101	100	100	97	100
320-68214-3	RSSCT 3 - EF - 10K	103	105	104	111	113	108	104	99
320-68214-4	RSSCT 3 - EF - 15K	96	99	97	104	105	102	95	96
320-68214-5	RSSCT 3 - EF - 20K	88	93	89	98	99	99	99	95
320-68214-6	RSSCT 3 - EF - 30K	93	96	95	100	97	98	95	98
320-68214-7	RSSCT 3 - EF - 40K	93	99	97	102	106	104	100	98
320-68214-8	RSSCT 3 - EF - 50K	95	96	98	102	99	102	99	94
LCS 320-445505/2-A	Lab Control Sample	90	92	91	95	100	99	90	91
LCSD 320-445505/3-A	Lab Control Sample Dup	84	86	88	89	92	85	89	86
MB 320-445505/1-A	Method Blank	85	84	85	88	92	96	95	90

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	PFHxDA	C3PFBS	PFHxS	PFOS	PFOSA	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(10-150)	(25-150)
320-68214-1	RSSCT 3 - IN - 01	90	109	111	95	96	92	93	89
320-68214-2	RSSCT 3 - EF - 5K	90	104	96	94	96	92	89	90
320-68214-3	RSSCT 3 - EF - 10K	90	99	111	103	104	101	100	89
320-68214-4	RSSCT 3 - EF - 15K	87	98	93	96	94	97	92	83
320-68214-5	RSSCT 3 - EF - 20K	89	97	99	89	92	92	87	82
320-68214-6	RSSCT 3 - EF - 30K	91	106	98	91	93	96	91	87
320-68214-7	RSSCT 3 - EF - 40K	90	108	84	98	94	95	89	87
320-68214-8	RSSCT 3 - EF - 50K	95	106	101	95	98	94	92	85
LCS 320-445505/2-A	Lab Control Sample	88	98	97	91	91	93	82	86
LCSD 320-445505/3-A	Lab Control Sample Dup	80	92	97	84	86	87	78	79
MB 320-445505/1-A	Method Blank	84	90	88	82	86	83	80	81

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	dMeFOSA	dEtFOSA	NMFM	NEFM	M242FTS	M262FTS	M282FTS
Lab Sample ID	Client Sample ID	(25-150)	(10-150)	(10-150)	(10-150)	(10-150)	(25-150)	(25-150)	(25-150)
320-68214-1	RSSCT 3 - IN - 01	97	88	79	61	50	80	86	92
320-68214-2	RSSCT 3 - EF - 5K	92	100	91	64	50	81	89	91
320-68214-3	RSSCT 3 - EF - 10K	97	94	87	62	50	94	100	95
320-68214-4	RSSCT 3 - EF - 15K	82	93	83	66	54	82	89	91
320-68214-5	RSSCT 3 - EF - 20K	88	93	84	60	55	77	75	89
320-68214-6	RSSCT 3 - EF - 30K	89	96	89	67	53	81	90	87
320-68214-7	RSSCT 3 - EF - 40K	91	102	93	67	60	81	84	86
320-68214-8	RSSCT 3 - EF - 50K	95	95	85	59	50	81	84	85
LCS 320-445505/2-A	Lab Control Sample	85	90	86	64	54	83	85	85
LCSD 320-445505/3-A	Lab Control Sample Dup	78	83	81	57	51	71	76	72
MB 320-445505/1-A	Method Blank	82	85	83	61	49	73	78	77

		Percent Isotope Dilution Recovery (Acceptance Limits)
		HFPODA
Lab Sample ID	Client Sample ID	(25-150)
320-68214-1	RSSCT 3 - IN - 01	96
320-68214-2	RSSCT 3 - EF - 5K	94
320-68214-3	RSSCT 3 - EF - 10K	107
320-68214-4	RSSCT 3 - EF - 15K	102
320-68214-5	RSSCT 3 - EF - 20K	93
320-68214-6	RSSCT 3 - EF - 30K	96
320-68214-7	RSSCT 3 - EF - 40K	101

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HFPODA (25-150)						
320-68214-8	RSSCT 3 - EF - 50K	100						
LCS 320-445505/2-A	Lab Control Sample	92						
LCSD 320-445505/3-A	Lab Control Sample Dup	93						
MB 320-445505/1-A	Method Blank	86						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 320-447118/7
Matrix: Water
Analysis Batch: 447118

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/30/20 12:58	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/30/20 12:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/30/20 12:58*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/30/20 12:58*	*1*

Lab Sample ID: LCS 320-447118/3
Matrix: Water
Analysis Batch: 447118

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.10		ug/L		105	74 - 129		
Trichloroethene			2.00	1.84		ug/L		92	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 119*
Toluene-d8 (Surr)	*94*		*89 - 112*

Lab Sample ID: LCSD 320-447118/4
Matrix: Water
Analysis Batch: 447118

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.20		ug/L		110	74 - 129	5	20
Trichloroethene			2.00	1.92		ug/L		96	79 - 123	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: MB 320-447644/7
Matrix: Water
Analysis Batch: 447644

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			12/31/20 13:39	1
Trichloroethene	<0.012		0.050	0.012	ug/L			12/31/20 13:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/31/20 13:39*	*1*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/31/20 13:39*	*1*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 320-447644/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447644

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.04		ug/L		102	74 - 129		
Trichloroethene			2.00	1.87		ug/L		93	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*91*		*80 - 119*
Toluene-d8 (Surr)	*93*		*89 - 112*

Lab Sample ID: LCSD 320-447644/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447644

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.12		ug/L		106	74 - 129	4	20
Trichloroethene			2.00	1.95		ug/L		98	79 - 123	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*80 - 119*
Toluene-d8 (Surr)	*97*		*89 - 112*

Lab Sample ID: MB 320-447884/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447884

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/03/21 12:18	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/03/21 12:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*01/03/21 12:18*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*01/03/21 12:18*	*1*

Lab Sample ID: LCS 320-447884/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 447884

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.09		ug/L		105	74 - 129		
Trichloroethene			2.00	1.90		ug/L		95	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 320-447884/5
Matrix: Water
Analysis Batch: 447884

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	1.95		ug/L		97	74 - 129	7	20
Trichloroethene			2.00	1.82		ug/L		91	79 - 123	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*80 - 119*
Toluene-d8 (Surr)	*94*		*89 - 112*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-445505/1-A
Matrix: Water
Analysis Batch: 446036

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445505

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/23/20 18:34	12/27/20 23:22	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		12/23/20 18:34	12/27/20 23:22	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/23/20 18:34	12/27/20 23:22	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/23/20 18:34	12/27/20 23:22	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/23/20 18:34	12/27/20 23:22	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/23/20 18:34	12/27/20 23:22	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/23/20 18:34	12/27/20 23:22	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/23/20 18:34	12/27/20 23:22	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/23/20 18:34	12/27/20 23:22	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/23/20 18:34	12/27/20 23:22	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/23/20 18:34	12/27/20 23:22	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-445505/1-A
Matrix: Water
Analysis Batch: 446036

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445505

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
10:2 FTS	<0.67		2.0	0.67	ng/L		12/23/20 18:34	12/27/20 23:22	1
DONA	<0.40		2.0	0.40	ng/L		12/23/20 18:34	12/27/20 23:22	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/23/20 18:34	12/27/20 23:22	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/23/20 18:34	12/27/20 23:22	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/23/20 18:34	12/27/20 23:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C5 PFPeA	*84*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C2 PFHxA	*85*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C4 PFHpA	*88*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C4 PFOA	*92*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C5 PFNA	*96*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C2 PFDA	*95*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C2 PFUnA	*90*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C2 PFDoA	*84*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C2 PFTeDA	*90*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C2 PFHxDA	*88*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C3 PFBS	*82*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
18O2 PFHxS	*86*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C4 PFOS	*83*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C8 FOSA	*80*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
d3-NMeFOSAA	*81*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
d5-NEtFOSAA	*82*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
d-N-MeFOSA-M	*85*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
d-N-EtFOSA-M	*83*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
d7-N-MeFOSE-M	*61*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
d9-N-EtFOSE-M	*49*		*10 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
M2-4:2 FTS	*73*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
M2-6:2 FTS	*78*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
M2-8:2 FTS	*77*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*
13C3 HFPO-DA	*86*		*25 - 150*	*12/23/20 18:34*	*12/27/20 23:22*	*1*

Lab Sample ID: LCS 320-445505/2-A
Matrix: Water
Analysis Batch: 446036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	39.2		ng/L		98	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	36.8		ng/L		92	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	40.7		ng/L		102	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	39.7		ng/L		99	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	37.8		ng/L		94	60 - 135
Perfluorononanoic acid (PFNA)	40.0	38.1		ng/L		95	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	39.4		ng/L		99	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	41.2		ng/L		103	60 - 135

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-445505/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 446036 **Prep Batch: 445505**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorotridecanoic acid (PFTriA)	40.0	39.6		ng/L		99	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	37.3		ng/L		93	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	38.1		ng/L		95	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	43.2		ng/L		108	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.4	35.4		ng/L		100	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	39.6		ng/L		106	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.8		ng/L		93	60 - 135
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.6		ng/L		101	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.1	35.2		ng/L		95	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.4	36.9		ng/L		96	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	36.9		ng/L		96	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	34.6		ng/L		89	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	43.9		ng/L		110	60 - 135
NEtFOSA	40.0	39.8		ng/L		99	60 - 135
NMeFOSA	40.0	37.5		ng/L		94	60 - 135
NMeFOSAA	40.0	40.3		ng/L		101	60 - 135
NEtFOSAA	40.0	40.0		ng/L		100	60 - 135
NMeFOSE	40.0	37.8		ng/L		95	60 - 135
NEtFOSE	40.0	36.2		ng/L		90	60 - 135
4:2 FTS	37.4	35.6		ng/L		95	60 - 135
6:2 FTS	37.9	34.8		ng/L		92	60 - 135
8:2 FTS	38.3	40.7		ng/L		106	60 - 135
10:2 FTS	38.6	37.9		ng/L		98	60 - 135
DONA	37.7	38.4		ng/L		102	60 - 135
HFPO-DA (GenX)	40.0	38.9		ng/L		97	60 - 135
F-53B Major	37.3	38.0		ng/L		102	60 - 135
F-53B Minor	37.7	36.5		ng/L		97	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*90*		*25 - 150*
13C5 PFPeA	*92*		*25 - 150*
13C2 PFHxA	*91*		*25 - 150*
13C4 PFHpA	*95*		*25 - 150*
13C4 PFOA	*100*		*25 - 150*
13C5 PFNA	*99*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*91*		*25 - 150*
13C2 PFDoA	*88*		*25 - 150*
13C2 PFTeDA	*98*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-445505/2-A
Matrix: Water
Analysis Batch: 446036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445505

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxDA	*97*		*25 - 150*
13C3 PFBS	*91*		*25 - 150*
18O2 PFHxS	*91*		*25 - 150*
13C4 PFOS	*93*		*25 - 150*
13C8 FOSA	*82*		*10 - 150*
d3-NMeFOSAA	*86*		*25 - 150*
d5-NEtFOSAA	*85*		*25 - 150*
d-N-MeFOSA-M	*90*		*10 - 150*
d-N-EtFOSA-M	*86*		*10 - 150*
d7-N-MeFOSE-M	*64*		*10 - 150*
d9-N-EtFOSE-M	*54*		*10 - 150*
M2-4:2 FTS	*83*		*25 - 150*
M2-6:2 FTS	*85*		*25 - 150*
M2-8:2 FTS	*85*		*25 - 150*
13C3 HFPO-DA	*92*		*25 - 150*

Lab Sample ID: LCSD 320-445505/3-A
Matrix: Water
Analysis Batch: 446036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445505

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	40.5		ng/L		101	60 - 135	3	30
Perfluoropentanoic acid (PFPeA)			40.0	35.7		ng/L		89	60 - 135	3	30
Perfluorohexanoic acid (PFHxA)			40.0	39.5		ng/L		99	60 - 135	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	42.1		ng/L		105	60 - 135	6	30
Perfluorooctanoic acid (PFOA)			40.0	38.0		ng/L		95	60 - 135	1	30
Perfluorononanoic acid (PFNA)			40.0	40.0		ng/L		100	60 - 135	5	30
Perfluorodecanoic acid (PFDA)			40.0	39.2		ng/L		98	60 - 135	1	30
Perfluoroundecanoic acid (PFUnA)			40.0	40.6		ng/L		101	60 - 135	3	30
Perfluorododecanoic acid (PFDoA)			40.0	42.4		ng/L		106	60 - 135	3	30
Perfluorotridecanoic acid (PFTriA)			40.0	43.7		ng/L		109	60 - 135	10	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.4		ng/L		98	60 - 135	6	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	39.8		ng/L		99	60 - 135	4	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	42.4		ng/L		106	60 - 135	2	30
Perfluorobutanesulfonic acid (PFBS)			35.4	37.6		ng/L		106	60 - 135	6	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	39.6		ng/L		106	60 - 135	0	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	33.4		ng/L		92	60 - 135	1	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.9		ng/L		105	60 - 135	3	30
Perfluorooctanesulfonic acid (PFOS)			37.1	35.1		ng/L		95	60 - 135	0	30
Perfluorononanesulfonic acid (PFNS)			38.4	34.5		ng/L		90	60 - 135	7	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-445505/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 446036 **Prep Batch: 445505**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorodecanesulfonic acid (PFDS)			38.6	36.7		ng/L		95	60 - 135	1	30
Perfluorododecanesulfonic acid (PFDoS)			38.7	34.0		ng/L		88	60 - 135	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	44.0		ng/L		110	60 - 135	0	30
NEtFOSA			40.0	36.6		ng/L		92	60 - 135	8	30
NMeFOSA			40.0	38.0		ng/L		95	60 - 135	1	30
NMeFOSAA			40.0	39.9		ng/L		100	60 - 135	1	30
NEtFOSAA			40.0	39.4		ng/L		99	60 - 135	1	30
NMeFOSE			40.0	40.0		ng/L		100	60 - 135	6	30
NEtFOSE			40.0	38.2		ng/L		96	60 - 135	5	30
4:2 FTS			37.4	38.7		ng/L		104	60 - 135	8	30
6:2 FTS			37.9	35.9		ng/L		95	60 - 135	3	30
8:2 FTS			38.3	45.6		ng/L		119	60 - 135	11	30
10:2 FTS			38.6	40.7		ng/L		106	60 - 135	7	30
DONA			37.7	39.0		ng/L		104	60 - 135	2	30
HFPO-DA (GenX)			40.0	38.2		ng/L		95	60 - 135	2	30
F-53B Major			37.3	37.0		ng/L		99	60 - 135	3	30
F-53B Minor			37.7	37.7		ng/L		100	60 - 135	3	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*84*		*25 - 150*
13C5 PFPeA	*86*		*25 - 150*
13C2 PFHxA	*88*		*25 - 150*
13C4 PFHpA	*89*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*85*		*25 - 150*
13C2 PFDA	*89*		*25 - 150*
13C2 PFUnA	*86*		*25 - 150*
13C2 PFDoA	*80*		*25 - 150*
13C2 PFTeDA	*92*		*25 - 150*
13C2 PFHxDA	*97*		*25 - 150*
13C3 PFBS	*84*		*25 - 150*
18O2 PFHxS	*86*		*25 - 150*
13C4 PFOS	*87*		*25 - 150*
13C8 FOSA	*78*		*10 - 150*
d3-NMeFOSAA	*79*		*25 - 150*
d5-NEtFOSAA	*78*		*25 - 150*
d-N-MeFOSA-M	*83*		*10 - 150*
d-N-EtFOSA-M	*81*		*10 - 150*
d7-N-MeFOSE-M	*57*		*10 - 150*
d9-N-EtFOSE-M	*51*		*10 - 150*
M2-4:2 FTS	*71*		*25 - 150*
M2-6:2 FTS	*76*		*25 - 150*
M2-8:2 FTS	*72*		*25 - 150*
13C3 HFPO-DA	*93*		*25 - 150*

QC Association Summary

Client: TRC Environmental Corporation.
Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

GC/MS VOA

Analysis Batch: 447118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68214-1	RSSCT 3 - IN - 01	Total/NA	Water	8260C SIM	
MB 320-447118/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447118/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447118/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 447644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68214-2	RSSCT 3 - EF - 5K	Total/NA	Water	8260C SIM	
320-68214-3	RSSCT 3 - EF - 10K	Total/NA	Water	8260C SIM	
320-68214-4	RSSCT 3 - EF - 15K	Total/NA	Water	8260C SIM	
320-68214-5	RSSCT 3 - EF - 20K	Total/NA	Water	8260C SIM	
320-68214-6	RSSCT 3 - EF - 30K	Total/NA	Water	8260C SIM	
320-68214-7	RSSCT 3 - EF - 40K	Total/NA	Water	8260C SIM	
MB 320-447644/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447644/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447644/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 447884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68214-8	RSSCT 3 - EF - 50K	Total/NA	Water	8260C SIM	
MB 320-447884/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447884/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447884/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

LCMS

Prep Batch: 445505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68214-1	RSSCT 3 - IN - 01	Total/NA	Water	3535	
320-68214-2	RSSCT 3 - EF - 5K	Total/NA	Water	3535	
320-68214-3	RSSCT 3 - EF - 10K	Total/NA	Water	3535	
320-68214-4	RSSCT 3 - EF - 15K	Total/NA	Water	3535	
320-68214-5	RSSCT 3 - EF - 20K	Total/NA	Water	3535	
320-68214-6	RSSCT 3 - EF - 30K	Total/NA	Water	3535	
320-68214-7	RSSCT 3 - EF - 40K	Total/NA	Water	3535	
320-68214-8	RSSCT 3 - EF - 50K	Total/NA	Water	3535	
MB 320-445505/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-445505/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-445505/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 446036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68214-1	RSSCT 3 - IN - 01	Total/NA	Water	537 (modified)	445505
320-68214-2	RSSCT 3 - EF - 5K	Total/NA	Water	537 (modified)	445505
320-68214-3	RSSCT 3 - EF - 10K	Total/NA	Water	537 (modified)	445505
320-68214-4	RSSCT 3 - EF - 15K	Total/NA	Water	537 (modified)	445505
320-68214-5	RSSCT 3 - EF - 20K	Total/NA	Water	537 (modified)	445505
320-68214-6	RSSCT 3 - EF - 30K	Total/NA	Water	537 (modified)	445505
320-68214-7	RSSCT 3 - EF - 40K	Total/NA	Water	537 (modified)	445505
320-68214-8	RSSCT 3 - EF - 50K	Total/NA	Water	537 (modified)	445505
MB 320-445505/1-A	Method Blank	Total/NA	Water	537 (modified)	445505

LCMS (Continued)

Analysis Batch: 446036 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-445505/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	445505
LCSD 320-445505/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	445505

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Client Sample ID: RSSCT 3 - IN - 01 — Lab Sample ID: 320-68214-1

Date Collected: 12/18/20 21:00 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447118	12/30/20 17:31	AP1	TAL SAC
Total/NA	Prep	3535			275.2 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/27/20 23:50	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 5K — Lab Sample ID: 320-68214-2

Date Collected: 12/18/20 21:39 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 14:53	SS	TAL SAC
Total/NA	Prep	3535			272 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/27/20 23:59	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 10K — Lab Sample ID: 320-68214-3

Date Collected: 12/19/20 02:18 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 15:17	SS	TAL SAC
Total/NA	Prep	3535			263.2 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/28/20 00:08	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 15K — Lab Sample ID: 320-68214-4

Date Collected: 12/19/20 06:57 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 15:42	SS	TAL SAC
Total/NA	Prep	3535			262.9 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/28/20 00:18	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 20K — Lab Sample ID: 320-68214-5

Date Collected: 12/19/20 11:36 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 16:06	SS	TAL SAC
Total/NA	Prep	3535			272.6 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/28/20 00:27	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 30K — Lab Sample ID: 320-68214-6

Date Collected: 12/19/20 20:54 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 16:31	SS	TAL SAC

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Client Sample ID: RSSCT 3 - EF - 30K — Lab Sample ID: 320-68214-6

Date Collected: 12/19/20 20:54 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/28/20 00:36	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 40K — Lab Sample ID: 320-68214-7

Date Collected: 12/20/20 06:13 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447644	12/31/20 16:56	SS	TAL SAC
Total/NA	Prep	3535			269.3 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/28/20 00:46	JRB	TAL SAC

Client Sample ID: RSSCT 3 - EF - 50K — Lab Sample ID: 320-68214-8

Date Collected: 12/20/20 15:31 — **Matrix: Water**
Date Received: 12/22/20 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447884	01/03/21 12:42	SS	TAL SAC
Total/NA	Prep	3535			268.6 mL	10.00 mL	445505	12/23/20 18:34	AP	TAL SAC
Total/NA	Analysis	537 (modified)		1			446036	12/28/20 01:23	JRB	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: TRC Environmental Corporation. Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-21

Method Summary

Client: TRC Environmental Corporation.
Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Method	Method Description	Protocol	Laboratory
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL SAC
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: TRC Environmental Corporation.
Job ID: 320-68214-1
Project/Site: Well #15 Feasibility Study - RSSCT 3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-68214-1	RSSCT 3 - IN - 01	Water	12/18/20 21:00	12/22/20 11:15	
320-68214-2	RSSCT 3 - EF - 5K	Water	12/18/20 21:39	12/22/20 11:15	
320-68214-3	RSSCT 3 - EF - 10K	Water	12/19/20 02:18	12/22/20 11:15	
320-68214-4	RSSCT 3 - EF - 15K	Water	12/19/20 06:57	12/22/20 11:15	
320-68214-5	RSSCT 3 - EF - 20K	Water	12/19/20 11:36	12/22/20 11:15	
320-68214-6	RSSCT 3 - EF - 30K	Water	12/19/20 20:54	12/22/20 11:15	
320-68214-7	RSSCT 3 - EF - 40K	Water	12/20/20 06:13	12/22/20 11:15	
320-68214-8	RSSCT 3 - EF - 50K	Water	12/20/20 15:31	12/22/20 11:15	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins

Client Information	Sampler: Kyle Trewitz	Lab PM: Fredrick, Sandie	Carrier Tracking No(s): 7125-4943-6845	COC No: 320-34439-8551.1
Client Contact: Jeff Ramey	Phone: 724-772-1407	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of 1
Company: TRC Environmental Corporation.				Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested:			
City: Brookfield	TAT Requested (days):			
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			
Email: jramey@trccompanies.com	WO #:			
Project Name: Well #15 Feasibility Study - RSSCT 3	Project #: 32016125			
Site:	SSOW#:			

Analysis Requested

320-68214 Chain of Custody

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, 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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	8260C_SIM - VOC - SIM	Total Number of containers	Special Instructions/Note:
			Preservation Code				N	A	A		
RSSCT 3 - IN - 01	12/18/20	21:00	G	Water			N	A	A	6	
RSSCT 3 - EF - 5K	12/18/20	21:39	G	Water			N	A	A	6	
RSSCT 3 - EF - 10K	12/19/20	2:18	G	Water			N	A	A	6	
RSSCT 3 - EF - 15K	12/19	6:57	G	Water			N	A	A	6	
RSSCT 3 - EF - 20K	12/19	11:36	G	Water			N	A	A	6	
RSSCT 3 - EF - 30K	12/19	20:54	G	Water			N	A	A	6	
RSSCT 3 - EF - 40K	12/20	6:13	G	Water			N	A	A	6	
RSSCT 3 - EF - 50K	12/20	15:31	G	Water			N	A	A	6	
				Water			N				
				Water							
				Water							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	12/21 15:00	EWT		12/22/20 1115	EASAC
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.: 969708

Cooler Temperature(s) °C and Other Remarks: 0.4

• lost poly missing time - Received extra trip bla

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: TRC Environmental Corporation. Job Number: 320-68214-1

Login Number: 68214 **List Source: Eurofins TestAmerica, Sacramento**
List Number: 1
Creator: Turpen, Troy

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	969708
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	
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.	False	Refer to Job Narrative for details.
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.	N/A	
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-68269-1
Client Project/Site: Well #15 Feasibility Study - RSSCT 4

For:
TRC Environmental Corporation.
150 N. Patrick Blvd.
Suite 180
Brookfield, Wisconsin 53045

Attn: Jeff Ramey

Authorized for release by:
1/8/2021 4:38:18 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

LCMS

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

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

Job ID: 320-68269-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-68269-1

Comments
No additional comments.

Receipt
The samples were received on 12/23/2020 10:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9º C.

GC/MS VOA
Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-447884.

Method 8260C SIM: The following samples were analyzed outside of analytical holding time due to instrument malfunction during the original analysis : RSSCT 4-EF- 10K (320-68269-2) and RSSCT 4-EF- 15K (320-68269-3).

Method 8260C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 320-448125.

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

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-445684. 3535_PFC Matrix: Aqueous

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

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Client Sample ID: RSSCT 4-EF- 5K — Lab Sample ID: 320-68269-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.7		4.6	2.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-EF- 10K — Lab Sample ID: 320-68269-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.88	J	1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.70	J	1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.8		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.61	J	1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.32	J	1.8	0.29	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-EF- 15K — Lab Sample ID: 320-68269-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	25		4.7	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.0		1.9	0.46	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-EF- 20K — Lab Sample ID: 320-68269-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	32		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.9		1.8	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.77	J	1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.32	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.66	J	1.8	0.48	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-EF- 30K — Lab Sample ID: 320-68269-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	32		4.2	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	11		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.1		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.32	J	1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.84	J	1.7	0.48	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-EF- 40K — Lab Sample ID: 320-68269-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	30		4.3	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	21		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.1		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.70	J	1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.81	J	1.7	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.7		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.7	0.48	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-EF- 50K — Lab Sample ID: 320-68269-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	28		4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	35		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.9		1.8	0.52	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: RSSCT 4-EF- 50K (Continued) Lab Sample ID: 320-68269-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.3	J	1.8	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.6		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.4		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.94	J	1.8	0.48	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RSSCT 4-IN-02 Lab Sample ID: 320-68269-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3.5		0.050	0.015	ug/L	1		8260C SIM	Total/NA
Trichloroethene	0.14		0.050	0.012	ug/L	1		8260C SIM	Total/NA
Perfluorobutanoic acid (PFBA)	26		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	44		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	49		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	22		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	44		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.31	J	1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	30		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.3		1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	150		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.4	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	40		1.8	0.49	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 4

Job ID: 320-68269-1

Client Sample ID: RSSCT 4-EF- 5K

Date Collected: 12/20/20 15:45
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-1

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/03/21 13:07	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/03/21 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*01/03/21 13:07*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*01/03/21 13:07*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.7**		4.6	2.2	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoropentanoic acid (PFPeA)	<0.45		1.8	0.45	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorohexanoic acid (PFHxA)	<0.53		1.8	0.53	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.8	0.23	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorooctanoic acid (PFOA)	<0.78		1.8	0.78	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.8	0.51	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorotetradecanoic acid (PFTeA)	<0.67		1.8	0.67	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.82		1.8	0.82	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.86		1.8	0.86	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorohexanesulfonic acid (PFHxS)	<0.52		1.8	0.52	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.8	0.50	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorododecanesulfonic acid (PFDoS)	<0.89		1.8	0.89	ng/L		12/24/20 11:38	12/30/20 17:41	1
Perfluorooctanesulfonamide (FOSA)	<0.90		1.8	0.90	ng/L		12/24/20 11:38	12/30/20 17:41	1
NEtFOSA	<0.80		1.8	0.80	ng/L		12/24/20 11:38	12/30/20 17:41	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/24/20 11:38	12/30/20 17:41	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/24/20 11:38	12/30/20 17:41	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/24/20 11:38	12/30/20 17:41	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/24/20 11:38	12/30/20 17:41	1
NEtFOSE	<0.78		1.8	0.78	ng/L		12/24/20 11:38	12/30/20 17:41	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/30/20 17:41	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/24/20 11:38	12/30/20 17:41	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/24/20 11:38	12/30/20 17:41	1
10:2 FTS	<0.62		1.8	0.62	ng/L		12/24/20 11:38	12/30/20 17:41	1
DONA	<0.37		1.8	0.37	ng/L		12/24/20 11:38	12/30/20 17:41	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/24/20 11:38	12/30/20 17:41	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/30/20 17:41	1
F-53B Minor	<0.29		1.8	0.29	ng/L		12/24/20 11:38	12/30/20 17:41	1

Client Sample ID: RSSCT 4-EF- 5K

Date Collected: 12/20/20 15:45
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-1

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	104		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C5 PFPeA	108		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C2 PFHxA	110		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C4 PFHpA	97		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C4 PFOA	109		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C5 PFNA	101		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C2 PFDA	91		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C2 PFUnA	99		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C2 PFDoA	105		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C2 PFTeDA	88		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C2 PFHxDA	84		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C3 PFBS	109		25 - 150	12/24/20 11:38	12/30/20 17:41	1
18O2 PFHxS	106		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C4 PFOS	102		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C8 FOSA	108		10 - 150	12/24/20 11:38	12/30/20 17:41	1
d3-NMeFOSAA	88		25 - 150	12/24/20 11:38	12/30/20 17:41	1
d5-NEtFOSAA	80		25 - 150	12/24/20 11:38	12/30/20 17:41	1
d-N-MeFOSA-M	87		10 - 150	12/24/20 11:38	12/30/20 17:41	1
d-N-EtFOSA-M	74		10 - 150	12/24/20 11:38	12/30/20 17:41	1
d7-N-MeFOSE-M	52		10 - 150	12/24/20 11:38	12/30/20 17:41	1
d9-N-EtFOSE-M	44		10 - 150	12/24/20 11:38	12/30/20 17:41	1
M2-4:2 FTS	79		25 - 150	12/24/20 11:38	12/30/20 17:41	1
M2-6:2 FTS	121		25 - 150	12/24/20 11:38	12/30/20 17:41	1
M2-8:2 FTS	89		25 - 150	12/24/20 11:38	12/30/20 17:41	1
13C3 HFPO-DA	94		25 - 150	12/24/20 11:38	12/30/20 17:41	1

Client Sample ID: RSSCT 4-EF- 10K

Lab Sample ID: 320-68269-2
Date Collected: 12/20/20 20:32
Matrix: Water
Date Received: 12/23/20 10:40

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			01/04/21 15:21	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			01/04/21 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*01/04/21 15:21*	*1*
Toluene-d8 (Surr)	*94*		*89 - 112*		*01/04/21 15:21*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		4.6	2.2	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoropentanoic acid (PFPeA)	**0.88**	**J**	1.8	0.45	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.8	0.54	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoroheptanoic acid (PFHpA)	**0.70**	**J**	1.8	0.23	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorooctanoic acid (PFOA)	**1.8**		1.8	0.78	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorononanoic acid (PFNA)	**0.61**	**J**	1.8	0.25	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorodecanoic acid (PFDA)	**0.32**	**J**	1.8	0.29	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.8	0.51	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorotetradecanoic acid (PFTeA)	<0.67		1.8	0.67	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.82		1.8	0.82	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.87		1.8	0.87	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.8	0.53	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.8	0.18	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.8	0.50	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.8	0.30	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.8	0.90	ng/L		12/24/20 11:38	12/29/20 19:00	1
Perfluorooctanesulfonamide (FOSA)	<0.90		1.8	0.90	ng/L		12/24/20 11:38	12/29/20 19:00	1
NEtFOSA	<0.80		1.8	0.80	ng/L		12/24/20 11:38	12/29/20 19:00	1
NMeFOSA	<0.40		1.8	0.40	ng/L		12/24/20 11:38	12/29/20 19:00	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/24/20 11:38	12/29/20 19:00	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/24/20 11:38	12/29/20 19:00	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/24/20 11:38	12/29/20 19:00	1
NEtFOSE	<0.78		1.8	0.78	ng/L		12/24/20 11:38	12/29/20 19:00	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/29/20 19:00	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/24/20 11:38	12/29/20 19:00	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/24/20 11:38	12/29/20 19:00	1
10:2 FTS	<0.62		1.8	0.62	ng/L		12/24/20 11:38	12/29/20 19:00	1
DONA	<0.37		1.8	0.37	ng/L		12/24/20 11:38	12/29/20 19:00	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/24/20 11:38	12/29/20 19:00	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/29/20 19:00	1
F-53B Minor	<0.30		1.8	0.30	ng/L		12/24/20 11:38	12/29/20 19:00	1

Client Sample ID: RSSCT 4-EF- 10K

Date Collected: 12/20/20 20:32
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-2

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C5 PFPeA	94		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C2 PFHxA	93		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C4 PFHpA	91		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C4 PFOA	103		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C5 PFNA	101		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C2 PFDA	97		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C2 PFUnA	91		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C2 PFDoA	88		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C2 PFTeDA	87		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C2 PFHxDA	85		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C3 PFBS	93		25 - 150	12/24/20 11:38	12/29/20 19:00	1
18O2 PFHxS	91		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C4 PFOS	97		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C8 FOSA	99		10 - 150	12/24/20 11:38	12/29/20 19:00	1
d3-NMeFOSAA	104		25 - 150	12/24/20 11:38	12/29/20 19:00	1
d5-NEtFOSAA	95		25 - 150	12/24/20 11:38	12/29/20 19:00	1
d-N-MeFOSA-M	83		10 - 150	12/24/20 11:38	12/29/20 19:00	1
d-N-EtFOSA-M	69		10 - 150	12/24/20 11:38	12/29/20 19:00	1
d7-N-MeFOSE-M	58		10 - 150	12/24/20 11:38	12/29/20 19:00	1
d9-N-EtFOSE-M	45		10 - 150	12/24/20 11:38	12/29/20 19:00	1
M2-4:2 FTS	121		25 - 150	12/24/20 11:38	12/29/20 19:00	1
M2-6:2 FTS	137		25 - 150	12/24/20 11:38	12/29/20 19:00	1
M2-8:2 FTS	118		25 - 150	12/24/20 11:38	12/29/20 19:00	1
13C3 HFPO-DA	86		25 - 150	12/24/20 11:38	12/29/20 19:00	1

Client Sample ID: RSSCT 4-EF- 15K

Lab Sample ID: 320-68269-3
Date Collected: 12/21/20 01:26
Matrix: Water
Date Received: 12/23/20 10:40

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015	H	0.050	0.015	ug/L			01/04/21 15:45	1
Trichloroethene	<0.012	H	0.050	0.012	ug/L			01/04/21 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*01/04/21 15:45*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*01/04/21 15:45*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**25**		4.7	2.2	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoropentanoic acid (PFPeA)	**2.0**		1.9	0.46	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.9	1.2	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.83		1.9	0.83	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.88		1.9	0.88	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.9	0.53	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.18		1.9	0.18	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorododecanesulfonic acid (PFDoS)	<0.91		1.9	0.91	ng/L		12/24/20 11:38	12/30/20 17:50	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		12/24/20 11:38	12/30/20 17:50	1
NEtFOSA	<0.81		1.9	0.81	ng/L		12/24/20 11:38	12/30/20 17:50	1
NMeFOSA	<0.40		1.9	0.40	ng/L		12/24/20 11:38	12/30/20 17:50	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		12/24/20 11:38	12/30/20 17:50	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		12/24/20 11:38	12/30/20 17:50	1
NMeFOSE	<1.3		3.7	1.3	ng/L		12/24/20 11:38	12/30/20 17:50	1
NEtFOSE	<0.79		1.9	0.79	ng/L		12/24/20 11:38	12/30/20 17:50	1
4:2 FTS	<0.22		1.9	0.22	ng/L		12/24/20 11:38	12/30/20 17:50	1
6:2 FTS	<2.3		4.7	2.3	ng/L		12/24/20 11:38	12/30/20 17:50	1
8:2 FTS	<0.43		1.9	0.43	ng/L		12/24/20 11:38	12/30/20 17:50	1
10:2 FTS	<0.63		1.9	0.63	ng/L		12/24/20 11:38	12/30/20 17:50	1
DONA	<0.37		1.9	0.37	ng/L		12/24/20 11:38	12/30/20 17:50	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		12/24/20 11:38	12/30/20 17:50	1
F-53B Major	<0.22		1.9	0.22	ng/L		12/24/20 11:38	12/30/20 17:50	1
F-53B Minor	<0.30		1.9	0.30	ng/L		12/24/20 11:38	12/30/20 17:50	1

Client: TRC Environmental Corporation.
Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Client Sample ID: RSSCT 4-EF- 15K
Lab Sample ID: 320-68269-3
Date Collected: 12/21/20 01:26
Matrix: Water
Date Received: 12/23/20 10:40

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	98		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C5 PFPeA	99		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C2 PFHxA	105		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C4 PFHpA	101		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C4 PFOA	101		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C5 PFNA	107		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C2 PFDA	101		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C2 PFUnA	91		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C2 PFDoA	108		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C2 PFTeDA	84		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C2 PFHxDA	82		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C3 PFBS	102		25 - 150	12/24/20 11:38	12/30/20 17:50	1
18O2 PFHxS	103		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C4 PFOS	98		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C8 FOSA	100		10 - 150	12/24/20 11:38	12/30/20 17:50	1
d3-NMeFOSAA	84		25 - 150	12/24/20 11:38	12/30/20 17:50	1
d5-NEtFOSAA	75		25 - 150	12/24/20 11:38	12/30/20 17:50	1
d-N-MeFOSA-M	80		10 - 150	12/24/20 11:38	12/30/20 17:50	1
d-N-EtFOSA-M	66		10 - 150	12/24/20 11:38	12/30/20 17:50	1
d7-N-MeFOSE-M	45		10 - 150	12/24/20 11:38	12/30/20 17:50	1
d9-N-EtFOSE-M	36		10 - 150	12/24/20 11:38	12/30/20 17:50	1
M2-4:2 FTS	81		25 - 150	12/24/20 11:38	12/30/20 17:50	1
M2-6:2 FTS	109		25 - 150	12/24/20 11:38	12/30/20 17:50	1
M2-8:2 FTS	86		25 - 150	12/24/20 11:38	12/30/20 17:50	1
13C3 HFPO-DA	92		25 - 150	12/24/20 11:38	12/30/20 17:50	1

Client Sample ID: RSSCT 4-EF- 20K
Date Collected: 12/21/20 05:53
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-4
Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/04/21 16:10	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/04/21 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*01/04/21 16:10*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*01/04/21 16:10*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**32**		4.4	2.1	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoropentanoic acid (PFPeA)	**3.9**		1.8	0.43	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorohexanoic acid (PFHxA)	**0.77**	**J**	1.8	0.51	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorooctanoic acid (PFOA)	<0.75		1.8	0.75	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoroundecanoic acid (PFUnA)	<0.97		1.8	0.97	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.8	1.1	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.8	0.64	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.78		1.8	0.78	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.83		1.8	0.83	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorobutanesulfonic acid (PFBS)	**0.32**	**J**	1.8	0.18	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.8	0.26	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		1.8	0.50	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorooctanesulfonic acid (PFOS)	**0.66**	**J**	1.8	0.48	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		12/24/20 11:38	12/29/20 19:18	1
Perfluorooctanesulfonamide (FOSA)	<0.86		1.8	0.86	ng/L		12/24/20 11:38	12/29/20 19:18	1
NEtFOSA	<0.77		1.8	0.77	ng/L		12/24/20 11:38	12/29/20 19:18	1
NMeFOSA	<0.38		1.8	0.38	ng/L		12/24/20 11:38	12/29/20 19:18	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		12/24/20 11:38	12/29/20 19:18	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		12/24/20 11:38	12/29/20 19:18	1
NMeFOSE	<1.2		3.5	1.2	ng/L		12/24/20 11:38	12/29/20 19:18	1
NEtFOSE	<0.75		1.8	0.75	ng/L		12/24/20 11:38	12/29/20 19:18	1
4:2 FTS	<0.21		1.8	0.21	ng/L		12/24/20 11:38	12/29/20 19:18	1
6:2 FTS	<2.2		4.4	2.2	ng/L		12/24/20 11:38	12/29/20 19:18	1
8:2 FTS	<0.41		1.8	0.41	ng/L		12/24/20 11:38	12/29/20 19:18	1
10:2 FTS	<0.59		1.8	0.59	ng/L		12/24/20 11:38	12/29/20 19:18	1
DONA	<0.35		1.8	0.35	ng/L		12/24/20 11:38	12/29/20 19:18	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		12/24/20 11:38	12/29/20 19:18	1
F-53B Major	<0.21		1.8	0.21	ng/L		12/24/20 11:38	12/29/20 19:18	1
F-53B Minor	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/29/20 19:18	1

Client Sample ID: RSSCT 4-EF- 20K
Date Collected: 12/21/20 05:53
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-4
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	85		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C5 PFPeA	90		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C2 PFHxA	87		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C4 PFHpA	92		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C4 PFOA	97		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C5 PFNA	89		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C2 PFDA	83		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C2 PFUnA	88		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C2 PFDoA	89		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C2 PFTeDA	74		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C2 PFHxDA	70		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C3 PFBS	89		25 - 150	12/24/20 11:38	12/29/20 19:18	1
18O2 PFHxS	90		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C4 PFOS	90		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C8 FOSA	95		10 - 150	12/24/20 11:38	12/29/20 19:18	1
d3-NMeFOSAA	97		25 - 150	12/24/20 11:38	12/29/20 19:18	1
d5-NEtFOSAA	89		25 - 150	12/24/20 11:38	12/29/20 19:18	1
d-N-MeFOSA-M	85		10 - 150	12/24/20 11:38	12/29/20 19:18	1
d-N-EtFOSA-M	76		10 - 150	12/24/20 11:38	12/29/20 19:18	1
d7-N-MeFOSE-M	50		10 - 150	12/24/20 11:38	12/29/20 19:18	1
d9-N-EtFOSE-M	50		10 - 150	12/24/20 11:38	12/29/20 19:18	1
M2-4:2 FTS	103		25 - 150	12/24/20 11:38	12/29/20 19:18	1
M2-6:2 FTS	131		25 - 150	12/24/20 11:38	12/29/20 19:18	1
M2-8:2 FTS	111		25 - 150	12/24/20 11:38	12/29/20 19:18	1
13C3 HFPO-DA	85		25 - 150	12/24/20 11:38	12/29/20 19:18	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 4

Job ID: 320-68269-1

Client Sample ID: RSSCT 4-EF- 30K

Date Collected: 12/21/20 14:56
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-5

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/04/21 16:35	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/04/21 16:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*01/04/21 16:35*	*1*
Toluene-d8 (Surr)	*92*		*89 - 112*		*01/04/21 16:35*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**32**		4.2	2.0	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoropentanoic acid (PFPeA)	**11**		1.7	0.42	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorohexanoic acid (PFHxA)	**2.1**		1.7	0.49	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoroheptanoic acid (PFHpA)	**0.32**	**J**	1.7	0.21	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorooctanoic acid (PFOA)	<0.72		1.7	0.72	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorodecanoic acid (PFDA)	<0.26		1.7	0.26	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoroundecanoic acid (PFUnA)	<0.93		1.7	0.93	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.7	1.1	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorotetradecanoic acid (PFTeA)	<0.62		1.7	0.62	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.75		1.7	0.75	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.80		1.7	0.80	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.7	0.17	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoropentanesulfonic acid (PFPeS)	<0.25		1.7	0.25	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorohexanesulfonic acid (PFHxS)	**0.84**	**J**	1.7	0.48	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.16		1.7	0.16	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorooctanesulfonic acid (PFOS)	<0.46		1.7	0.46	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorononanesulfonic acid (PFNS)	<0.31		1.7	0.31	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorododecanesulfonic acid (PFDoS)	<0.82		1.7	0.82	ng/L		12/24/20 11:38	12/29/20 19:28	1
Perfluorooctanesulfonamide (FOSA)	<0.83		1.7	0.83	ng/L		12/24/20 11:38	12/29/20 19:28	1
NEtFOSA	<0.74		1.7	0.74	ng/L		12/24/20 11:38	12/29/20 19:28	1
NMeFOSA	<0.36		1.7	0.36	ng/L		12/24/20 11:38	12/29/20 19:28	1
NMeFOSAA	<1.0		4.2	1.0	ng/L		12/24/20 11:38	12/29/20 19:28	1
NEtFOSAA	<1.1		4.2	1.1	ng/L		12/24/20 11:38	12/29/20 19:28	1
NMeFOSE	<1.2		3.4	1.2	ng/L		12/24/20 11:38	12/29/20 19:28	1
NEtFOSE	<0.72		1.7	0.72	ng/L		12/24/20 11:38	12/29/20 19:28	1
4:2 FTS	<0.20		1.7	0.20	ng/L		12/24/20 11:38	12/29/20 19:28	1
6:2 FTS	<2.1		4.2	2.1	ng/L		12/24/20 11:38	12/29/20 19:28	1
8:2 FTS	<0.39		1.7	0.39	ng/L		12/24/20 11:38	12/29/20 19:28	1
10:2 FTS	<0.57		1.7	0.57	ng/L		12/24/20 11:38	12/29/20 19:28	1
DONA	<0.34		1.7	0.34	ng/L		12/24/20 11:38	12/29/20 19:28	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		12/24/20 11:38	12/29/20 19:28	1
F-53B Major	<0.20		1.7	0.20	ng/L		12/24/20 11:38	12/29/20 19:28	1
F-53B Minor	<0.27		1.7	0.27	ng/L		12/24/20 11:38	12/29/20 19:28	1

Client Sample ID: RSSCT 4-EF- 30K

Lab Sample ID: 320-68269-5

Date Collected: 12/21/20 14:56

Matrix: Water

Date Received: 12/23/20 10:40

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	98		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C5 PFPeA	101		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C2 PFHxA	98		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C4 PFHpA	99		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C4 PFOA	103		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C5 PFNA	98		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C2 PFDA	105		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C2 PFUnA	83		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C2 PFDoA	102		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C2 PFTeDA	87		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C2 PFHxDA	91		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C3 PFBS	102		25 - 150	12/24/20 11:38	12/29/20 19:28	1
18O2 PFHxS	103		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C4 PFOS	101		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C8 FOSA	105		10 - 150	12/24/20 11:38	12/29/20 19:28	1
d3-NMeFOSAA	113		25 - 150	12/24/20 11:38	12/29/20 19:28	1
d5-NEtFOSAA	106		25 - 150	12/24/20 11:38	12/29/20 19:28	1
d-N-MeFOSA-M	84		10 - 150	12/24/20 11:38	12/29/20 19:28	1
d-N-EtFOSA-M	73		10 - 150	12/24/20 11:38	12/29/20 19:28	1
d7-N-MeFOSE-M	54		10 - 150	12/24/20 11:38	12/29/20 19:28	1
d9-N-EtFOSE-M	51		10 - 150	12/24/20 11:38	12/29/20 19:28	1
M2-4:2 FTS	124		25 - 150	12/24/20 11:38	12/29/20 19:28	1
M2-6:2 FTS	146		25 - 150	12/24/20 11:38	12/29/20 19:28	1
M2-8:2 FTS	128		25 - 150	12/24/20 11:38	12/29/20 19:28	1
13C3 HFPO-DA	89		25 - 150	12/24/20 11:38	12/29/20 19:28	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 4

Job ID: 320-68269-1

Client Sample ID: RSSCT 4-EF- 40K

Date Collected: 12/22/20 00:30
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-6

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/04/21 16:59	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/04/21 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*01/04/21 16:59*	*1*
Toluene-d8 (Surr)	*91*		*89 - 112*		*01/04/21 16:59*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**30**		4.3	2.0	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoropentanoic acid (PFPeA)	**21**		1.7	0.42	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorohexanoic acid (PFHxA)	**5.1**		1.7	0.49	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoroheptanoic acid (PFHpA)	**0.70**	**J**	1.7	0.21	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorooctanoic acid (PFOA)	**0.81**	**J**	1.7	0.72	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorodecanoic acid (PFDA)	<0.26		1.7	0.26	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoroundecanoic acid (PFUnA)	<0.94		1.7	0.94	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.7	1.1	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorotetradecanoic acid (PFTeA)	<0.62		1.7	0.62	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.76		1.7	0.76	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.80		1.7	0.80	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorobutanesulfonic acid (PFBS)	**2.7**		1.7	0.17	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**		1.7	0.48	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.16		1.7	0.16	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorooctanesulfonic acid (PFOS)	<0.46		1.7	0.46	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorononanesulfonic acid (PFNS)	<0.31		1.7	0.31	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorododecanesulfonic acid (PFDoS)	<0.82		1.7	0.82	ng/L		12/24/20 11:38	12/29/20 19:37	1
Perfluorooctanesulfonamide (FOSA)	<0.83		1.7	0.83	ng/L		12/24/20 11:38	12/29/20 19:37	1
NEtFOSA	<0.74		1.7	0.74	ng/L		12/24/20 11:38	12/29/20 19:37	1
NMeFOSA	<0.37		1.7	0.37	ng/L		12/24/20 11:38	12/29/20 19:37	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		12/24/20 11:38	12/29/20 19:37	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		12/24/20 11:38	12/29/20 19:37	1
NMeFOSE	<1.2		3.4	1.2	ng/L		12/24/20 11:38	12/29/20 19:37	1
NEtFOSE	<0.72		1.7	0.72	ng/L		12/24/20 11:38	12/29/20 19:37	1
4:2 FTS	<0.20		1.7	0.20	ng/L		12/24/20 11:38	12/29/20 19:37	1
6:2 FTS	<2.1		4.3	2.1	ng/L		12/24/20 11:38	12/29/20 19:37	1
8:2 FTS	<0.39		1.7	0.39	ng/L		12/24/20 11:38	12/29/20 19:37	1
10:2 FTS	<0.57		1.7	0.57	ng/L		12/24/20 11:38	12/29/20 19:37	1
DONA	<0.34		1.7	0.34	ng/L		12/24/20 11:38	12/29/20 19:37	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		12/24/20 11:38	12/29/20 19:37	1
F-53B Major	<0.20		1.7	0.20	ng/L		12/24/20 11:38	12/29/20 19:37	1
F-53B Minor	<0.27		1.7	0.27	ng/L		12/24/20 11:38	12/29/20 19:37	1

Client Sample ID: RSSCT 4-EF- 40K

Lab Sample ID: 320-68269-6

Date Collected: 12/22/20 00:30

Matrix: Water

Date Received: 12/23/20 10:40

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	93		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C5 PFPeA	97		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C2 PFHxA	96		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C4 PFHpA	99		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C4 PFOA	102		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C5 PFNA	105		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C2 PFDA	100		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C2 PFUnA	96		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C2 PFDoA	133		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C2 PFTeDA	92		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C2 PFHxDA	78		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C3 PFBS	97		25 - 150	12/24/20 11:38	12/29/20 19:37	1
18O2 PFHxS	97		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C4 PFOS	100		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C8 FOSA	102		10 - 150	12/24/20 11:38	12/29/20 19:37	1
d3-NMeFOSAA	110		25 - 150	12/24/20 11:38	12/29/20 19:37	1
d5-NEtFOSAA	101		25 - 150	12/24/20 11:38	12/29/20 19:37	1
d-N-MeFOSA-M	88		10 - 150	12/24/20 11:38	12/29/20 19:37	1
d-N-EtFOSA-M	70		10 - 150	12/24/20 11:38	12/29/20 19:37	1
d7-N-MeFOSE-M	56		10 - 150	12/24/20 11:38	12/29/20 19:37	1
d9-N-EtFOSE-M	47		10 - 150	12/24/20 11:38	12/29/20 19:37	1
M2-4:2 FTS	119		25 - 150	12/24/20 11:38	12/29/20 19:37	1
M2-6:2 FTS	136		25 - 150	12/24/20 11:38	12/29/20 19:37	1
M2-8:2 FTS	122		25 - 150	12/24/20 11:38	12/29/20 19:37	1
13C3 HFPO-DA	88		25 - 150	12/24/20 11:38	12/29/20 19:37	1

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 4

Job ID: 320-68269-1

Client Sample ID: RSSCT 4-EF- 50K

Date Collected: 12/22/20 09:33
Date Received: 12/23/20 10:40

Lab Sample ID: 320-68269-7

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/04/21 17:24	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/04/21 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*01/04/21 17:24*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*01/04/21 17:24*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**28**		4.5	2.2	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoropentanoic acid (PFPeA)	**35**		1.8	0.44	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorohexanoic acid (PFHxA)	**9.9**		1.8	0.52	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoroheptanoic acid (PFHpA)	**1.3**	**J**	1.8	0.22	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorooctanoic acid (PFOA)	**1.3**	**J**	1.8	0.76	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoroundecanoic acid (PFUnA)	<0.99		1.8	0.99	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.80		1.8	0.80	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.84		1.8	0.84	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorobutanesulfonic acid (PFBS)	**4.6**		1.8	0.18	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoropentanesulfonic acid (PFPeS)	<0.27		1.8	0.27	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorohexanesulfonic acid (PFHxS)	**3.4**		1.8	0.51	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.17		1.8	0.17	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorooctanesulfonic acid (PFOS)	**0.94**	**J**	1.8	0.48	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.87		1.8	0.87	ng/L		12/24/20 11:38	12/29/20 19:46	1
Perfluorooctanesulfonamide (FOSA)	<0.88		1.8	0.88	ng/L		12/24/20 11:38	12/29/20 19:46	1
NEtFOSA	<0.78		1.8	0.78	ng/L		12/24/20 11:38	12/29/20 19:46	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/24/20 11:38	12/29/20 19:46	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		12/24/20 11:38	12/29/20 19:46	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		12/24/20 11:38	12/29/20 19:46	1
NMeFOSE	<1.3		3.6	1.3	ng/L		12/24/20 11:38	12/29/20 19:46	1
NEtFOSE	<0.76		1.8	0.76	ng/L		12/24/20 11:38	12/29/20 19:46	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/29/20 19:46	1
6:2 FTS	<2.2		4.5	2.2	ng/L		12/24/20 11:38	12/29/20 19:46	1
8:2 FTS	<0.41		1.8	0.41	ng/L		12/24/20 11:38	12/29/20 19:46	1
10:2 FTS	<0.60		1.8	0.60	ng/L		12/24/20 11:38	12/29/20 19:46	1
DONA	<0.36		1.8	0.36	ng/L		12/24/20 11:38	12/29/20 19:46	1
HFPO-DA (GenX)	<1.3		3.6	1.3	ng/L		12/24/20 11:38	12/29/20 19:46	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/29/20 19:46	1

Client Sample ID: RSSCT 4-EF- 50K
Lab Sample ID: 320-68269-7

Date Collected: 12/22/20 09:33
Matrix: Water
Date Received: 12/23/20 10:40

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.29		1.8	0.29	ng/L		12/24/20 11:38	12/29/20 19:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C5 PFPeA	*96*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C2 PFHxA	*95*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C4 PFHpA	*96*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C4 PFOA	*108*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C5 PFNA	*92*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C2 PFDA	*80*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C2 PFUnA	*100*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C2 PFDoA	*89*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C2 PFTeDA	*78*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C2 PFHxDA	*85*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C3 PFBS	*105*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
18O2 PFHxS	*102*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C4 PFOS	*101*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C8 FOSA	*102*		*10 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
d3-NMeFOSAA	*110*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
d-N-MeFOSA-M	*95*		*10 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
d-N-EtFOSA-M	*81*		*10 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
d7-N-MeFOSE-M	*59*		*10 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
d9-N-EtFOSE-M	*48*		*10 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
M2-4:2 FTS	*124*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
M2-6:2 FTS	*143*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
M2-8:2 FTS	*129*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*12/24/20 11:38*	*12/29/20 19:46*	*1*

Client Sample ID: RSSCT 4-IN-02 — Lab Sample ID: 320-68269-8

Date Collected: 12/22/20 10:00 — **Matrix: Water**
Date Received: 12/23/20 10:40

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**3.5**		0.050	0.015	ug/L			01/04/21 17:48	1
Trichloroethene	**0.14**		0.050	0.012	ug/L			01/04/21 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*01/04/21 17:48*	*1*
Toluene-d8 (Surr)	*93*		*89 - 112*		*01/04/21 17:48*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**26**		4.6	2.2	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoropentanoic acid (PFPeA)	**44**		1.8	0.45	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorohexanoic acid (PFHxA)	**49**		1.8	0.53	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoroheptanoic acid (PFHpA)	**22**		1.8	0.23	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorooctanoic acid (PFOA)	**44**		1.8	0.77	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorononanoic acid (PFNA)	**0.31**	**J**	1.8	0.25	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.81		1.8	0.81	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.86		1.8	0.86	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorobutanesulfonic acid (PFBS)	**30**		1.8	0.18	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoropentanesulfonic acid (PFPeS)	**2.3**		1.8	0.27	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorohexanesulfonic acid (PFHxS)	**150**		1.8	0.52	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.4**	**J**	1.8	0.17	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorooctanesulfonic acid (PFOS)	**40**		1.8	0.49	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		12/24/20 11:38	12/30/20 17:59	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		12/24/20 11:38	12/30/20 17:59	1
NEtFOSA	<0.79		1.8	0.79	ng/L		12/24/20 11:38	12/30/20 17:59	1
NMeFOSA	<0.39		1.8	0.39	ng/L		12/24/20 11:38	12/30/20 17:59	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		12/24/20 11:38	12/30/20 17:59	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		12/24/20 11:38	12/30/20 17:59	1
NMeFOSE	<1.3		3.6	1.3	ng/L		12/24/20 11:38	12/30/20 17:59	1
NEtFOSE	<0.77		1.8	0.77	ng/L		12/24/20 11:38	12/30/20 17:59	1
4:2 FTS	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/30/20 17:59	1
6:2 FTS	<2.3		4.6	2.3	ng/L		12/24/20 11:38	12/30/20 17:59	1
8:2 FTS	<0.42		1.8	0.42	ng/L		12/24/20 11:38	12/30/20 17:59	1
10:2 FTS	<0.61		1.8	0.61	ng/L		12/24/20 11:38	12/30/20 17:59	1
DONA	<0.36		1.8	0.36	ng/L		12/24/20 11:38	12/30/20 17:59	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		12/24/20 11:38	12/30/20 17:59	1
F-53B Major	<0.22		1.8	0.22	ng/L		12/24/20 11:38	12/30/20 17:59	1

Client Sample ID: RSSCT 4-IN-02 Lab Sample ID: 320-68269-8

Date Collected: 12/22/20 10:00 **Matrix: Water**
Date Received: 12/23/20 10:40

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Minor	<0.29		1.8	0.29	ng/L		12/24/20 11:38	12/30/20 17:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C5 PFPeA	*98*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C2 PFHxA	*104*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C4 PFHpA	*102*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C4 PFOA	*107*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C5 PFNA	*88*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C2 PFDA	*98*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C2 PFUnA	*98*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C2 PFDoA	*101*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C2 PFTeDA	*78*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C2 PFHxDA	*79*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C3 PFBS	*103*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
18O2 PFHxS	*97*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C4 PFOS	*95*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C8 FOSA	*101*		*10 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
d5-NEtFOSAA	*78*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
d-N-MeFOSA-M	*89*		*10 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
d-N-EtFOSA-M	*77*		*10 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
d7-N-MeFOSE-M	*55*		*10 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
d9-N-EtFOSE-M	*46*		*10 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
M2-4:2 FTS	*90*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
M2-6:2 FTS	*118*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
M2-8:2 FTS	*88*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*
13C3 HFPO-DA	*97*		*25 - 150*	*12/24/20 11:38*	*12/30/20 17:59*	*1*

Surrogate Summary

Client: TRC Environmental Corporation.
Project/Site: Well #15 Feasibility Study - RSSCT 4

Job ID: 320-68269-1

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
		DBFM	TOL										
Lab Sample ID	Client Sample ID	(80-119)	(89-112)										
320-68269-1	RSSCT 4-EF- 5K	97	94										
320-68269-2	RSSCT 4-EF- 10K	95	94										
320-68269-3	RSSCT 4-EF- 15K	96	93										
320-68269-4	RSSCT 4-EF- 20K	97	93										
320-68269-5	RSSCT 4-EF- 30K	96	92										
320-68269-6	RSSCT 4-EF- 40K	96	91										
320-68269-7	RSSCT 4-EF- 50K	96	93										
320-68269-8	RSSCT 4-IN-02	94	93										
LCS 320-447884/4	Lab Control Sample	95	96										
LCS 320-448125/4	Lab Control Sample	98	96										
LCSD 320-447884/5	Lab Control Sample Dup	97	94										
LCSD 320-448125/5	Lab Control Sample Dup	96	96										
MB 320-447884/7	Method Blank	94	95										
MB 320-448125/7	Method Blank	95	95										

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-68269-1	RSSCT 4-EF- 5K	104	108	110	97	109	101	91	99
320-68269-2	RSSCT 4-EF- 10K	92	94	93	91	103	101	97	91
320-68269-3	RSSCT 4-EF- 15K	98	99	105	101	101	107	101	91
320-68269-4	RSSCT 4-EF- 20K	85	90	87	92	97	89	83	88
320-68269-5	RSSCT 4-EF- 30K	98	101	98	99	103	98	105	83
320-68269-6	RSSCT 4-EF- 40K	93	97	96	99	102	105	100	96
320-68269-7	RSSCT 4-EF- 50K	94	96	95	96	108	92	80	100
320-68269-8	RSSCT 4-IN-02	97	98	104	102	107	88	98	98
LCS 320-445684/2-A	Lab Control Sample	96	98	99	92	105	97	88	82
LCSD 320-445684/3-A	Lab Control Sample Dup	95	95	94	98	105	96	95	84
MB 320-445684/1-A	Method Blank	87	89	91	83	100	91	101	84

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOSA (25-150)
320-68269-1	RSSCT 4-EF- 5K	105	88	84	109	106	102	108	88
320-68269-2	RSSCT 4-EF- 10K	88	87	85	93	91	97	99	104
320-68269-3	RSSCT 4-EF- 15K	108	84	82	102	103	98	100	84
320-68269-4	RSSCT 4-EF- 20K	89	74	70	89	90	90	95	97
320-68269-5	RSSCT 4-EF- 30K	102	87	91	102	103	101	105	113
320-68269-6	RSSCT 4-EF- 40K	133	92	78	97	97	100	102	110
320-68269-7	RSSCT 4-EF- 50K	89	78	85	105	102	101	102	110
320-68269-8	RSSCT 4-IN-02	101	78	79	103	97	95	101	85
LCS 320-445684/2-A	Lab Control Sample	107	92	76	97	97	98	100	111
LCSD 320-445684/3-A	Lab Control Sample Dup	109	107	74	98	97	101	97	109
MB 320-445684/1-A	Method Blank	100	87	80	90	90	94	91	103

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOSA (25-150)	dMeFOSAA (10-150)	dEtFOSAA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
320-68269-1	RSSCT 4-EF- 5K	80	87	74	52	44	79	121	89
320-68269-2	RSSCT 4-EF- 10K	95	83	69	58	45	121	137	118
320-68269-3	RSSCT 4-EF- 15K	75	80	66	45	36	81	109	86
320-68269-4	RSSCT 4-EF- 20K	89	85	76	50	50	103	131	111
320-68269-5	RSSCT 4-EF- 30K	106	84	73	54	51	124	146	128
320-68269-6	RSSCT 4-EF- 40K	101	88	70	56	47	119	136	122
320-68269-7	RSSCT 4-EF- 50K	104	95	81	59	48	124	143	129
320-68269-8	RSSCT 4-IN-02	78	89	77	55	46	90	118	88
LCS 320-445684/2-A	Lab Control Sample	96	91	91	61	48	120	141	130
LCSD 320-445684/3-A	Lab Control Sample Dup	97	85	88	62	51	122	139	116
MB 320-445684/1-A	Method Blank	90	86	84	52	45	125	128	116

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	HFPODA (25-150)
320-68269-1	RSSCT 4-EF- 5K	94
320-68269-2	RSSCT 4-EF- 10K	86
320-68269-3	RSSCT 4-EF- 15K	92
320-68269-4	RSSCT 4-EF- 20K	85
320-68269-5	RSSCT 4-EF- 30K	89
320-68269-6	RSSCT 4-EF- 40K	88
320-68269-7	RSSCT 4-EF- 50K	88

Isotope Dilution Summary

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HFPODA (25-150)						
320-68269-8	RSSCT 4-IN-02	97						
LCS 320-445684/2-A	Lab Control Sample	86						
LCSD 320-445684/3-A	Lab Control Sample Dup	92						
MB 320-445684/1-A	Method Blank	81						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 320-447884/7
Matrix: Water
Analysis Batch: 447884

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/03/21 12:18	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/03/21 12:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*01/03/21 12:18*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*01/03/21 12:18*	*1*

Lab Sample ID: LCS 320-447884/4
Matrix: Water
Analysis Batch: 447884

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	2.09		ug/L		105	74 - 129		
Trichloroethene			2.00	1.90		ug/L		95	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: LCSD 320-447884/5
Matrix: Water
Analysis Batch: 447884

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	1.95		ug/L		97	74 - 129	7	20
Trichloroethene			2.00	1.82		ug/L		91	79 - 123	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*80 - 119*
Toluene-d8 (Surr)	*94*		*89 - 112*

Lab Sample ID: MB 320-448125/7
Matrix: Water
Analysis Batch: 448125

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<0.015		0.050	0.015	ug/L			01/04/21 14:57	1
Trichloroethene	<0.012		0.050	0.012	ug/L			01/04/21 14:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*01/04/21 14:57*	*1*
Toluene-d8 (Surr)	*95*		*89 - 112*		*01/04/21 14:57*	*1*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 320-448125/4
Matrix: Water
Analysis Batch: 448125

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Tetrachloroethene			2.00	1.98		ug/L		99	74 - 129		
Trichloroethene			2.00	1.83		ug/L		91	79 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Lab Sample ID: LCSD 320-448125/5
Matrix: Water
Analysis Batch: 448125

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Tetrachloroethene			2.00	2.00		ug/L		100	74 - 129	1	20
Trichloroethene			2.00	1.85		ug/L		92	79 - 123	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*80 - 119*
Toluene-d8 (Surr)	*96*		*89 - 112*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-445684/1-A
Matrix: Water
Analysis Batch: 446786

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445684

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		2.0	0.19	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		12/24/20 11:38	12/29/20 18:24	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-445684/1-A
Matrix: Water
Analysis Batch: 446786

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445684

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		12/24/20 11:38	12/29/20 18:24	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		12/24/20 11:38	12/29/20 18:24	1
NEtFOSA	<0.87		2.0	0.87	ng/L		12/24/20 11:38	12/29/20 18:24	1
NMeFOSA	<0.43		2.0	0.43	ng/L		12/24/20 11:38	12/29/20 18:24	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		12/24/20 11:38	12/29/20 18:24	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		12/24/20 11:38	12/29/20 18:24	1
NMeFOSE	<1.4		4.0	1.4	ng/L		12/24/20 11:38	12/29/20 18:24	1
NEtFOSE	<0.85		2.0	0.85	ng/L		12/24/20 11:38	12/29/20 18:24	1
4:2 FTS	<0.24		2.0	0.24	ng/L		12/24/20 11:38	12/29/20 18:24	1
6:2 FTS	<2.5		5.0	2.5	ng/L		12/24/20 11:38	12/29/20 18:24	1
8:2 FTS	<0.46		2.0	0.46	ng/L		12/24/20 11:38	12/29/20 18:24	1
10:2 FTS	<0.67		2.0	0.67	ng/L		12/24/20 11:38	12/29/20 18:24	1
DONA	<0.40		2.0	0.40	ng/L		12/24/20 11:38	12/29/20 18:24	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		12/24/20 11:38	12/29/20 18:24	1
F-53B Major	<0.24		2.0	0.24	ng/L		12/24/20 11:38	12/29/20 18:24	1
F-53B Minor	<0.32		2.0	0.32	ng/L		12/24/20 11:38	12/29/20 18:24	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*87*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C5 PFPeA	*89*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C2 PFHxA	*91*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C4 PFHpA	*83*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C4 PFOA	*100*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C5 PFNA	*91*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C2 PFDA	*101*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C2 PFUnA	*84*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C2 PFDoA	*100*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C2 PFTeDA	*87*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C2 PFHxDA	*80*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C3 PFBS	*90*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
18O2 PFHxS	*90*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C4 PFOS	*94*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C8 FOSA	*91*		*10 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
d3-NMeFOSAA	*103*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
d5-NEtFOSAA	*90*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
d-N-MeFOSA-M	*86*		*10 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
d-N-EtFOSA-M	*84*		*10 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
d7-N-MeFOSE-M	*52*		*10 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
d9-N-EtFOSE-M	*45*		*10 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
M2-6:2 FTS	*128*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*
13C3 HFPO-DA	*81*		*25 - 150*	*12/24/20 11:38*	*12/29/20 18:24*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-445684/2-A
Matrix: Water
Analysis Batch: 446786

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445684

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.0		ng/L		100	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	36.4		ng/L		91	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	40.0		ng/L		100	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.1		ng/L		103	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.1		ng/L		98	60 - 135
Perfluorononanoic acid (PFNA)	40.0	40.0		ng/L		100	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	48.5		ng/L		121	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	48.6		ng/L		122	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	31.6		ng/L		79	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	31.7		ng/L		79	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	43.1		ng/L		108	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	42.5		ng/L		106	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	51.8		ng/L		130	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.4	34.6		ng/L		98	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	36.1		ng/L		96	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.3		ng/L		97	60 - 135
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	40.3		ng/L		106	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.1	37.3		ng/L		100	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.4	38.7		ng/L		101	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	39.8		ng/L		103	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	35.4		ng/L		91	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	40.9		ng/L		102	60 - 135
NEtFOSA	40.0	38.2		ng/L		95	60 - 135
NMeFOSA	40.0	35.7		ng/L		89	60 - 135
NMeFOSAA	40.0	40.9		ng/L		102	60 - 135
NEtFOSAA	40.0	43.2		ng/L		108	60 - 135
NMeFOSE	40.0	36.2		ng/L		91	60 - 135
NEtFOSE	40.0	35.9		ng/L		90	60 - 135
4:2 FTS	37.4	38.8		ng/L		104	60 - 135
6:2 FTS	37.9	34.3		ng/L		91	60 - 135
8:2 FTS	38.3	39.9		ng/L		104	60 - 135
10:2 FTS	38.6	41.7		ng/L		108	60 - 135
DONA	37.7	39.0		ng/L		103	60 - 135
HFPO-DA (GenX)	40.0	40.9		ng/L		102	60 - 135
F-53B Major	37.3	37.4		ng/L		100	60 - 135
F-53B Minor	37.7	36.3		ng/L		96	60 - 135

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	96		25 - 150
13C5 PFPeA	98		25 - 150
13C2 PFHxA	99		25 - 150
13C4 PFHpA	92		25 - 150
13C4 PFOA	105		25 - 150
13C5 PFNA	97		25 - 150
13C2 PFDA	88		25 - 150
13C2 PFUnA	82		25 - 150
13C2 PFDoA	107		25 - 150
13C2 PFTeDA	92		25 - 150
13C2 PFHxDA	76		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	97		25 - 150
13C4 PFOS	98		25 - 150
13C8 FOSA	100		10 - 150
d3-NMeFOSAA	111		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	91		10 - 150
d-N-EtFOSA-M	91		10 - 150
d7-N-MeFOSE-M	61		10 - 150
d9-N-EtFOSE-M	48		10 - 150
M2-4:2 FTS	120		25 - 150
M2-6:2 FTS	141		25 - 150
M2-8:2 FTS	130		25 - 150
13C3 HFPO-DA	86		25 - 150

Lab Sample ID: LCSD 320-445684/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 446786 **Prep Batch: 445684**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	40.7		ng/L		102	60 - 135	2	30
Perfluoropentanoic acid (PFPeA)			40.0	38.4		ng/L		96	60 - 135	5	30
Perfluorohexanoic acid (PFHxA)			40.0	40.0		ng/L		100	60 - 135	0	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.9		ng/L		97	60 - 135	5	30
Perfluorooctanoic acid (PFOA)			40.0	40.2		ng/L		101	60 - 135	3	30
Perfluorononanoic acid (PFNA)			40.0	40.6		ng/L		102	60 - 135	2	30
Perfluorodecanoic acid (PFDA)			40.0	42.6		ng/L		106	60 - 135	13	30
Perfluoroundecanoic acid (PFUnA)			40.0	42.9		ng/L		107	60 - 135	13	30
Perfluorododecanoic acid (PFDoA)			40.0	36.0		ng/L		90	60 - 135	13	30
Perfluorotridecanoic acid (PFTriA)			40.0	32.4		ng/L		81	60 - 135	2	30
Perfluorotetradecanoic acid (PFTeA)			40.0	33.9		ng/L		85	60 - 135	24	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	49.8		ng/L		125	60 - 135	16	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	45.7		ng/L		114	60 - 135	13	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.2		ng/L		100	60 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	36.4		ng/L		97	60 - 135	1	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-445684/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 446786 **Prep Batch: 445684**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.0		ng/L		99	60 - 135	2	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.7		ng/L		104	60 - 135	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	35.8		ng/L		97	60 - 135	4	30
Perfluorononanesulfonic acid (PFNS)			38.4	37.8		ng/L		98	60 - 135	2	30
Perfluorodecanesulfonic acid (PFDS)			38.6	36.6		ng/L		95	60 - 135	8	30
Perfluorododecanesulfonic acid (PFDoS)			38.7	36.0		ng/L		93	60 - 135	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	42.1		ng/L		105	60 - 135	3	30
NEtFOSA			40.0	39.5		ng/L		99	60 - 135	3	30
NMeFOSA			40.0	36.4		ng/L		91	60 - 135	2	30
NMeFOSAA			40.0	41.3		ng/L		103	60 - 135	1	30
NEtFOSAA			40.0	43.0		ng/L		107	60 - 135	0	30
NMeFOSE			40.0	35.3		ng/L		88	60 - 135	2	30
NEtFOSE			40.0	37.8		ng/L		95	60 - 135	5	30
4:2 FTS			37.4	38.7		ng/L		104	60 - 135	0	30
6:2 FTS			37.9	35.9		ng/L		95	60 - 135	4	30
8:2 FTS			38.3	40.0		ng/L		104	60 - 135	0	30
10:2 FTS			38.6	40.1		ng/L		104	60 - 135	4	30
DONA			37.7	38.0		ng/L		101	60 - 135	3	30
HFPO-DA (GenX)			40.0	39.2		ng/L		98	60 - 135	4	30
F-53B Major			37.3	35.8		ng/L		96	60 - 135	5	30
F-53B Minor			37.7	34.5		ng/L		92	60 - 135	5	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*95*		*25 - 150*
13C5 PFPeA	*95*		*25 - 150*
13C2 PFHxA	*94*		*25 - 150*
13C4 PFHpA	*98*		*25 - 150*
13C4 PFOA	*105*		*25 - 150*
13C5 PFNA	*96*		*25 - 150*
13C2 PFDA	*95*		*25 - 150*
13C2 PFUnA	*84*		*25 - 150*
13C2 PFDoA	*109*		*25 - 150*
13C2 PFTeDA	*107*		*25 - 150*
13C2 PFHxDA	*74*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
13C4 PFOS	*101*		*25 - 150*
13C8 FOSA	*97*		*10 - 150*
d3-NMeFOSAA	*109*		*25 - 150*
d5-NEtFOSAA	*97*		*25 - 150*
d-N-MeFOSA-M	*85*		*10 - 150*
d-N-EtFOSA-M	*88*		*10 - 150*
d7-N-MeFOSE-M	*62*		*10 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-445684/3-A
Matrix: Water
Analysis Batch: 446786

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445684

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
d9-N-EtFOSE-M	51		10 - 150
M2-4:2 FTS	122		25 - 150
M2-6:2 FTS	139		25 - 150
M2-8:2 FTS	116		25 - 150
13C3 HFPO-DA	92		25 - 150

QC Association Summary

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

GC/MS VOA

Analysis Batch: 447884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68269-1	RSSCT 4-EF- 5K	Total/NA	Water	8260C SIM	
MB 320-447884/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-447884/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-447884/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

Analysis Batch: 448125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68269-2	RSSCT 4-EF- 10K	Total/NA	Water	8260C SIM	
320-68269-3	RSSCT 4-EF- 15K	Total/NA	Water	8260C SIM	
320-68269-4	RSSCT 4-EF- 20K	Total/NA	Water	8260C SIM	
320-68269-5	RSSCT 4-EF- 30K	Total/NA	Water	8260C SIM	
320-68269-6	RSSCT 4-EF- 40K	Total/NA	Water	8260C SIM	
320-68269-7	RSSCT 4-EF- 50K	Total/NA	Water	8260C SIM	
320-68269-8	RSSCT 4-IN-02	Total/NA	Water	8260C SIM	
MB 320-448125/7	Method Blank	Total/NA	Water	8260C SIM	
LCS 320-448125/4	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 320-448125/5	Lab Control Sample Dup	Total/NA	Water	8260C SIM	

LCMS

Prep Batch: 445684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68269-1	RSSCT 4-EF- 5K	Total/NA	Water	3535	
320-68269-2	RSSCT 4-EF- 10K	Total/NA	Water	3535	
320-68269-3	RSSCT 4-EF- 15K	Total/NA	Water	3535	
320-68269-4	RSSCT 4-EF- 20K	Total/NA	Water	3535	
320-68269-5	RSSCT 4-EF- 30K	Total/NA	Water	3535	
320-68269-6	RSSCT 4-EF- 40K	Total/NA	Water	3535	
320-68269-7	RSSCT 4-EF- 50K	Total/NA	Water	3535	
320-68269-8	RSSCT 4-IN-02	Total/NA	Water	3535	
MB 320-445684/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-445684/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-445684/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 446786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68269-2	RSSCT 4-EF- 10K	Total/NA	Water	537 (modified)	445684
320-68269-4	RSSCT 4-EF- 20K	Total/NA	Water	537 (modified)	445684
320-68269-5	RSSCT 4-EF- 30K	Total/NA	Water	537 (modified)	445684
320-68269-6	RSSCT 4-EF- 40K	Total/NA	Water	537 (modified)	445684
320-68269-7	RSSCT 4-EF- 50K	Total/NA	Water	537 (modified)	445684
MB 320-445684/1-A	Method Blank	Total/NA	Water	537 (modified)	445684
LCS 320-445684/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	445684
LCSD 320-445684/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	445684

Analysis Batch: 447254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-68269-1	RSSCT 4-EF- 5K	Total/NA	Water	537 (modified)	445684
320-68269-3	RSSCT 4-EF- 15K	Total/NA	Water	537 (modified)	445684
320-68269-8	RSSCT 4-IN-02	Total/NA	Water	537 (modified)	445684

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Client Sample ID: RSSCT 4-EF- 5K — Lab Sample ID: 320-68269-1

Date Collected: 12/20/20 15:45 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	447884	01/03/21 13:07	SS	TAL SAC
Total/NA	Prep	3535			272.2 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			447254	12/30/20 17:41	S1M	TAL SAC

Client Sample ID: RSSCT 4-EF- 10K — Lab Sample ID: 320-68269-2

Date Collected: 12/20/20 20:32 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 15:21	SS	TAL SAC
Total/NA	Prep	3535			270.8 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			446786	12/29/20 19:00	K1S	TAL SAC

Client Sample ID: RSSCT 4-EF- 15K — Lab Sample ID: 320-68269-3

Date Collected: 12/21/20 01:26 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 15:45	SS	TAL SAC
Total/NA	Prep	3535			267.9 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			447254	12/30/20 17:50	S1M	TAL SAC

Client Sample ID: RSSCT 4-EF- 20K — Lab Sample ID: 320-68269-4

Date Collected: 12/21/20 05:53 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 16:10	SS	TAL SAC
Total/NA	Prep	3535			283.5 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			446786	12/29/20 19:18	K1S	TAL SAC

Client Sample ID: RSSCT 4-EF- 30K — Lab Sample ID: 320-68269-5

Date Collected: 12/21/20 14:56 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 16:35	SS	TAL SAC
Total/NA	Prep	3535			294.8 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			446786	12/29/20 19:28	K1S	TAL SAC

Client Sample ID: RSSCT 4-EF- 40K — Lab Sample ID: 320-68269-6

Date Collected: 12/22/20 00:30 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 16:59	SS	TAL SAC

Lab Chronicle

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Client Sample ID: RSSCT 4-EF- 40K — Lab Sample ID: 320-68269-6

Date Collected: 12/22/20 00:30 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			294.1 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			446786	12/29/20 19:37	K1S	TAL SAC

Client Sample ID: RSSCT 4-EF- 50K — Lab Sample ID: 320-68269-7

Date Collected: 12/22/20 09:33 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 17:24	SS	TAL SAC
Total/NA	Prep	3535			278.6 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			446786	12/29/20 19:46	K1S	TAL SAC

Client Sample ID: RSSCT 4-IN-02 — Lab Sample ID: 320-68269-8

Date Collected: 12/22/20 10:00 — **Matrix: Water**
Date Received: 12/23/20 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C SIM		1	50 mL	50 mL	448125	01/04/21 17:48	SS	TAL SAC
Total/NA	Prep	3535			274.5 mL	10.00 mL	445684	12/24/20 11:38	GWO	TAL SAC
Total/NA	Analysis	537 (modified)		1			447254	12/30/20 17:59	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: TRC Environmental Corporation. Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-21

Method Summary

Client: TRC Environmental Corporation.
Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Method	Method Description	Protocol	Laboratory
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL SAC
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: TRC Environmental Corporation.
Job ID: 320-68269-1
Project/Site: Well #15 Feasibility Study - RSSCT 4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-68269-1	RSSCT 4-EF- 5K	Water	12/20/20 15:45	12/23/20 10:40	
320-68269-2	RSSCT 4-EF- 10K	Water	12/20/20 20:32	12/23/20 10:40	
320-68269-3	RSSCT 4-EF- 15K	Water	12/21/20 01:26	12/23/20 10:40	
320-68269-4	RSSCT 4-EF- 20K	Water	12/21/20 05:53	12/23/20 10:40	
320-68269-5	RSSCT 4-EF- 30K	Water	12/21/20 14:56	12/23/20 10:40	
320-68269-6	RSSCT 4-EF- 40K	Water	12/22/20 00:30	12/23/20 10:40	
320-68269-7	RSSCT 4-EF- 50K	Water	12/22/20 09:33	12/23/20 10:40	
320-68269-8	RSSCT 4-IN-02	Water	12/22/20 10:00	12/23/20 10:40	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Kyle Trewitt	Lab PM: Fredrick, Sandie	Carrier Tracking No(s): 7125-4993-6856	COC No: 320-34440-8552.1
Client Contact: Jeff Ramey	Phone: 724-772-1407	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of 1
Company: TRC Environmental Corporation				Job #:
Address: 150 N. Patrick Blvd. Suite 180	Due Date Requested:			
City: Brookfield	TAT Requested (days):			
State, Zip: WI, 53045				
Phone: 262-901-2157(Tel)	PO #: 158753			
Email: jramey@trccompanies.com	WO #:			
Project Name: Well #15 Feasibility Study - RSSCT 4	Project #: 32016125			
Site:	SSOW#:			

Analysis Requested

320-68269 Chain of Custody

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)	PFC_IDA - PFAS, Extended List (36 Analytes)	8260B - VOCs, Standard List	8260C_SIM - VOC - SIM	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A	A		
RSSCT 4-EF-5K	12/20	15:45	G	Water			N		A	6	
RSSCT 4-EF-10K	12/20	20:32	G	Water			N		A	6	
RSSCT 4-EF-15K	12/21	1:26	G	Water			N		A	6	
RSSCT 4-EF-20K	12/21	5:53	G	Water			N		A	6	
RSSCT 4-EF-30K	12/21	14:56	G	Water			N		A	6	
RSSCT4-EF-40K	12/22	00:30	G	Water			N		A	6	
RSSCT4-EF-50K	12/22	9:33	G	Water			N		A	6	
RSSCT4-IN-02	12/22	10:00	G	Water			N		A	6	
				Water							
				Water							
				Water							

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

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)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	[signature]	12/22/20 11:33	EWT	[signature]	12/23/20 1040	Eurofins
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 1.3/1.9

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: TRC Environmental Corporation. Job Number: 320-68269-1

Login Number: 68269 **List Source: Eurofins TestAmerica, Sacramento**
List Number: 1
Creator: Oropeza, Salvador

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.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	
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)	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.	N/A	
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Data Review Checklist

Site: Well 15 RSSCTs Location: Madison, WI Client Name: Madison Water Utility Project #: 406092.0003	Laboratory: Eurofins-TestAmerica West Sacramento, CA Lab Report #s: 320-67908-1, 320-67910-1, 320-68214-1, 320-68269-1	QA Reviewer: Jeff Ramey Peer Reviewer: Mike Ursin Date: 1/8/2021
Analytical Method(s): EPA 537 (modified) – PFAS EPA 8260C SIM – PCE/TCE	Matrices Sampled: Groundwater	Sample Collection Date(s): RSSCT 1 & 2: December 9-13, 2020 RSSCT 3: December 18-20, 2020 RSSCT 4: December 20-22, 2020
Sampling Objective(s): Feasibility Study		
Sample IDs: MWU-IN-01, RSSCT 1-EF-5K, RSSCT 1-EF-10K, RSSCT 1-EF-15K, RSSCT 1-EF-20K, RSSCT 1-EF-30K, RSSCT 1-EF-40K, RSSCT 1-EF-50K, RSSCT 1-EF-60K, RSSCT 1-EF-70K, RSSCT 1-EF-80K, RSSCT 1-EF-90K, RSSCT 1-EF-100K, TRIP BLANK RSSCT 2-EF-5K, RSSCT 2-EF-10K, RSSCT 2-EF-15K, RSSCT 2-EF-20K, RSSCT 2-EF-30K, RSSCT 2-EF-40K, RSSCT 2-EF-50K, RSSCT 2-EF-60K, RSSCT 2-EF-70K, RSSCT 2-EF-80K, RSSCT 2-EF-90K, RSSCT 2-EF-100K, MWU-IN-02, TRIP BLANK RSSCT 3 - IN – 01, RSSCT 3 - EF - 5K, RSSCT 3 - EF - 10K, RSSCT 3 - EF - 15K, RSSCT 3 - EF - 20K, RSSCT 3 - EF - 30K, RSSCT 3 - EF - 40K, RSSCT 3 - EF - 50K RSSCT 4-EF- 5K, RSSCT 4-EF- 10K, RSSCT 4-EF- 15K, RSSCT 4-EF- 20K, RSSCT 4-EF- 30K, RSSCT 4-EF- 40K, RSSCT 4-EF- 50K, RSSCT 4-IN-02		

NOTE: Provide comments if any of the shaded boxes are checked.

	Review Item or Question	Y	N	NA	Comments[1]
Sample Traceability / Chain of Custody					
1	Were COC forms appropriately completed?		x		RSSCT 1 (320-67908-1) and RSSCT 2 (320-67910-1) did not include the trip blank on the COC and the trip blanks were added as analyses. RSSCT 3 (320-68214-1) a trip blank was sampled but was not included on the COC and was not analyzed. RSSCT 4 (320-68269-1) a trip blank was not sampled. **RSSCT 1-IN was submitted on the COC as MWU-IN-01** **RSSCT 2-IN was submitted on the COC as MWU-IN-02**
2	Did the laboratory report correct sample IDs?	x			

	Review Item or Question	Y	N	NA	Comments[1]
3	Do the laboratory reported sample collection dates and times agree with the COC forms?	x			
Sample Preservation and Integrity					
4	Did samples arrive at the laboratory appropriately preserved?	x			
	Was the cooler temperature between 0-6°C?	x			
	Was acid used for preservation when required (e.g., aqueous VOC and metals samples)?	x			
	Were soil/sediment VOC samples preserved in the field or collected in EnCore® samplers?			x	
5	Were samples received by the laboratory in an acceptable condition (i.e., no breakages, leaks, etc.)?	x			
6	Were any issues noted by the laboratory upon receipt?	x			Sample RSSCT-1-EF-5K was indicated by the lab as one of the vials being ¼ full with headspace. No affect on the data as the the vial with headspace was not used for the TCE/PCE analysis. Sample RSSCT-2-EF-90K was indicated by the lab as one of the vials being ¼ full with headspace. No affect on the data as the the vial with headspace was not used for the TCE/PCE analysis. See # 1 for Trip Blanks

	Review Item or Question	Y	N	NA	Comments[1]
7	Were sample preparation and analysis holding time requirements met?		x		RSSCT 1 (320-67908-1): For TCE/ PCE: samples MWU-IN-01 and RSSCT 1-EF-5K were analyzed 1 day past hold time, samples RSSCT 1-EF-70K and RSSCT 1-EF-80K were analyzed 3 days past hold time, and samples RSSCT 1-EF-90K and RSSCT 1-EF-100K were analyzed 4 days past hold time. **Samples MWU-IN-01, RSSCT 1-EF-5K, RSSCT 1-EF-70K, RSSCT 1-EF-80K, RSSCT 1-EF-90K, and RSSCT 1-EF-100K are potentially biased low for TCE/ PCE.** RSSCT 2 (320-67910-1): For TCE/ PCE: samples RSSCT 2-EF-5K and TRIP BLANK were analyzed 1 day past hold time, samples MWU-IN-02, RSSCT 2-EF-90K, and RSSCT 2-EF-100K were analyzed 3 days past hold time, samples RSSCT 2-EF-60K and RSSCT 2-EF-80K were analyzed 4 days past hold time, sample RSSCT 2-EF-70K was analyzed 5 days past hold time, and sample RSSCT 2-EF-50K was analyzed 6 days past hold time. **Samples MWU-IN-02, RSSCT 2-EF-50K, RSSCT 2-EF-60K, RSSCT 2-EF-70K, RSSCT 2-EF-80K, RSSCT 2-EF-90K, and RSSCT 2-EF-100K are potentially biased low for TCE/ PCE.** RSSCT 2 (320-67910-1): For TCE/ PCE: samples RSSCT 4-EF- 10K and RSSCT 4-EF- 15K were analyzed 1 day past hold time. **Samples RSSCT 4-EF- 10K and RSSCT 4-EF- 15K are potentially biased low for TCE/ PCE.**
8	AIR ONLY: Were canisters received with an acceptable vacuum? Were the RPDs between the initial and final canister flow controller calibrations <20?			x	
Data Completeness					
9	Are results reported for all analytical methods requested?	x			
10	Are results reported for all samples submitted for analysis?	x			
11	Were the requested analytical methods used?	x			
12	Are results reported for all target analytes, but no additional analytes?	x			
13	Were soil/sediment results reported on a dry weight basis?			x	
14	If requested, were detected results below the reporting limit (i.e., "J" values) reported?	x			
15	Did we receive the required deliverables (e.g., EDD, Level 4 data, laboratory certification, etc.) in the correct formats?	x			Level 2 report and EDD

	Review Item or Question	Y	N	NA	Comments[1]
Sensitivity					
16	Do the reporting limits meet the project specifications (e.g., QAPP or Work Plan)?		x		LOQ for PFAAs expected to be </= 2 ng/L per analyte. RSSCT 1 (320-67908-1): PFBA LOQ/ LOD for all samples was (4.6 – 5.0 ng/L / 2.2 – 2.4 ng/L). **Samples RSSCT 1-EF-5K, RSSCT 1-EF-10K, RSSCT 1-EF-15K, RSSCT 1-EF-20K, and RSSCT 1-EF-30K are non-detect (<2.2 – 2.4 ng/L) for PFBA.** RSSCT 2 (320-67910-1): PFBA LOQ/ LOD for all samples was (4.5 – 5.0 ng/L / 2.2 – 2.4 ng/L). **Samples RSSCT 2-EF-5K, RSSCT 1-EF-10K, and RSSCT 1-EF-20K are non-detect (<2.2 – 2.4 ng/L) for PFBA.** RSSCT 3 (320-68214-1): PFBA LOQ/ LOD for all samples was (4.5 – 5.0 ng/L / 2.2 – 2.4 ng/L). **Sample RSSCT 3-EF-5K is non-detect (<2.2 – 2.4 ng/L) for PFBA** RSSCT 4 (320-68269-1): PFBA LOQ/ LOD for all samples was (4.2 – 5.0 ng/L / 2.2 – 2.4 ng/L). No data are affect as PFBA was detected in all samples.
17	Were dilutions performed? If so, note sample(s) and parameter(s) affected and the dilution factor(s).		x		
18	Did the laboratory provide an adequate explanation as to why dilutions were performed?			x	
QC Results					
19	Were any target analytes detected in the method blanks? If yes, list contaminants, concentrations detected and associated samples.		x		
20	Does each analytical or preparation batch have its own method blank?	x			
21	Were any target analytes detected in the field blank(s) (e.g., trip blanks, equipment blanks)? If yes, list contaminants, concentrations detected and associated samples (or attach field blank results).		x		No field or equipment blank collected. No target analytes detected in the trip blanks for SDGs RSSCT 1 (320-67908-1) and RSSCT 2 (320-67910-1) A trip blank was not analyzed for RSSCT 3 (320-68214-1) A trip blank was not collected for RSSCT 4 (320-68269-1)

	Review Item or Question	Y	N	NA	Comments[1]
22	Are there any potential false positive results based on questions 19 and/or 21? If concentrations of contaminants in associated samples are ≤10x the blank concentration, sample result is most likely a false positive. [2]		x		
23	Are LCS/LCSD recoveries within QC limits[3]? If no, list analytes affected, the LCS/LCSD recoveries and the affected samples.	x			
24	Does each analytical or preparation batch have its own LCS?	x			
25	Are LCS/LCSD RPDs within QC limits[3]? If no, list analytes affected, the RPDs and the affected samples.	x			
26	Are MS/MSD recoveries within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required. If no, list analytes affected, the MS/MSD recoveries and the sample that was spiked.			x	No MS/MSD analyzed
27	Are MS/MSD RPDs within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required, If no, list analytes affected, the RPDs and the sample that was spiked.			x	No MS/MSD analyzed

	Review Item or Question	Y	N	NA	Comments[1]
28	Are laboratory duplicate RPDs within QC limits[3]? NOTE: If not performed on a project sample, evaluation is not required. If no, list analytes affected, the RPDs and the sample that was prepared/analyzed in duplicate.			x	No laboratory duplicate analyzed
29	Are field duplicate RPDs within QC limits? If no, list analytes affected, the RPDs and the associated samples. NOTE: Typical criteria[4] are RPD ≤50 for solid samples and RPD ≤30 for aqueous and air samples when results are >2x the reporting limit; otherwise these criteria are doubled. However, project-specific or regulatory-based criteria may supersede these criteria.			x	No field duplicate sampled
30	ORGANIC ANALYSES ONLY: Are surrogate recoveries within QC limits[3]? If no, list samples, surrogate recoveries and analytes affected.	x			
31	PFAS ANALYSES ONLY: Are the sample results quantitated using isotope dilution?	x			
32	PFAS ANALYSES ONLY: Are recoveries of isotope dilution analytes within QC limits? If not, list the affected analyte(s) and potential impact on the sample(s).	x			

	Review Item or Question	Y	N	NA	Comments[1]
Laboratory Comments					
33	Did the case narrative describe any analytical anomalies (i.e., problems or unique occurrences)? If yes, list the comments that have potential impact to sample results (or attach case narrative and highlight the comments that have potential impact to sample results).	x			The container label for RSSCT 3-EF-10K did not match the COC and sample was logged according to the COC.
34	Were any other potential data quality issues identified? If yes, describe issues.	x			**RSSCT 1** **The influent sample, MWU-IN-01 was collected at the start of RSSCT 1** **RSSCT 2** **The influent sample, MWU-IN-02 was collected at the end of RSSCT 2** **RSSCT 3** **The influent sample, RSSCT 3-IN-01 was collected at the start of RSSCT 3** **RSSCT 4** **The influent sample, RSSCT 4-IN-02 was collected at the end of RSSCT 4**
Do the Data Make Sense?					
35	Do any results look questionable? If yes, ASK THE LAB!		x		
36	Has the EDD been compared with the lab report?		x		

(1) Comments generally need to be addressed in the TRC deliverable presenting the laboratory data but this will be dependent on project requirements.
(2) Check if local or regional criteria for blank assessments are available; these will supersede criteria in this checklist.
(3) Use QC limits in QAPP, if available. If not, use QC limits provided by laboratory in data package.
(4) EPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Guidance/Procedures, April 22, 2013.

COC = Chain-of-Custody
EDD = Electronic Data Deliverable
LCS/LCSD = Laboratory Control Sample / Laboratory Control Sample Duplicate
MS/MSD = Matrix Spike / Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
QC = Quality Control
RPD = Relative Percent Difference = |(A-B)/((A+B)/2)|
VOC = Volatile Organic Compounds

NOTE: After data tables are created, check that reporting limits are below the project action levels (e.g., screening criteria, remediation standards, etc.) and compare data with historical results, if applicable.

Additional Comments:

Appendix C: Rapid Small-Scale Column Tests on Madison, WI Source Water for TRC Environmental

Rapid Small-Scale Column Tests on Madison, WI Source Water for TRC Environmental

Evoqua Water Technologies
2/16/2021
Prepared by:
Kyle Trewitz, Thomas Mallmann

1. Executive Summary

Two granular activated carbons (GACs) were evaluated in Rapid Small-Scale Column Tests (RSSCTs) to demonstrate their ability to remove volatile organic compounds (VOCs) and per- and polyfluoroalkyl substances (PFAS) from a local water source. Both the Cabot Norit GAC 1240 Plus (1240 Plus) and the Evoqua UltraCarb 1240 Low Density (UC1240LD) demonstrated removal of trichloroethene (TCE), tetrachloroethene (PCE) and PFAS to non-detect levels. Both GACs experienced fast breakthrough of the short-chained PFAS molecules (e.g. PFBA, and PFPeA) with the 1240 Plus GAC outperforming the UC1240LD GAC product. When considering long-chain PFAS, such as PFOA, PFHxS and PFOS, the UC1240 demonstrated a greater capacity than the 1240 Plus. In all cases for both GACs, TCE and PCE breakthrough occurred after PFAS breakthrough, indicating the use of VOC strippers could be eliminated if treatment objectives and media change-out criteria for the adsorbers were based on PFAS removal. For the baseline case (90% total PFAS reduction from current well water), 1240 Plus treated 31,000 BV and UC1240LD treated 30,000 BV. Both carbons were also effective in removing VOCs and PFAS when PFAS was spiked to 10X the baseline concentrations.

The performance of PSR2 Plus was modeled for the Well 15 water. Anion-exchange resins do not remove TCE or PCE, which means the VOC stripper would need to remain operational if anion-exchange resin is chosen as the PFAS removal technology. PSR2 Plus is estimated to treat 42,000 BV for the baseline case.

2. Introduction and Background

Madison Water Utility has contracted with TRC Environmental to complete a MWU-led feasibility study to evaluate various treatment technologies that use adsorptive media and ion-exchange resins for PFAS, PCE and TCE removal from Madison Municipal Well 15 and determine whether the water quality treatment goals can be achieved without air stripping. The final treatment objectives were defined as:

- Greater than 90% reduction for each of the following PFAS: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFPeS, PFHxS, PFHpS, PFOS, and FOSA
- Greater than 90% reduction for PCE and TCE

In this report, the baseline case for comparing carbons and resin is 90% reduction of total PFAS at the current concentrations found in the well water.

a. Madison Municipal Well 15

Madison Municipal Well 15 was constructed in 1965 and has a production capacity of 2200 gpm. Recently, production has shifted to other wells due to the cost to operate a VOC air stripper that was installed in 2013 to address increasing levels of PCE (3-5 µg/L) and TCE (0.4 µg/L). The VOC stripper raises the pH of the water necessitating pH adjustment that increases operating costs.

In 2017, per- and polyfluoroalkyl substances (PFAS) were first detected at Well 15. Testing identified ten PFAS with a combined concentration of 56 ng/L. Detected PFAS include a mix of short- and long-chain compounds including both carboxylate and sulfonate forms. The predominant PFAS is perfluorohexanesulfonic acid (PFHxS) which is present at 20 ng/L. Four other PFAS chemicals each test above 5 ng/L. The well has been off-line since March 2019 due to public concerns over elevated PFAS levels.

b. Granular Activated Carbon

GAC is a well-established treatment technology for removing both PFAS and VOCs. It is the only commonly available media capable of removing both types of impurities. It was logical to test GAC given that one of the objectives was to eliminate the VOC stripper. Two GAC products with a long history of PFAS removal were chosen for this study. PFAS breakthrough was expected before PCE or TCE for both products, which would eliminate the necessity of a VOC stripper and result in reduced operating expenses.

c. Anion Exchange resin

Anion exchange resin can remove any PFAS that dissociates into anions. Most PFAS are present as anions in groundwater. Eleven of the twelve PFAS listed in the objectives are anions. Only FOSA is not. Anion exchange resin will not remove PCE or TCE, which means the air stripper needs to remain in operation if anion exchange resin is chosen as the PFAS-removal technology. This was the primary reason this technology was not demonstrated in the laboratory. In most cases bed life of anion-exchange resin can be estimated from water quality.

3. Objective and Overview

The objective of the work described in this report was to compare the performance of 1240 Plus and UC1240LD activated carbon to remove PFAS and VOCs from a municipal water source located in Madison, WI. A total of four RSSCTs were run on the source water. Two RSSCTs were performed on water spiked with PCE to the typical concentration found in the source water to test PFAS removal at current concentrations. These RSSCTs were run to 100,000 bed volumes. The source water was then spiked with PCE to the typical concentration and 8 PFAS to approximately ten times the typical concentrations for the remaining two RSSCTs. These RSSCTs were run to 50,000 BV.

The anion-exchange resin PSR2 Plus was not included in RSSCTs because its performance can be estimated using a proprietary computer model. The results of this model are presented in this report.

4. Experimental

a. Influent Source

Two (2) 55-gallon drums were received by the EWT Bellefonte Laboratory containing a total of 110 U.S. gallons of water from the Madison, WI water source. 32 gallons of source water were transferred to two 16-gallon stainless steel storage tanks located in the lab cooler via vane pump. No filter was employed during the water transfer. Figure 1 shows the holding tanks employed for influent storage.

Figure 1: Stainless steel holding tanks for RSSCT influent

The VOCs of interest in the source water were PCE and TCE at typical concentrations of 4.0 µg/L and 0.50 µg/L respectively. It was reported by the customer that the water shipped to Bellefonte had a PCE concentration of approximately 1 µg/L, which required spiking the influent water with PCE to reach the typical concentration. This solution is named "as-received" since it represents the water that should have been received in Bellefonte. The holding tanks were pressurized to below 1 psi with nitrogen. At this time, influent samples were taken for PFAS and VOC analysis from the sample port on the lead holding tank. Note that the Madison water was allowed to rinse the sample port for 500 mL prior to filling the sample bottles using a laminar flow. The flushing step aides in limiting contamination from previous exposures. Sample MWU-IN-01 was collected at the start of the "as-received" RSSCTS. Sample MWU-IN-02 was collected upon completion of the "as-received" RSSCTs.

After the completion of the RSSCTs operated using the "as-received" source water, the stainless steel holding tanks were emptied and rinsed with DI water. The tanks were refilled with 32

gallons with source water and spiked with both PCE and a PFAS solution (containing PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, and PFOS as acids and salts – see list below). This solution is named "spiked" throughput this report. An influent sample (RSSCT3-IN-01) water taken prior to the start of spiked PFAS RSSCTs. A final influent sample, labeled RSSCT4-IN-02, was taken after the completion of the RSSCTs.

Aldrich	heptafluorobutyric acid, 98%
Aldrich	perfluoropentanoic acid, 97%
Aldrich	undecafluorohexanoic acid, 97%
Aldrich	perfluoroheptanoic acid, 99%
Alfa Aeser	sodium perfluorooctanoate, 97%
Aldrich	nonafluorobutane-1-sulfonic acid, 97%
Aldrich	tridecafluorohexane-1-sulfonic acid potassium salt, 98%
Aldrich	heptadecafluorooctanesulfonic acid potassium salt, 98%

b. Cabot Norit GAC 1240 Plus Preparation

The 1240 Plus was ground in a blade-style mechanical grinder, then sieved to retain the 170 x 200 U.S. mesh portion of the GAC. The material was transferred to a crucible and washed with deionized water. The wash step was repeated until the supernatant water was free of fines. The wash crucible was transferred to a vacuum oven and dried for 24 hours at 100°C and -20 inches of Hg. After drying, the GAC was loaded into an acrylic RSSCT column to a bed depth of 4 cm. The column had an internal diameter of 0.48 cm, and a of volume 0.713 mL. The total mass of the dried GAC loaded into the column was 0.3565 g. Once the column was sealed, a flow of DI water was started and pumped through the column for a total of 20,000 bed volumes at RSSCT scaled flowrate prior to the start of the Madison source water. The RSSCT pumps are both Shimadzu model LC-8A binary liquid chromatography pumps shown in Figure 2.

Figure 2: Shimadzu LC-8A pump used for RSSCTs

Note that during the above grinding procedure, an excess of the 1240 Plus was prepared for later use in the column for the RSSCT using the PFAS spiked water sample. The loading and rinsing procedures were the same as described above. The exception being that the actual GAC mass required to achieve a bed depth of 4 cm was 0.3566 g. Figure 3 shows the assembled chromatography column filled with 1240 Plus.

Figure 3: RSSCT column loaded with Cabot Norit GAC 1240 Plus

c. UC1240LD Preparation

The UC1240LD was ground in a blade-style mechanical grinder, then sieved to retain the 170 x 200 U.S. mesh portion of the GAC. The GAC was transferred to a crucible and washed with deionized water. The wash step was repeated until the supernatant water was free of fines. The wash crucible was transferred to a vacuum oven and dried for 24 hours at 100°C and -20 inches of Hg. After drying, the GAC was loaded into an acrylic RSSCT column to a bed depth of 4 cm and an internal diameter of 0.48 cm, a of volume 0.713 mL. The total mass of the dried GAC loaded into the column was 0.3338 g, which was approximately 20% higher than expected as calculated using the bulk density of the material. The increase in mass required to fill the 0.713 mL bed volume is due to an increase in apparent density during preparation of the GAC. Once the column was sealed, a flow of DI water was started and pumped through the column for a total of 20,000 bed volumes at RSSCT scaled flowrate prior to the start of the Madison source water.

Note that during the above grinding procedure, an excess of the UC1240LD was prepared for later use in the column for that would be operated using the PFAS spiked influent sample. The loading and rinsing procedures were the same as described above. The exception being that the actual GAC mass required to achieve a bed depth of 4 cm was 0.3340 g.

d. Rapid Small-Scale Test Design

The RSSCT was modeled using a constant diffusivity model as outlined in ASTM D6586-03: *Standard Practice for the Prediction of Contaminant Adsorption On GAC In Aqueous Systems Using Rapid Small-Scale Column Tests* where the adsorption of the contaminants onto the GAC

is the same regardless of adsorbent particle size. Both experiments were scaled from a 10-foot diameter vessel operating at 500 gpm for a 9.4-minute EBCT. The testing used the parameters in Table 1.

Table 1: RSSCT Experimental Parameters of Full-Scale and RSSCT Tests

	UC1240LD	1240 Plus	Units
Full-size media			
Particle Size	12x40	12 x 40	mesh
Diameter	10	10	ft
Volume of GAC	627	627	ft^3
Bed depth	8	8	ft
Flow rate, per vessel	500	500	gpm
Flow/area	6.37	6.37	gpm/ft^2
EBCT	9.4	9.4	min
RSSCT Conditions			
Mesh Size	170 x 200	170 x 200	
Particle Size	0.081	0.081	mm
Diameter	0.476	0.476	cm
Volume of GAC	0.713	0.713	ml
Bed depth	4.00	4.00	cm
Flow rate	12.75	12.75	ml/min
EBCT	0.056	0.056	min

Based on the above calculations, the RSSCTs using the "as-received" water sample would operate for approximately 4 days to treat 100,000 BV. While RSSCTs using the PFAS spiked water sample would operate for approximately 3 days to treat 50,000 BV. Effluent samples were collected at evenly spaced intervals throughout the RSSCTs every 5,000 bed volumes, for the first 20,000 bed volumes, and every 10,000 bed volumes throughout the remainder of the experiment. Note that due to an autosampler leak and subsequent restart of the test, the UC1240LD RSSCT on the PFAS spiked water sample was operated by bypassing the autosampler.

Due to laboratory requirements for EPA Method 537-Modified, two (2) 250 mL bottles were collected at each sampling point. The sample bottles were of a polyethylene bottle construction. VOC method 8260C SIM required four (4) 40 mL glass vials.

e. Sample Analysis

Samples were sent for analysis to Eurofins TestAmerica located in West Sacramento, CA for PFAS and VOC analysis. Table 2 presents PCE, TCE and a complete listing of the 36 PFAS compounds analyzed for in each sample. Sample reporting included values between the method detection limit (MDL) and the reporting limit (RL).

Table 2: Analytes for Madison, WI sample testing

Analyte	CAS Number	Reporting Limit (ng/L)	Method Detection Limit (ng/L)
Trichloroethene (TCE)	79-01-6	50	12
Tetrachloroethene (PCE)	127-18-4	50	15
Perfluorobutanoic acid (PFBA)	375-22-4	4.7	2.3
Perfluoropentanoic acid (PFPeA)	2706-90-3	1.9	0.46
Perfluorohexanoic acid (PFHxA)	307-24-4	1.9	0.54
Perfluoroheptanoic acid (PFHpA)	375-85-9	1.9	0.23
Perfluorooctanoic acid (PFOA)	335-67-1	1.9	0.80
Perfluorononanoic acid (PFNA)	375-95-1	1.9	0.25
Perfluorodecanoic acid (PFDA)	335-76-2	1.9	0.29
Perfluoroundecanoic acid (PFUnA)	2058-94-8	1.9	1.0
Perfluorododecanoic acid (PFDoA)	307-55-1	1.9	0.52
Perfluorotridecanoic acid (PFTrA)	72629-94-8	1.9	1.2
Perfluorotetradecanoic acid (PFTeA)	376-06-7	1.9	0.68
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	1.9	0.83
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	1.9	0.88
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1.9	0.19
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	1.9	0.28
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1.9	0.53
Perfluoroheptanesulfonic acid (PFHpS)	375-92-8	1.9	0.18
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1.9	0.51
Perfluorononanesulfonic acid (PFNS)	68259-12-1	1.9	0.35
Perfluorodecanesulfonic acid (PFDS)	335-77-3	1.9	0.30
Perfluorododecanesulfonic acid (PFDoS)	79780-39-5	1.9	0.91
Perfluorooctanesulfonamide (FOSA)	754-91-6	1.9	0.92
NEtFOSA	4151-50-2	1.9	0.82
NMeFOSA	31506-32-8	1.9	0.40
NMeFOSAA		4.7	1.1
NEtFOSAA		4.7	1.2
NMeFOSE	24448-09-7	3.8	1.3
NEtFOSE	1691-99-2	1.9	0.80
4:2-Fluorotelomersulfonic acid	757124-72-4	1.9	0.23
6:2-Fluorotelomersulfonic acid	27619-97-2	4.7	2.3
8:2-Fluotelomersulfonic acid	39108-34-4	1.9	0.43
10:2-Fluorotelomersulfonic acid	120226-60-0	1.9	0.63
DONA	919005-14-4	1.9	0.38
HFPO-DA (GenX)	13252-13-6	3.8	1.4
F-53B Major	763051-92-9	1.9	0.23
F-53B Minor	756426-58-1	1.9	0.30

5. Results

Only PCE and TCE were detected in any of the samples by method 8260C. Twelve (12) of the 36 PFAS analytes were detected in the influent water. Please see Table 3 for a complete listing of the VOCs and PFAS found in the source water from Madison, WI.

Table 3: Analyte and Concentration Present in Madison, WI Water

	As-received		PFAS Spiked	
Analyte	MWU-IN-01 (ng/L)	MWU-IN-02 (ng/L)	RSSCT3-IN-01 (ng/L)	RSSCT4-IN-02 (ng/L)
Tetrachloroethene (PCE)	1100	5700	3800	3500
Trichloroethene (TCE)	110	130	160	140
Perfluorobutanoic acid (PFBA)	2.5	2.4	27	26
Perfluoropentanoic acid (PFPeA)	4.6	4.7	44	44
Perfluorohexanoic acid (PFHxA)	4.8	4.8	58	49
Perfluoroheptanoic acid (PFHpA)	1.8	1.9	23	22
Perfluorooctanoic acid (PFOA)	2.9	2.9	46	44
Perfluorononanoic acid (PFNA)	<0.25	<0.25	<0.25	0.31
Perfluorobutanesulfonic acid (PFBS)	2.2	2.2	33	30
Perfluoropentanesulfonic acid (PFPeS)	2.4	2.2	2.7	2.3
Perfluorohexanesulfonic acid (PFHxS)	17	17	160	150
Perfluorohexanesulfonic acid (PFHpS)	0.27	0.29	1.4	1.4
Perfluorooctanesulfonic acid (PFOS)	5.7	6.4	40	40
Perfluorooctanesulfonamide (FOSA)	<0.92	1.1	<0.92	<0.92

RSSCT results are presented by compound below. The order of the compounds follows the order in Table 3 above. Note that all compounds that were not detected have concentrations expressed as less than the MDL.

a. Tetrachloroethene (PCE)

PCE was detected in the influent stream at an average concentration of 3.4 µg/L for RSSCTs 1 and 2. Note that the initial influent sample detected only 1.1 µg/L of PCE, while the influent sample taken at the completion of RSSCTs 1 and 2 found PCE at a concentration of 5.7 µg/L. This discrepancy in concentration is attributed to an incomplete mixing of the holding tanks. PCE was not detected in the effluent stream at any point throughout either the 1240 Plus or UC1240LD column tests. The MDL for PCE was 0.015 µg/L.

PCE was detected in the influent stream at an average concentration of 3.7 µg/L for RSSCTs 3 and 4. It was not detected in the effluent stream at any point throughout either the 1240 Plus or UC1240LD column tests.

The 90% reduction target for this compound is 0.033 ug/L. The MDL for PCE was 0.015 ug/L as determined by the analytical laboratory. PCE was not detected in the effluent stream throughout any of RSSCTs, indicating all samples had greater than 90% reduction of PCE.

b. Trichloroethene (TCE)

TCE was detected in the influent stream at an average concentration of 0.12 µg/L for RSSCTs 1 and 2. It was not detected in the effluent stream at any point throughout either the 1240 Plus or UC1240LD column tests.

TCE was detected in the influent stream at an average concentration of 0.15 µg/L for RSSCTs 3 and 4. It was not detected in the effluent stream at any point throughout either the 1240 Plus or UC1240LD column tests.

The 90% reduction target in concentration for this compound is 0.012 to 0.015 µg/L. The MDL for TCE was 0.012 µg/L as determined by the analytical laboratory. TCE was not detected in the effluent stream throughout any of RSSCTs, indicating all samples had greater than 90% reduction in PCE.

c. Perfluorobutanoic acid (PFBA)

The average PFBA influent concentration was 2.5 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The MDL for this compound was 2.3 ng/L. The high MDL of this compound was not conducive to generating accurate breakthrough curves. PFBA was first detected in the effluent stream at 40,076 bed volumes of the 1240 Plus column at influent concentrations. PFBA effluent concentrations remained at or above influent concentration throughout the remainder of the 1240 Plus test. The UC1240LD column found PFBA in the effluent stream of the sample event at 14,613 bed volumes. Table 4 lists the effluent sample concentrations throughout the test. Table 4 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 4.

Table 4: PFBA Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<2.3	<0.94	4,881	<2.3	<0.94
9,673	<2.3	<0.94	9,802	<2.3	<0.94
14,613	<2.3	<0.94	14,758	2.7	1.10
19,737	<2.3	<0.94	19,901	<2.3	<0.94
29,349	<2.3	<0.94	29,588	2.7	1.10
40,076	2.5	1.04	40,476	2.7	1.10
49,041	2.5	1.04	49,464	2.5	1.02
58,911	2.9	1.21	59,318	2.4	0.98
67,862	2.5	1.04	69,255	2.6	1.06
77,773	2.6	1.08	79,164	2.6	1.06
88,197	2.5	1.04	89,559	2.5	1.02
97,695	2.5	1.04	99,055	2.4	0.98

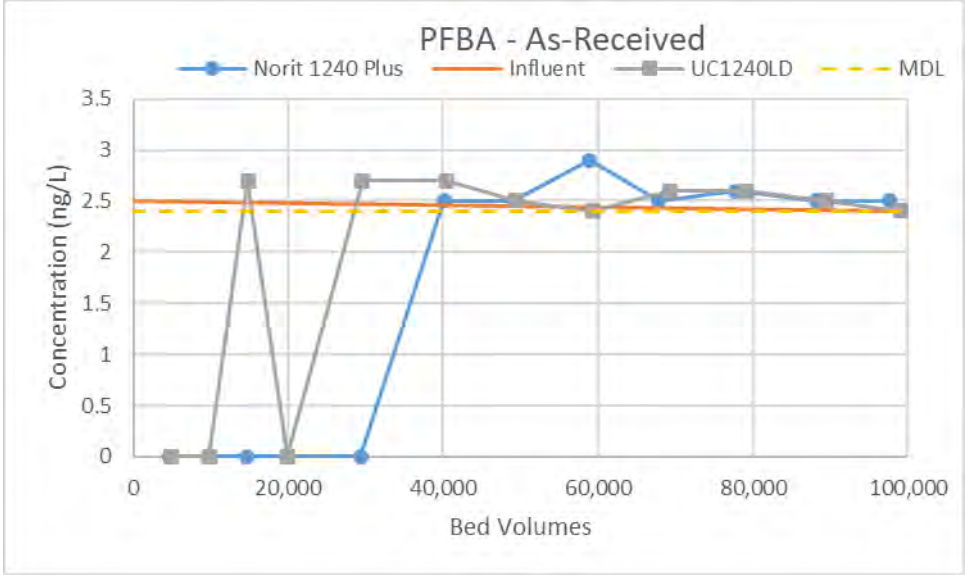

Figure 4: Perfluorobutanoic acid (PFBA) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFBA was 27 ng/L – 11 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFBA surpassed influent concentrations by 39,956 bed volumes and remained near the influent concentration for the remainder of the test. The UC1240LD effluent concentration of PFBA surpassed influent concentrations by 20,565 bed volumes remained near the influent concentration for the remainder of the test. Table 5 lists the effluent sample concentrations throughout the test. Table 5 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 5.

Table 5: PFBA Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<2.3	<0.09	5,292	4.7	0.18
9,478	3.8	0.14	10,504	15	0.57
14,218	11	0.42	15,786	25	0.94
18,974	19	0.72	20,565	32	1.21
29,967	25	0.94	30,227	32	1.21
39,956	28	1.06	40,204	30	1.13
49,737	28	1.06	49,529	28	1.06

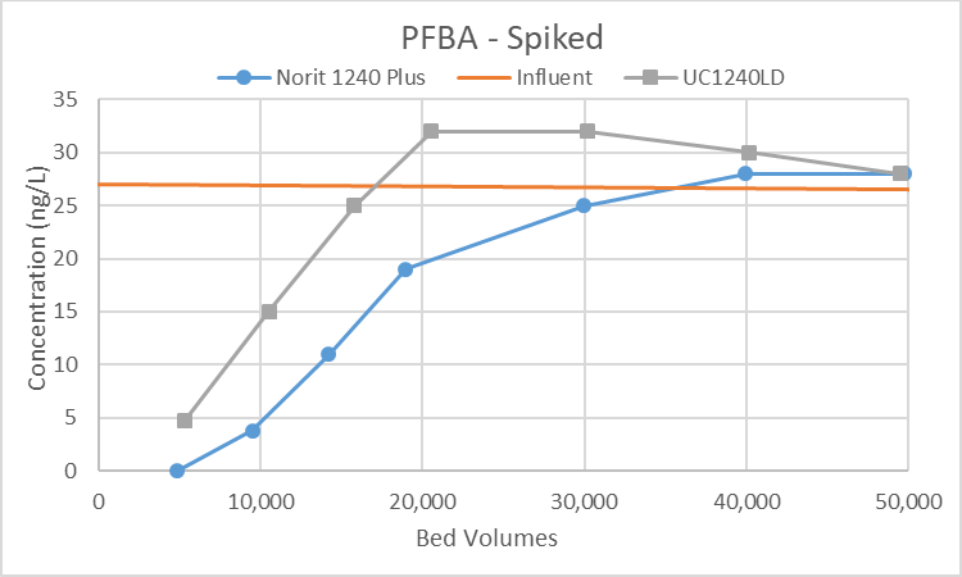

Figure 5: Perfluorobutanoic acid (PFBA) Breakthrough Curves on Spiked Source Water

Figure 6 shows PFBA breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. The 1240 Plus column had earlier detection of PFBA from the PFAS spiked water compared to the as-received water. This was not unexpected given the MDL for PFBA. The lowest possible value was 0.94, which means the initial breakthrough curve could not be measured. The spiked concentration allowed detection at lower relative concentrations. Despite the increase in concentration, PFBA reached complete breakthrough at approximately 40,000 bed volumes on both water samples for 1240 Plus. Similarly, the UC1240LD column effluent from the PFAS spiked water, reached complete PFBA breakthrough around 20,000 bed volumes while the effluent from the as-received water reached this same point at 15,000 bed volumes.

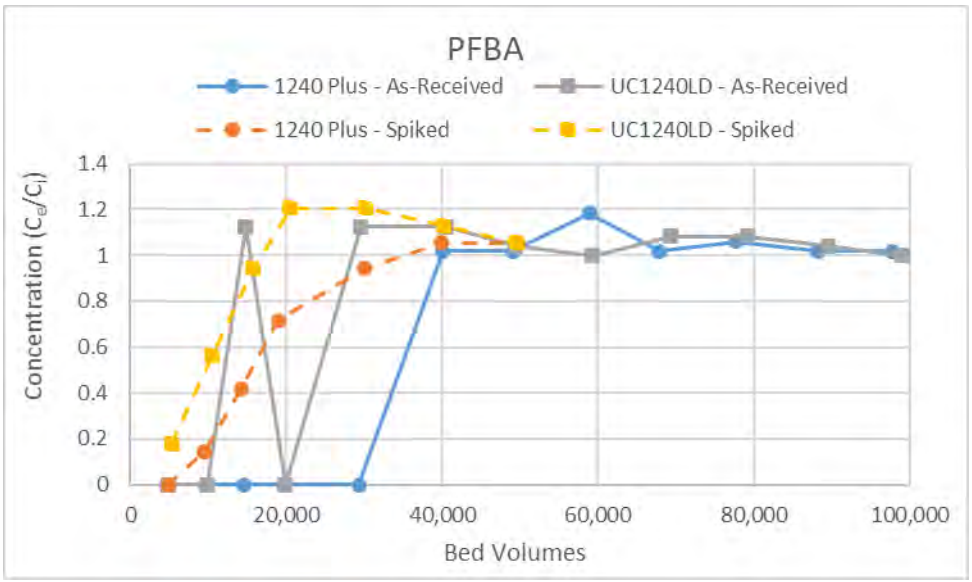

Figure 6: Perfluorobutanoic acid (PFBA) Breakthrough Curves on All Columns

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – The MDL was too high to estimate when Ce/Ci equaled 0.10.
- UC1240LD as-received RSSCT – The MDL was too high to estimate when Ce/Ci equaled 0.10.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was <0.09 at 4,798 BV, 0.14 at 9,478 BV and 0.42 at 14,218 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 8,700 BV.
- UC1240LD PFAS spiked RSSCT – Ce/Ci was 0.18 at 5,292 BV and 0.57 at 10,504 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 4,200 BV.

d. Perfluoropentanoic acid (PFPeA)

The average PFPeA influent concentration was 4.7 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent concentration of PFPeA did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 4.1 ng/L, approximately 87% of influent concentration. The UC1240LD effluent concentration of PFPeA surpassed influent concentrations by 49,464 bed volumes and remained near the influent concentration for the remainder of the test. Table 6 lists the effluent sample concentrations throughout the test. Table 6 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 7.

Table 6: PFPeA Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.46	<0.10	4,881	<0.46	<0.10
9,673	<0.46	<0.10	9,802	<0.46	<0.10
14,613	0.67	0.14	14,758	0.69	0.15
19,737	1.2	0.26	19,901	0.70	0.15
29,349	2.0	0.43	29,588	2.1	0.45
40,076	2.5	0.53	40,476	3.6	0.77
49,041	3.0	0.64	49,464	4.7	1.01
58,911	3.2	0.68	59,318	4.7	1.01
67,862	3.7	0.79	69,255	4.7	1.01
77,773	3.6	0.77	79,164	5.2	1.12
88,197	3.9	0.83	89,559	5.0	1.08
97,695	4.1	0.87	99,055	4.8	1.03

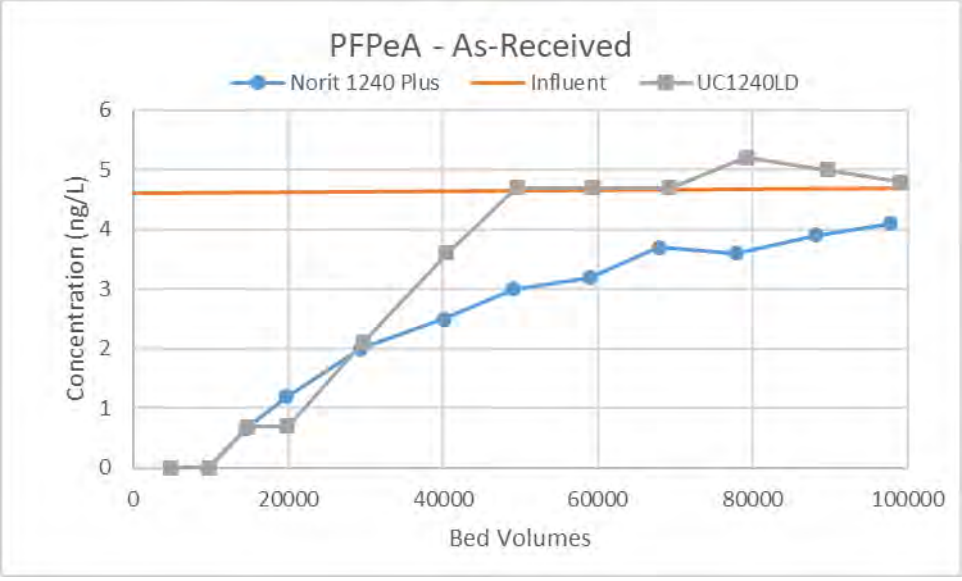

Figure 7: Perfluoropentanoic acid (PFPeA) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFPeA was 44 ng/L – over 9 times the concentration for the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFPeA did not surpass influent concentrations by the final sampling point of 49,737 bed volumes. The effluent reached a final concentration of 24 ng/L, approximately 55% of influent concentration. The UC1240LD effluent concentration of PFPeA did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 35 ng/L, approximately 80% of influent concentration, at this sampling point. Table 7 lists the effluent sample concentrations throughout the test. Table 7 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 8.

Table 7: PFPeA Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4798	<0.46	<0.010	5,292	<0.46	<0.010
9,478	<0.46	<0.010	10,504	0.88	0.02
14,218	0.89	0.02	15,786	2.0	0.05
18,974	2.2	0.05	20,565	3.9	0.09
29,967	8.6	0.20	30,227	11	0.25
39,956	17	0.39	40,204	21	0.48
49,737	24	0.55	49,529	35	0.80

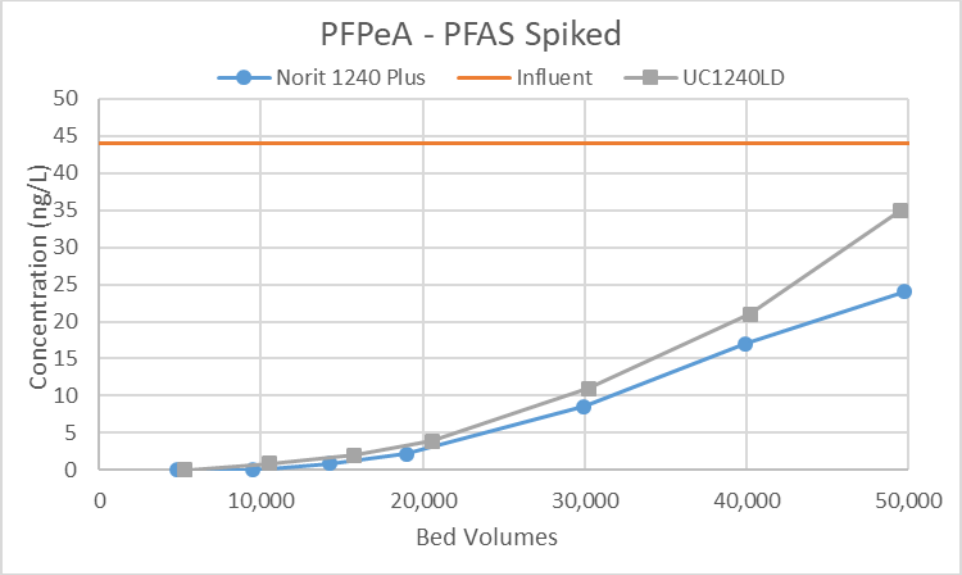

Figure 8: Perfluoropentanoic acid (PFPeA) Breakthrough Curves on Spiked Source Water

Figure 9 shows PFPeA breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. For both GACs, the spiked RSSCTS had later breakthrough of PFPeA than the as received RSSCTs.

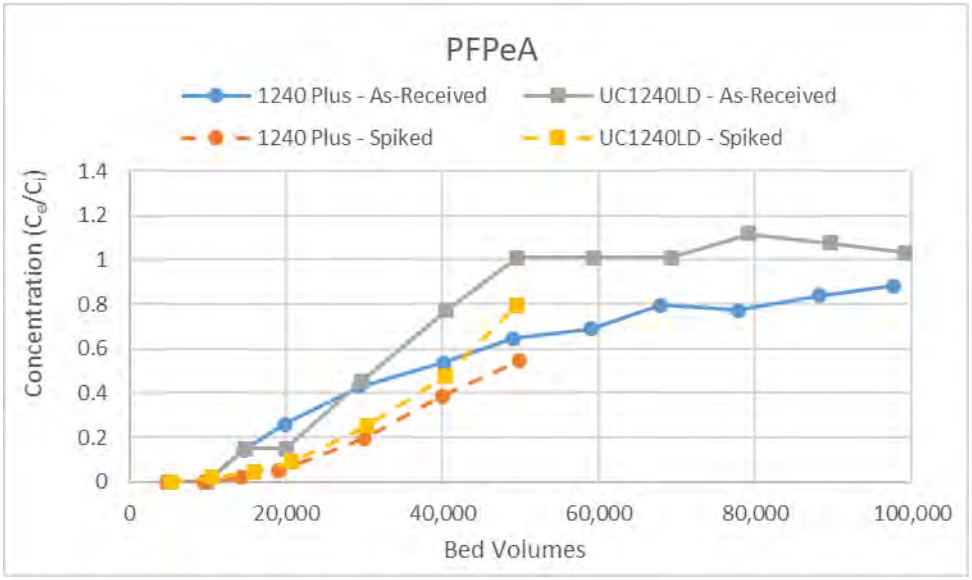

Figure 9: Perfluoropentanoic acid (PFPeA) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.10 at 9,673 BV, 0.14 at 14,613 BV and 0.26 at 19,737 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 13,000 BV.

- UC1240LD as-received RSSCT – Ce/Ci was <0.10 at 9,802 BV, 0.15 at 14,758 BV and 0.45 at 29,588 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 13,000 BV.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was 0.05 at 18,974 BV and 0.20 at 29,967 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 23,000 BV.
- UC1240LD PFAS spiked RSSCT – Ce/Ci was 0.09 at 20,565 BV and 0.25 at 30,227 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 21,000 BV.

e. Perfluorohexanoic acid (PFHxA)

The average PFHxA influent concentration was 4.8 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent concentration of PFHxA did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 3.3 ng/L, approximately 69% of influent concentration. The UC1240LD effluent concentration of PFHxA did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 4.2 ng/L, or approximately 88% of influent concentration. Table 8 lists the effluent sample concentrations throughout the test. Table 8 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 10.

Table 8: PFHxA Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.54	<0.11	4,881	<0.54	<0.11
9,673	<0.54	<0.11	9,802	<0.54	<0.11
14,613	<0.54	<0.11	14,758	<0.54	<0.11
19,737	<0.54	<0.11	19,901	<0.54	<0.11
29,349	1.0	0.21	29,588	0.67	0.14
40,076	1.6	0.33	40,476	1.3	0.27
49,041	2.0	0.42	49,464	1.9	0.40
58,911	2.4	0.50	59,318	2.7	0.56
67,862	2.8	0.58	69,255	3.1	0.65
77,773	2.8	0.58	79,164	3.7	0.77
88,197	3.2	0.67	89,559	4.1	0.85
97,695	3.3	0.69	99,055	4.2	0.88

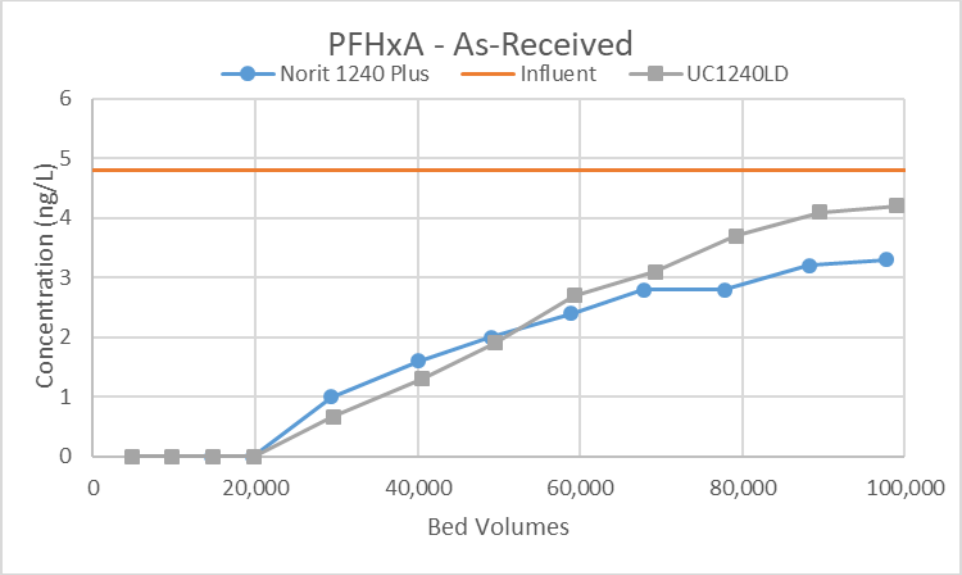

Figure 10: Perfluorohexanoic acid (PFHxA) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFHxA was 54 ng/L – over 11 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFHxA did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 14 ng/L, approximately 26% of influent concentration. The UC1240LD effluent concentration of PFHxA did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 9.9 ng/L, approximately 18% of influent concentration, at this sampling point. Table 9 lists the effluent sample concentrations throughout the test. Table 9 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 11.

Table 9: PFHxA Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<0.54	<0.010	5,292	<0.54	<0.010
9,478	<0.54	<0.010	10,504	<0.54	<0.010
14,218	<0.54	<0.010	15,786	<0.54	<0.010
18,974	0.80	0.01	20,565	0.77	0.01
29,967	2.9	0.05	30,227	2.1	0.04
39,956	8.0	0.15	40,204	5.1	0.10
49,737	14	0.26	49,529	9.9	0.19

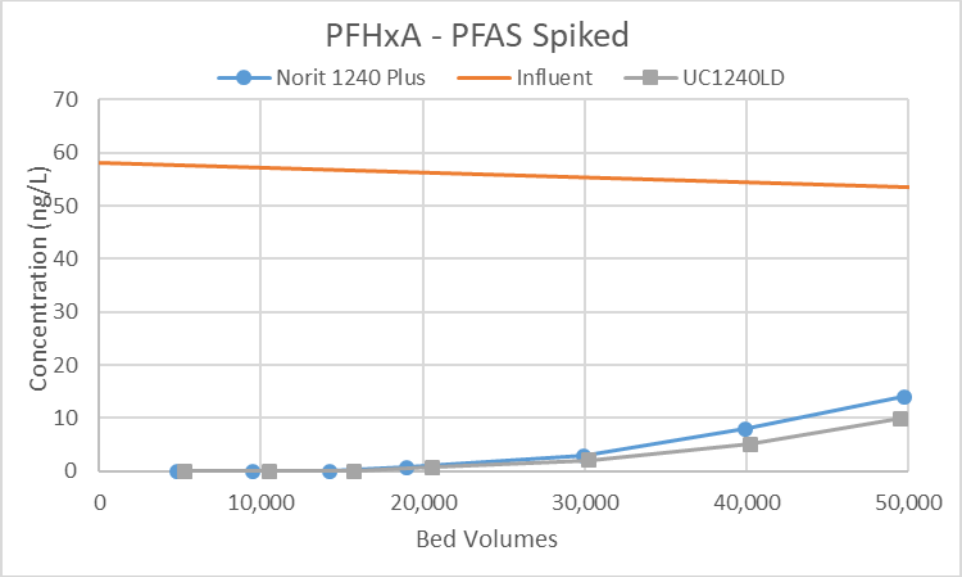

Figure 11: Perfluorohexanoic acid (PFHxA) Breakthrough Curves on Spiked Source Water

Figure 12 shows PFHxA breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. For both GACs, the spiked RSSCTS had later breakthrough of PFPeA than the as received RSSCTs.

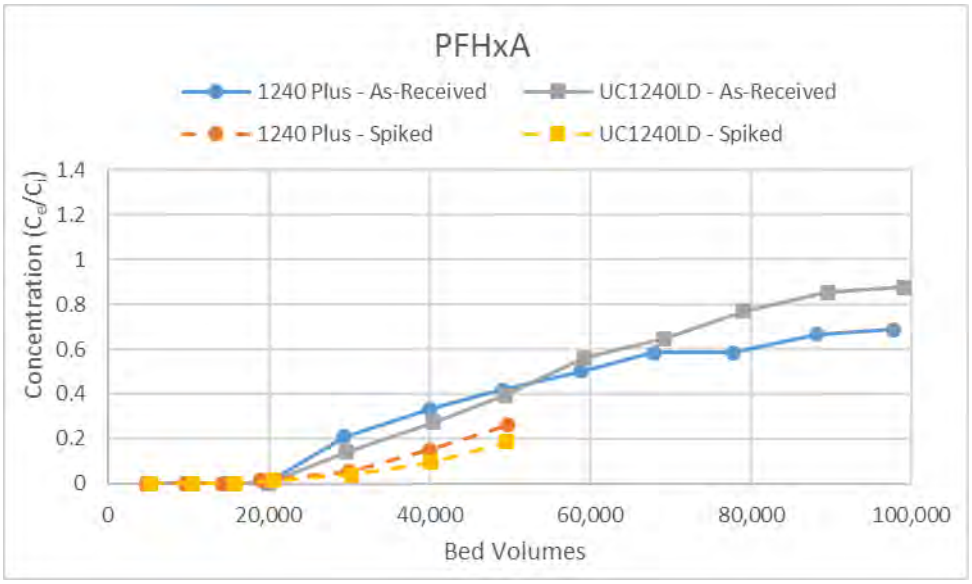

Figure 12: Perfluorohexanoic acid (PFHxA) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.11 at 19,737 BV, 0.21 at 29,349 BV and 0.33 at 40,076 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 20,000 BV.

- UC1240LD as-received RSSCT – Ce/Ci was <0.11 at 19,901 BV, 0.14 at 29,588 BV and 0.27 at 40,476 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 26,000 BV.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was 0.05 at 29,967 BV and 0.15 at 39,956 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 35,000 BV.
- UC1240LD PFAS spiked RSSCT – Ce/Ci was 0.10 at 40,204 BV (40,000 BV).

f. Perfluoroheptanoic acid (PFHpA)

The average PFHpA influent concentration was 1.9 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. Note that the reporting limit for this compound is 1.9 ng/L. All results are "J-flagged". The 1240 Plus effluent concentration of PFHpA did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 1.1 ng/L, approximately 58% of influent concentration. The UC1240LD effluent concentration of PFHpA did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 0.97 ng/L, or approximately 51% of influent concentration. Table 10 lists the effluent sample concentrations throughout the test. Table 10 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 13.

Table 10: PFHpA Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.23	<0.12	4,881	<0.23	<0.12
9,673	<0.23	<0.12	9,802	<0.23	<0.12
14,613	<0.23	<0.12	14,758	<0.23	<0.12
19,737	<0.23	<0.12	19,901	<0.23	<0.12
29,349	0.25	0.13	29,588	<0.23	<0.12
40,076	0.50	0.26	40,476	0.34	0.18
49,041	0.60	0.32	49,464	0.37	0.20
58,911	0.77	0.41	59,318	<0.23	<0.12
67,862	0.94	0.49	69,255	0.61	0.33
77,773	0.96	0.51	79,164	0.78	0.42
88,197	1.1	0.58	89,559	0.87	0.47
97,695	1.1	0.58	99,055	0.97	0.52

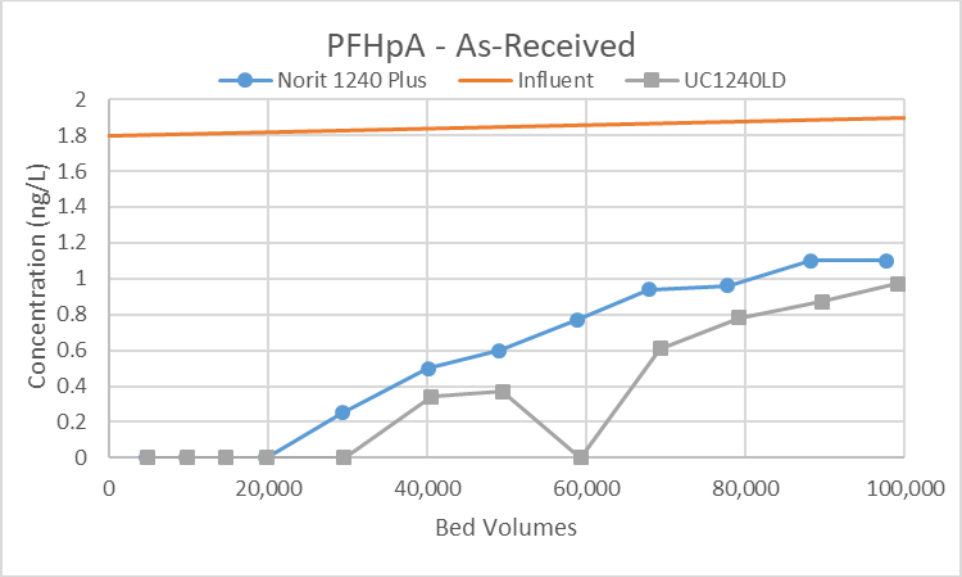

Figure 13: Perfluoroheptanoic acid (PFHpA) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFHpA was 23 ng/L – over 12 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFHpA did not surpass influent concentrations by the final sampling point of 49,737 bed volumes. The effluent reached a final concentration of 2.7 ng/L, approximately 12% of influent concentration. The UC1240LD effluent concentration of PFHpA did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 1.3 ng/L, approximately 6% of influent concentration, at this sampling point. Table 11 lists the effluent sample concentrations throughout the test. Table 11 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 14.

Table 11: PFHpA Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<0.23	<0.010	5,292	<0.23	<0.010
9,478	<0.23	<0.010	10,504	0.7	0.03
14,218	<0.23	<0.010	15,786	<0.23	<0.010
18,974	<0.23	<0.010	20,565	<0.23	<0.010
29,967	0.48	0.02	30,227	0.32	0.01
39,956	1.5	0.07	40,204	0.70	0.03
49,737	2.7	0.12	49,529	1.3	0.06

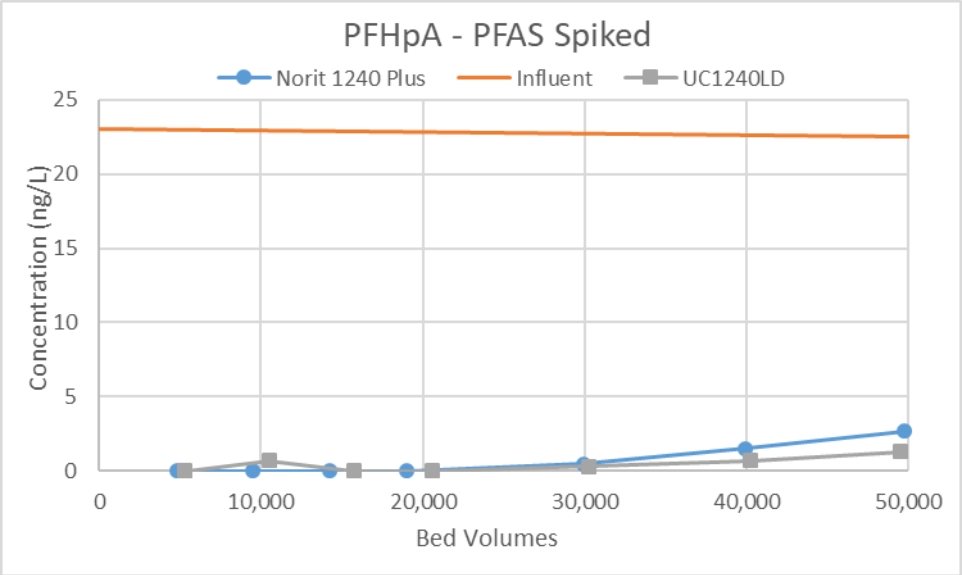

Figure 14: Perfluoroheptanoic acid (PFHpA) Breakthrough Curves on Spiked Source Water

Figure 15 shows PFHpA breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. Comparison of the compound removal is difficult due to the relatively little breakthrough observed in the PFAS spiked RSSCTs. None of the columns had complete PFHpA breakthrough. UC1240LD was observed to have more removal capacity of PFHpA as compared to the 1240 Plus.

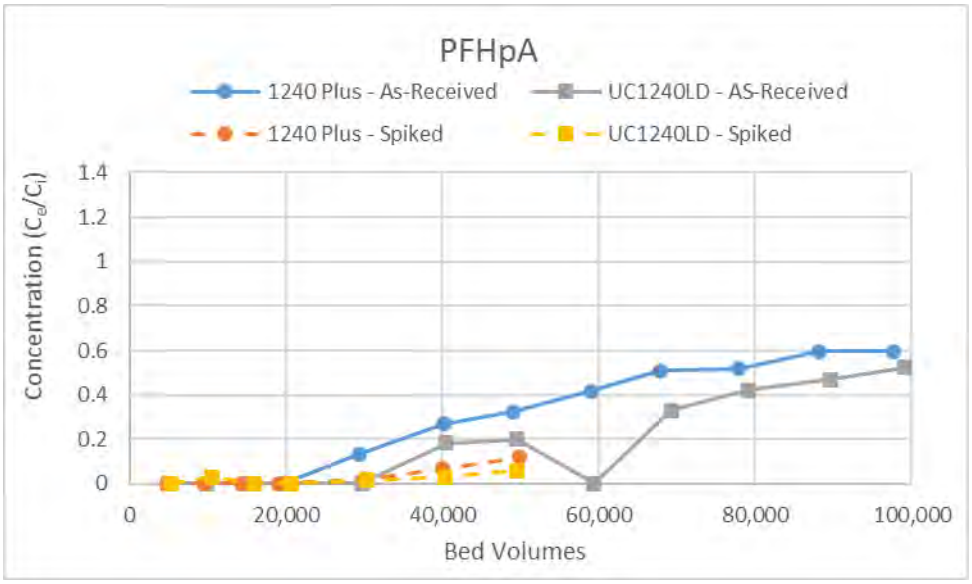

Figure 15: Perfluoroheptanoic acid (PFHpA) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.12 at 19,737 BV, 0.13 at 29,349 BV and 0.26 at 40,476 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 27,000 BV.
- UC1240LD as-received RSSCT – Ce/Ci was <0.12 at 19,901 BV, 0.18 at 40,476 BV and 0.33 at 69,255 BV. Based on these data, the effluent likely will exceed Ce/Ci = 0.10 at 26,000 BV.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was 0.07 at 39,956 BV and 0.12 at 45,825 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 46,000 BV.
- UC1240LD PFAS spiked RSSCT – Ce/Ci was 0.03 at 40,204 BV and 0.06 at 49,529 BV. Based on these data, the effluent likely will exceed Ce/Ci = 0.10 at 62,000 BV.

g. Perfluorooctanoic acid (PFOA)

The average PFOA influent concentration was 2.9 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent concentration of PFOA did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 1.5 ng/L, approximately 52% of influent concentration. The UC1240LD effluent concentration of PFOA did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 1.2 ng/L, or approximately 41% of influent concentration. Table 12 lists the effluent sample concentrations throughout the test. Table 12 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 16.

Table 12: PFOA Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.80	<0.28	4,881	<0.80	<0.28
9,673	<0.80	<0.28	9,802	<0.80	<0.28
14,613	<0.80	<0.28	14,758	<0.80	<0.28
19,737	<0.80	<0.28	19,901	<0.80	<0.28
29,349	<0.80	<0.28	29,588	<0.80	<0.28
40,076	<0.80	<0.28	40,476	<0.80	<0.28
49,041	<0.80	<0.28	49,464	<0.80	<0.28
58,911	1.0	0.34	59,318	<0.80	<0.28
67,862	1.2	0.41	69,255	<0.80	<0.28
77,773	1.3	0.45	79,164	<0.80	<0.28
88,197	1.5	0.52	89,559	1.1	0.38
97,695	1.5	0.52	99,055	1.2	0.41

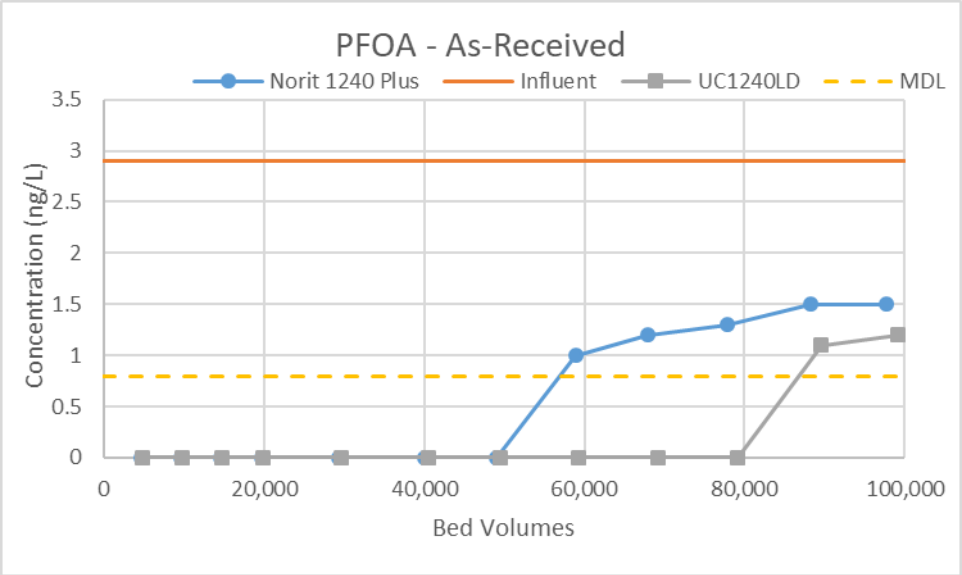

Figure 16: Perfluorooctanoic acid (PFOA) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFOA was 45 ng/L - over 15 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFOA did not surpass influent concentrations by the final sampling point of 49,737 bed volumes. The effluent reached a final concentration of 3.0 ng/L, approximately 7% of influent concentration. The UC1240LD effluent concentration of PFOA did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 1.3 ng/L, approximately 3% of influent concentration, at this sampling point. Table 13 lists the effluent sample concentrations throughout the test. Table 13 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 17.

Table 13: PFOA Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<0.80	<0.018	5,292	<0.80	<0.018
9,478	<0.80	<0.018	10,504	1.8	0.04
14,218	<0.80	<0.018	15,786	<0.80	<0.018
18,974	<0.80	<0.018	20,565	<0.80	<0.018
29,967	<0.80	<0.018	30,227	<0.80	<0.018
39,956	1.4	0.03	40,204	0.81	0.02
49,737	3.0	0.07	49,529	1.3	0.03

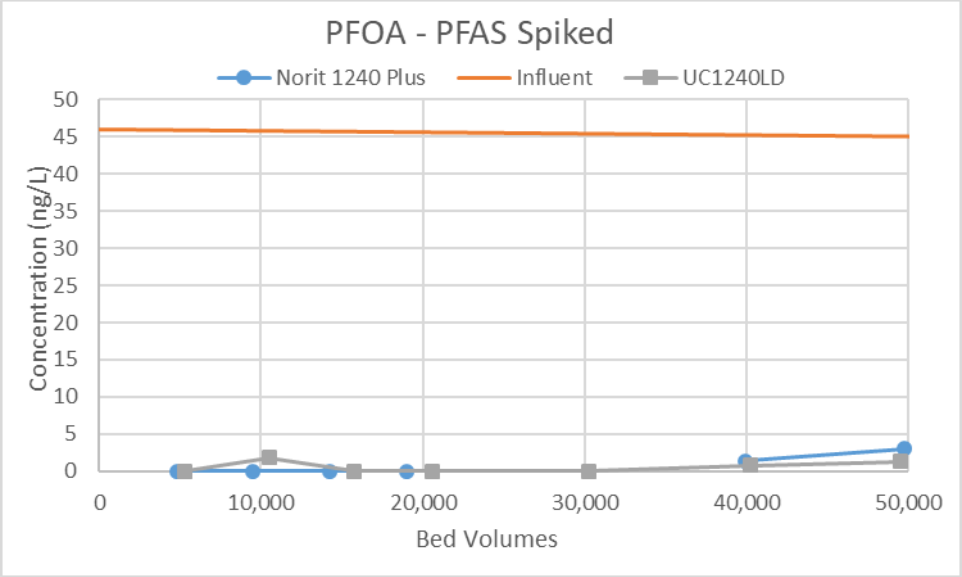

Figure 17: Perfluorooctanoic acid (PFOA) Breakthrough Curves on Spiked Source Water

Figure 18 shows PFOA breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. Comparison of the compound removal is difficult due to the relatively little breakthrough observed in the PFAS spiked RSSCTs as well as the relatively high MDL in the as-received RSSCTs. None of the columns had complete PFOA breakthrough. UC1240LD was observed to have more removal capacity of PFOA as compared to the 1240.

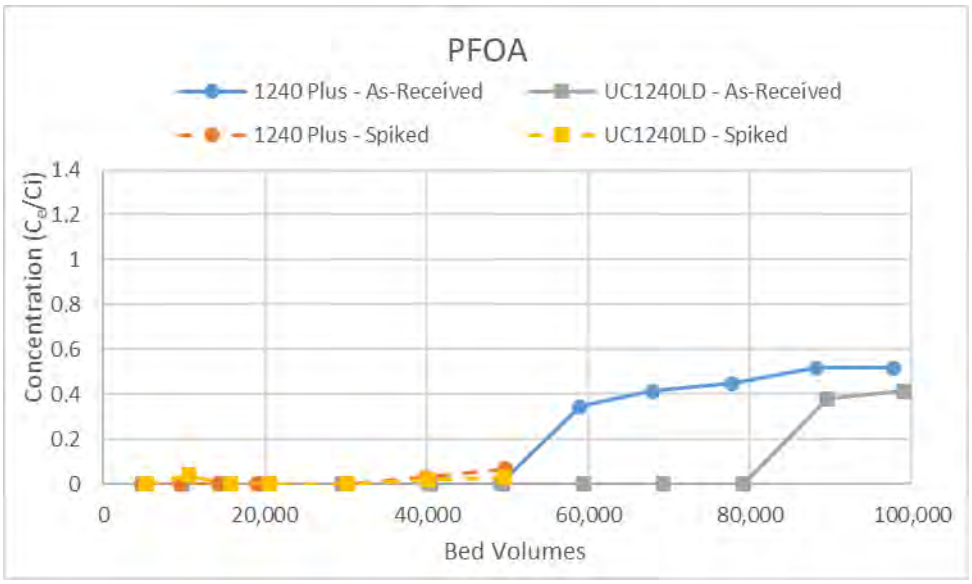

Figure 18: Perfluorooctanoic acid (PFOA) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – The high MDL and shallow slope of the breakthrough curve create too much uncertainty in any extrapolation to specify a throughput to Ce/Ci = 0.10.
- UC1240LD as-received RSSCT – The high MDL and shallow slope of the breakthrough curve create too much uncertainty in any extrapolation to specify a throughput to Ce/Ci = 0.10.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was 0.03 at 39,956 BV and 0.07 at 49,737 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 57,000 BV.
- UC1240LD PFAS spiked RSSCT – The low concentrations and shallow slope of the breakthrough curve create too much uncertainty in any extrapolation to specify a throughput to Ce/Ci = 0.10.

h. Perfluorononanoic acid (PFNA)

PFNA was detected in two samples from the UC1240LD column operated with the PFAS spiked solution. This compound was detected in the 10,504 bed volume effluent sample at a concentration of 0.61 ng/L. It was also found in the influent sample at a concentration of 0.31 ng/L. This compound was not included in the PFAS spike solution. The appearance of this compound is attributed to experimental and/or analytical error.

i. Perfluorodecanoic acid (PFDA)

PFDA was detected in the 10,504 bed volume effluent sample from the UC1240LD column operated with the PFAS spiked influent sample at a concentration of 0.32 ng/L. It was not detected in the as-received and spiked feed solutions. This compound was not included in the PFAS spike solution. The appearance of this compound is attributed to experimental and/or analytical error.

j. Perfluorobutanesulfonic acid (PFBS)

The average PFBS influent concentration was 2.2 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent concentration of PFBS did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 1.3 ng/L, approximately 59% of influent concentration. The UC1240LD effluent concentration of PFBS did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 1.9 ng/L, or approximately 86% of influent concentration. Table 14 lists the effluent sample concentrations throughout the test. Table 14 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 19.

Table 14: PFBS Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.19	<0.09	4,881	<0.19	<0.09
9,673	<0.19	<0.09	9,802	<0.19	<0.09
14,613	<0.19	<0.09	14,758	<0.19	<0.09
19,737	<0.19	<0.09	19,901	<0.19	<0.09

29,349	0.31	0.14	29,588	0.25	0.11
40,076	0.59	0.27	40,476	0.46	0.21
49,041	0.72	0.33	49,464	0.75	0.34
58,911	0.87	0.40	59,318	1.1	0.50
67,862	1.0	0.45	69,255	1.3	0.59
77,773	1.2	0.55	79,164	1.6	0.73
88,197	1.3	0.59	89,559	1.8	0.82
97,695	1.3	0.59	99,055	1.9	0.86

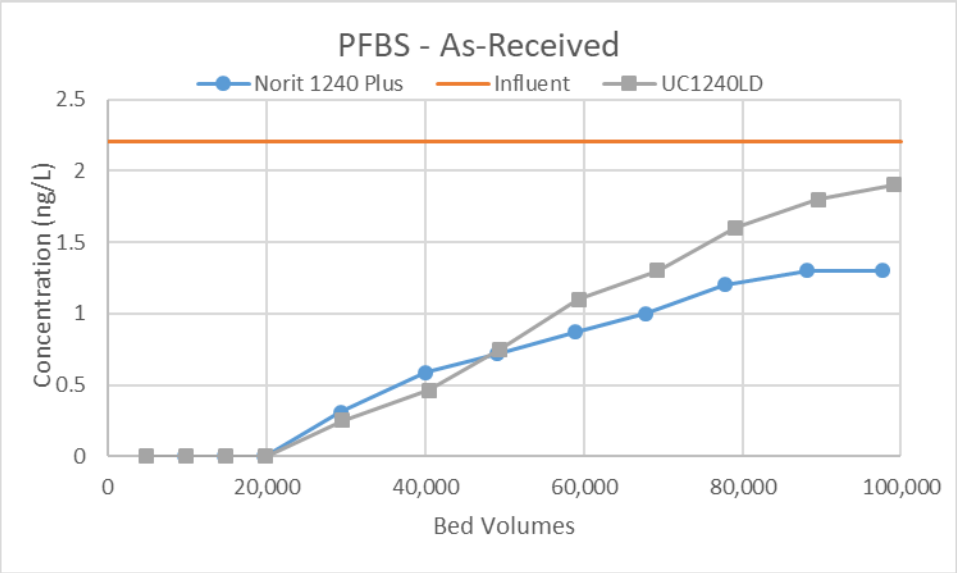

Figure 19: Perfluorobutanesulfonic acid (PFBS) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFBS was 32 ng/L – over 14 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFBS did not surpass influent concentrations by the final sampling point of 49,737 bed volumes. The effluent reached a final concentration of 5.1 ng/L, approximately 16% of influent concentration. The UC1240LD effluent concentration of PFBS did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 4.6 ng/L, approximately 14% of influent concentration, at this sampling point. Table 15 lists the effluent sample concentrations throughout the test. Table 15 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 20.

Table 15: PFBS Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<0.19	<0.006	5,292	<0.19	<0.006
9,478	<0.19	<0.006	10,504	<0.19	<0.006
14,218	<0.19	<0.006	15,786	<0.19	<0.006
18,974	0.23	0.01	20,565	0.32	0.01
29,967	0.87	0.03	30,227	1.1	0.03
39,956	2.4	0.08	40,204	2.7	0.09
49,737	5.1	0.16	49,529	4.6	0.15

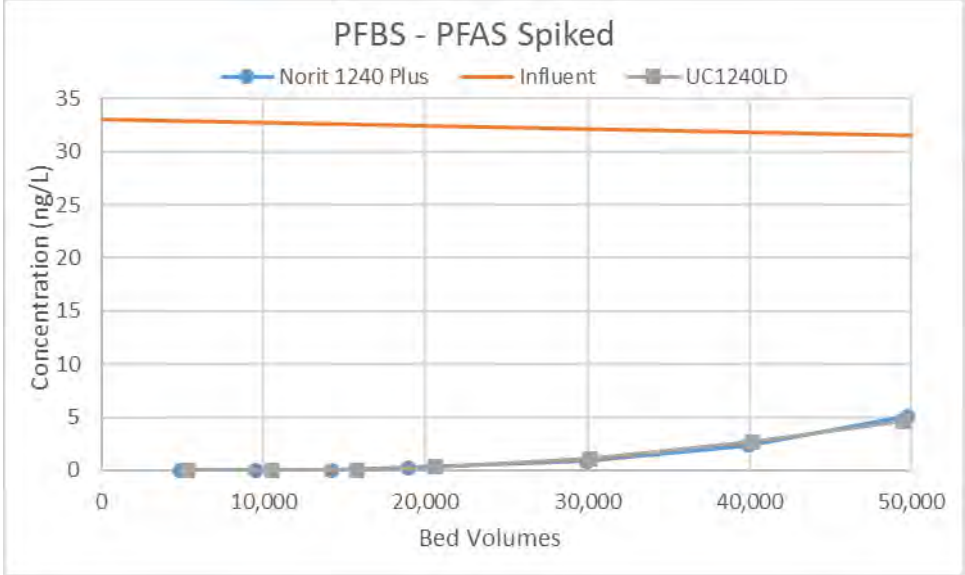

Figure 20: Perfluorobutanesulfonic acid (PFBS) Breakthrough Curves on Spiked Source Water

Figure 21 shows PFBS breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. Comparison of the compound removal is difficult due to the relatively little breakthrough observed in the PFAS spiked RSSCTs. None of the columns had complete PFBS breakthrough. 1240 Plus appeared to have slightly better removal performance as compared to UC1240LD.

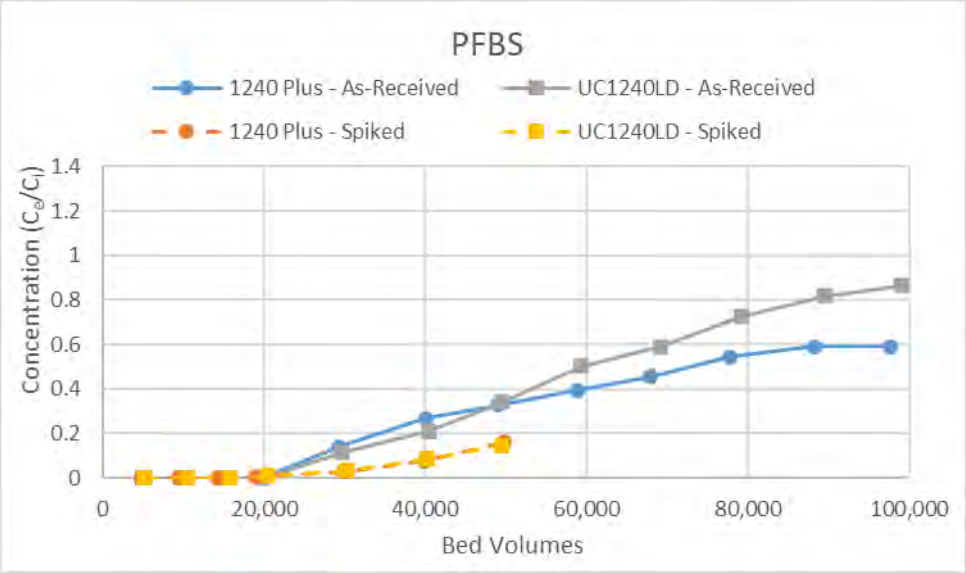

Figure 21: Perfluorobutanesulfonic acid (PFBS) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.09 at 19,737 BV, 0.14 at 29,349 BV and 0.27 at 40,076 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 26,000 BV.
- UC1240LD as-received RSSCT – Ce/Ci was <0.09 at 19,901 BV, 0.11 at 29,588 BV and 0.21 at 40,476 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 29,000 BV.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was 0.08 at 39,956 BV and 0.16 at 49,737 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 42,000 BV.
- UC1240LD PFAS spiked RSSCT – Ce/Ci was 0.09 at 40,204 BV and 0.15 at 49,529 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 45,000 BV.

k. Perfluoropentanesulfonic acid (PFPeS)

The average PFPeS influent concentration was 2.3 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent concentration of PFPeS did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 1.0 ng/L, approximately 43% of influent concentration. The UC1240LD effluent concentration of PFPeS did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 1.0 ng/L, or approximately 43% of influent concentration. Table 16 lists the effluent sample concentrations throughout the test. Table 16 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 22.

Table 16: PFPeS Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.28	<0.12	4,881	<0.28	<0.12
9,673	<0.28	<0.12	9,802	<0.28	<0.12
14,613	<0.28	<0.12	14,758	<0.28	<0.12
19,737	<0.28	<0.12	19,901	<0.28	<0.12
29,349	<0.28	<0.12	29,588	<0.28	<0.12
40,076	0.34	0.15	40,476	<0.28	<0.12
49,041	0.40	0.17	49,464	<0.28	<0.12
58,911	0.68	0.30	59,318	0.44	0.19
67,862	0.82	0.36	69,255	0.58	0.25
77,773	0.92	0.40	79,164	0.74	0.32
88,197	0.99	0.43	89,559	0.98	0.43
97,695	1.0	0.43	99,055	1.0	0.43

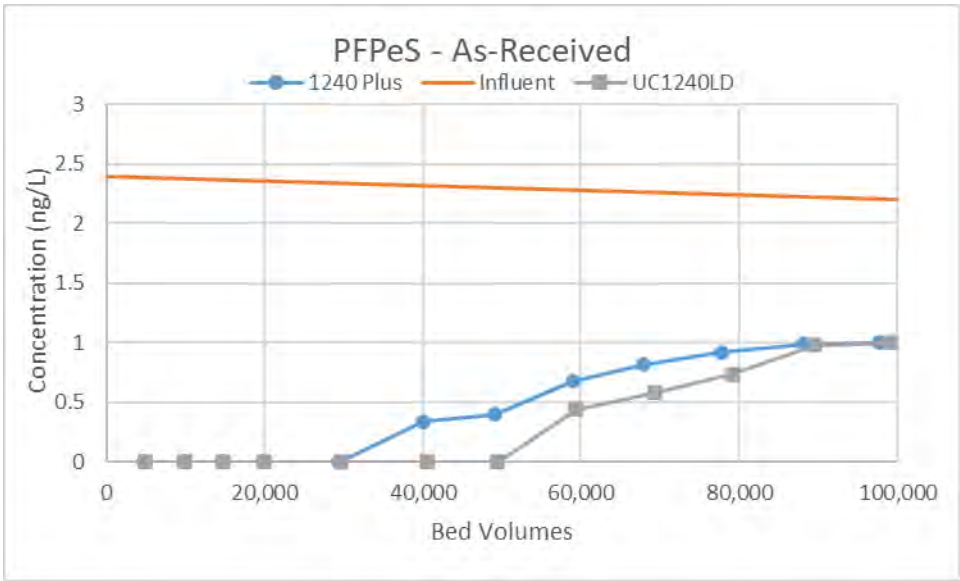

Figure 22: Perfluoropentanesulfonic acid (PFPeS) Breakthrough Curves on "as-received" Source Water

PFPeS was not one of the compounds included in the spike solution. For the spiked RSSCTs, the average influent concentration for PFPeS was 2.5 ng/L, which was similar to as-received concentration of 2.3 ng/l. All effluent samples were non-detect for PFPeS in the 1240 Plus and UC1240LD columns.

Figure 23 shows PFPeS breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. Comparison of the compound removal is difficult due to no breakthrough of PFPeS observed in the PFAS spiked RSSCTs. None of the columns had complete PFPeS breakthrough. Both 1240 Plus and UC1240LD reached approximately 43% of complete breakthrough using the as-received water.

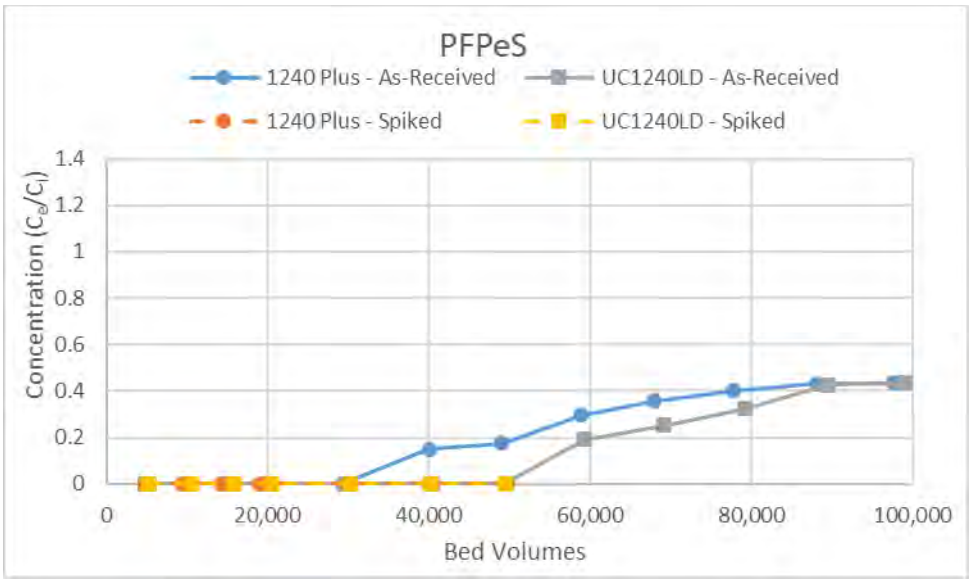

Figure 23: Perfluoropentanesulfonic acid (PFPeS) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data. No breakthrough of PFPeS occurred during the RSSCTs using the PFAS spiked water.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.12 at 29,349 BV, 0.15 at 40,076 BV and 0.30 at 58,911 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 38,000 BV.
- UC1240LD as-received RSSCT – Ce/Ci was <0.12 at 49,464 BV, 0.19 at 59,318 BV and 0.32 at 79,164 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 46,000 BV.
- 1240 Plus PFAS spiked RSSCT – The effluent did not reach Ce/Ci = 0.10 at completion of the test at 49,737 BV.
- UC1240LD PFAS spiked RSSCT – The effluent did not reach Ce/Ci = 0.10 at completion of the test at 49,529 BV.

I. Perfluorohexanesulfonic acid (PFHxS)

The average PFHxS influent concentration was 17 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent concentration of PFHxS did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 7.1 ng/L, approximately 42% of influent concentration. The UC1240LD effluent concentration of PFHxS did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 5.5 ng/L, or approximately 32% of influent concentration. Table 17 lists the effluent sample concentrations throughout the test. Table 17 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 24.

Table 17: PFHxS Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.53	<0.03	4,881	<0.53	<0.03
9,673	<0.53	<0.03	9,802	<0.53	<0.03
14,613	<0.53	<0.03	14,758	<0.53	<0.03
19,737	<0.53	<0.03	19,901	<0.53	<0.03
29,349	0.99	0.06	29,588	0.60	0.04
40,076	2.1	0.12	40,476	0.80	0.05
49,041	2.6	0.15	49,464	1.3	0.08
58,911	3.9	0.23	59,318	1.9	0.11
67,862	5.3	0.31	69,255	2.7	0.16
77,773	5.8	0.34	79,164	3.4	0.20
88,197	6.6	0.39	89,559	4.5	0.26
97,695	7.1	0.42	99,055	5.5	0.32

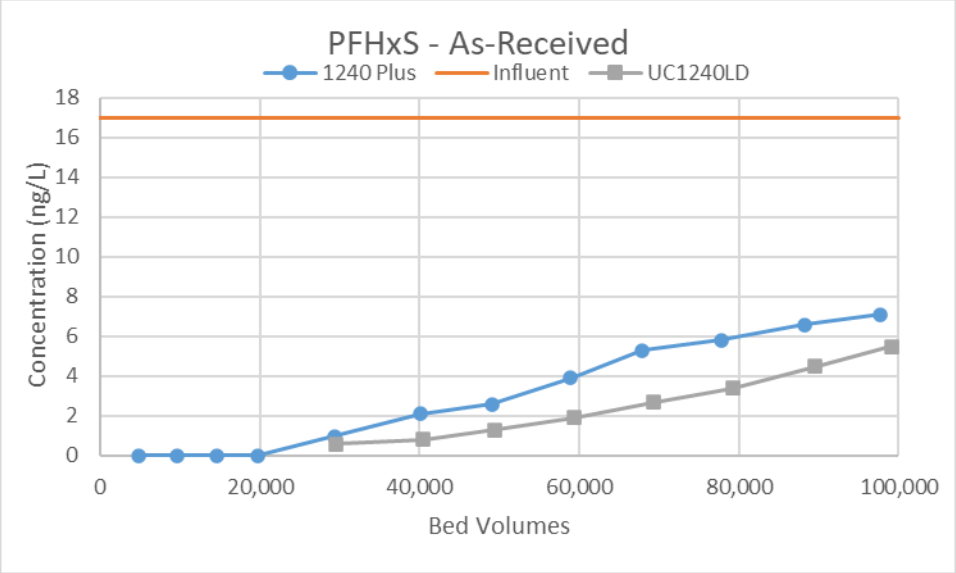

Figure 24: Perfluorohexanesulfonic acid (PFHxS) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFHxS was 155 ng/L – over 9 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFHxS did not surpass influent concentrations by the final sampling point of 49,737 bed volumes. The effluent reached a final concentration of 6.8 ng/L, approximately 4% of influent concentration. The UC1240LD effluent concentration of PFHxS did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 3.4 ng/L, approximately 2% of influent concentration, at this sampling point. Table 18 lists the effluent sample concentrations throughout the test. Table 18 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 25.

Table 18: PFHxS Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<0.53	<0.003	5,292	<0.53	<0.003
9,478	<0.53	<0.003	10,504	<0.53	<0.003
14,218	<0.53	<0.003	15,786	<0.53	<0.003
18,974	<0.53	<0.003	20,565	<0.53	<0.003
29,967	1.0	0.01	30,227	0.84	0.01
39,956	3.3	0.02	40,204	1.8	0.01
49,737	6.8	0.04	49,529	3.4	0.02

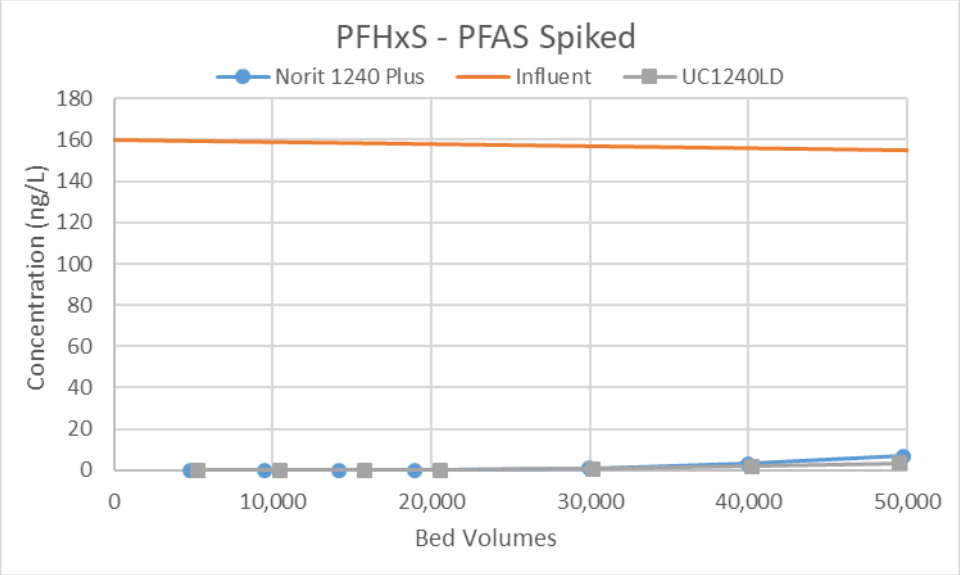

Figure 25: Perfluorohexanesulfonic acid (PFHxS) Breakthrough Curves on Spiked Source Water

Figure 26 shows PFHxS breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. Comparison of the compound removal is difficult due to the relatively little breakthrough observed in the PFAS spiked RSSCTs. None of the columns had complete PFHxS breakthrough. UC1240LD appeared to have slightly better removal performance as compared to 1240 Plus. 1240 Plus reached approximately 42% of complete breakthrough using the as-received water where UC1240LD effluent reached only 32% of complete breakthrough.

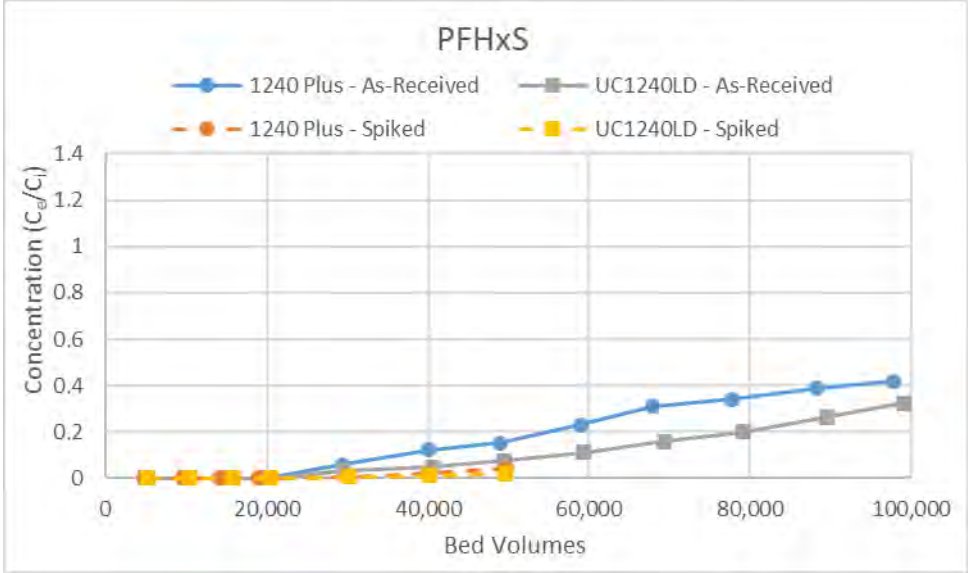

Figure 26: Perfluorohexanesulfonic acid (PFHxS) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.03 at 19,737 BV, 0.06 at 29,349 BV and 0.12 at 40,076 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 37,000 BV.
- UC1240LD as-received RSSCT – Ce/Ci was <0.03 at 19,901 BV, 0.08 at 49,464 BV and 0.11 at 59,318 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 56,000 BV.
- 1240 Plus PFAS spiked RSSCT – The low concentrations and shallow slope of the breakthrough curve create too much uncertainty in any extrapolation to specify a throughput to Ce/Ci = 0.10.
- UC1240LD PFAS spiked RSSCT – The low concentrations and shallow slope of the breakthrough curve create too much uncertainty in any extrapolation to specify a throughput to Ce/Ci = 0.10.

m. Perfluoroheptanesulfonic acid (PFHpS)

The average PFHpS influent concentration was 0.28 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water and an average of 1.4 ng/L in the PFAS spiked water sample. PFHpS was not included in the spike solution. The increase in concentration may be due to contamination from the chemicals used. All effluent samples resulted in non-detect (<0.18 ng/l) throughout all RSSCTs. For the spiked RSSCTs, Ce/Ci for 1240 Plus was <0.13 at 49,737 BV and Ce/Ci for UC1240LD was <0.13 at 49,529 BV

n. Perfluorooctanesulfonic acid (PFOS)

The average PFOS influent concentration was 6.1 ng/L for the 1240 Plus and UC1240LD RSSCTs that were operated with the as-received influent source water. The 1240 Plus effluent

concentration of PFOS did not surpass influent concentrations by the final sampling point of 97,695 bed volumes. The effluent reached a final concentration of 2.6 ng/L, approximately 43% of influent concentration. The UC1240LD effluent concentration of PFOS did not surpass influent concentrations by the final sampling point of 99,055 bed volumes. Final effluent concentration of the UC1240LD column using the as-received water source was 1.0 ng/L, or approximately 17% of influent concentration. Table 19 lists the effluent sample concentrations throughout the test. Table 19 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 27.

Table 19: PFOS Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	<0.51	<0.08	4,881	<0.51	<0.08
9,673	0.64	0.11	9,802	<0.51	<0.08
14,613	<0.51	<0.08	14,758	<0.51	<0.08
19,737	<0.51	<0.08	19,901	<0.51	<0.08
29,349	0.65	0.11	29,588	<0.51	<0.08
40,076	0.80	0.13	40,476	<0.51	<0.08
49,041	1.1	0.18	49,464	<0.51	<0.08
58,911	1.1	0.18	59,318	0.57	0.09
67,862	1.4	0.23	69,255	0.51	0.08
77,773	1.6	0.26	79,164	0.58	0.10
88,197	1.8	0.30	89,559	0.70	0.12
97,695	2.6	0.43	99,055	1.0	0.17

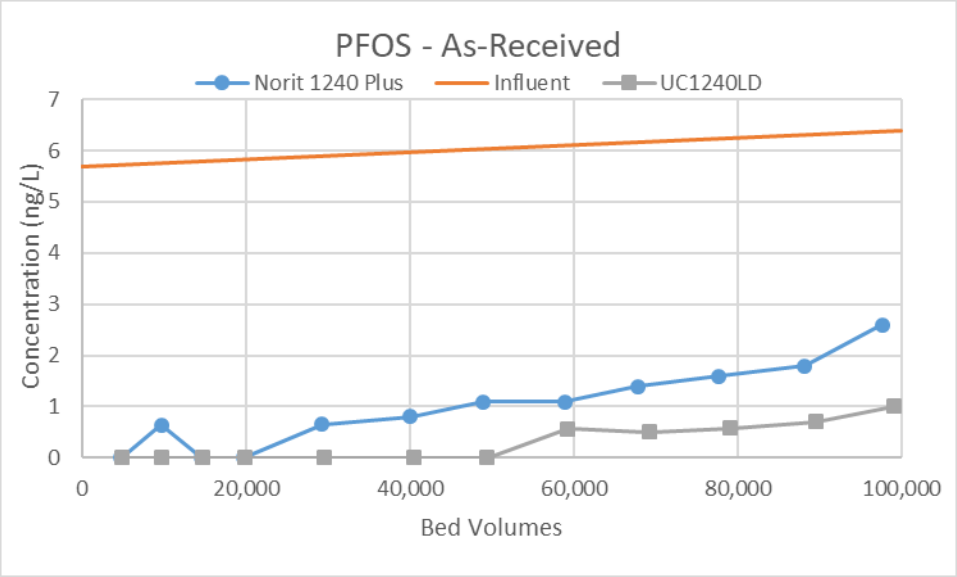

Figure 27: Perfluorooctanesulfonic acid (PFOS) Breakthrough Curves on "as-received" Source Water

For the spiked RSSCTs, the average influent concentration for PFOS was 40 ng/L – nearly 7 times the concentration tested in the "as-received" RSSCTs. The 1240 Plus effluent concentration of PFOS did not surpass influent concentrations by the final sampling point of 49,737 bed volumes.

The effluent reached a final concentration of 0.62 ng/L, approximately 2% of influent concentration. The UC1240LD effluent concentration of PFOS did not surpass influent concentrations by the conclusion of the test at 49,529 bed volumes. Effluent concentration reached 0.94 ng/L, approximately 2% of influent concentration, at this sampling point. Table 20 lists the effluent sample concentrations throughout the test. Table 20 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 28.

Table 20: PFOS Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	<0.51	<0.01	5,292	<0.51	<0.01
9,478	<0.51	<0.01	10,504	<0.51	<0.01
14,218	<0.51	<0.01	15,786	<0.51	<0.01
18,974	<0.51	<0.01	20,565	0.66	0.02
29,967	<0.51	<0.01	30,227	<0.51	<0.01
39,956	<0.51	<0.01	40,204	<0.51	<0.01
49,737	0.62	0.02	49,529	0.94	0.02

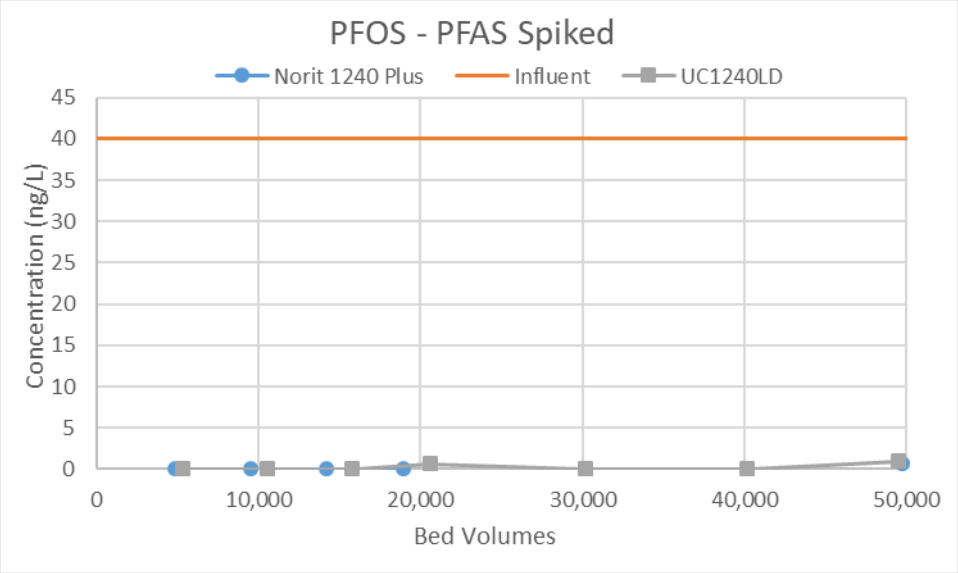

Figure 28: Perfluorooctanesulfonic acid (PFOS) Breakthrough Curves on Spiked Source Water

Figure 29 shows PFOS breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. Comparison of the compound removal is difficult due to the relatively little breakthrough observed in the PFAS spiked RSSCTs. None of the columns had complete PFHxS breakthrough. UC1240LD appeared to have slightly better removal performance as compared to 1240 Plus. 1240 Plus reached approximately 43% of complete breakthrough using the as-received water where UC1240LD effluent reached only 17% of complete breakthrough.

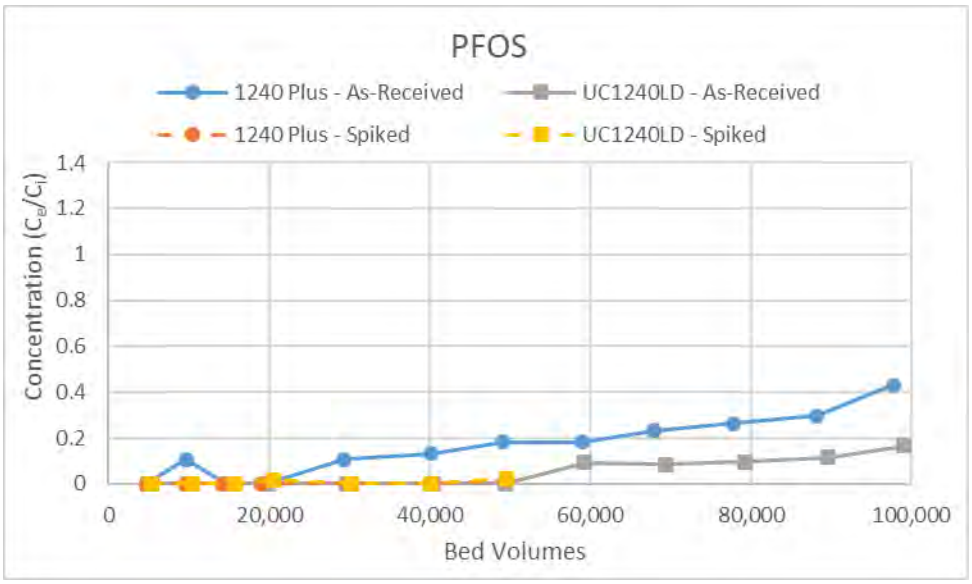

Figure 29: Perfluorooctanesulfonic acid (PFOS) Breakthrough Curves on All Water

One of the goals of the tests was to identify the point where reduction of target contaminants fell below 90% (Ce/Ci > 0.10). These points were interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was <0.08 at 19,737 BV, 0.11 at 29,349 BV and 0.13 at 40,076 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 26,000 BV. The detection at 9,673 BV is assumed to be experimental/analytical error.
- UC1240LD as-received RSSCT – Ce/Ci was 0.10 at 79,164 BV (79,000 BV).
- 1240 Plus PFAS spiked RSSCT – Ce/Ci = 0.10 cannot be established with only one point above the MDL.
- UC1240LD PFAS Spiked RSSCT – Ce/Ci = 0.10 cannot be established with only one point above the MDL.

o. Perfluorooctanesulfonamide (FOSA)

FOSA was identified in one influent sample and half of the effluent samples from the as-received RSSCTs. FOSA was not included in the PFAS spike solution. Table 21 lists the effluent sample concentrations throughout the test. Results indicate that the detections of this compound are likely attributable to experimental and/or analytical error.

Table 21: FOSA Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus		RSSCT 2 UC1240LD	
Bed Volumes	Conc. (ng/L)	Bed Volumes	Conc. (ng/L)
4,755	1.4	4,881	2.4
9,673	1.5	9,802	<0.92
14,613	<0.92	14,758	1.6
19,737	1.0	19,901	<0.92
29,349	<0.92	29,588	3.1
40,076	<0.92	40,476	1.8
49,041	<0.92	49,464	<0.92
58,911	1.2	59,318	1.6
67,862	<0.92	69,255	<0.92
77,773	0.99	79,164	2.1
88,197	<0.92	89,559	<0.92
97,695	<0.92	99,055	2.0

p. Total PFAS

With the exception of FOSA, the total PFAS present in the influent was 61.5 ng/L for the as-received RSSCTs and 576.9 ng/L for the PFAS spiked RSSCTs. FOSA was excluded from the calculations because the erratic breakthrough curves and inconsistent influent concentrations suggest experimental/analytical error, which puts any measured concentration in doubt. Addition included all detections of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFBS, PFPeS, PFHxS, PFHpS and PFOS. ND was assumed to be zero for addition purposes.

By the completion of the as-received RSSCTs, total PFAS breakthrough reached 40% of the influent concentration by the end of the 1240 Plus test at 97,695 BV. UC1240LD had slightly better performance reaching only 37% breakthrough of total PFAS at 99,055 BV.

Table 22 lists the effluent sample concentrations throughout the test. Table 22 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 30. Points were all analytes were below the MDL are excluded from the curves.

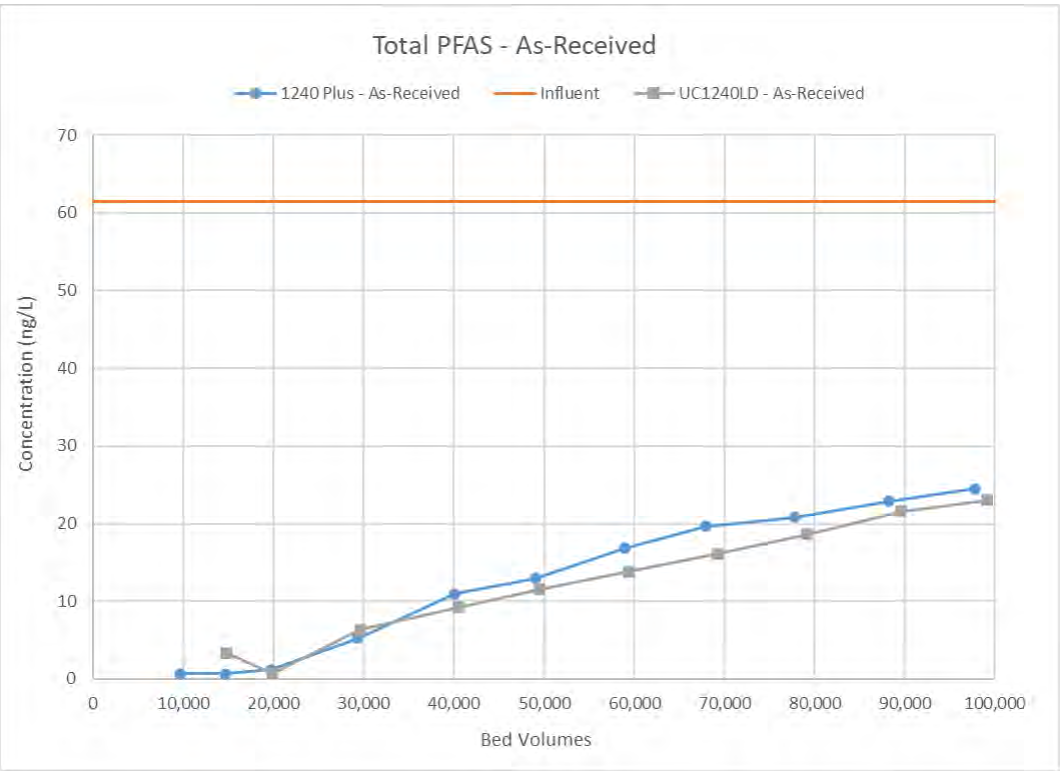

Figure 30: Total PFAS breakthrough of water sourced from Madison, WI

Table 22: Total PFAS Breakthrough Data for RSSCTS Using the "As-Received" Water Sample

RSSCT 1 1240 Plus			RSSCT 2 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,755	ND	ND	4,881	ND	ND
9,673	0.64	0.01	9,802	ND	ND
14,613	0.67	0.01	14,758	3.39	0.06
19,737	1.20	0.02	19,901	0.70	0.01
29,349	5.20	0.08	29,588	6.32	0.10
40,076	10.93	0.18	40,476	9.20	0.15
49,041	12.92	0.21	49,464	11.52	0.19
58,911	16.82	0.27	59,318	13.81	0.22
67,862	19.66	0.32	69,255	16.10	0.26
77,773	20.78	0.34	79,164	18.60	0.30
88,197	22.89	0.37	89,559	21.55	0.35
97,695	24.50	0.40	99,055	22.97	0.37

The PFAS spiked RSSCTs comparing the total PFAS breakthrough to each GAC, found very similar performance. 1240 Plus reached 14.6% of total PFAS breakthrough by 49,737 bed volumes, while UC1240LD reached this same percentage by 49,529 bed volumes. Table 23 lists the effluent sample concentrations throughout the test. Table 23 also lists normalized concentrations obtained by dividing the effluent concentration by the average influent concentration (Ce/Ci). The concentration data are plotted in Figure 31. Points where all analytes were below the MDL are excluded from the curves.

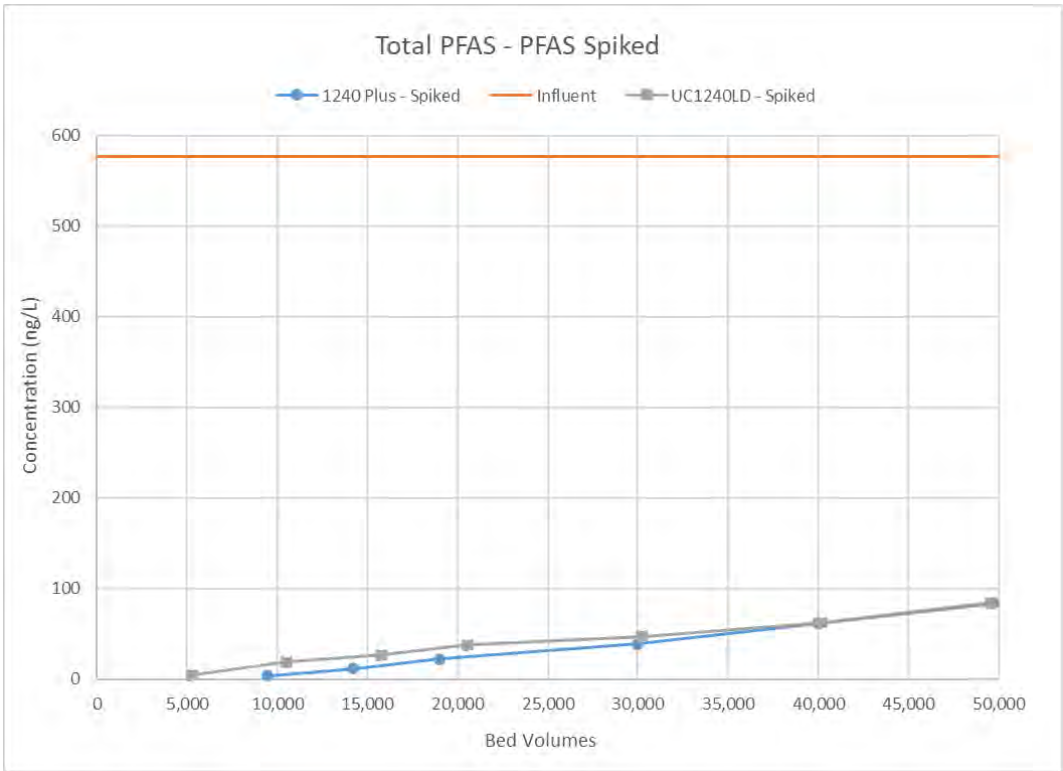

Figure 31: Total PFAS breakthrough of water sourced from Madison, WI

Table 23: PFAS Breakthrough Data for 1240 Plus and UC1240LD PFAS Spiked

RSSCT 3 1240 Plus			RSSCT 4 UC1240LD		
Bed Volumes	Conc. (ng/L)	Ce/Ci	Bed Volumes	Conc. (ng/L)	Ce/Ci
4,798	ND	ND	5,292	4.70	0.01
9,478	3.80	0.01	10,504	19.31	0.03
14,218	11.89	0.02	15,786	27.0	0.05
18,974	22.23	0.04	20,565	37.65	0.07
29,967	38.85	0.07	30,227	47.36	0.08
39,956	61.60	0.11	40,204	62.11	0.11
49,737	84.22	0.15	49,529	84.44	0.15

Figure 32 shows PFOS breakthrough for all RSSCTs. Normalized concentrations (Ce/Ci) are plotted for easier comparison. None of the columns had complete PFAS breakthrough. UC1240LD appeared to have slightly better removal performance as compared to 1240 Plus. 1240 Plus reached approximately 43% of complete breakthrough using the as-received water where UC1240LD effluent reached only 17% of complete breakthrough.

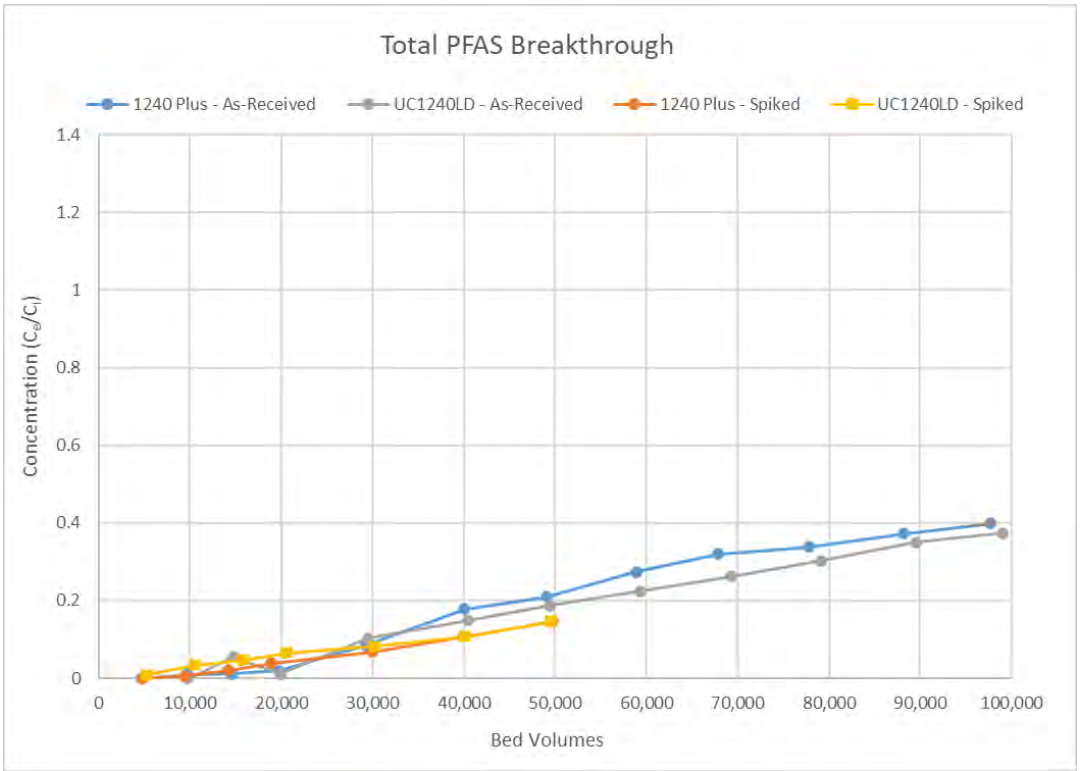

Figure 32: Total PFAS breakthrough on all four RSSCT columns

One of the goals of the tests was to identify the point where reduction of total PFAS fell below 90% (Ce/Ci > 0.10). These points have to be interpolated/extrapolated from the existing data.

- 1240 Plus as-received RSSCT – Ce/Ci was 0.08 at 29,349 BV and 0.18 at 40,076 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 31,000 BV.
- UC1240LD as-received RSSCT – Ce/Ci was 0.10 at 29,588.
- 1240 Plus PFAS spiked RSSCT – Ce/Ci was 0.07 at 29,967 BV and 0.11 at 39,956 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 38,000 BV.
- UC1240LD PFAS spiked RSSCT – Ce/Ci was 0.08 at 30,227 BV and 0.11 at 40,204 BV. Based on these data, the effluent likely exceeded Ce/Ci = 0.10 at 37,000 BV.

q. PFAS Breakthrough Order

The general trends for GAC is that short-chain PFAS break through earlier than long-chain PFAS. Examples are PFBA versus PFOA and PFBS versus PFOS. It is also known that perfluoroalkylsulfonic acids have later breakthrough than Perfluoroalkylcarboxyic acids with the same number of carbons. Examples are PFBA versus PFBS and PFOA versus PFOS. Both carbons tested here show these trends for both the as-received water as well as the PFAS spiked water.

Figure 33 through Figure 36 show the same trends for all four RSSCTS: PFBA breaks through before PFPeA, which breaks through before PFHxA, etc. Normalized concentrations of Ce/Ci have been plotted to better illustrate the trend. Only detections are shown to eliminate noise from high MDLs for some compounds.

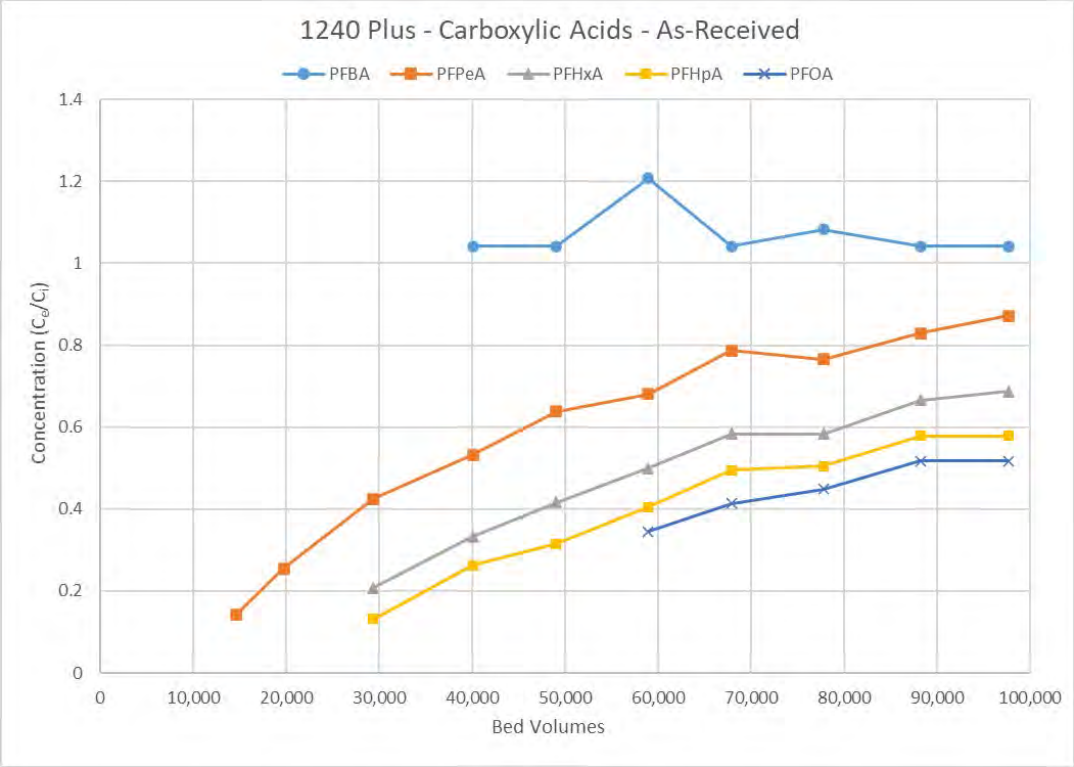

Figure 32: Carboxylic acid breakthrough evolution of water sourced from Madison, WI through 1240 Plus RSSCT

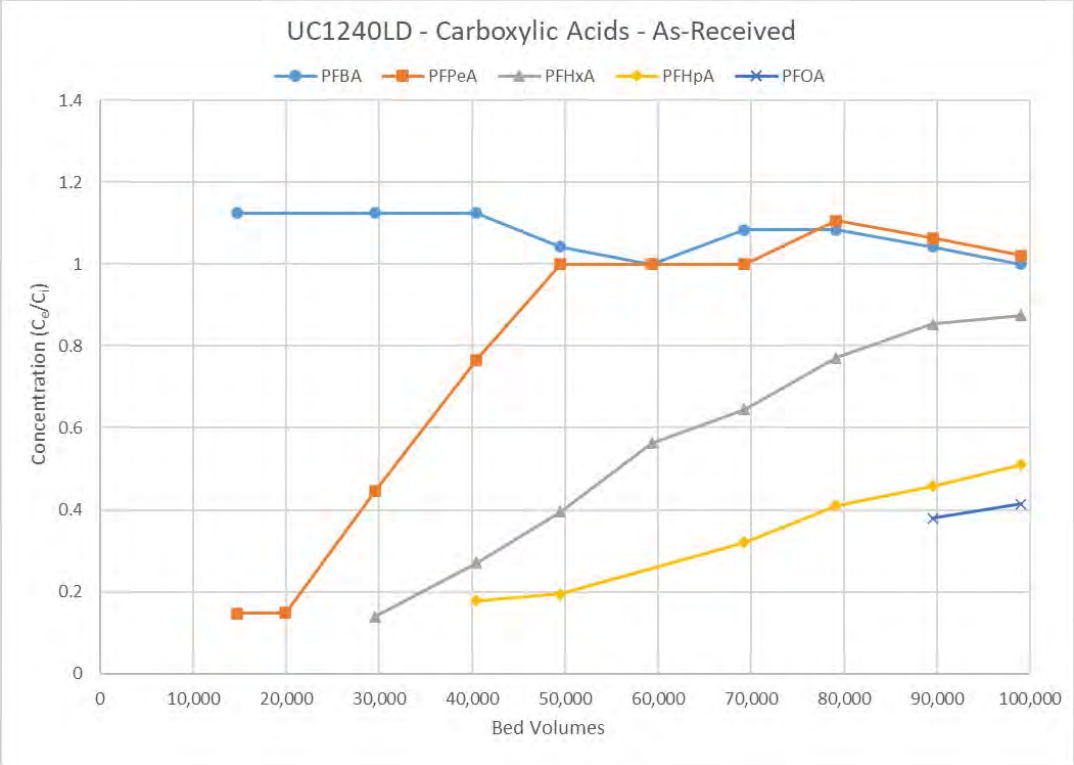

Figure 34: Carboxylic acid breakthrough evolution of water sourced from Madison, WI through UC1240LD RSSCT

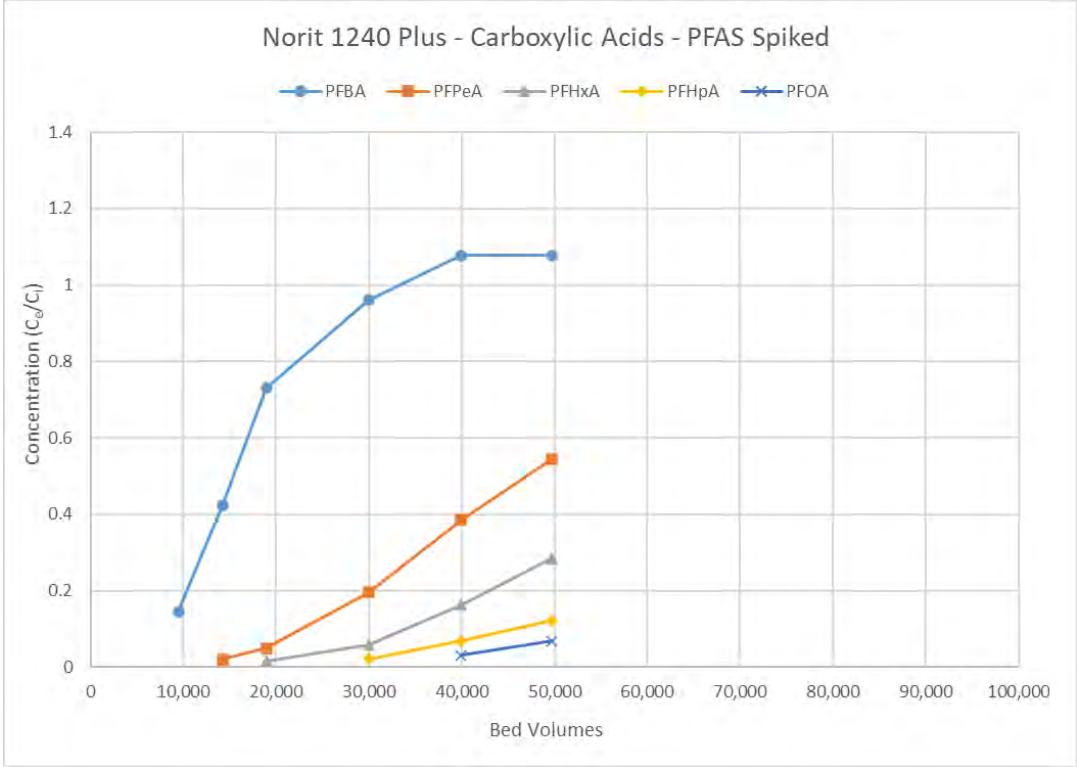

Figure 35: Carboxylic acid breakthrough evolution of PFAS spiked water sourced from Madison, WI through 1240 Plus RSSCT

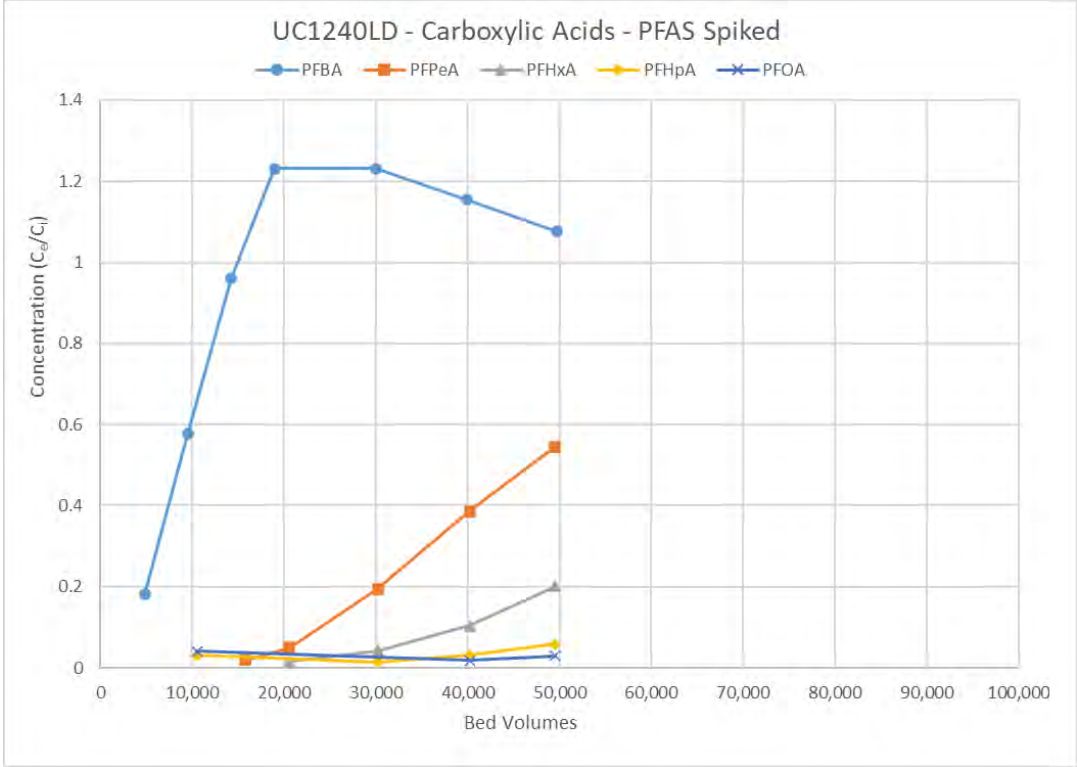

Figure 36: Carboxylic acid breakthrough evolution of PFAS spiked water sourced from Madison, WI through UC1240LD RSSCT

Figure 37 through Figure 40 show the same trends for all four RSSCTS: PFBS breaks through before PFHxS, which breaks through before PFOS. PFPeS was not detected in the PFAS spiked RSSCTs due to the limited number of bed volumes run through the column and the high MDL. PFHpS is not plotted because no PFHpS was detected in any effluent sample. Normalized concentrations of Ce/Ci have been plotted to better illustrate the trend. Only detections are shown to eliminate noise from high MDLs for some compounds.

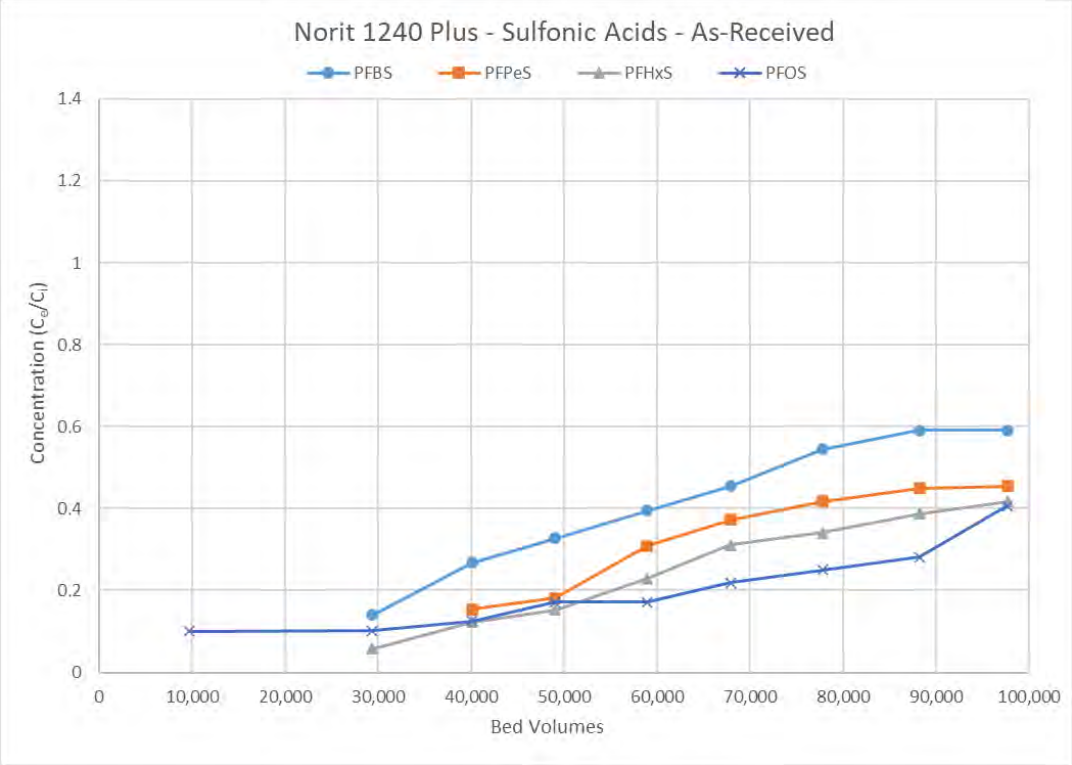

Figure 37: Sulfonic acid breakthrough evolution of water sourced from Madison, WI through 1240 Plus RSSCT

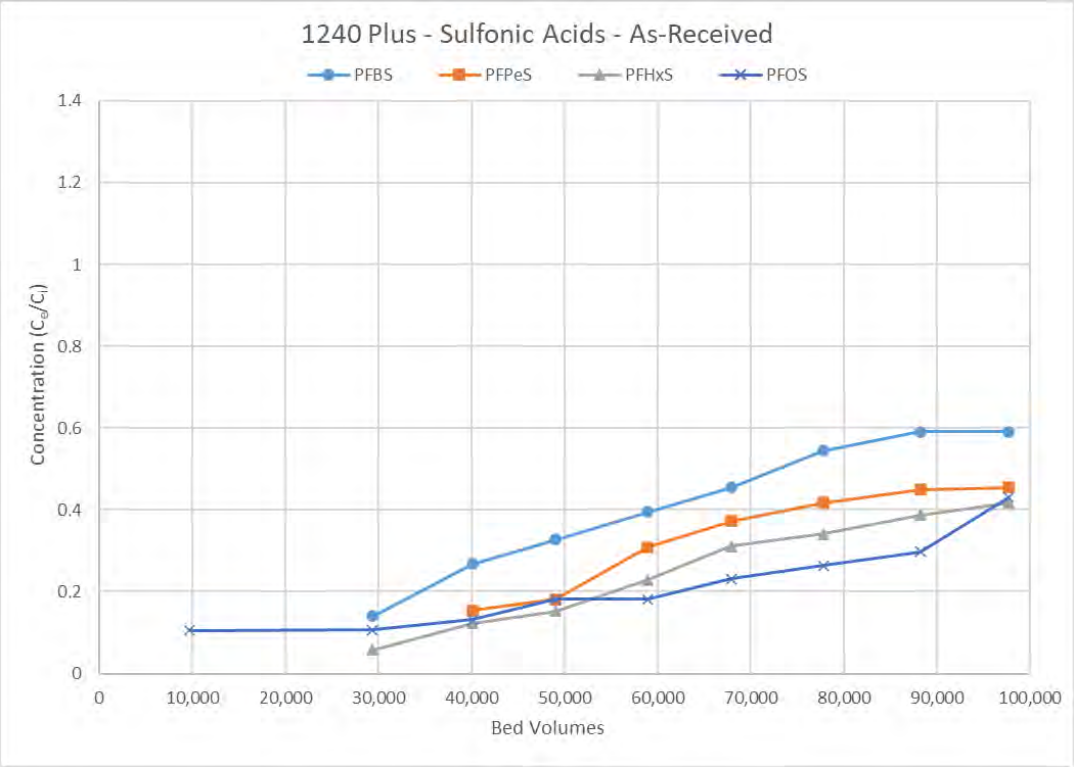

Figure 38: Sulfonic acid breakthrough evolution of water sourced from Madison, WI through UC1240LD RSSCT

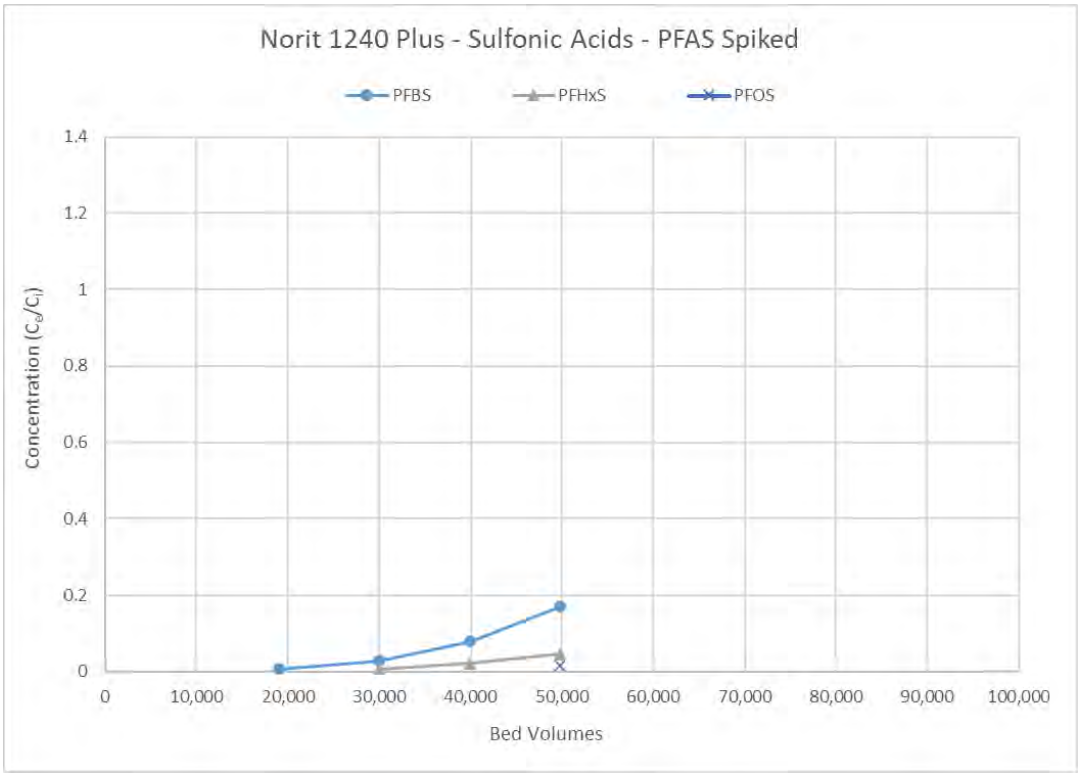

Figure 39: Sulfonic acid breakthrough evolution of PFAS spiked water sourced from Madison, WI through 1240 Plus RSSCT

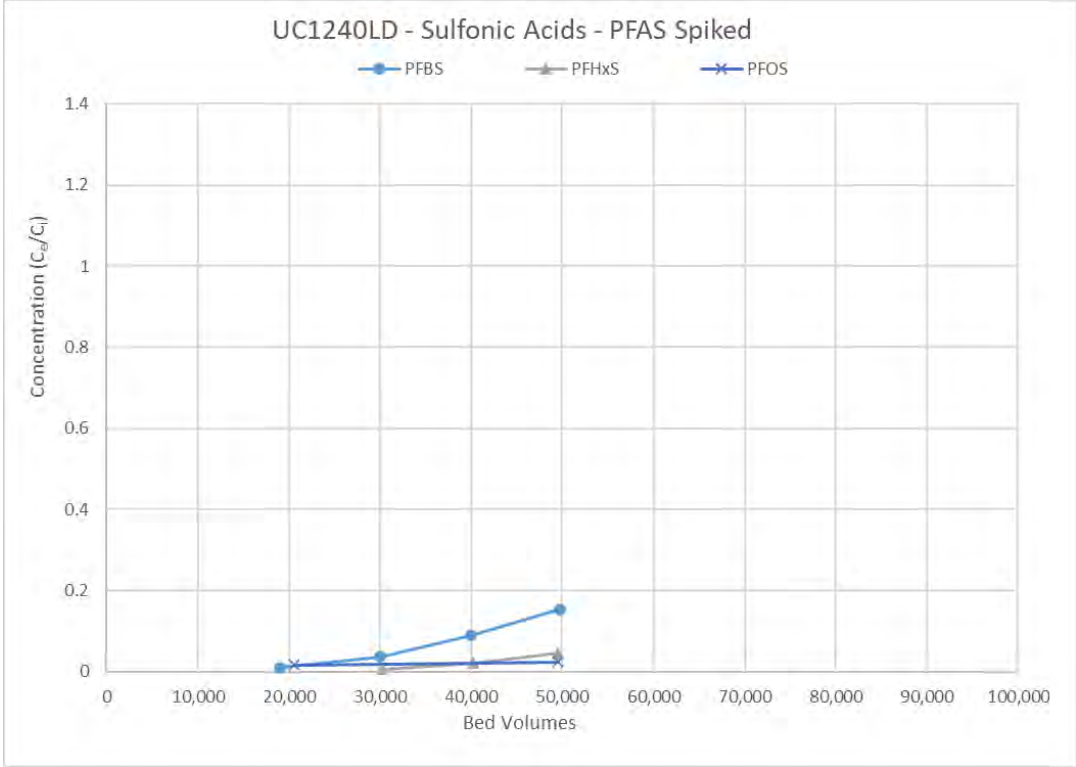

Figure 40: Sulfonic acid breakthrough evolution of PFAS spiked water sourced from Madison, WI through UC1240LD RSSCT

6. Discussion of RSSCTs

a. RSSCT versus Full-Scale Operation

There are two methods of scaling flow rates for RSSCTs: Constant diffusivity (CD) where diffusivity is constant regardless of particle size and proportional diffusivity where diffusivity is proportional to particle size. The equations relating EBCT to particle size are shown below. ASTM D6586-03 uses CD equations.

CD $$EBCT_{RSSCT} = EBCT_{FS}\left({Dia_{RSSCT}}/{Dia_{FS}}\right)^2$$

PD $$EBCT_{RSSCT} = EBCT_{FS}\left({Dia_{RSSCT}}/{Dia_{FS}}\right)$$

Where

the subscripts RSSCT and FS refer to the RSSCT and Full-Scale system

Dia refers to the diameter of the media particles

Neither method of scaling is guaranteed to reproduce the exact breakthrough curves of a full-scale system. In general, RSSCTs based on CD equations better match adsorbent capacity than the PD-design but show earlier breakthrough that the full-scale system, while RSSCTs based on PD equations show later breakthrough but better replicate the kinetics of adsorption.

RSSCTs are an excellent means of comparing media. The media that performs best in the RSSCT will perform best in the full-scale system.

b. VOCs

Neither 1240 Plus nor UC1240LD had TCE or PCE detected in any of the effluent samples. PFAS breakthrough preceded breakthrough of VOCs which means PFAS removal is limiting factor in GAC bed life and VOC removal is not critical to choosing one carbon over another.

The VOC stripper and subsequent pH adjustment are not needed if either 1240 Plus or UC1240LD are used for PFAS removal.

c. PFAS

Both 1240 Plus and UC1240LD were effective in removing all PFAS. The bed life of the GAC depends on the treatment objective. Shorter chain PFAS have much earlier breakthrough than longer chain PFAS. The RFP defined the treatment objective as 90% removal broken down by PFAS. 90% removal means Ce/Ci is 0.10 or less. These values were determined from the breakthrough curves where possible. In some cases, the MDL was too high to determine this point, while in others, the run was not long enough to establish this point. Table 24 summarizes the estimated BV to when Ce/Ci reached 0.10. Blank spaces indicate there was insufficient data to estimate a throughput.

Table 24: Estimated BV to Ce/Ci = 0.10

	As-received RSSCTs		PFAS spiked RSSCTs	
	RSSCT 1 1240 Plus	RSSCT 2 UC1240LD	RSSCT 3 1240 Plus	RSSCT 4 UC1240LD
PFBA			8,700	4,200
PFPeA	13,000	13,000	23,000	21,000
PFHxA	20,000	26,000	35,000	40,000
PFHpA	27,000	26,000	46,000	62,000
PFOA			57,000	
PFBS	26,000	29,000	42,000	45,000
PFPeS	38,000	46,000		
PFHxS	37,000	56,000		
PFOS	26,000	79,000		
Total	31,000	30,000	38,000	37,000

1240 plus has longer bed life when treatment objective is to remove short-chain PFAS, e.g. PFBA and PFPeA. The data in Table 24 and the curves in Figure 6 clearly show the advantage of 1240 Plus over UC1240LD. The data in Table 24 is less clear for PFPeA, but the curves in Figure 9 show a clear advantage of 1240 Plus over UC1240LD.

UC1240LD has longer bed life when treatment objective is to remove long-chain PFAS, e.g. PFOA, PFHxS and PFOS. Table 24 does not have sufficient data to draw conclusions for PFOA. These results are best visualized in Figure 18, where it is clear PFOA breakthrough occurs later for UC1240LD than 1240 Plus. Table 24 shows a clear advantage for UC1240LD over 1240 Plus for both PFHxS and PFOS. The results are best visualized in Figures 26 and 29.

There is no significant difference when the treatment objective is 90% reduction of total PFAS. The differences are minor as presented in Table 24 and Figure 32.

The comparison of as-received results to PFAS spiked results show both carbons are effective in removing both VOCs and PFAS when the PFAS concentration is spiked to 10X the current concentration. For almost every case in Table 24, the PFAS spiked RSSCTs had higher throughput to Ce/Ci = 0.10. The trends can be visualized in Figures, 9, 12, 18, 21, 23, 26 and 29. The only exception to this trend is PFBA (Figure 6) where the high MDL prevented accurate representation of the as-received breakthrough curves.

7. Anion Exchange

a. Anion Exchange Background

Anion exchange is a well-established method for removing PFAS from drinking water. PFAS-selective resins such as PSR2 Plus have a high affinity for PFAS, which provides a very long bed life. These resins are considered single use and not regenerated. Spent resin is usually sent for incineration to destroy the PFAS.

Anion exchange works for all PFAS that dissociate into anions. Most of the PFAS commonly found in ground water fall into this category. All perfluoroalkylcarboxylic acids and perfluoroalkylsulfonic acids fall into this category. They are present as anionic species that can be taken up by anion-exchange resins. Unionized PFAS such as FOSA are not removed by anion exchange.

Anion exchange does not remove VOCs. Chlorinated solvents such as TCE and PCE will pass through a bed of anion-exchange resin. This means the VOC stripper needs to stay in place for well 15 to remove the TCE and PCE present in the groundwater.

b. Anion Exchange Modeling

Evoqua has developed a model for predicting PFAS throughput for PSR2 Plus. This model was used to predict the breakthrough curves for PFAS for the as-received water from Well 15. These curves are shown in Figure 41. These curves show relatively low selectivity for short chain perfluoroalkylcarboxylic acids, e.g. PFBA and PFPeA, and relatively high selectivity for all perfluoroalkylsulfonic acids, e.g. PFBS and PFOS.

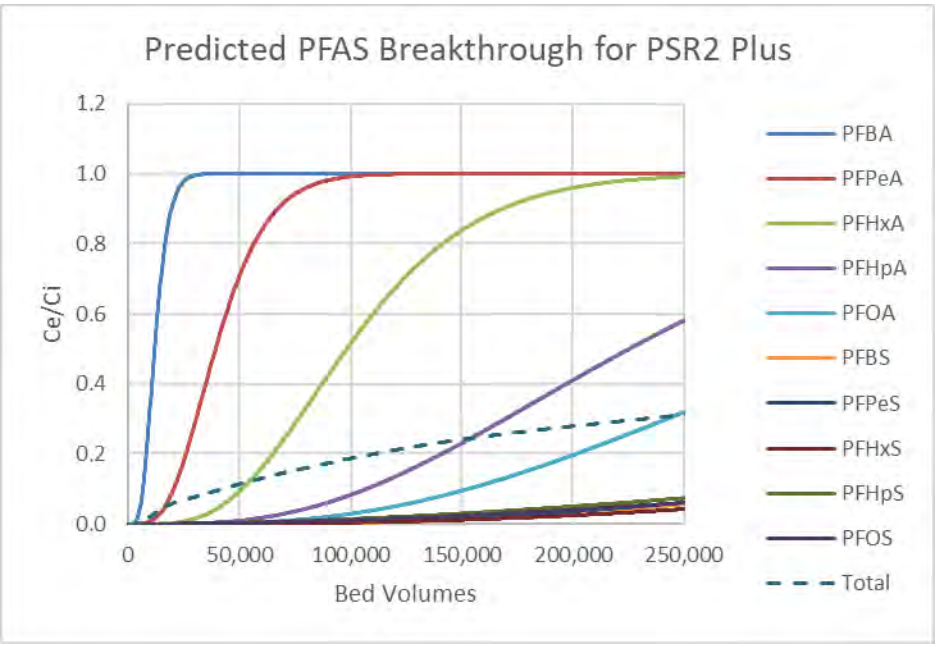

Figure 41: Predicted breakthrough evolution of PFAS based on as-received water for PSR2 Plus

These curves were used to calculate the point where Ce/Ci equaled 0.10 for each of the PFAS as well as the total of all PFAS. These numbers are presented in Table 25.

Table 25: Predicted BV to Ce/Ci = 0.10 for PSR2 Plus

PFBA	6,600
PFPeA	20,000
PFHxA	51,000
PFHpA	110,000
PFOA	150,000
PFBS	>250,000
PFPeS	>250,000
PFHxS	>250,000
PFHpS	>250,000
PFOS	>250,000
Total	42,000