Results of the August 24-25, 2022 Regenerative Thermal Oxidizer Compliance Tests at Saint-Gobain Performance Plastics in Merrimack, New Hampshire

RTO PCE01

Temporary Permit No. TP-0256

Barr Project No. 29061003.12

Prepared for
Saint-Gobain Performance Plastics
Merrimack, New Hampshire

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Executive Summary

Barr Engineering Co. conducted a performance evaluation of a three-stage regenerative thermal oxidizer (PCE01) at the Saint-Gobain Performance Plastics (SGPP) facility in Merrimack, New Hampshire, on August 24 and 25, 2022, in accordance with the requirements established in Temporary Permit TP-0256, as augmented by the Consent Decree, Docket No. 216-2021-CV-00077 ("Consent Decree"). The construction and installation of the thermal oxidizer was completed in July 2021 and the official start-up of the thermal oxidizer occurred on July 14, 2021. The performance test discussed in this report occurred within thirteen months of the initial performance tests completed on September 7-10, 2021.

All testing protocols and parameter results comply with NHDES requirements listed in TP-0256, the Consent Decree and the August 11, 2022 Stack Test Protocol approved by NHDES.

1. PFOA and PFOS outlet concentrations are below the emission limits established in the permit.
2. Based on these stack test results, following treatment by the RTO, current facility emissions of PFOA and PFOS are only a small fraction of the level set by NHDES as the threshold to cause or contribute to an exceedance of an AGQS.
3. The 2022 annual emission limit for PFOA and PFOS will be achieved.
4. Permit required temperatures and inlet flow rates of PCE01 are continuously being achieved while running covered coating processes.
5. A number of Poly and perfluoroalkyl (PFAS) measured during the test are being destroyed by PCE01.
6. Coating towers requiring enclosure were operating at sufficient negative pressure to capture potential fugitive emissions from all natural draft opening (NDO's) as required by EPA Method 204.

The following table summarizes the results of the performance test.

Table ES-1 Executive Summary Table

Test Parameter	Test Location	Test Range	Test Average	Limit	Statement
PFOA emission rate, lb/yr	Outlet	0.021-0.023	0.022	0.45	**In Compliance**
PFOS emission rate, lb/yr	Outlet	0.00037-0.00079	0.00052	0.57	**In Compliance**
Temperature, °F	Outlet	1839,1839,1838 Test Runs 2-4	>1832	>1832	**In Compliance**
RTO Flowrate, scfm	Inlet	55,300-56,800 Test Runs 2-4	55,900	<70,000	**In Compliance**
Capture of Covered Coating Towers	Natural Draft Opening	-0.008 to -0.047 Inches water	<-0.007 inches water	-0.007 inches water	**In Compliance**
Formulation Sample Collection	Dip Pans	COLLECTED FORMULATION SAMPLES DIP PANS		COLLECT	**In Compliance**

1 Introduction and Summary

Barr Engineering Co. (Barr) performed emissions tests at the Saint-Gobain Performance Plastics (SGPP) facility located at 701 Daniel Webster Highway in Merrimack, New Hampshire. SGPP installed a regenerative thermal oxidizer (RTO) to control Per- and Polyfluorinated Substances (PFAS) emissions from multiple processes. The RTO started up on July 14, 2021. Annual compliance testing was performed on August 24-25, 2022 as required in the Temporary Permit # TP-0256 issued February 11, 2020, and the Consent Decree, Docket No. 216-2021-CV-00077. The performance test discussed in this report occurred within thirteen months of the initial performance tests completed on September 7-10, 2021.

Emission tests include determination of per-and polyfluorinated substances (PFAS) at the regenerative thermal oxidizer (RTO) (PCE01) inlet and outlet to demonstrate compliance with emission limits for PFOA and PFOS.

Temperature and air flow were monitored during the tests using real time data captured from Saint-Gobain Ignition data system.

In addition to the emissions tests, permanent total enclosure (PTE) verification of the various process ovens was completed. Emission Units 1-8, 13, 15-16 and 22 were evaluated.

A test plan was submitted on July 22, 2022, to the New Hampshire Department of Environmental Services (NHDES), which met the 30-day requirement listed in permit. A pretest meeting with representatives of SGPP, NHDES and Barr was held on August 4, 2022. Subsequent amendments to the test plan were submitted based on technical clarification requests from NHDES. The final test plan submitted on August 11, 2022, and approved by NHDES, is provided in Appendix J.

The Barr test teams were led by Mr. Tim Russell. Facility coordination with testing activities were provided by Mr. William Kempskie of SGPP. The NHDES representatives were on-site to witness all testing activities. A list of project participants is included in Appendix K.

PFAS sampling run lengths were 180-minutes. Permanent total enclosure verifications were completed in conjunction with the PFAS stack test runs.

Test results are discussed in the following sections. All supporting documentation are included in the tables, figures, and appendices of this report.

2 Operational Conditions During Test

Saint-Gobain Performance Plastics' Merrimack facility produces specialty coated fabrics and films for a range of applications for food processing, electronics, environment, protection, national defense and industrial applications.

The tower processes are fabric coating applications involving a formulated aqueous fluoropolymer coating, coating application to a glass cloth web in a dip pan, and finally heat treating in three stages—dry zone, bake zone and fuse zone. The products being manufactured require multiple coating and heat-treating applications. The tests are conducted during the earlier passes, as these passes are the heaviest application of coating. The coating formulation, consisting of aqueous fluoropolymer dispersion, surfactants and other compounds, were sampled at the dip pan during the tests. Hot gases captured from the three stages of heating are routed to the RTO.

Cast film production involves a multi-coat process where a formulation is coated in a dip pan on a web at room temperature, and then passed through a vertical oven or tower, similar to the glass cloth coating process, where the water is removed. The web path through the tower is typically vertical. Multiple dipping and drying/baking steps may be used to produce a multi-layer film that is peeled from the web, resulting in the final product. The film is sintered like other fluoropolymer products to achieve final characteristics. After the final film layer is applied, the film is wound onto a roller.

During the performance test for PCE01 the maximum number of coating towers were operated simultaneously, at near maximum speeds, maximum widths, with high pick-up rates using a range of fluorinated formulations (as noted in the site mass balance assessment as part of the consent decree). The formulations coordinated during the runs were a mix of materials including fluorodispersions and fluorosurfactants with the highest content of PFAS. Operating at these processing levels during the performance test is significantly exceeds normal operating conditions and meets the required operating conditions of Env-A 802.10. As part of the pre-test protocol, SGPP submitted Attachment 12 under separate cover to NHDES that contains confidential business information which provided details on each tower, its process dynamics, and formulations that were to be run during the performance test. These operational parameters were followed for the performance tests; minor modifications were reviewed and approved in advance by NHDES. Such minor modifications to the Stack Test Plan included substitutions that had similar line speeds, product widths, and formulation fluorinated components. An updated and redlined, confidential Attachment 12 shows the actual products and formulations run during the performance test, which is simultaneously being provided to NHDES under separate cover.

In a letter dated September 2, 2021, and provided to NHDES with confidential business information, NHDES was informed that some smaller auxiliary equipment would not be operational during the test. As stated in the test plan, EU12, 22, 23, 24, 25, and 26 did not run during the performance test, which only account for small number of annual operation hours (<5%) and throughput. Not operating these emission units during the test did not change the representativeness of the test in terms of the requirements in Env-A 802.10 Some of the processes (EU23, EU24, EU25, and EU26) are not known to emit PFAS and

capture/control efficiency evaluations were not performed on those units. The SGPP performance test of PCE01 achieved operating conditions between 90 and 100 percent of maximum product rate or capacity as required by Env-A 802.10.

Testing was completed on August 24-25, 2022. The tests for PFAS compounds consisted of four independent test runs by EPA Method OTM-45. The OTM-45 RTO Outlet sample train leak check exceeded the allowable rate at the completion of test run one. Therefore, test run one is invalidated and test runs 2,3 and 4 comprise the complete PFAS compliance test. The run one RTO inlet and outlet OTM-45 and formulation samples were not analyzed.

Table 2-1 provides a summary of what emission units were coating for each series of test runs.

As required by TP-0256, the thermal oxidizer combustion chamber temperature is monitored at least once every 15 minutes and a record of the hourly average temperature is recorded. The temperature data presented in this report to meet the minimum operating temperature requirement of 1832°F in the permit reflect the average temperatures from all seven (7) thermocouples as provided in the site approved monitoring plan. During the performance test the three run block averages ranged from (1838-1839 °F) which met the 1832 °F permit requirement. Operating temperature data of the RTO and RTO inlet duct airflow monitor rates are provided in Appendix I.

Flow was measured by an in-line calibrated flow meter at the site and during the stack test ranged from (55,300-56,800 SCFM). The flow did not exceed the 70,000 SCFM limit established in the permit. Flow instrument calibration records are included in Appendix I.

Table 2-1 Process Summary

DATE	TEST RUN	EMISSION UNIT	EQUIPMENT	RUNNING WITH PRODUCT	DATE	TEST RUN	EMISSION UNIT	EQUIPMENT	RUNNING WITH PRODUCT	DATE	TEST RUN	EMISSION UNIT	EQUIPMENT	RUNNING WITH PRODUCT	DATE	TEST RUN	EMISSION UNIT	EQUIPMENT	RUNNING WITH PRODUCT
8/24/2022	1	EU4	MR	Y	8/24/2022	2	EU4	MR	Y	8/25/2022	3	EU4	MR	Y	8/25/2022	4	EU4	MR	Y
	1	EU5	MD	Y		2	EU5	MD	Y		3	EU5	MD	Y		4	EU5	MD	Y
	1	EU2	MB	Y		2	EU2	MB	Y		3	EU2	MB	Y		4	EU2	MB	Y
	1	EU13	MP	Y		2	EU13	MP	Y		3	EU13	MP	Y		4	EU13	MP	Y
	1	EU16	MS	Y		2	EU16	MS	Y		3	EU16	MS	Y		4	EU16	MS	Y
	1	EU3	MC	Y		2	EU3	MC	Y		3	EU3	MC	Y		4	EU3	MC	Y
	1	EU6	QX	Y		2	EU6	QX	Y		3	EU6	QX	Y		4	EU6	QX	Y
	1	EU1	MA	Y		2	EU1	MA	Y		3	EU1	MA	Y		4	EU1	MA	Y
	1	EU15	MQ	Y		2	EU15	MQ	Y		3	EU15	MQ	Y		4	EU15	MQ	Y
	1	EU8	20" coater	Y		2	EU8	20" coater	Y		3	EU8	20" coater	Y		4	EU8	20" coater	Y
	1	EU7	20" caster	N		2	EU7	20" caster	N		3	EU7	20" caster	N		4	EU7	20" caster	N
	1	EU12	MG	N		2	EU12	MG	N		3	EU12	MG	N		4	EU12	MG	N
	1	EU22	R&D Pilot	N		2	EU22	R&D Pilot	N		3	EU22	R&D Pilot	N		4	EU22	R&D Pilot	N
	1	EU23	Chemsil	N		2	EU23	Chemsil	N		3	EU23	Chemsil	N		4	EU23	Chemsil	N
	1	EU24	MTM	N		2	EU24	MTM	N		3	EU24	MTM	N		4	EU24	MTM	N
	1	EU25	Step Press	N		2	EU25	Step Press	N		3	EU25	Step Press	N		4	EU25	Step Press	N
	1	EU26	Heat Clean	N		2	EU26	Heat Clean	N		3	EU26	Heat Clean	N		4	EU26	Heat Clean	N

3 Methods

Stack test locations at the RTO inlet and RTO outlet meet criteria of EPA Method 1. Drawings of the test port and traverse point locations are provided in Figures 1-4.

Table 3-1 EPA Method 1 Criteria

Location	Distance to Upstream Disturbances (Duct Diameters)	Distance to Downstream Disturbances (Duct Diameters)	Number of Ports	Number of Points	Average Absolute Yaw Angle
RTO Inlet	3.6	2.4	2	24	3.8°
RTO Outlet	5.5	2.6	2	24	5.3°

Volumetric airflow rates were determined using EPA Method 2 in concert with the isokinetic PFAS tests.

RTO inlet and outlet oxygen and carbon dioxide concentrations were determined by EPA Method 3A instrumental procedure. The instruments were on-line during the PFAS test runs. All valid data during the PFAS test runs were averaged and bias corrected for gas density determinations. Instrument outputs are recorded using a data logger in 1-minute averages. The instrument data is in Appendix E with calibration and run period notation. Calibration gas certifications are in Appendix H.

Gas stream moisture content was determined with each isokinetic PFAS sample run by EPA Method 4.

The verification of permanent total enclosure of the tower ovens and the 20" Coater and 20" Caster room was conducted in accordance with EPA Method 204 criteria. The area of each tower oven natural draft opening (NDO) and the surface area of the enclosure was measured using a retractable 25-foot Stanley Steel Tape Measure (Model 33-425). For each tower oven NDO, the length of the opening was measured using the tape measure and the width was measured on one end of the NDO and confirmed to be the same on the opposite end. The NDO opening area was calculated as the length x width.

For the 20" Coater and 20" Caster room, the entry doorway includes 5" wide overlapping plastic flaps across the entire opening. For the doorway, the width and height of the opening was measured using the tape measure. Due to the difficulty in accurately measuring the NDO area resulting from the overlapping flaps, a coverage of 75% (25% open area) was conservatively assumed. The NDO opening area for the 20" Coater and 20" Caster room entry door was calculated as the width x height x 0.25.

The surface areas of each tower oven enclosure were determined by measurements of the length, width, and height of the main oven body (excluding any extensions that may be present at the entrance and exit) using the tape measure. The surface area of the 20" Coater and 20" Caster room enclosure were determined by measurements of the length, width and height of the room enclosing the two units using the tape measure. If the tower oven enclosure included an integral extension at the web entrance to the

oven or at the web exit from the oven, the surface areas of each extension were also determined by measurements of the length, width and height using the tape measure.

The surface area of the tower oven body and the 20" Coater and 20" Caster room includes the top, bottom and four sides and was calculated using the following formula:

2 x [(Length x Width)+(Length x Height)+(Width x Height)].

The additional enclosure surface area from the attached extensions to the tower ovens does not include the area of the top and bottom of the extensions that are in the same plane as the tower top and bottom as they are already accounted for in the tower oven body surface area calculations. Therefore, the surface area for the tower oven extensions were calculated using the following formula:

2 x [(Length x Height)+(Width x Height)].

Detailed surface area calculations are included in Appendix F, Tables F1 through F10.

The pressure differentials across the enclosures were measured at ten-minute intervals using an Alnor Model AXD620 electronic digital micromanometer. Inward flow was verified using MSA Model 458481 smoke tubes. The pressure differential was determined at each NDO by inserting a ¼" OD stainless steel probe approximately 6" into the opening with the other pressure tap open to atmosphere. After waiting 15-30 seconds for the reading to stabilize the displayed value was recorded. Following each pressure differential measurement, inward flow was verified visually at the same location by expelling smoke from a smoke tube near the face of the opening and observing the direction of flow of the smoke, inward or outward. The pressure differential measurement locations were determined such that they did not risk interference with production and provided safe access for testing personnel while the towers were in operation. Field data and calculations are provided in Appendix F.

PFAS concentrations and emission rates were determined following EPA Other Test Method 45 (OTM-45) Measurement of Selected Per- and Polyfluorinated Alkyl Substances from Stationary Sources. Sample train glassware preparations followed the method including the baking procedure. Solvents used in the glassware cleaning and sample recovery were from manufacturer lots which have previously been screened for absence of PFAS compounds. Openings of cleaned glassware were covered with rinsed aluminum foil and placed in plastic sealed bags for transport to the test site. Eurofins laboratory provided the spiked XAD traps, filter media, recovery solvent, screened de-ionized water and sample bottles.

Sample impinger trains were assembled in Barr's test trailer prior to each test run, with complete train assembly performed at the respective test location. All openings of the train were covered with rinsed aluminum foil until connected to avoid contamination. Leak checks were performed by sealing the nozzle with a nitrile glove. At the request of the NHDES, mid-run leak checks were performed for each test run. Meter volumes for the mid-run leak checks were subtracted from the total meter volume for the run.

OTM-45 sample train recovery was completed in Barr's test trailer following the method procedures. RTO outlet samples were processed first with dedicated recovery equipment followed by inlet sample recovery to avoid cross contamination. Samples containers were stored in sealed plastic bags on ice in coolers in the locked trailer until custody was transferred to the sample courier. Impinger recovery included a final rinse of deionized water to remove residual methanol/ammonium hydroxide after sample recovery had been completed. That final water rinse was not part of the sample and was discarded. This water rinse was performed per laboratory guidance to avoid sample contamination of methanol/ammonium hydroxide during subsequent test runs, which can interfere with the analysis of the condensate.

QA samples were collected as described in the test plan which include trip blanks, field sampling media blank, sample train proof blank (clean glassware), and sample train field blank (used in field-cleaned glassware). The proof blank and field blanks prepared and operated as described in the method and placed at the RTO outlet platform only for same length of time as actual test runs with leak checks performed at the beginning and the end of the period.

Formulation samples were collected at each operating tower for each PFAS test run. Samples were collected from the tower "dip pan" using a dedicated ladle for each location. Samples were labeled and placed in sealed plastic bags in a cooler with ice. These samples were stored under lock and key away from Barr's test sample recovery trailer and RTO inlet/outlet samples. To avoid contamination, the staff collecting the formulation samples were not involved with OTM-45 sample recovery.

Custody of the OTM-45 and formulation samples were transferred on-site to the sample courier and were transported to Eurofins analytical laboratory in Knoxville, TN. OTM-45 PFAS compound analysis was performed in the Knoxville lab. The formulation samples were sent to the Eurofins analytical laboratory in Lancaster, PA for analysis.

The OTM-45 samples were extracted and analyzed by Eurofins TestAmerica (Eurofins) in Knoxville, Tennessee using their standard operating procedures (SOP) KNOX-OP-0026 and KNOX-LC-0007. The results were reported in Eurofins reports J284949-1 Rev(2) (Inlet), J28650-1 Rev(5) (Outlet), J28651-1 Rev(3) (QA samples). The Eurofins Lancaster, PA laboratory analyzed the formulation samples by Method 537 (modified) and provided the analytical results in report J28652-1 Rev(2) (formulation materials). The analytical laboratory Level 2 reports are provided in Appendix C. Appendix D provides Barr's data evaluation of the laboratory reports.

The OTM-45 sample analysis results in reporting of four discreet fractions of the PFAS sample train. Fraction 1 is the filter and probe rinse, fraction 2 is the front sorbent trap (XAD and glassware rinses), fraction 3 is the impinger catch and rinses, and fraction 4 is the backup sorbent trap used to evaluate sample breakthrough. Sample mass is reported as the sum of detected fractions.

Barr has summarized the analytical results to combine the sample train detected mass fractions. In addition, sample QA steps were performed in the laboratory summaries for each test run for proper flagging of data as prescribed in OTM-45 regarding reagent, proof, and field train blanks. These summaries are in Appendix C. The qualifiers and flags used in the summary include the project qualifiers

and the laboratory assigned qualifiers. Qualifiers applied to any individual fraction are applied to the total mass determined for the individual compound. Subsequent data calculated retain all qualifiers applied in the laboratory summaries.

The list of project qualifiers includes:

ND = Below MDL, no detected mass
A = >30 breakthrough
X = compound was above MDL in FMSB
Y = Proof Blank results is > 10% of sample fraction mass
Z = Field Blank results is > 10% of sample fraction mass
M = sample mass manually calculated due to chromatographic interference (CI) causing high bias

The list of analytical qualifiers includes:

*- = LCS and/or LCSD is outside acceptance limits, low biased.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*1 = LCS/LCSD RPD exceeds control limits.
*5- = Isotope dilution analyte is outside acceptance limits, low biased.
*5+ = Isotope dilution analyte is outside acceptance limits, high biased.
B = Compound was found in the blank and sample.
CI = The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
I = Value is EMPC (estimated maximum possible concentration).
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R = Result unusable
S1- = Surrogate recovery exceeds control limits, low biased.

4 Results

4.1 PFAS Test Results

The stack test results continue to demonstrate that the annual emissions of PFAS at the facility are well below permit limits and are illustrated below. Test run two was performed on August 24 and test runs three and four were performed on August 25. The PFOA and PFOS emission rates are annualized to 8,760 hours per year. The post-control PFOA annualized emission rate average is 0.022 lb/yr, which is well below the permit limit of 0.45 lb/yr. The post-control PFOS annualized emission rate average is 0.00052 lb/yr which is also well below the permit limit of 0.57 lb/yr.

Table 4-1 PFAS Test Results

Test Methods 1-4, OTM-45	Average Test Results RTO Outlet (PCE01)	Permit Limit	Test Result percentage of permit limit
Test Date	8/24-25/22	-	-
PFOA, lb/yr	0.022	0.45	4.9 %
PFOS, lb/yr	0.00052	0.57	0.09 %

The full results of the RTO inlet and outlet PFAS tests are summarized in Tables 1 and 2 for each compound in OTM-45 Table 45-1. The samples were analyzed for the PFAS target analytes listed in Table 45-1 of Other Test Method 45 (OTM-45).

Table 1 provides the RTO outlet controlled PFAS emission rates in pounds per year (lb/yr) Table 2 provides the RTO inlet mass loading rates of PFAS in lb/yr. The calculated destruction/removal efficiency (DRE) for PFOA and PFOS are presented below. Intermediary calculations of PFAS pollutant concentrations, emissions rates and compound DRE are in Appendix A for the inlet and outlet tests.

Table 4-2 RTO PFAS Destruction/ Removal Efficiency

Average Test Results			
Test Methods 1-4, OTM-45	RTO Inlet, lb/hr (PCE01)	RTO Outlet, lb/hr (PCE01)	DRE, %
Test Date	8/24-25/22	8/24-25/22	
PFOA	0.0000110	0.00000254	77
PFOS	0.000000129	0.0000000588	54

4.2 Permanent Total Enclosure Verification

The verification of the permanent total enclosures (PTE) of the Tower Ovens and the 20" Coater and 20" Caster Room (Emission Units 1-6, 8, 13, 15-16) was conducted on August 24-25, 2022. Enclosure pressure

differential measurements and inward flow verifications were conducted for each enclosure during one of the PFAS test runs. The permanent total enclosures were verified in accordance with EPA Method 204. Note that Criteria #1 is not applicable to the enclosures as there are no specific VOC sources located within the enclosure. Summaries of the permanent total enclosure verifications is provided below. Data recorded during testing is included in Appendix F, Tables F1 through F10.

Table 4-3 EPA 204 Permanent Total Enclosure Verification Results

Location	Emission Unit ID	Test Date	Oven Webslot In, dP in.H2O	Oven Webslot Out, dP in.H2O	Average Pressure Differential, dP in.H2O	Method 204 Verification Status
MA Tower	EU01	8/24/22	-0.013	-0.043	-0.028	Pass
MB Tower Stage 1	EU02	8/24/22	-0.026	-0.035	-0.030	Pass
MB Tower Stage 2			-0.025	-0.013	-0.019	Pass
MC Tower	EU03	8/24/22	-0.027	-0.068	-0.047	Pass
MR Tower	EU04	8/24/22	-0.029	-0.030	-0.029	Pass
MD Tower Stage 1	EU05	8/24/22	-0.027	-0.038	-0.033	Pass
MD Tower Stage 2			-0.016	-0.015	-0.016	Pass
QX Stage 1	EU06	8/24/22	-0.041	-0.019	-0.030	Pass
QX Stage 2			-0.040	-0.020	-0.030	Pass
QX Stage 3			-0.042	-0.015	-0.028	Pass
QX Stage 4			-0.048	-0.021	-0.035	Pass
QX Stage 5			-0.050	-0.012	-0.031	Pass
20" Coater & Caster (Room)	EU08	8/24/22	N/A	N/A	-0.008	Pass
MP Tower Stage 1	EU13	8/25/22	-0.017	-0.016	-0.017	Pass
MP Tower Stage 2			-0.024	-0.017	-0.020	Pass
MQ Tower	EU15	8/25/22	-0.014	-0.014	-0.014	Pass
MS Tower	EU16	8/25/22	-0.016	-0.017	-0.016	Pass

The EPA Method 204 Permanent Total Enclosure Criteria are shown below.

Criteria # 1 Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

Result: Not Applicable

Criteria # 2 The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor, and ceiling.

Result: The NDO areas of the enclosures did not exceed 5 percent of the total enclosure surface area for any enclosure.

Criteria # 3 The average facial velocity of air through all NDO's shall be at least 200 feet per minute (fpm). The direction of airflow through all NDO's shall be into the enclosure.

Result: Based on pressure differential measurements, the average facial velocity into the enclosures exceeded 200 fpm for all enclosures. A pressure differential of -0.007 inches of water corresponds to a face velocity across an opening of 200 fpm.

Criteria # 4 All access doors and windows whose areas are not included as NDO's shall be closed during routine operation of the process.

Result: All access points not included as NDO's were closed during testing.

Criteria # 5 All VOC emissions must be captured and contained for discharge through a control device.

Result: All exhaust flow from the tower ovens and from the 20" Caster and 20" Coater Room are routed to the RTO.

The MB and MP towers each include two separate enclosures. The first enclosure includes the dry and bake zones and the second enclosure includes the fuse zone. For both towers, the product leaving the first enclosure (dry and bake zones) is considered semi-fused and is then routed through the second enclosure (fuse zone) where the material becomes fully fused. Semi-fused material is considered cured (or dry) product with no potential for emissions.

4.3 Formulation Samples

Representative samples of coating formulations were collected with each test run at each operating tower during the PFAS testing. Formulation samples were analyzed by Eurofins Lancaster, PA. Results of the per- and polyfluoroalkyl substances analysis are provided in Table 3. Laboratory analytical reports and a supplemental case narrative from Eurofins are included in Appendix C. Many of the reported values of PFOS and FOSA in the formulation samples may be biased high by method blank contamination as noted in the Appendix D data evaluation report.

5 Conclusions

The Saint-Gobain Merrimack, NH facility operated the facility processes at maximum capacity for these tests, far beyond ordinary facility operating rates and at conditions that met Env-A 802.10. The reported results of this project satisfy all criteria of Temporary Permit TP-0256, and the Consent Decree, Docket No. 216-2021-CV-00077. PFOA and PFOS inlet and outlet concentrations are below the emission limits established in the permit and the 2022 annual emission limit for PFOA and PFOS will be achieved. Temperatures and inlet flow rates of PCE01 are continuously being achieved while running covered coating processes. Poly and perfluoroalkyl (PFAS) measured are being destroyed by PCE01. Coating towers that require enclosure are collecting fugitive emissions and sufficient negative pressure at openings has been demonstrated.

Following the performance test of PCE01, the following conclusions can be substantiated:

1. All conditions required in site permit and pre-test plan have been achieved.
2. PCE01 achieves emission required permit conditions.
3. Fugitive emissions are adequately captured by enclosures of covered site coating processes.

Tables

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 24, 2022

TABLE 1

EPA OTM - 45 TEST RESULTS SUMMARY

RTO Outlet (PCE01)

Parameter	Run 2	Data Qualifiers	Run 3	Data Qualifiers	Run 4	Data Qualifiers	Average	Data Qualifiers
Test Date	8/24/2022		8/25/2022		8/25/2022		---	
Test Period	1323 - 1631		808 - 1115		1241 - 1547		---	
Test Duration, min	180		180		180		180	
Average Stack Temperature, ℉	352		361		358		357	
Average Moisture Content, %V/V	3.4		3.5		3.0		3.3	
Air Flow Rate								
acfm	111,700		111,900		110,600		111,400	
scfm	71,800		71,500		70,900		71,400	
dscfm	69,300		69,000		68,700		69,000	
Sample Volume								
acf	127.59		125.26		124.83		125.9	
dscf	125.08		124.17		123.03		124.1	
dscm	3.54		3.52		3.48		3.51	
Isokinetic Variation, %	99.9		99.6		99.1		99.5	
Pollutant Emission Rate, lb/yr								
Perfluorobutanoic acid (PFBA)	0.005	ND B M CI	0.013	ND B M CI	0.011	ND J B M CI	0.010	ND J B M CI
Perfluoropentanoic acid (PFPeA)	0.007	ND z	0.031	J z	0.015	ND J z	0.018	ND J z
Perfluorohexanoic acid (PFHxA)	0.012	ND z	0.013	J z	0.012	ND J z	0.012	ND J z
Perfluoroheptanoic acid (PFHpA)	0.0041	ND	0.011	ND	0.0058	ND	0.0069	ND
Perfluorooctanoic acid (PFOA)	0.021	ND xyz	0.022	ND xz	0.023	ND J xz	0.022	ND J xyz
Perfluorononanoic acid (PFNA)	0.0028	ND J I	0.0092	ND J I	0.0055	ND J I	0.0058	ND J I
Perfluorodecanoic acid (PFDA)	0.0021	ND	0.0040	ND	0.0028	ND J	0.0030	ND J
Perfluoroundecanoic acid (PFUnA)	0.0021	ND	0.00016	ND J R	0.0078	ND J	0.0034	ND J R
Perfluorododecanoic acid (PFDoA)	0.0001	ND J R	0.0001	ND J R	0.0003	ND J R	0.0002	ND J R
Perfluorotridecanoic acid (PFTriA)	0.00021	ND J R	0.0005	ND J R	0.0010	ND R	0.0006	ND J R
Perfluorotetradecanoic acid (PFTeA)	0.00017	ND J R	0.00035	ND J R	0.00058	ND J R	0.00037	ND J R
Perfluorobutanesulfonic acid (PFBS)	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	0	ND	0	ND	0	ND	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	0.00039	A ND J xyz	0.00079	ND J I xyz	0.00037	ND J I xyz	0.00052	A ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	0.00019	ND J	0	ND J R	0	ND	0.00006	ND J R
Perfluoropentanesulfonic acid (PFPeS)	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0	ND	0	ND J	0	ND	0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.00037	ND J	0	ND J R	0.00024	ND J	0.00020	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0	ND	0	ND	0	ND	0	ND

ND = Below MDL, no detected mass
A = >30 breakthrough
X = compound was above MDL in FMSB
Y = Proof Blank results is > 10% of sample fraction mass
Z = Field Blank results is > 10% of sample fraction mass
M = sample mass manually calculated due to chromatographic interference (CI) causing high bias
*- = LCS and/or LCSD is outside acceptance limits, low biased.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*1 = LCS/LCSD RPD exceeds control limits.
B = Compound was found in the blank and sample.
CI = The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
I = Value is EMPC (estimated maximum possible concentration).
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R = Result unusable

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 24, 2022

TABLE 1 (Continued)

EPA OTM - 45 TEST RESULTS SUMMARY

RTO Outlet (PCE01)

Parameter	Run 2	Data Qualifiers	Run 3	Data Qualifiers	Run 4	Data Qualifiers	Average	Data Qualifiers
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.0042	ND B z	0.037	ND B z	0.037	ND B z	0.026	ND B
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0	ND	0	ND R	0	ND	0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0	ND NR	0	ND R	0	ND R	0	ND NR R
Perfluoro-n-octadecanoic acid (PFODA)	0.00046	ND J *-*1 R	0.0014	ND *-*1 R	0.0013	ND *-* 1	0.0011	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0	ND R	0	NR ND	0	ND NR	0	ND NR R
N-methylperfluorooctane sulfonamide (NMeFOSA)	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0	ND R	0	ND R	0	ND R	0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.00037	ND J R	0.00070	ND R	0.0011	ND R	0.00072	ND J R
Perfluorododecanesulfonic acid (PFDoS)	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	0	ND	0	ND R	0	ND	0	ND R
6:2 Fluorotelomer carboxylic acid	0.0031	ND	0.0020	ND	0.0028	ND	0.0027	ND
7:3 Fluorotelomer carboxylic acid	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	0.0011	ND	0.00089	ND	0.00092	ND	0.00098	ND
8:2 Fluorotelomer carboxylic acid	0	ND	0	ND	0	ND	0	ND
8:2 Fluorotelemer unsaturated acid	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	0	ND *+	0	ND *+	0	ND *+	0	ND *+
3-Perfluoropropylpropanoic acid	0	ND	0	ND	0	ND	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.0030	ND CI J	0.00092	ND J	0.00052	ND J	0.0015	ND CI J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0	ND	0	ND	0	ND	0	ND

ND = Below MDL, no detected mass
A = >30 breakthrough
X = compound was above MDL in FMSB
Y = Proof Blank results is > 10% of sample fraction mass
Z = Field Blank results is > 10% of sample fraction mass
M = sample mass manually calculated due to chromatographic interference (CI) causing high bias
*- = LCS and/or LCSD is outside acceptance limits, low biased.
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R = Result unusable

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Merrimack, NH

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October 24, 2022

TABLE 2

EPA OTM - 45 TEST RESULTS SUMMARY

RTO Inlet (PCE01)

Parameter	Run 2	Data Qualifiers	Run 3	Data Qualifiers	Run 4	Data Qualifiers	Average	Data Qualifiers
Test Date	8/24/2022		8/25/2022		8/25/2022		---	
Test Period	1323 - 1631		808 - 1115		1241 - 1547		---	
Test Duration, min	180		180		180		180	
Average Stack Temperature, ºF	222		225		222		223	
Average Moisture Content, %V/V	2.8		2.7		2.5		2.7	
Air Flow Rate								
acfm	81,800		80,900		83,000		81,900	
scfm	62,200		61,600		63,500		62,400	
dscfm	60,400		59,900		61,900		60,700	
Sample Volume								
acf	118.77		115.95		119.93		118.2	
dscf	114.87		113.46		116.53		115.0	
dscm	3.25		3.21		3.30		3.26	
Isokinetic Variation, %	100.1		99.6		99.1		99.6	
Pollutant Mass Rate, lb/yr								
Perfluorobutanoic acid (PFBA)	0.21	A ND B z	0.20	ND B z	0.27	ND B z	0.23	A ND B z
Perfluoropentanoic acid (PFPeA)	0.35	J z	0.45	J z	0.56	J z	0.45	J z
Perfluorohexanoic acid (PFHxA)	0.10	J z	0.096	J z	0.12	J z	0.11	J z
Perfluoroheptanoic acid (PFHpA)	0.10	ND	0.11	ND	0.15	ND	0.12	ND
Perfluorooctanoic acid (PFOA)	0.087	ND xyz	0.091	ND J xyz	0.110	ND xyz	0.096	ND J xyz
Perfluorononanoic acid (PFNA)	0.037	J	0.075	ND J	0.060	ND J	0.057	ND J
Perfluorodecanoic acid (PFDA)	0.013	ND	0.027	ND	0.020	ND	0.020	ND
Perfluoroundecanoic acid (PFUnA)	0.016	ND	0.140	ND J	0.070	ND J I	0.075	ND J I
Perfluorododecanoic acid (PFDoA)	0.011	ND J	0.024	ND J	0.018	ND J	0.018	ND J
Perfluorotridecanoic acid (PFTriA)	0.004	ND J	0.033	ND J	0.029	ND J	0.022	ND J
Perfluorotetradecanoic acid (PFTeA)	0.00045	ND J I R	0.00083	ND I CI R	0.00083	ND I CI R	0.00070	ND J I CI R
Perfluorobutanesulfonic acid (PFBS)	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	0	ND	0.000081	ND J	0	ND	0.000027	ND J
Perfluoroheptanesulfonic acid (PFHpS)	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	0.00072	ND J I xyz	0.0023	ND I J xy	0.00035	ND J I xyz	0.0011	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	0	ND R	0	ND R	0	ND	0	ND R
Perfluoropentanesulfonic acid (PFPeS)	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0	ND	0	ND	0	ND	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0	ND	0	ND	0.0012	ND J	0.00040	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0	ND	0.0048	ND	0.0025	ND J	0.0024	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0	ND	0	ND	0	ND	0	ND

ND = Below MDL, no detected mass
A = >30 breakthrough
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Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 24, 2022

TABLE 2 (Continued)

EPA OTM - 45 TEST RESULTS SUMMARY

RTO Inlet (PCE01)

Parameter	Run 2	Data Qualifiers	Run 3	Data Qualifiers	Run 4	Data Qualifiers	Average	Data Qualifiers
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.021	ND B z	0.19	ND J B z	0.19	ND J B z	0.13	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0	ND	0	ND	0	ND	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0.0056	ND CI R	0.00044	ND J R	0.00045	ND J R	0.0022	ND CI J R
Perfluoro-n-octadecanoic acid (PFODA)	0.00024	ND J *-*1 R	0.00046	ND J *-*1 R	0.00031	ND J *-*1 R	0.00034	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0	ND NR	0	ND NR	0	ND NR	0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0.00034	ND J R	0	ND R	0	ND R	0.00011	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.00028	ND J R	0.00039	ND J R	0.00034	ND J R	0.00033	ND J R
Perfluorododecanesulfonic acid (PFDoS)	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelomer carboxylic acid	0.0072	ND	0	ND	0	ND	0.0024	ND
7:3 Fluorotelomer carboxylic acid	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	0.0042	ND J	0.0024	ND J	0.0037	ND J	0.0034	ND J
8:2 Fluorotelomer carboxylic acid	0.0086	ND I	0	ND	0	ND	0.0029	ND I
8:2 Fluorotelemer unsaturated acid	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	0.0051	ND J I *+	0	ND *+	0.0141	ND *+ CI	0.0064	ND J I *+ CI
3-Perfluoropropylpropanoic acid	0.067	ND	0.040	ND	0.096	ND	0.068	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.0127	ND CI J	0.0045	ND J	0.0041	ND J	0.0071	ND CI J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0	ND	0	ND	0	ND	0	ND

ND = Below MDL, no detected mass
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Merrimack, NH

Barr Engineering Co
October 21, 2022

TABLE 3
Dip Pan Formulation Analysis Results

Tower ID		**QX Run 2**				**QX Run 3**		**QX Run 4**	
QX Stage ID		**QX 1**		**QX 2-5**		**QX 1-5**		**QX 1-5**	
Lab Sample ID		**140-28652-19**		**140-28652-20**		**140-28652-27**		**140-28652-34**	
Compound	**CAS #**	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers
4:2 Fluorotelomer sulfonic acid	757124-72-4	ND		ND		ND		ND	
6:2 Fluorotelomer sulfonic acid	27619-97-2	ND		ND		ND		ND	
8:2 Fluorotelomer sulfonic acid	39108-34-4	ND		ND		ND		ND	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	ND		34,600		ND		ND	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ND		ND		ND		ND	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ND		ND		ND		ND	
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND		ND		ND		ND	
Perfluorobutanoic acid (PFBA)	375-22-4	ND		ND		ND		ND	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ND		ND		ND		ND	
Perfluorodecanoic acid (PFDA)	335-76-2	ND		ND		ND		ND	
Perfluorododecanoic acid (PFDoA)	307-55-1	ND		ND		ND		ND	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ND		ND		ND		ND	
Perfluoroheptanoic acid (PFHpA)	375-85-9	ND		ND		ND		465	**J**
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ND		ND		ND		ND	***1**
Perfluorohexanoic acid (PFHxA)	307-24-4	ND		ND		ND		ND	
Perfluorononanoic acid (PFNA)	375-95-1	ND		ND		ND		1,170	
Perfluorooctanesulfonamide (FOSA)	754-91-6	2,640	**J B**	ND		ND		1,010	**B**
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	4,500	**J B**	ND		ND		960	**J *+ B *1**
Perfluorooctanoic acid (PFOA)	335-67-1	ND		ND		ND		383	**J**
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ND		ND		ND		ND	
Perfluoropentanoic acid (PFPeA)	2706-90-3	ND		ND		ND		403	**J**
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ND		ND		ND		510	**J**
Perfluorotridecanoic acid (PFTriA)	72629-94-8	4,740	**J**	ND		6,160	**J**	742	**J**
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ND		ND		ND		1,580	

B Compound was also detected in a blank associated with this analysis.
J The concentration is an approximate value, the result is less than the reporting limit but greater than or equal to the method detection limit.
***+** high biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***1** laboratory control spike/laboratory control spike duplicate relative percent difference exceeds control limits.

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TABLE 3 (Continued)
Dip Pan Formulation Analysis Results

Tower ID		**20" Coater**						**MA**					
Run ID		**Run 2**		**Run 3**		**Run 4**		**Run 2**		**Run 3**		**Run 4**	
Lab Sample ID		**140-28652-12**		**140-28652-28**		**140-28652-40**		**140-28652-13**		**140-28652-23**		**140-28652-41**	
Compound	**CAS #**	ng/l	Data Qualifiers	ng/l	ng/l	Data Qualifiers	ng/l	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers
4:2 Fluorotelomer sulfonic acid	757124-72-4	ND		ND		ND		ND		ND		ND	
6:2 Fluorotelomer sulfonic acid	27619-97-2	ND		ND		3,270		ND		ND		ND	
8:2 Fluorotelomer sulfonic acid	39108-34-4	ND		ND		ND		ND		ND		ND	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	ND		ND		ND		57,400		45,100		29,500	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ND		ND		ND		ND		ND		ND	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ND		ND		ND		ND		ND		ND	
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND		ND		ND		ND		ND		ND	
Perfluorobutanoic acid (PFBA)	375-22-4	ND		ND		ND		ND		ND		ND	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ND		ND		ND		ND		ND		ND	
Perfluorodecanoic acid (PFDA)	335-76-2	ND		ND		ND		ND		ND		ND	
Perfluorododecanoic acid (PFDoA)	307-55-1	ND		ND		ND		ND		ND		ND	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	2,500	**J**	ND		ND		ND		ND		ND	
Perfluoroheptanoic acid (PFHpA)	375-85-9	ND		ND		ND		ND		ND		ND	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	7,020	**J**	ND		ND		ND		ND		ND	***1**
Perfluorohexanoic acid (PFHxA)	307-24-4	ND		ND		ND		ND		ND		ND	
Perfluorononanoic acid (PFNA)	375-95-1	ND		ND		ND		ND		ND		ND	
Perfluorooctanesulfonamide (FOSA)	754-91-6	135,000	**B**	ND		1,250	***1**	2,860	**J B**	ND		ND	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	156,000	**B**	ND		1,270	***+ *1**	10,400	**B**	ND		ND	***+ *1**
Perfluorooctanoic acid (PFOA)	335-67-1	12,400		ND		ND		ND		ND		ND	
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ND		ND		ND		ND		ND		ND	
Perfluoropentanoic acid (PFPeA)	2706-90-3	ND		ND		ND		ND		ND		ND	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ND		ND		ND		ND		ND		ND	
Perfluorotridecanoic acid (PFTriA)	72629-94-8	ND		ND		ND		ND		ND		ND	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ND		ND		ND		ND		ND		ND	

B Compound was also detected in a blank associated with this analysis.
J The concentration is an approximate value, the result is less than the reporting limit but greater than or equal to the method detection limit.
***+** high biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***1** laboratory control spike/laboratory control spike duplicate relative percent difference exceeds control limits.

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TABLE 3 (Continued)
Dip Pan Formulation Analysis Results

Tower ID		**MB**						**MC**					
Run ID		**Run 2**		**Run 3**		**Run 4**		**Run 2**		**Run 3**		**Run 4**	
Lab Sample ID		**140-28652-15**		**140-28652-30**		**140-28652-38**		**140-28652-18**		**140-28652-26**		**140-28652-36**	
Compound	**CAS #**	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers
4:2 Fluorotelomer sulfonic acid	757124-72-4	ND		ND		ND		ND		ND		ND	
6:2 Fluorotelomer sulfonic acid	27619-97-2	ND		ND		ND		ND		ND		ND	
8:2 Fluorotelomer sulfonic acid	39108-34-4	ND		ND		ND		ND		ND		ND	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	ND	***- *1**	39,700		631,000		853,000		30,400		18,600	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ND		ND		ND		ND		ND		ND	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ND		ND		ND		ND		ND		ND	
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND		ND		ND		ND		ND		ND	
Perfluorobutanoic acid (PFBA)	375-22-4	ND		ND		ND		ND		ND		ND	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ND		ND		ND		ND		ND		ND	
Perfluorodecanoic acid (PFDA)	335-76-2	2,930	**J**	ND		ND		ND		ND		ND	
Perfluorododecanoic acid (PFDoA)	307-55-1	ND		ND		ND		ND		ND		ND	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ND		ND		ND		ND		ND		ND	
Perfluoroheptanoic acid (PFHpA)	375-85-9	ND		ND		ND		ND		ND		ND	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ND		ND		309	**J**	ND		ND		ND	***1**
Perfluorohexanoic acid (PFHxA)	307-24-4	ND		4,370	**J**	ND		ND		ND		ND	
Perfluorononanoic acid (PFNA)	375-95-1	ND		ND		ND		ND		ND		ND	
Perfluorooctanesulfonamide (FOSA)	754-91-6	7,550	**J**	ND		2,110	***1**	4,090	**J B**	ND		276	**J B**
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	8,130	**J *+*1**	ND		4,300	***+ *1**	4,420	**J B**	ND		ND	***+ *1**
Perfluorooctanoic acid (PFOA)	335-67-1	2,990	**J**	ND		507	**J**	ND		ND		ND	
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ND		ND		ND		ND		ND		ND	
Perfluoropentanoic acid (PFPeA)	2706-90-3	ND		ND		ND		ND		ND		ND	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ND		ND		ND		ND		ND		ND	
Perfluorotridecanoic acid (PFTriA)	72629-94-8	ND		ND		ND		ND		ND		ND	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ND		ND		ND		ND		ND		ND	

B Compound was also detected in a blank associated with this analysis.
J The concentration is an approximate value, the result is less than the reporting limit but greater than or equal to the method detection limit.
***-** low biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***+** high biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***1** laboratory control spike/laboratory control spike duplicate relative percent difference exceeds control limits.

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co
October 21, 2022

TABLE 3 (Continued)
Dip Pan Formulation Analysis Results

Tower ID		**MD**						**MP**					
Run ID		**Run 2**		**Run 3**		**Run 4**		**Run 2**		**Run 3**		**Run 4**	
Lab Sample ID		**140-28652-17**		**140-28652-25**		**140-28652-35**		**140-28652-22**		**140-28652-32**		**140-28652-42**	
Compound	**CAS #**	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers
4:2 Fluorotelomer sulfonic acid	757124-72-4	ND		ND		ND		ND		ND		ND	
6:2 Fluorotelomer sulfonic acid	27619-97-2	ND		ND		ND		ND		ND		ND	
8:2 Fluorotelomer sulfonic acid	39108-34-4	ND		ND		ND		ND		ND		ND	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	120,000		176,000		197,000		252,000		577,000		380,000	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ND		ND		ND		ND		ND		ND	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ND		ND		ND		ND		ND		ND	
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND		ND		ND		ND		ND		ND	
Perfluorobutanoic acid (PFBA)	375-22-4	ND		ND		ND		ND		ND		ND	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ND		ND		ND		ND		ND		ND	
Perfluorodecanoic acid (PFDA)	335-76-2	ND		ND		ND		ND		ND		ND	
Perfluorododecanoic acid (PFDoA)	307-55-1	ND		ND		ND		ND		ND		ND	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ND		ND		ND		ND		ND		ND	
Perfluoroheptanoic acid (PFHpA)	375-85-9	ND		ND		ND		ND		ND		ND	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ND		ND		ND		ND		ND		ND	
Perfluorohexanoic acid (PFHxA)	307-24-4	ND		ND		ND		ND		ND		ND	
Perfluorononanoic acid (PFNA)	375-95-1	ND		ND		ND		ND		ND		ND	
Perfluorooctanesulfonamide (FOSA)	754-91-6	3,140	**J B**	ND		ND	***1**	ND		ND		ND	***1**
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	3,320	**J B**	ND		ND	***+ *1**	ND		ND		ND	***+ *1**
Perfluorooctanoic acid (PFOA)	335-67-1	ND		ND		276	**J**	ND		ND		334	**J**
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ND		ND		ND		ND		ND		ND	
Perfluoropentanoic acid (PFPeA)	2706-90-3	ND		ND		ND		ND		ND		ND	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ND		ND		ND		ND		ND		ND	
Perfluorotridecanoic acid (PFTriA)	72629-94-8	ND		ND		ND		ND		ND		ND	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ND		ND		ND		ND		ND		ND	

B Compound was also detected in a blank associated with this analysis.
J The concentration is an approximate value, the result is less than the reporting limit but greater than or equal to the method detection limit.
***+** high biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***1** laboratory control spike/laboratory control spike duplicate relative percent difference exceeds control limits.

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co
October 21, 2022

TABLE 3 (Continued)
Dip Pan Formulation Analysis Results

Tower ID		**MQ**						**MR**					
Run ID		**Run 2**		**Run 3**		**Run 4**		**Run 2**		**Run 3**		**Run 4**	
Lab Sample ID		**140-28652-14**		**140-28652-24**		**140-28652-33**		**140-28652-16**		**140-28652-29**		**140-28652-39**	
Compound	**CAS #**	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers
4:2 Fluorotelomer sulfonic acid	757124-72-4	ND		ND		ND		ND		ND		ND	
6:2 Fluorotelomer sulfonic acid	27619-97-2	ND		ND		ND		ND		ND		ND	
8:2 Fluorotelomer sulfonic acid	39108-34-4	ND		ND		ND		ND		ND		ND	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	76,200		63,200		38,400		ND		ND		6,630	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ND		ND		ND		ND		ND		ND	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ND		ND		ND		ND		ND		ND	
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND		ND		ND		ND		ND		ND	
Perfluorobutanoic acid (PFBA)	375-22-4	ND		ND		ND		ND		ND		ND	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ND		ND		ND		ND		ND		ND	
Perfluorodecanoic acid (PFDA)	335-76-2	ND		ND		ND		ND		ND		ND	
Perfluorododecanoic acid (PFDoA)	307-55-1	ND		ND		ND		ND		ND		ND	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ND		ND		ND		ND		ND		ND	
Perfluoroheptanoic acid (PFHpA)	375-85-9	ND		ND		ND		ND		ND		ND	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ND		ND		ND	***1**	ND		ND		ND	***1**
Perfluorohexanoic acid (PFHxA)	307-24-4	ND		ND		ND		ND		ND		ND	
Perfluorononanoic acid (PFNA)	375-95-1	ND		ND		ND		ND		ND		ND	
Perfluorooctanesulfonamide (FOSA)	754-91-6	4,420	**J B**	ND		287	**J B**	3,740	**J B**	ND		309	**J B**
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	7,120	**J B**	ND		2,030	***+ B *1**	7,130	**J B**	ND		406	**J *+ B *1**
Perfluorooctanoic acid (PFOA)	335-67-1	ND		ND		302	**J**	ND		ND		ND	
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ND		ND		ND		ND		ND		ND	
Perfluoropentanoic acid (PFPeA)	2706-90-3	ND		ND		ND		ND		ND		ND	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ND		ND		ND		ND		ND		ND	
Perfluorotridecanoic acid (PFTriA)	72629-94-8	ND		ND		ND		ND		ND		ND	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ND		ND		ND		ND		ND		ND	

B Compound was also detected in a blank associated with this analysis.
J The concentration is an approximate value, the result is less than the reporting limit but greater than or equal to the method detection limit.
***+** high biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***1** laboratory control spike/laboratory control spike duplicate relative percent difference exceeds control limits.

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co
October 21, 2022

TABLE 3 (Continued)
Dip Pan Formulation Analysis Results

Tower ID		**MS**					
Run ID		**Run 2**		**Run 3**		**Run 4**	
Lab Sample ID		**140-28652-21**		**140-28652-31**		**140-28652-37**	
Compound	**CAS #**	ng/l	Data Qualifiers	ng/l	Data Qualifiers	ng/l	Data Qualifiers
4:2 Fluorotelomer sulfonic acid	757124-72-4	ND		ND		ND	
6:2 Fluorotelomer sulfonic acid	27619-97-2	ND		ND		ND	
8:2 Fluorotelomer sulfonic acid	39108-34-4	ND		ND		ND	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6	9,850	**J**	ND		6,250	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	ND		ND		ND	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	ND		ND		ND	
Perfluorobutanesulfonic acid (PFBS)	375-73-5	ND		ND		ND	
Perfluorobutanoic acid (PFBA)	375-22-4	ND		ND		6,380	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	ND		ND		ND	
Perfluorodecanoic acid (PFDA)	335-76-2	ND		4,740	**J**	2,800	
Perfluorododecanoic acid (PFDoA)	307-55-1	ND		3,320	**J**	818	**J**
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	ND		ND		ND	
Perfluoroheptanoic acid (PFHpA)	375-85-9	ND		6,590	**J**	6,770	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	ND		ND		ND	
Perfluorohexanoic acid (PFHxA)	307-24-4	ND		ND		1,960	**I**
Perfluorononanoic acid (PFNA)	375-95-1	ND		22,100		30,300	
Perfluorooctanesulfonamide (FOSA)	754-91-6	3,270	**J B**	ND		1,920	***1**
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	2,680	**J I B**	ND		439	**J *+ *1**
Perfluorooctanoic acid (PFOA)	335-67-1	ND		3,880	**J**	3,200	
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	ND		ND		ND	
Perfluoropentanoic acid (PFPeA)	2706-90-3	ND		18,900		15,200	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	ND		3,160	**J**	765	**J**
Perfluorotridecanoic acid (PFTriA)	72629-94-8	ND		8,140	**J**	3,140	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	ND		19,900		20,300	

B Compound was also detected in a blank associated with this analysis.
I Value is estimated maximum possible concentration.
J The concentration is an approximate value, the result is less than the reporting limit but greater than or equal to the method detection limit.
***+** high biased result, laboratory control spike and/or laboratory control spike duplicate is outside acceptance limits.
***1** laboratory control spike/laboratory control spike duplicate relative percent difference exceeds control limits.

Figures

SAINT GOBAIN PERFORMANCE PLASTICS
MERRIMACK, NEW HAMPSHIRE

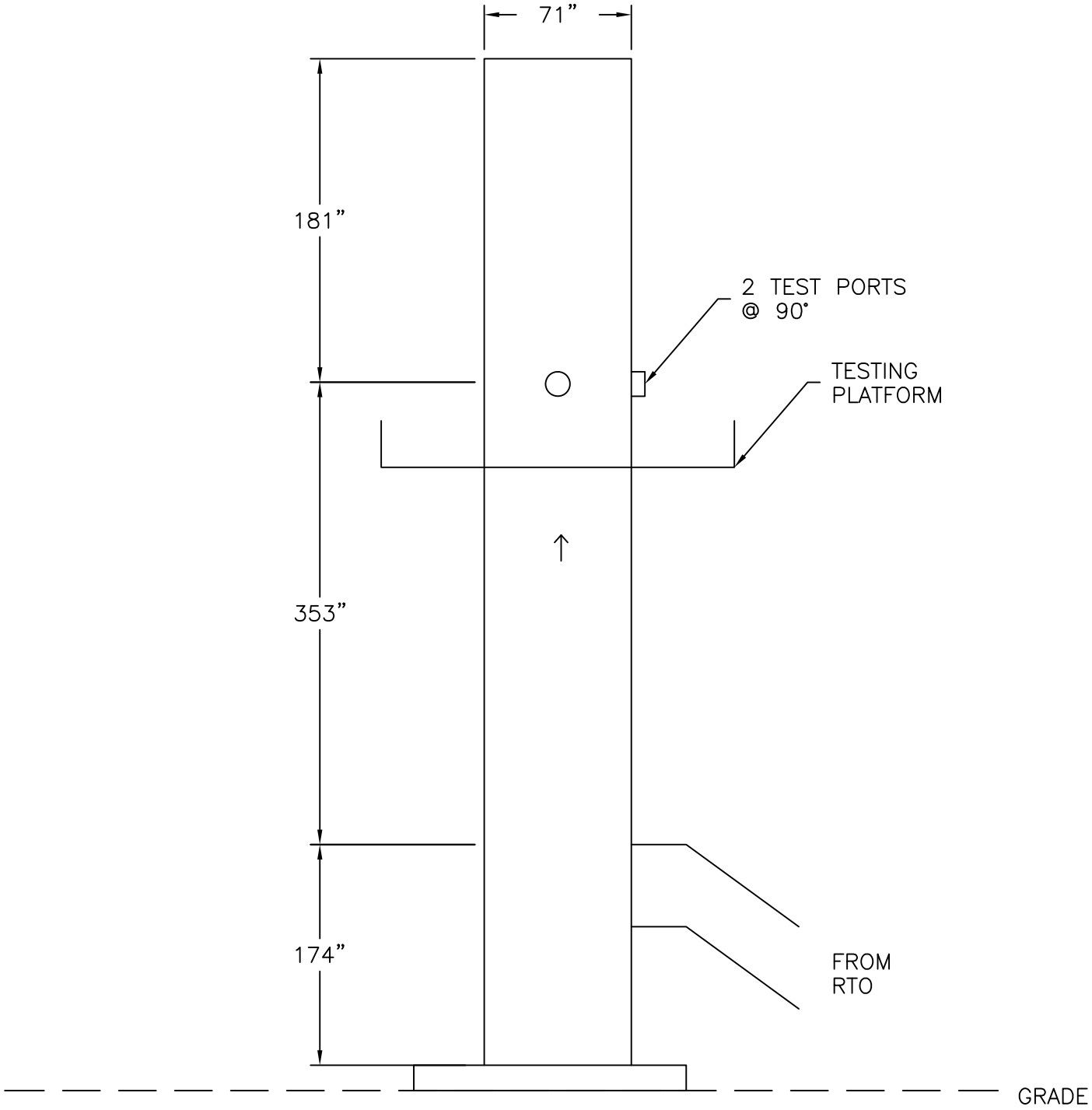
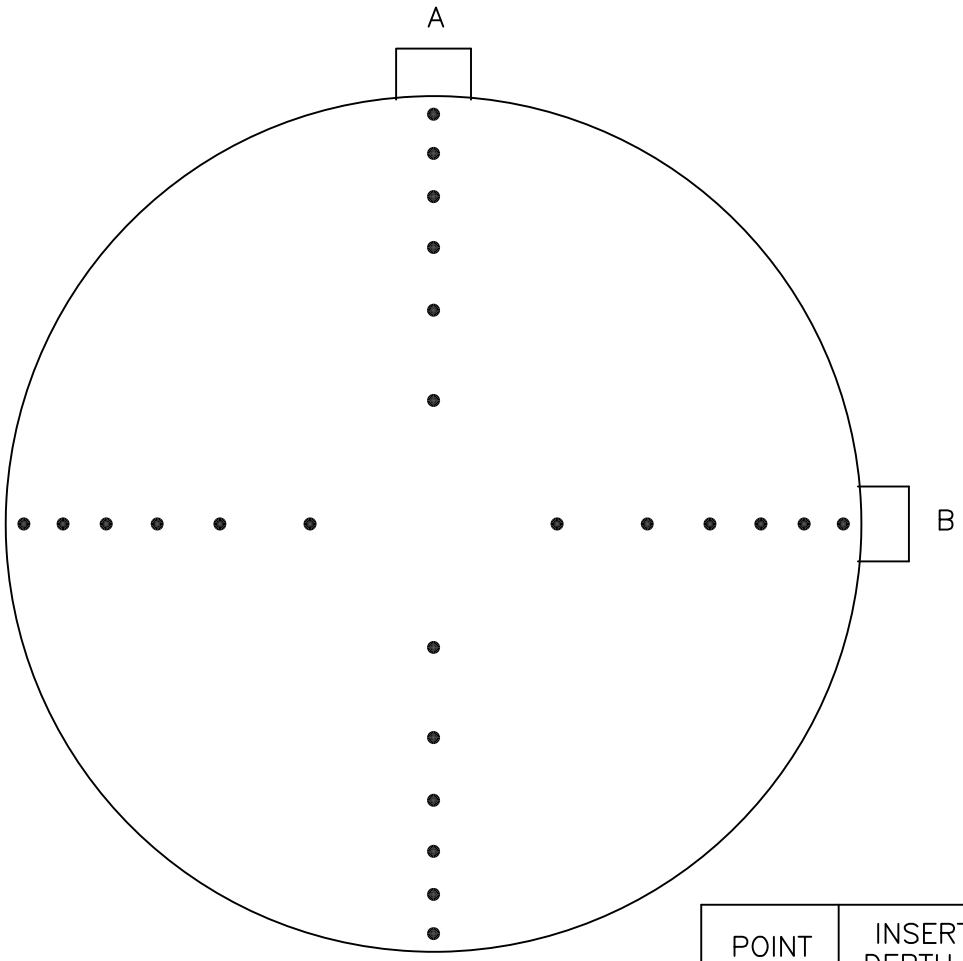


FIGURE 1

TEST PORT LOCATIONS
RTO PCE01 OUTLET

NOT TO SCALE

SAINT GOBAIN PERFORMANCE PLASTICS
MERRIMACK, NEW HAMPSHIRE



POINT	INSERTION DEPTH IN "
1	1.51
2	4.76
3	8.39
4	12.58
5	17.75
6	25.25
7	45.75
8	53.25
9	58.42
10	62.61
11	66.24
12	69.49

NO. OF TEST PORTS	2
PORT LENGTH	5.5"
PORT DIAMETER	4"
NO. OF TRAVERSE POINTS	24
DUCT DIAMETER	71.00"

FIGURE 2

TRAVERSE POINT LOCATIONS
RTO PCE01 OUTLET

NOT TO SCALE

SAINT GOBAIN PERFORMANCE PLASTICS
MERRIMACK, NEW HAMPSHIRE

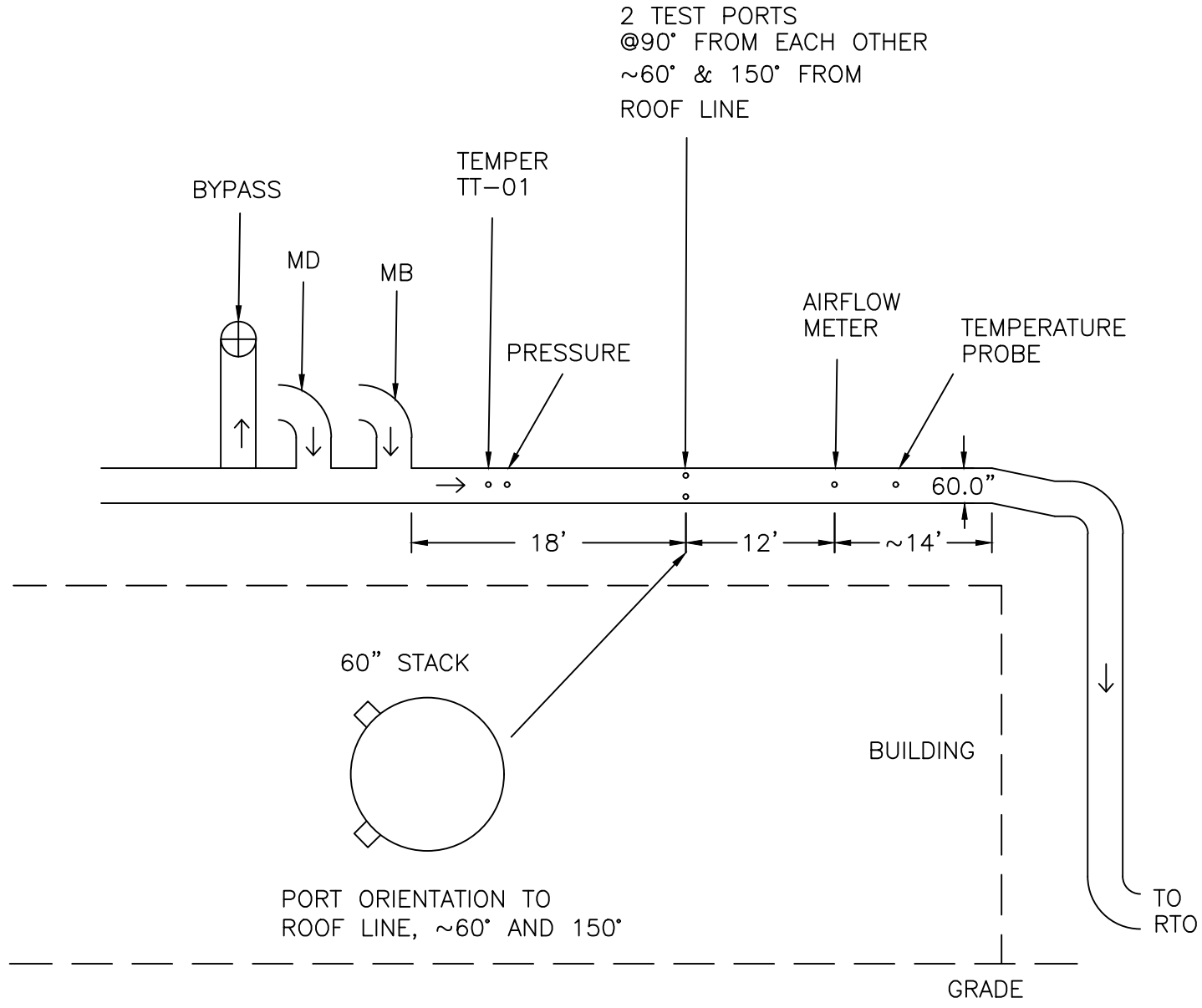
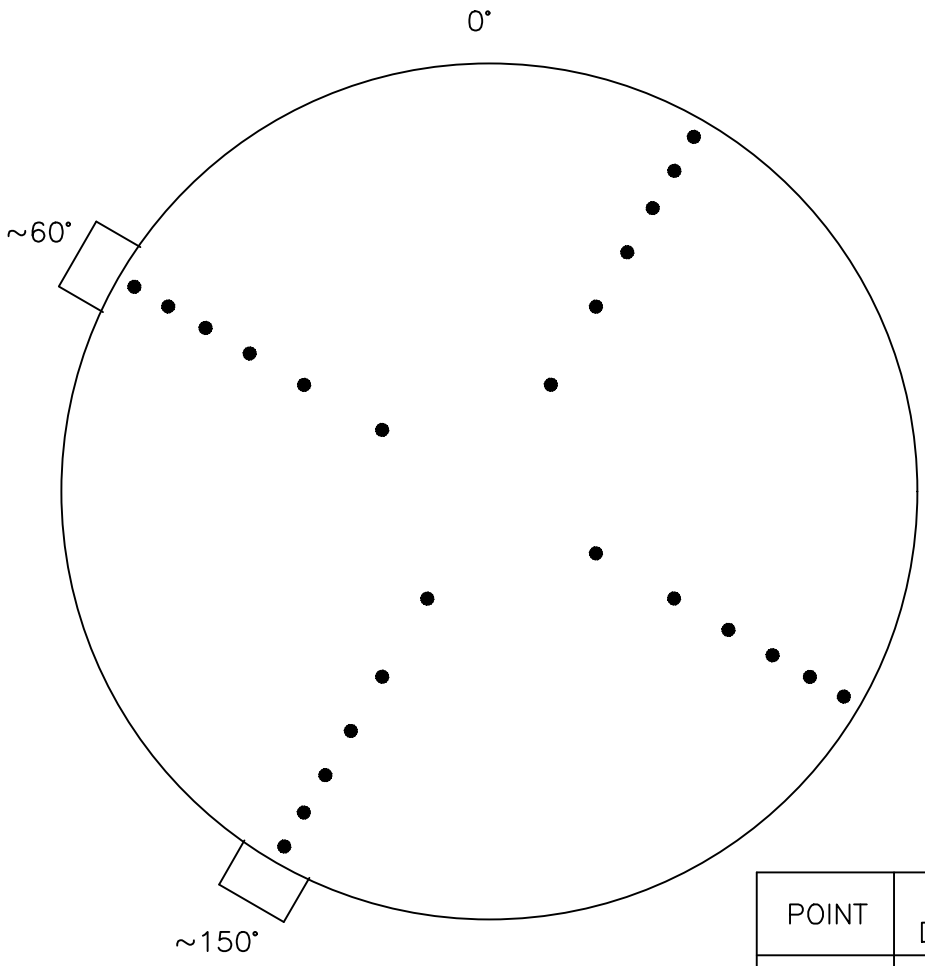


FIGURE 3

TEST PORT LOCATIONS
RTO PCE01 INLET

NOT TO SCALE

SAINT GOBAIN PERFORMANCE PLASTICS
MERRIMACK, NEW HAMPSHIRE



NO. OF TEST PORTS	2
PORT LENGTH	2.25"
PORT DIAMETER	4"
NO. OF TRAVERSE POINTS	24
DUCT DIAMETER	60.00"

POINT	INSERTION DEPTH IN "
1	1.28
2	4.02
3	7.09
4	10.64
5	15.00
6	21.34
7	38.66
8	45.00
9	49.36
10	52.91
11	55.98
12	58.72

FIGURE 4

TRAVERSE POINT LOCATIONS
RTO PCE01 INLET

NOT TO SCALE

Appendices

Appendix A

Report Calculations and Nomenclature

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 22, 2022

Determination of Volumetric Air Flow Rate, Gas Composition, Moisture Content, Meter Volume and Isokinetic Sampling
EPA Methods 2, 3, 4 and Isokinetics by Method OTM 45
RTO Outlet (PCE01)

Input Data	Symbol	Units	Run 2	Run 3	Run 4
Test Date	-	-	8/24/2022	8/25/2022	8/25/2022
Test Period	-	-	1323 - 1631	808 - 1115	1241 - 1547
Number of Sample Ports	-	-	2	2	2
Number of Traverse Points	-	-	24	24	24
Duct Dimensions (diameter or Length x Width)	D, L X W	inches	71.00	71.00	71.00
Barometric Pressure	Pbar	in. Hg	29.60	29.75	29.75
Stack Static Pressure	Pg	in. H_2O	-0.46	-0.46	-0.46
Average Stack Temperature	Tsf	degrees F	352	361	358
Actual Dry Gas Meter Volume	Vm	cubic feet	127.59	125.26	124.83
Dry Gas Meter Calibration Factor	Y	-	1.0053	1.0053	1.0053
Average Orifice Meter Pressure Drop	DH	in H_2O	1.77	1.71	1.70
Average Meter Temperature	Tmf	degrees F	78	74	78
Pitot Tube Coefficient	Cp	-	0.84	0.84	0.84
Average Square Root of Velocity Head	(DP)^0.5	-	0.961	0.960	0.951
Mass of Water Vapor Condensed in Impingers	Vwc	g	70	70	59
Mass of Water Vapor Collected in Desiccant	Vwsg	g	24	27	23
Gas Composition, Dry Basis					
Oxygen	$\%O_2$	%v/v	19.8	19.8	19.8
Carbon Dioxide	$\%CO_2$	%v/v	0.6	0.7	0.7
Nitrogen + Carbon Monoxide (by difference)	$\%N_2$ + %CO	%v/v	79.6	79.5	79.5
Nozzle Diameter	Dn	inches	0.225	0.225	0.225
Run Time	theta	minutes	180	180	180

Calculated Data	Symbol	Units	Run 2	Run 3	Run 4
Average Absolute Stack Temperature Tsr = Tsf + 460	Tsr	degrees R	812	821	818
Stack Pressure Ps = Pbar + Pg / 13.6	Ps	in. Hg	29.57	29.72	29.72
Duct Area A = PI x D^2 / (4 x 144) or A = L x W / 144	A	Sq. ft	27.494	27.494	27.494
Meter Volume at Standard Conditions Vmstd = 17.64 x Vm x Y x ((Pbar + (DH / 13.6)) / (Tmf + 460))	Vmstd-ft3	cubic feet	125.08	124.17	123.03
Meter Volume at Standard Conditions Vmstd-m3 = Vmstd-ft3 x 0.02832	Vmstd-m3	cubic meter	3.54	3.52	3.48
Average Moisture Content of Stack Gas MC = ((0.04175 x Vwc + 0.04715 x Vwsg) / ((0.04715 x Vwc + 0.04715 x Vwsg) + (Vmstd)) x 100	MC	% Vol	3.43	3.52	3.05
Molecular Weight of Stack Gas, dry Md = (0.44 x $\%CO_2$) + (0.32 x $\%O_2$) + (0.28 x ($\%N_2$ + %CO))	Md	lb/lbmol	28.89	28.90	28.90
Molecular Weight of Stack Gas, wet Ms = Md x (1-(MC/100))+18 x (MC/100)	Ms	lb/lbmol	28.51	28.52	28.57
Average Stack Gas Velocity Vs = 85.49 x Cp x (dP)^0.5 x ((Tsr/(Ps x Ms))^0.5)	Vs	ft/sec	67.72	67.86	67.03
Actual Volumetric Air Flow Rate Qa = 60 x Vs x A	Qa	acfm	111,722	111,945	110,572
Volumetric Air Flow Rate at Standard Conditions Qs = Qa x (528 / (Ts + 460)) x (Ps / 29.92)	Qs	scfm	71,814	71,529	70,871
Dry Volumetric Air Flow Rate at Standard Conditions Qd = Qa x (1 - (MC / 100)) x (528 / Tsr) x (Ps / 29.92)	Qd	dscfm	69,349	69,013	68,711
Nozzle Cross-Sectional Area An =(3.14 x Dn^2) /(4 x 144)	An	sq. ft	0.000276	0.000276	0.000276
Isokinetic Variation I = (0.0945 x Tsr x Vmstd) / (Ps x Vs x An x theta x (1 - (MC / 100)))	I	%	99.9	99.6	99.1

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 24, 2022

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Outlet (PCE01)

	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Test Date	-	-	8/24/2022		8/25/2022		8/25/2022		--	
Test Period	-	-	1323 - 1631		808 - 1115		1241 - 1547		--	
Run Time	theta	min	180		180		180		180	
Meter Volume at Standard Conditions Vmstd	Vmstd-ft3	cubic feet	125.08		124.17		123.03		124.09	
Meter Volume at Standard Conditions Vmstd	Vmstd-m3	cubic meter	3.54		3.52		3.48		3.51	
Dry Volumetric Air Flow Rate at Standard Conditions (M2,M4, ISO Calcs)	Qd	DSCFM	69,349		69,013		68,711		69,024	
Pollutant Total Sample Mass, ng										
Perfluorobutanoic acid (PFBA)	Poll-Mass	ng	7.5	ND B M Cl	20.4	ND B M Cl	17.2	ND J B M Cl	15.0	ND J B M Cl
Perfluoropentanoic acid (PFPeA)	Poll-Mass	ng	10.52	ND z	48.22	J z	23.9	ND J z	27.6	ND J z
Perfluorohexanoic acid (PFHxA)	Poll-Mass	ng	19.02	ND z	19.53	J z	18.9	ND J z	19.1	ND J z
Perfluoroheptanoic acid (PFHpA)	Poll-Mass	ng	6.45	ND	16.79	ND	8.9	ND	10.7	ND
Perfluorooctanoic acid (PFOA)	Poll-Mass	ng	33.0	ND xyz	34.8	ND xz	35.9	ND J xz	34.6	ND J xyz
Perfluorononanoic acid (PFNA)	Poll-Mass	ng	4.38	ND J I	14.26	ND J I	8.52	ND J I	9.05	ND J I
Perfluorodecanoic acid (PFDA)	Poll-Mass	ng	3.28	ND	6.28	ND	4.38	ND J	4.65	ND J
Perfluoroundecanoic acid (PFUnA)	Poll-Mass	ng	3.23	ND	0.3	ND J R	12.1	ND J	5.2	ND J R
Perfluorododecanoic acid (PFDoA)	Poll-Mass	ng	0.17	ND J R	0.20	ND J R	0.42	ND J R	0.26	ND J R
Perfluorotridecanoic acid (PFTriA)	Poll-Mass	ng	0.322	ND J R	0.81	ND J R	1.55	ND R	0.89	ND J R
Perfluorotetradecanoic acid (PFTeA)	Poll-Mass	ng	0.269	ND J R	0.55	ND J R	0.89	ND J R	0.57	ND J R
Perfluorobutanesulfonic acid (PFBS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	Poll-Mass	ng	0.61	A ND J xyz	1.22	ND J I xyz	0.57	ND J I xyz	0.80	A ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	Poll-Mass	ng	0.301	ND J	0	ND J R	0	ND	0.100	ND J R
Perfluoropentanesulfonic acid (PFPeS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Poll-Mass	ng	0	ND	0	ND J	0	ND	0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Poll-Mass	ng	0.57	ND J	0	ND J R	0.37	ND J	0.31	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	Poll-Mass	ng	6.46	ND B z	57.2	ND B z	56.5	ND B z	40.1	ND B
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	Poll-Mass	ng	0	ND	0	ND R	0	ND	0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	Poll-Mass	ng	0	ND NR	0	ND R	0	ND R	0	ND NR R
Perfluoro-n-octadecanoic acid (PFODA)	Poll-Mass	ng	0.713	ND J *-*1 R	2.15	ND *-*1 R	2.04	ND *-* 1	1.63	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	Poll-Mass	ng	0	ND R	0	NR ND	0	ND NR	0	ND NR R
N-methylperfluorooctane sulfonamide (NMeFOSA)	Poll-Mass	ng	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	Poll-Mass	ng	0	ND R	0	ND R	0	ND R	0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	Poll-Mass	ng	0.582	ND J R	1.08	ND R	1.68	ND R	1.11	ND J R
Perfluorododecanesulfonic acid (PFDoS)	Poll-Mass	ng	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0.0	ND
10:2 Fluorotelomer carboxylic acid	Poll-Mass	ng	0	ND	0	ND R	0	ND	0	ND R
6:2 Fluorotelomer carboxylic acid	Poll-Mass	ng	4.80	ND	3.17	ND	4.40	ND	4.12	ND
7:3 Fluorotelomer carboxylic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0.0	ND
6:2 Fluorotelemer unsaturated acid	Poll-Mass	ng	1.78	ND	1.38	ND	1.42	ND	1.53	ND
8:2 Fluorotelomer carboxylic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
8:2 Fluorotelemer unsaturated acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	Poll-Mass	ng	0	ND *+	0	ND *+	0	ND *+	0	ND *+
3-Perfluoropropylpropanoic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	Poll-Mass	ng	4.60	ND Cl J	1.42	ND J	0.81	ND J	2.28	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Outlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Concentration, pg/M3 =Total Train mass, ng x 1000/Vstd-M3										
Perfluorobutanoic acid (PFBA)	Conc	pg/M3	2106	ND B M Cl	5801	ND B M Cl	4934	ND J B M Cl	4280	ND J B M Cl
Perfluoropentanoic acid (PFPeA)	Conc	pg/M3	2970	ND z	13714	J z	6868	ND J z	7850	ND J z
Perfluorohexanoic acid (PFHxA)	Conc	pg/M3	5369	ND z	5553	J z	5416	ND J z	5446	ND J z
Perfluoroheptanoic acid (PFHpA)	Conc	pg/M3	1820	ND	4775	ND	2554	ND	3050	ND
Perfluorooctanoic acid (PFOA)	Conc	pg/M3	9324	ND xyz	9892	ND xz	10313	ND J xz	9843	ND J xyz
Perfluorononanoic acid (PFNA)	Conc	pg/M3	1236	ND J I	4056	ND J I	2444	ND J I	2579	ND J I
Perfluorodecanoic acid (PFDA)	Conc	pg/M3	926	ND	1786	ND	1258	ND J	1323	ND J
Perfluoroundecanoic acid (PFUnA)	Conc	pg/M3	912	ND	72	ND J R	3477	ND J	1487	ND J R
Perfluorododecanoic acid (PFDoA)	Conc	pg/M3	47	ND J R	58	ND J R	120	ND J R	75	ND J R
Perfluorotridecanoic acid (PFTriA)	Conc	pg/M3	91	ND J R	229	ND J R	445	ND R	255	ND J R
Perfluorotetradecanoic acid (PFTeA)	Conc	pg/M3	76	ND J R	155	ND J R	256	ND J R	162	ND J R
Perfluorobutanesulfonic acid (PFBS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	Conc	pg/M3	171	A ND J xyz	348	ND J I xyz	164	ND J I xyz	228	A ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	Conc	pg/M3	85	ND J	0	ND J R	0	ND	28	ND J R
Perfluoropentanesulfonic acid (PFPeS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Conc	pg/M3	0	ND	0	ND J	0	ND	0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Conc	pg/M3	161	ND J	0	ND J R	105	ND J	89	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	Conc	pg/M3	1824	ND B z	16266	ND B z	16216	ND B z	11435	ND B
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	Conc	pg/M3	0	ND	0	ND R	0	ND	0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	Conc	pg/M3	0	ND NR	0	ND R	0	ND R	0	ND NR R
Perfluoro-n-octadecanoic acid (PFODA)	Conc	pg/M3	201	ND J *-*1 R	611	ND *-*1 R	586	ND *-* 1	466	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	Conc	pg/M3	0	ND R	0	NR ND	0	ND NR	0	ND NR R
N-methylperfluorooctane sulfonamide (NMeFOSA)	Conc	pg/M3	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	Conc	pg/M3	0	ND R	0	ND R	0	ND R	0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	Conc	pg/M3	164	ND J R	307	ND R	482	ND R	318	ND J R
Perfluorododecanesulfonic acid (PFDoS)	Conc	pg/M3	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	Conc	pg/M3	0	ND	0	ND R	0	ND	0	ND R
6:2 Fluorotelomer carboxylic acid	Conc	pg/M3	1355	ND	901	ND	1263	ND	1173	ND
7:3 Fluorotelomer carboxylic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	Conc	pg/M3	503	ND	392	ND	408	ND	434	ND
8:2 Fluorotelomer carboxylic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
8:2 Fluorotelemer unsaturated acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	Conc	pg/M3	0	ND *+	0	ND *+	0	ND *+	0	ND *+
3-Perfluoropropylpropanoic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	Conc	pg/M3	1299	ND Cl J	404	ND J	232	ND J	645	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Outlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Concentration, lb/dscf =Total Train mass, ng x 2.2046e-12/Vstd-ft3										
Perfluorobutanoic acid (PFBA)	Conc	lb/dscf	1.31E-13	ND B M Cl	3.62E-13	ND B M Cl	3.08E-13	ND J B M Cl	2.67E-13	ND J B M Cl
Perfluoropentanoic acid (PFPeA)	Conc	lb/dscf	1.85E-13	ND z	8.56E-13	J z	4.29E-13	ND J z	4.90E-13	ND J z
Perfluorohexanoic acid (PFHxA)	Conc	lb/dscf	3.35E-13	ND z	3.47E-13	J z	3.38E-13	ND J z	3.40E-13	ND J z
Perfluoroheptanoic acid (PFHpA)	Conc	lb/dscf	1.14E-13	ND	2.98E-13	ND	1.59E-13	ND	1.90E-13	ND
Perfluorooctanoic acid (PFOA)	Conc	lb/dscf	5.82E-13	ND xyz	6.18E-13	ND xz	6.44E-13	ND J xz	6.15E-13	ND J xyz
Perfluorononanoic acid (PFNA)	Conc	lb/dscf	7.72E-14	ND J I	2.53E-13	ND J I	1.53E-13	ND J I	1.61E-13	ND J I
Perfluorodecanoic acid (PFDA)	Conc	lb/dscf	5.78E-14	ND	1.115E-13	ND	7.85E-14	ND J	8.26E-14	ND J
Perfluoroundecanoic acid (PFUnA)	Conc	lb/dscf	5.69E-14	ND	4.51E-15	ND J R	2.17E-13	ND J	9.28E-14	ND J R
Perfluorododecanoic acid (PFDoA)	Conc	lb/dscf	2.94E-15	ND J R	3.60E-15	ND J R	7.51E-15	ND J R	4.69E-15	ND J R
Perfluorotridecanoic acid (PFTriA)	Conc	lb/dscf	5.68E-15	ND J R	1.43E-14	ND J R	2.78E-14	ND R	1.59E-14	ND J R
Perfluorotetradecanoic acid (PFTeA)	Conc	lb/dscf	4.74E-15	ND J R	9.68E-15	ND J R	1.60E-14	ND J R	1.01E-14	ND J R
Perfluorobutanesulfonic acid (PFBS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	Conc	lb/dscf	1.07E-14	A ND J xyz	2.17E-14	ND J I xyz	1.02E-14	ND J I xyz	1.42E-14	A ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	Conc	lb/dscf	5.31E-15	ND J	0.00E+00	ND J R	0	ND	1.77E-15	ND J R
Perfluoropentanesulfonic acid (PFPeS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Conc	lb/dscf	0	ND	0	ND J	0	ND	0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Conc	lb/dscf	1.00E-14	ND J	0.00E+00	ND J R	6.58E-15	ND J	5.54E-15	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	Conc	lb/dscf	1.14E-13	ND B z	1.02E-12	ND B z	1.01E-12	ND B z	7.14E-13	ND B
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	Conc	lb/dscf	0	ND	0	ND R	0	ND	0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	Conc	lb/dscf	0	ND NR	0	ND R	0	ND R	0	ND NR R
Perfluoro-n-octadecanoic acid (PFODA)	Conc	lb/dscf	1.26E-14	ND J *-*1 R	3.82E-14	ND *-*1 R	3.66E-14	ND *-* 1	2.91E-14	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	Conc	lb/dscf	0	ND R	0	NR ND	0	ND NR	0	ND NR R
N-methylperfluorooctane sulfonamide (NMeFOSA)	Conc	lb/dscf	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	Conc	lb/dscf	0	ND R	0	ND R	0	ND R	0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	Conc	lb/dscf	1.03E-14	ND J R	1.92E-14	ND R	3.01E-14	ND R	1.98E-14	ND J R
Perfluorododecanesulfonic acid (PFDoS)	Conc	lb/dscf	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	Conc	lb/dscf	0	ND	0	ND R	0	ND	0	ND R
6:2 Fluorotelomer carboxylic acid	Conc	lb/dscf	8.46E-14	ND	5.63E-14	ND	7.88E-14	ND	7.32E-14	ND
7:3 Fluorotelomer carboxylic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	Conc	lb/dscf	3.14E-14	ND	2.45E-14	ND	2.54E-14	ND	2.71E-14	ND
8:2 Fluorotelomer carboxylic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
8:2 Fluorotelemer unsaturated acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	Conc	lb/dscf	0	ND *+	0	ND *+	0	ND *+	0	ND *+
3-Perfluoropropylpropanoic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	Conc	lb/dscf	8.11E-14	ND CI J	2.52E-14	ND J	1.45E-14	ND J	4.03E-14	ND CI J
Perfluoro-4-methoxybutanoic acid (PFMBA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Outlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Emission Rate, lb/hr =Conc lb/dscf x 60 min x Qd										
Perfluorobutanoic acid (PFBA)	ER	lb/hr	5.47E-07	ND B M Cl	1.50E-06	ND B M Cl	1.27E-06	ND J B M Cl	1.11E-06	ND J B M Cl
Perfluoropentanoic acid (PFPeA)	ER	lb/hr	7.72E-07	ND z	3.55E-06	J z	1.77E-06	ND J z	2.03E-06	ND J z
Perfluorohexanoic acid (PFHxA)	ER	lb/hr	1.39E-06	ND z	1.44E-06	J z	1.39E-06	ND J z	1.41E-06	ND J z
Perfluoroheptanoic acid (PFHpA)	ER	lb/hr	4.73E-07	ND	1.23E-06	ND	6.57E-07	ND	7.88E-07	ND
Perfluorooctanoic acid (PFOA)	ER	lb/hr	2.42E-06	ND xyz	2.56E-06	ND xz	2.65E-06	ND J xz	2.54E-06	ND J xyz
Perfluorononanoic acid (PFNA)	ER	lb/hr	3.21E-07	ND J I	1.05E-06	ND J I	6.29E-07	ND J I	6.66E-07	ND J I
Perfluorodecanoic acid (PFDA)	ER	lb/hr	2.41E-07	ND	4.617E-07	ND	3.24E-07	ND J	3.42E-07	ND J
Perfluoroundecanoic acid (PFUnA)	ER	lb/hr	2.37E-07	ND	1.87E-08	ND J R	8.95E-07	ND J	3.84E-07	ND J R
Perfluorododecanoic acid (PFDoA)	ER	lb/hr	1.22E-08	ND J R	1.49E-08	ND J R	3.10E-08	ND J R	1.94E-08	ND J R
Perfluorotridecanoic acid (PFTriA)	ER	lb/hr	2.36E-08	ND J R	5.93E-08	ND J R	1.15E-07	ND R	6.58E-08	ND J R
Perfluorotetradecanoic acid (PFTeA)	ER	lb/hr	1.973E-08	ND J R	4.01E-08	ND J R	6.59E-08	ND J R	4.19E-08	ND J R
Perfluorobutanesulfonic acid (PFBS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	ER	lb/hr	4.44E-08	A ND J xyz	9.00E-08	ND J I xyz	4.22E-08	ND J I xyz	5.88E-08	A ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	ER	lb/hr	2.21E-08	ND J	0.00E+00	ND J R	0	ND	7.36E-09	ND J R
Perfluoropentanesulfonic acid (PFPeS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ER	lb/hr	0	ND	0	ND J	0	ND	0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ER	lb/hr	4.18E-08	ND J	0.00E+00	ND J R	2.71E-08	ND J	2.30E-08	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ER	lb/hr	4.74E-07	ND B z	4.21E-06	ND B z	4.17E-06	ND B z	2.95E-06	ND B
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ER	lb/hr	0	ND	0	ND R	0	ND	0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ER	lb/hr	0	ND NR	0	ND R	0	ND R	0	ND NR R
Perfluoro-n-octadecanoic acid (PFODA)	ER	lb/hr	5.23E-08	ND J *-*1 R	1.58E-07	ND *-*1 R	1.51E-07	ND *-* 1	1.20E-07	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ER	lb/hr	0	ND R	0	NR ND	0	ND NR	0	ND NR R
N-methylperfluorooctane sulfonamide (NMeFOSA)	ER	lb/hr	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ER	lb/hr	0	ND R	0	ND R	0	ND R	0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	ER	lb/hr	4.27E-08	ND J R	7.94E-08	ND R	1.24E-07	ND R	8.21E-08	ND J R
Perfluorododecanesulfonic acid (PFDoS)	ER	lb/hr	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	ER	lb/hr	0	ND	0	ND R	0	ND	0	ND R
6:2 Fluorotelomer carboxylic acid	ER	lb/hr	3.52E-07	ND	2.33E-07	ND	3.25E-07	ND	3.03E-07	ND
7:3 Fluorotelomer carboxylic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	ER	lb/hr	1.31E-07	ND	1.01E-07	ND	1.05E-07	ND	1.12E-07	ND
8:2 Fluorotelomer carboxylic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
8:2 Fluorotelemer unsaturated acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	ER	lb/hr	0	ND *+	0	ND *+	0	ND *+	0	ND *+
3-Perfluoropropylpropanoic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	ER	lb/hr	3.37E-07	ND Cl J	1.05E-07	ND J	5.98E-08	ND J	1.67E-07	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Outlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Emission Rate, lb/yr =Pollutant ER lb/hr x 8760 hours/year										
Perfluorobutanoic acid (PFBA)	ER	lb/yr	0.005	ND B M Cl	0.013	ND B M Cl	0.011	ND J B M Cl	0.010	ND J B M Cl
Perfluoropentanoic acid (PFPeA)	ER	lb/yr	0.0068	ND z	0.031	J z	0.015	ND J z	0.018	ND J z
Perfluorohexanoic acid (PFHxA)	ER	lb/yr	0.012	ND z	0.013	J z	0.012	ND J z	0.012	ND J z
Perfluoroheptanoic acid (PFHpA)	ER	lb/yr	0.0041	ND	0.011	ND	0.0058	ND	0.0069	ND
Perfluorooctanoic acid (PFOA)	ER	lb/yr	0.021	ND xyz	0.022	ND xz	0.023	ND J xz	0.022	ND J xyz
Perfluorononanoic acid (PFNA)	ER	lb/yr	0.0028	ND J I	0.0092	ND J I	0.0055	ND J I	0.0058	ND J I
Perfluorodecanoic acid (PFDA)	ER	lb/yr	0.0021	ND	0.0040	ND	0.0028	ND J	0.0030	ND J
Perfluoroundecanoic acid (PFUnA)	ER	lb/yr	0.0021	ND	0.000	ND J R	0.0078	ND J	0.0034	ND J R
Perfluorododecanoic acid (PFDoA)	ER	lb/yr	0.0001	ND J R	0.0001	ND J R	0.0003	ND J R	0.0002	ND J R
Perfluorotridecanoic acid (PFTriA)	ER	lb/yr	0.0002	ND J R	0.0005	ND J R	0.0010	ND R	0.0006	ND J R
Perfluorotetradecanoic acid (PFTeA)	ER	lb/yr	0.00017	ND J R	0.00035	ND J R	0.00058	ND J R	0.00037	ND J R
Perfluorobutanesulfonic acid (PFBS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	ER	lb/yr	0.000389	A ND J xyz	0.00079	ND J I xyz	0.00037	ND J I xyz	0.00052	A ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	ER	lb/yr	0.00019	ND J	0.00000	ND J R	0	ND	0.00006	ND J R
Perfluoropentanesulfonic acid (PFPeS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ER	lb/yr	0	ND	0	ND J	0	ND	0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ER	lb/yr	0.00037	ND J	0.00000	ND J R	0.00024	ND J	0.00020	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ER	lb/yr	0.0042	ND B z	0.037	ND B z	0.037	ND B z	0.026	ND B
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ER	lb/yr	0	ND	0	ND R	0	ND	0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ER	lb/yr	0	ND NR	0	ND R	0	ND R	0	ND NR R
Perfluoro-n-octadecanoic acid (PFODA)	ER	lb/yr	0.00046	ND J *-*1 R	0.0014	ND *-*1 R	0.0013	ND *-* 1	0.0011	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ER	lb/yr	0	ND R	0	NR ND	0	ND NR	0	ND NR R
N-methylperfluorooctane sulfonamide (NMeFOSA)	ER	lb/yr	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ER	lb/yr	0	ND R	0	ND R	0	ND R	0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	ER	lb/yr	0.00037	ND J R	0.00070	ND R	0.0011	ND R	0.00072	ND J R
Perfluorododecanesulfonic acid (PFDoS)	ER	lb/yr	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	ER	lb/yr	0	ND	0	ND R	0	ND	0	ND R
6:2 Fluorotelomer carboxylic acid	ER	lb/yr	0.0031	ND	0.0020	ND	0.0028	ND	0.0027	ND
7:3 Fluorotelomer carboxylic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	ER	lb/yr	0.0011	ND	0.00089	ND	0.00092	ND	0.00098	ND
8:2 Fluorotelomer carboxylic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
8:2 Fluorotelemer unsaturated acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	ER	lb/yr	0	ND *+	0	ND *+	0	ND *+	0	ND *+
3-Perfluoropropylpropanoic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	ER	lb/yr	0.0030	ND Cl J	0.00092	ND J	0.00052	ND J	0.0015	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

PFAS Concentrations at Minimum Detection Limit (MDL)
EPA OTM-45

RTO Outlet (PCE01)

Input Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Test Date	-	-	8/24/2022	8/25/2022	8/25/2022	--
Test Period	-	-	1323 - 1631	808 - 1115	1241 - 1547	--
Run Time	theta	min	180	180	180	180
Meter Volume at Standard Conditions Vmstd	Vmstd-ft3	cubic feet	125.08	124.17	123.03	124.09
Meter Volume at Standard Conditions Vmstd	Vmstd-m3	cubic meter	3.54	3.52	3.48	3.51
Pollutant Total Sample Mass at MDL (Sum Fractions 1,2,3), ng						
Perfluorobutanoic acid (PFBA)	MDL	ng	11.0	10.9	11.0	11.0
Perfluoropentanoic acid (PFPeA)	MDL	ng	0.72	0.71	0.72	0.71
Perfluorohexanoic acid (PFHxA)	MDL	ng	0.99	0.96	0.99	0.98
Perfluoroheptanoic acid (PFHpA)	MDL	ng	3.4	3.4	3.4	3.4
Perfluorooctanoic acid (PFOA)	MDL	ng	1.4	1.4	1.4	1.4
Perfluorononanoic acid (PFNA)	MDL	ng	1.0	1.0	1.0	1.0
Perfluorodecanoic acid (PFDA)	MDL	ng	0.55	0.54	0.55	0.54
Perfluoroundecanoic acid (PFUnA)	MDL	ng	0.54	0.53	0.54	0.54
Perfluorododecanoic acid (PFDoA)	MDL	ng	0.29	0.28	0.29	0.29
Perfluorotridecanoic acid (PFTriA)	MDL	ng	0.42	0.41	0.42	0.41
Perfluorotetradecanoic acid (PFTeA)	MDL	ng	0.55	0.54	0.55	0.55
Perfluorobutanesulfonic acid (PFBS)	MDL	ng	1.5	1.5	1.5	1.5
Perfluorohexanesulfonic acid (PFHxS)	MDL	ng	0.45	0.44	0.45	0.44
Perfluoroheptanesulfonic acid (PFHpS)	MDL	ng	0.47	0.45	0.46	0.46
Perfluorooctanesulfonic acid (PFOS)	MDL	ng	0.68	0.68	0.69	0.68
Perfluorodecanesulfonic acid (PFDS)	MDL	ng	0.42	0.41	0.42	0.42
Perfluorooctanesulfonamide (FOSA)	MDL	ng	0.59	0.57	0.59	0.58
Perfluoropentanesulfonic acid (PFPeS)	MDL	ng	0.41	0.40	0.41	0.41
Perfluorononanesulfonic acid (PFNS)	MDL	ng	0.33	0.33	0.33	0.33
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	MDL	ng	0.38	0.37	0.38	0.37
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	MDL	ng	0.43	0.42	0.43	0.43
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	MDL	ng	0.23	0.23	0.23	0.23
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	MDL	ng	12.8	12.8	12.9	12.9
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	MDL	ng	0.48	0.46	0.47	0.47
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	MDL	ng	16.0	15.9	16.0	16.0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	MDL	ng	0.37	0.36	0.37	0.36
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	MDL	ng	0.47	0.46	0.47	0.47
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	MDL	ng	1.43	1.41	1.43	1.42
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	MDL	ng	0.63	0.62	0.63	0.63
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	MDL	ng	0.74	0.72	0.74	0.73
Perfluoro-n-octadecanoic acid (PFODA)	MDL	ng	1.03	1.02	1.03	1.03
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	MDL	ng	24.8	24.8	24.8	24.8
N-methylperfluorooctane sulfonamide (NMeFOSA)	MDL	ng	1.03	1.02	1.03	1.03
N-ethylperfluorooctane sulfonamide (NEtFOSA)	MDL	ng	1.00	0.99	1.00	1.00
Perfluoro-n-hexadecanoic acid (PFHxDA)	MDL	ng	0.77	0.754	0.771	0.77
Perfluorododecanesulfonic acid (PFDoS)	MDL	ng	0.38	0.37	0.38	0.38
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	MDL	ng	0.51	0.49	0.50	0.50
10:2 Fluorotelomer carboxylic acid	MDL	ng	1.34	1.31	1.34	1.33
6:2 Fluorotelomer carboxylic acid	MDL	ng	1.83	1.80	1.83	1.82
7:3 Fluorotelomer carboxylic acid	MDL	ng	1.42	1.37	1.41	1.40
6:2 Fluorotelemer unsaturated acid	MDL	ng	0.46	0.45	0.46	0.46

PFAS Concentrations at Minimum Detection Limit (MDL)
EPA OTM-45

RTO Outlet (PCE01)

Pollutant Total Sample Mass at MDL (Sum Fractions 1,2,3), ng	Symbol	Units	Run 2	Run 3	Run 4	Average
8:2 Fluorotelomer carboxylic acid	MDL	ng	1.17	1.13	1.17	1.15
8:2 Fluorotelemer unsaturated acid	MDL	ng	0.69	0.67	0.69	0.68
5:3 Fluorotelomer carboxylic acid	MDL	ng	1.58	1.55	1.58	1.57
3-Perfluoropropylpropanoic acid	MDL	ng	0.90	0.87	0.90	0.89
Perfluoro-3-methoxypropanoic acid (PFMPA)	MDL	ng	0.47	0.45	0.46	0.46
Perfluoro-4-methoxybutanoic acid (PFMBA)	MDL	ng	0.60	0.57	0.60	0.59
Perfluoro-4-ethylcyclohexanesulfonic acid	MDL	ng	0.58	0.56	0.57	0.57
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	MDL	ng	0.41	0.40	0.41	0.41
Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at MDL, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
Perfluorobutanoic acid (PFBA)	MDL-Conc	pg/M3	3092	3110	3148	3117
Perfluoropentanoic acid (PFPeA)	MDL-Conc	pg/M3	202	202	206	203
Perfluorohexanoic acid (PFHxA)	MDL-Conc	pg/M3	278	274	283	278
Perfluoroheptanoic acid (PFHpA)	MDL-Conc	pg/M3	965	968	983	972
Perfluorooctanoic acid (PFOA)	MDL-Conc	pg/M3	404	404	412	407
Perfluorononanoic acid (PFNA)	MDL-Conc	pg/M3	295	296	300	297
Perfluorodecanoic acid (PFDA)	MDL-Conc	pg/M3	154	153	157	155
Perfluoroundecanoic acid (PFUnA)	MDL-Conc	pg/M3	152	151	155	153
Perfluorododecanoic acid (PFDoA)	MDL-Conc	pg/M3	82	81	83	82
Perfluorotridecanoic acid (PFTriA)	MDL-Conc	pg/M3	118	116	120	118
Perfluorotetradecanoic acid (PFTeA)	MDL-Conc	pg/M3	156	153	158	156
Perfluorobutanesulfonic acid (PFBS)	MDL-Conc	pg/M3	412	414	422	416
Perfluorohexanesulfonic acid (PFHxS)	MDL-Conc	pg/M3	126	125	128	127
Perfluoroheptanesulfonic acid (PFHpS)	MDL-Conc	pg/M3	131	129	133	131
Perfluorooctanesulfonic acid (PFOS)	MDL-Conc	pg/M3	193	192	197	194
Perfluorodecanesulfonic acid (PFDS)	MDL-Conc	pg/M3	119	117	121	119
Perfluorooctanesulfonamide (FOSA)	MDL-Conc	pg/M3	166	161	168	165
Perfluoropentanesulfonic acid (PFPeS)	MDL-Conc	pg/M3	116	115	118	116
Perfluorononanesulfonic acid (PFNS)	MDL-Conc	pg/M3	93	93	95	93
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	MDL-Conc	pg/M3	107	104	108	106
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	MDL-Conc	pg/M3	121	120	123	122
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	MDL-Conc	pg/M3	66	64	67	65
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	MDL-Conc	pg/M3	3624	3649	3698	3657
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	MDL-Conc	pg/M3	134	131	136	134
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	MDL-Conc	pg/M3	4506	4533	4596	4545
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	MDL-Conc	pg/M3	103	102	105	103
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	MDL-Conc	pg/M3	134	132	136	134
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	MDL-Conc	pg/M3	403	402	410	405
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	MDL-Conc	pg/M3	178	176	182	179
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	MDL-Conc	pg/M3	209	204	212	208
Perfluoro-n-octadecanoic acid (PFODA)	MDL-Conc	pg/M3	291	289	296	292
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	MDL-Conc	pg/M3	6995	7046	7128	7057
N-methylperfluorooctane sulfonamide (NMeFOSA)	MDL-Conc	pg/M3	292	291	297	293
N-ethylperfluorooctane sulfonamide (NEtFOSA)	MDL-Conc	pg/M3	283	280	287	283
Perfluoro-n-hexadecanoic acid (PFHxDA)	MDL-Conc	pg/M3	217	214	221	218
Perfluorododecanesulfonic acid (PFDoS)	MDL-Conc	pg/M3	108	106	110	108
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	MDL-Conc	pg/M3	143	139	145	142

PFAS Concentrations at Minimum Detection Limit (MDL)
EPA OTM-45

RTO Outlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at MDL, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
10:2 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	379	372	385	379
6:2 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	517	511	526	518
7:3 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	400	390	405	398
6:2 Fluorotelemer unsaturated acid	MDL-Conc	pg/M3	130	128	132	130
8:2 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	330	321	334	328
8:2 Fluorotelemer unsaturated acid	MDL-Conc	pg/M3	195	189	197	194
5:3 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	447	440	454	447
3-Perfluoropropylpropanoic acid	MDL-Conc	pg/M3	253	247	257	252
Perfluoro-3-methoxypropanoic acid (PFMPA)	MDL-Conc	pg/M3	131	128	133	131
Perfluoro-4-methoxybutanoic acid (PFMBA)	MDL-Conc	pg/M3	169	163	171	167
Perfluoro-4-ethylcyclohexanesulfonic acid	MDL-Conc	pg/M3	162	158	165	162
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	MDL-Conc	pg/M3	116	113	118	116

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

PFAS Concentrations at Reporting Limit (RL)
EPA OTM-45

RTO Outlet (PCE01)

Input Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Test Date	-	-	8/24/2022	8/25/2022	8/25/2022	--
Test Period	-	-	1323 - 1631	808 - 1115	1241 - 1547	--
Run Time	theta	min	180	180	180	180
Meter Volume at Standard Conditions Vmstd	Vmstd-ft3	cubic feet	125.08	124.17	123.03	124.09
Meter Volume at Standard Conditions Vmstd	Vmstd-m3	cubic meter	3.54	3.52	3.48	3.51
Pollutant Total Sample Mass at RL (Sum Fractions 1,2,3), ng						
Perfluorobutanoic acid (PFBA)	RL	ng	12.7	12.6	12.7	12.6
Perfluoropentanoic acid (PFPeA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorohexanoic acid (PFHxA)	RL	ng	2.7	2.6	2.7	2.6
Perfluoroheptanoic acid (PFHpA)	RL	ng	4.7	4.6	4.7	4.6
Perfluorooctanoic acid (PFOA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorononanoic acid (PFNA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorodecanoic acid (PFDA)	RL	ng	2.7	2.6	2.7	2.6
Perfluoroundecanoic acid (PFUnA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorododecanoic acid (PFDoA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorotridecanoic acid (PFTriA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorotetradecanoic acid (PFTeA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorobutanesulfonic acid (PFBS)	RL	ng	2.7	2.6	2.7	2.6
Perfluorohexanesulfonic acid (PFHxS)	RL	ng	2.7	2.6	2.7	2.6
Perfluoroheptanesulfonic acid (PFHpS)	RL	ng	2.7	2.6	2.7	2.6
Perfluorooctanesulfonic acid (PFOS)	RL	ng	2.7	2.6	2.7	2.6
Perfluorodecanesulfonic acid (PFDS)	RL	ng	2.7	2.6	2.7	2.6
Perfluorooctanesulfonamide (FOSA)	RL	ng	2.7	2.6	2.7	2.6
Perfluoropentanesulfonic acid (PFPeS)	RL	ng	2.7	2.6	2.7	2.6
Perfluorononanesulfonic acid (PFNS)	RL	ng	2.7	2.6	2.7	2.6
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	RL	ng	2.7	2.6	2.7	2.6
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	RL	ng	2.7	2.6	2.7	2.6
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	RL	ng	2.7	2.6	2.7	2.6
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	RL	ng	15.6	15.6	15.7	15.6
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	RL	ng	2.7	2.6	2.7	2.6
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	RL	ng	25.6	25.6	25.7	25.6
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	RL	ng	2.7	2.6	2.7	2.6
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	RL	ng	2.7	2.6	2.7	2.6
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	RL	ng	3.7	3.6	3.7	3.6
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	RL	ng	2.7	2.6	2.7	2.6
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	RL	ng	2.7	2.6	2.7	2.6
Perfluoro-n-octadecanoic acid (PFODA)	RL	ng	2.7	2.6	2.7	2.6
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	RL	ng	25.6	25.6	25.7	25.6
N-methylperfluorooctane sulfonamide (NMeFOSA)	RL	ng	2.7	2.6	2.7	2.6
N-ethylperfluorooctane sulfonamide (NEtFOSA)	RL	ng	2.7	2.6	2.7	2.6
Perfluoro-n-hexadecanoic acid (PFHxDA)	RL	ng	2.7	2.6	2.7	2.6
Perfluorododecanesulfonic acid (PFDoS)	RL	ng	2.7	2.6	2.7	2.6
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	RL	ng	2.7	2.6	2.7	2.6
10:2 Fluorotelomer carboxylic acid	RL	ng	2.7	2.6	2.7	2.6
6:2 Fluorotelomer carboxylic acid	RL	ng	2.7	2.6	2.7	2.6
7:3 Fluorotelomer carboxylic acid	RL	ng	2.7	2.6	2.7	2.6

PFAS Concentrations at Reporting Limit (RL)
EPA OTM-45

RTO Outlet (PCE01)

Pollutant Total Sample Mass at RL (Sum Fractions 1,2,3), ng	Symbol	Units	Run 2	Run 3	Run 4	Average
6:2 Fluorotelemer unsaturated acid	RL	ng	2.7	2.6	2.7	2.6
8:2 Fluorotelomer carboxylic acid	RL	ng	2.7	2.6	2.7	2.6
8:2 Fluorotelemer unsaturated acid	RL	ng	2.7	2.6	2.7	2.6
5:3 Fluorotelomer carboxylic acid	RL	ng	2.7	2.6	2.7	2.6
3-Perfluoropropylpropanoic acid	RL	ng	2.7	2.6	2.7	2.6
Perfluoro-3-methoxypropanoic acid (PFMPA)	RL	ng	2.7	2.6	2.7	2.6
Perfluoro-4-methoxybutanoic acid (PFMBA)	RL	ng	2.7	2.6	2.7	2.6
Perfluoro-4-ethylcyclohexanesulfonic acid	RL	ng	2.7	2.6	2.7	2.6
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	RL	ng	2.7	2.6	2.7	2.6
Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at Reporting Limit, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
Perfluorobutanoic acid (PFBA)	RL - Conc	pg/M3	3574	3583	3636	3598
Perfluoropentanoic acid (PFPeA)	RL - Conc	pg/M3	753	742	766	754
Perfluorohexanoic acid (PFHxA)	RL - Conc	pg/M3	753	742	766	754
Perfluoroheptanoic acid (PFHpA)	RL - Conc	pg/M3	1318	1311	1340	1323
Perfluorooctanoic acid (PFOA)	RL - Conc	pg/M3	753	742	766	754
Perfluorononanoic acid (PFNA)	RL - Conc	pg/M3	753	742	766	754
Perfluorodecanoic acid (PFDA)	RL - Conc	pg/M3	753	742	766	754
Perfluoroundecanoic acid (PFUnA)	RL - Conc	pg/M3	753	742	766	754
Perfluorododecanoic acid (PFDoA)	RL - Conc	pg/M3	753	742	766	754
Perfluorotridecanoic acid (PFTriA)	RL - Conc	pg/M3	753	742	766	754
Perfluorotetradecanoic acid (PFTeA)	RL - Conc	pg/M3	753	742	766	754
Perfluorobutanesulfonic acid (PFBS)	RL - Conc	pg/M3	753	742	766	754
Perfluorohexanesulfonic acid (PFHxS)	RL - Conc	pg/M3	753	742	766	754
Perfluoroheptanesulfonic acid (PFHpS)	RL - Conc	pg/M3	753	742	766	754
Perfluorooctanesulfonic acid (PFOS)	RL - Conc	pg/M3	753	742	766	754
Perfluorodecanesulfonic acid (PFDS)	RL - Conc	pg/M3	753	742	766	754
Perfluorooctanesulfonamide (FOSA)	RL - Conc	pg/M3	753	742	766	754
Perfluoropentanesulfonic acid (PFPeS)	RL - Conc	pg/M3	753	742	766	754
Perfluorononanesulfonic acid (PFNS)	RL - Conc	pg/M3	753	742	766	754
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	RL - Conc	pg/M3	753	742	766	754
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	RL - Conc	pg/M3	753	742	766	754
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	RL - Conc	pg/M3	753	742	766	754
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	RL - Conc	pg/M3	4410	4428	4497	4445
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	RL - Conc	pg/M3	753	742	766	754
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	RL - Conc	pg/M3	7233	7271	7368	7291
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	RL - Conc	pg/M3	753	742	766	754
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	RL - Conc	pg/M3	753	742	766	754
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	RL - Conc	pg/M3	1035	1027	1053	1038
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	RL - Conc	pg/M3	753	742	766	754
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	RL - Conc	pg/M3	753	742	766	754
Perfluoro-n-octadecanoic acid (PFODA)	RL - Conc	pg/M3	753	742	766	754
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	RL - Conc	pg/M3	7233	7271	7368	7291
N-methylperfluorooctane sulfonamide (NMeFOSA)	RL - Conc	pg/M3	753	742	766	754
N-ethylperfluorooctane sulfonamide (NEtFOSA)	RL - Conc	pg/M3	753	742	766	754
Perfluoro-n-hexadecanoic acid (PFHxDA)	RL - Conc	pg/M3	753	742	766	754
Perfluorododecanesulfonic acid (PFDoS)	RL - Conc	pg/M3	753	742	766	754
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	RL - Conc	pg/M3	753	742	766	754

PFAS Concentrations at Reporting Limit (RL)
EPA OTM-45

RTO Outlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at Reporting Limit, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
10:2 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	753	742	766	754
6:2 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	753	742	766	754
7:3 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	753	742	766	754
6:2 Fluorotelemer unsaturated acid	RL - Conc	pg/M3	753	742	766	754
8:2 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	753	742	766	754
8:2 Fluorotelemer unsaturated acid	RL - Conc	pg/M3	753	742	766	754
5:3 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	753	742	766	754
3-Perfluoropropylpropanoic acid	RL - Conc	pg/M3	753	742	766	754
Perfluoro-3-methoxypropanoic acid (PFMPA)	RL - Conc	pg/M3	753	742	766	754
Perfluoro-4-methoxybutanoic acid (PFMBA)	RL - Conc	pg/M3	753	742	766	754
Perfluoro-4-ethylcyclohexanesulfonic acid	RL - Conc	pg/M3	753	742	766	754
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	RL - Conc	pg/M3	753	742	766	754

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 22, 2022

Determination of Volumetric Air Flow Rate, Gas Composition, Moisture Content, Meter Volume and Isokinetic Sampling
EPA Methods 2, 3, 4 and Isokinetics by Method OTM 45
RTO Inlet (PCE01)

Input Data	Symbol	Units	Run 2	Run 3	Run 4
Test Date	-	-	8/24/2022	8/25/2022	8/25/2022
Test Period	-	-	1323 - 1631	808 - 1115	1241 - 1547
Number of Sample Ports	-	-	2	2	2
Number of Traverse Points	-	-	24	24	24
Duct Dimensions (diameter or Length x Width)	D, L X W	inches	60.00	60.00	60.00
Barometric Pressure	Pbar	in. Hg	29.60	29.75	29.75
Stack Static Pressure	Pg	in. H_2O	-3.00	-3.00	-3.00
Average Stack Temperature	Tsf	degrees F	222	225	222
Actual Dry Gas Meter Volume	Vm	cubic feet	118.77	115.95	119.93
Dry Gas Meter Calibration Factor	Y	-	0.9902	0.9902	0.9902
Average Orifice Meter Pressure Drop	DH	in H_2O	1.35	1.29	1.38
Average Meter Temperature	Tmf	degrees F	76	73	77
Pitot Tube Coefficient	Cp	-	0.84	0.84	0.84
Average Square Root of Velocity Head	(DP)^0.5	-	1.072	1.062	1.091
Mass of Water Vapor Condensed in Impingers	Vwc	g	48	39	41
Mass of Water Vapor Collected in Desiccant	Vwsg	g	21	27	23
Gas Composition, Dry Basis					
Oxygen	$\%O_2$	%v/v	20.2	20.3	20.3
Carbon Dioxide	$\%CO_2$	%v/v	0.2	0.2	0.1
Nitrogen + Carbon Monoxide (by difference)	$\%N_2$ + %CO	%v/v	79.6	79.5	79.6
Nozzle Diameter	Dn	inches	0.195	0.195	0.195
Run Time	theta	minutes	180	180	180

Calculated Data	Symbol	Units	Run 2	Run 3	Run 4
Average Absolute Stack Temperature Tsr = Tsf + 460	Tsr	degrees R	682	685	682
Stack Pressure Ps = Pbar + Pg / 13.6	Ps	in. Hg	29.38	29.53	29.53
Duct Area A = PI x D^2 / (4 x 144) or A = L x W / 144	A	Sq. ft	19.635	19.635	19.635
Meter Volume at Standard Conditions Vmstd = 17.64 x Vm x Y x ((Pbar + (DH / 13.6)) / (Tmf + 460))	Vmstd-ft3	cubic feet	114.87	113.46	116.53
Meter Volume at Standard Conditions Vmstd-m3 = Vmstd-ft3 x 0.02832	Vmstd-m3	cubic meter	3.25	3.21	3.30
Average Moisture Content of Stack Gas MC = ((0.04175 x Vwc + 0.04715 x Vwsg) / ((0.04715 x Vwc + 0.04715 x Vwsg) + (Vmstd)) x 100	MC	% Vol	2.78	2.68	2.52
Molecular Weight of Stack Gas, dry Md = (0.44 x $\%CO_2$) + (0.32 x $\%O_2$) + (0.28 x ($\%N_2$ + %CO))	Md	lb/lbmol	28.84	28.84	28.83
Molecular Weight of Stack Gas, wet Ms = Md x (1-(MC/100))+18 x (MC/100)	Ms	lb/lbmol	28.54	28.55	28.55
Average Stack Gas Velocity Vs = 85.49 x Cp x (dP)^0.5 x ((Tsr/(Ps x Ms))^0.5)	Vs	ft/sec	69.45	68.70	70.46
Actual Volumetric Air Flow Rate Qa = 60 x Vs x A	Qa	acfm	81,813	80,935	83,010
Volumetric Air Flow Rate at Standard Conditions Qs = Qa x (528 / (Ts + 460)) x (Ps / 29.92)	Qs	scfm	62,157	61,585	63,473
Dry Volumetric Air Flow Rate at Standard Conditions Qd = Qa x (1 - (MC / 100)) x (528 / Tsr) x (Ps / 29.92)	Qd	dscfm	60,428	59,934	61,871
Nozzle Cross-Sectional Area An =(3.14 x Dn^2) /(4 x 144)	An	sq. ft	0.000207	0.000207	0.000207
Isokinetic Variation I = (0.0945 x Tsr x Vmstd) / (Ps x Vs x An x theta x (1 - (MC / 100)))	I	%	100.1	99.6	99.1

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 24, 2022

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Inlet (PCE01)

	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Test Date	-	-	8/24/2022		8/25/2022		8/25/2022		--	
Test Period	-	-	1323 - 1631		808 - 1115		1241 - 1547		--	
Run Time	theta	min	180		180		180		180	
Meter Volume at Standard Conditions Vmstd	Vmstd-ft3	cubic feet	114.87		113.46		116.53		114.95	
Meter Volume at Standard Conditions Vmstd	Vmstd-m3	cubic meter	3.25		3.21		3.30		3.26	
Dry Volumetric Air Flow Rate at Standard Conditions (M2,M4, ISO Calcs)	Qd	DSCFM	60,428		59,934		61,871		60,744	
Pollutant Total Sample Mass, ng										
Perfluorobutanoic acid (PFBA)	Poll-Mass	ng	339.40	A ND B z	334.90	ND B z	433.10	ND B z	369.13	A ND B z
Perfluoropentanoic acid (PFPeA)	Poll-Mass	ng	574.83	J z	739.54	J z	911.54	J z	741.97	J z
Perfluorohexanoic acid (PFHxA)	Poll-Mass	ng	169.28	J z	157.41	J z	202.20	J z	176.30	J z
Perfluoroheptanoic acid (PFHpA)	Poll-Mass	ng	172.24	ND	172.19	ND	238.45	ND	194.29	ND
Perfluorooctanoic acid (PFOA)	Poll-Mass	ng	143.39	ND xyz	148.98	ND J xyz	179.47	ND xyz	157.28	ND J xyz
Perfluorononanoic acid (PFNA)	Poll-Mass	ng	61.04	J	122.40	ND J	97.40	ND J	93.61	ND J
Perfluorodecanoic acid (PFDA)	Poll-Mass	ng	20.80	ND	44.20	ND	33.20	ND	32.73	ND
Perfluoroundecanoic acid (PFUnA)	Poll-Mass	ng	25.60	ND	228.25	ND J	113.12	ND J I	122.32	ND J I
Perfluorododecanoic acid (PFDoA)	Poll-Mass	ng	17.54	ND J	38.79	ND J	29.87	ND J	28.73	ND J
Perfluorotridecanoic acid (PFTriA)	Poll-Mass	ng	6.92	ND J	53.46	ND J	46.89	ND J	35.76	ND J
Perfluorotetradecanoic acid (PFTeA)	Poll-Mass	ng	0.74	ND J I R	1.36	ND I CI R	1.35	ND I CI R	1.15	ND J I CI R
Perfluorobutanesulfonic acid (PFBS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	Poll-Mass	ng	0	ND	0.133	ND J	0	ND	0.044	ND J
Perfluoroheptanesulfonic acid (PFHpS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	Poll-Mass	ng	1.18	ND J I xyz	3.80	ND I J xy	0.56	ND J I xyz	1.85	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	Poll-Mass	ng	0	ND R	0	ND R	0	ND	0	ND R
Perfluoropentanesulfonic acid (PFPeS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Poll-Mass	ng	0	ND	0	ND	1.96	ND J	0.65	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	Poll-Mass	ng	0	ND	7.90	ND	4.07	ND J	3.99	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	Poll-Mass	ng	35	ND B z	304	ND J B z	302	ND J B z	214	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0.0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	Poll-Mass	ng	9.24	ND CI R	0.718	ND J R	0.731	ND J R	3.56	ND CI J R
Perfluoro-n-octadecanoic acid (PFODA)	Poll-Mass	ng	0.397	ND J *-*1 R	0.758	ND J *-*1 R	0.506	ND J *-*1 R	0.554	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	Poll-Mass	ng	0	ND NR	0	ND NR	0	ND NR	0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	Poll-Mass	ng	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	Poll-Mass	ng	0.564	ND J R	0	ND R	0	ND R	0	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	Poll-Mass	ng	0.461	ND J R	0.631	ND J R	0.545	ND J R	0.546	ND J R
Perfluorododecanesulfonic acid (PFDoS)	Poll-Mass	ng	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelomer carboxylic acid	Poll-Mass	ng	11.8	ND	0	ND	0	ND	3.93	ND
7:3 Fluorotelomer carboxylic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0.0	ND
6:2 Fluorotelemer unsaturated acid	Poll-Mass	ng	6.87	ND J	3.94	ND J	6.00	ND J	5.60	ND J
8:2 Fluorotelomer carboxylic acid	Poll-Mass	ng	14.1	ND I	0	ND	0	ND	4.70	ND I
8:2 Fluorotelemer unsaturated acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	Poll-Mass	ng	8.29	ND J I *+	0	ND *+	22.9	ND *+ CI	10.4	ND J I *+ CI
3-Perfluoropropylpropanoic acid	Poll-Mass	ng	109.7	ND	65.6	ND	156.2	ND	110.5	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	Poll-Mass	ng	20.8	ND CI J	7.4	ND J	6.6	ND J	11.6	ND CI J
Perfluoro-4-methoxybutanoic acid (PFMBA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	Poll-Mass	ng	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Inlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Concentration, pg/M3 =Total Train mass, ng x 1000/Vstd-M3										
Perfluorobutanoic acid (PFBA)	Conc	pg/M3	104332	A ND B z	104227	ND B z	131235	ND B z	113265	A ND B z
Perfluoropentanoic acid (PFPeA)	Conc	pg/M3	176704	J z	230159	J z	276209	J z	227691	J z
Perfluorohexanoic acid (PFHxA)	Conc	pg/M3	52037	J z	48987	J z	61270	J z	54098	J z
Perfluoroheptanoic acid (PFHpA)	Conc	pg/M3	52947	ND	53589	ND	72253	ND	59596	ND
Perfluorooctanoic acid (PFOA)	Conc	pg/M3	44078	ND xyz	46366	ND J xyz	54382	ND xyz	48275	ND J xyz
Perfluorononanoic acid (PFNA)	Conc	pg/M3	18763	J	38094	ND J	29512	ND J	28790	ND J
Perfluorodecanoic acid (PFDA)	Conc	pg/M3	6394	ND	13756	ND	10060	ND	10070	ND
Perfluoroundecanoic acid (PFUnA)	Conc	pg/M3	7869	ND	71037	ND J	34277	ND J I	37728	ND J I
Perfluorododecanoic acid (PFDoA)	Conc	pg/M3	5391	ND J	12072	ND J	9051	ND J	8838	ND J
Perfluorotridecanoic acid (PFTriA)	Conc	pg/M3	2126	ND J	16638	ND J	14209	ND J	10991	ND J
Perfluorotetradecanoic acid (PFTeA)	Conc	pg/M3	226	ND J I R	423	ND I Cl R	409	ND I Cl R	353	ND J I Cl R
Perfluorobutanesulfonic acid (PFBS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	Conc	pg/M3	0	ND	41	ND J	0	ND	14	ND J
Perfluoroheptanesulfonic acid (PFHpS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	Conc	pg/M3	362	ND J I xyz	1183	ND I J xy	170	ND J I xyz	571	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	Conc	pg/M3	0	ND R	0	ND R	0	ND	0	ND R
Perfluoropentanesulfonic acid (PFPeS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Conc	pg/M3	0	ND	0	ND	594	ND J	198	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	Conc	pg/M3	0	ND	2459	ND	1233	ND J	1231	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	Conc	pg/M3	10759	ND B z	94611	ND J B z	91510	ND J B z	65627	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	Conc	pg/M3	2840	ND Cl R	223	ND J R	222	ND J R	1095	ND Cl J R
Perfluoro-n-octadecanoic acid (PFODA)	Conc	pg/M3	122	ND J *-*1 R	236	ND J *-*1 R	153	ND J *-*1 R	170	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	Conc	pg/M3	0	ND NR	0	ND NR	0	ND NR	0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	Conc	pg/M3	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	Conc	pg/M3	173	ND J R	0	ND R	0	ND R	58	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	Conc	pg/M3	142	ND J R	196	ND J R	165	ND J R	168	ND J R
Perfluorododecanesulfonic acid (PFDoS)	Conc	pg/M3	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelomer carboxylic acid	Conc	pg/M3	3627	ND	0	ND	0	ND	1209	ND
7:3 Fluorotelomer carboxylic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	Conc	pg/M3	2112	ND J	1226	ND J	1818	ND J	1719	ND J
8:2 Fluorotelomer carboxylic acid	Conc	pg/M3	4334	ND I	0	ND	0	ND	1445	ND I
8:2 Fluorotelemer unsaturated acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	Conc	pg/M3	2548	ND J I *+	0	ND *+	6939	ND *+ Cl	3162	ND J I *+ Cl
3-Perfluoropropylpropanoic acid	Conc	pg/M3	33710	ND	20408	ND	47319	ND	33812	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	Conc	pg/M3	6382	ND Cl J	2312	ND J	2012	ND J	3569	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	Conc	pg/M3	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Inlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Concentration, lb/dscf =Total Train mass, ng x 2.2046e-12/Vstd-ft3										
Perfluorobutanoic acid (PFBA)	Conc	lb/dscf	6.51E-12	A ND B z	6.51E-12	ND B z	8.19E-12	ND B z	7.07E-12	A ND B z
Perfluoropentanoic acid (PFPeA)	Conc	lb/dscf	1.10E-11	J z	1.44E-11	J z	1.72E-11	J z	1.42E-11	J z
Perfluorohexanoic acid (PFHxA)	Conc	lb/dscf	3.25E-12	J z	3.06E-12	J z	3.83E-12	J z	3.38E-12	J z
Perfluoroheptanoic acid (PFHpA)	Conc	lb/dscf	3.31E-12	ND	3.35E-12	ND	4.51E-12	ND	3.72E-12	ND
Perfluorooctanoic acid (PFOA)	Conc	lb/dscf	2.75E-12	ND xyz	2.89E-12	ND J xyz	3.40E-12	ND xyz	3.01E-12	ND J xyz
Perfluorononanoic acid (PFNA)	Conc	lb/dscf	1.17E-12	J	2.38E-12	ND J	1.84E-12	ND J	1.80E-12	ND J
Perfluorodecanoic acid (PFDA)	Conc	lb/dscf	3.99E-13	ND	8.59E-13	ND	6.28E-13	ND	6.29E-13	ND
Perfluoroundecanoic acid (PFUnA)	Conc	lb/dscf	4.91E-13	ND	4.44E-12	ND J	2.14E-12	ND J I	2.36E-12	ND J I
Perfluorododecanoic acid (PFDoA)	Conc	lb/dscf	3.37E-13	ND J	7.54E-13	ND J	5.65E-13	ND J	5.52E-13	ND J
Perfluorotridecanoic acid (PFTriA)	Conc	lb/dscf	1.33E-13	ND J	1.04E-12	ND J	8.87E-13	ND J	6.86E-13	ND J
Perfluorotetradecanoic acid (PFTeA)	Conc	lb/dscf	1.41E-14	ND J I R	2.64E-14	ND I Cl R	2.55E-14	ND I Cl R	2.20E-14	ND J I Cl R
Perfluorobutanesulfonic acid (PFBS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	Conc	lb/dscf	0	ND	2.58E-15	ND J	0	ND	8.61E-16	ND J
Perfluoroheptanesulfonic acid (PFHpS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	Conc	lb/dscf	2.26E-14	ND J I xyz	7.38E-14	ND I J xy	1.06E-14	ND J I xyz	3.57E-14	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	Conc	lb/dscf	0	ND R	0	ND R	0	ND	0	ND R
Perfluoropentanesulfonic acid (PFPeS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	Conc	lb/dscf	0	ND	0	ND	3.71E-14	ND J	1.24E-14	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	Conc	lb/dscf	0	ND	1.54E-13	ND	7.70E-14	ND J	7.68E-14	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	Conc	lb/dscf	6.72E-13	ND B z	5.91E-12	ND J B z	5.71E-12	ND J B z	4.10E-12	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	Conc	lb/dscf	1.77E-13	ND Cl R	1.40E-14	ND J R	1.38E-14	ND J R	6.84E-14	ND Cl J R
Perfluoro-n-octadecanoic acid (PFODA)	Conc	lb/dscf	7.62E-15	ND J *-*1 R	1.47E-14	ND J *-*1 R	9.57E-15	ND J *-*1 R	1.06E-14	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	Conc	lb/dscf	0	ND NR	0	ND NR	0	ND NR	0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	Conc	lb/dscf	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	Conc	lb/dscf	1.08E-14	ND J R	0	ND R	0	ND R	3.61E-15	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	Conc	lb/dscf	8.848E-15	ND J R	1.226E-14	ND J R	1.031E-14	ND J R	1.047E-14	ND J R
Perfluorododecanesulfonic acid (PFDoS)	Conc	lb/dscf	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelomer carboxylic acid	Conc	lb/dscf	2.26E-13	ND	0	ND	0	ND	7.55E-14	ND
7:3 Fluorotelomer carboxylic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	Conc	lb/dscf	1.32E-13	ND J	7.66E-14	ND J	1.14E-13	ND J	1.07E-13	ND J
8:2 Fluorotelomer carboxylic acid	Conc	lb/dscf	2.71E-13	ND I	0	ND	0	ND	9.02E-14	ND I
8:2 Fluorotelemer unsaturated acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	Conc	lb/dscf	1.59E-13	ND J I *+	0	ND *+	4.33E-13	ND *+ Cl	1.97E-13	ND J I *+ Cl
3-Perfluoropropylpropanoic acid	Conc	lb/dscf	2.10E-12	ND	1.27E-12	ND	2.95E-12	ND	2.11E-12	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	Conc	lb/dscf	3.98E-13	ND Cl J	1.44E-13	ND J	1.26E-13	ND J	2.23E-13	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	Conc	lb/dscf	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Inlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Mass Rate, lb/hr =Conc lb/dscf x 60 min x Qd										
Perfluorobutanoic acid (PFBA)	ER	lb/hr	2.36E-05	A ND B z	2.34E-05	ND B z	3.04E-05	ND B z	2.58E-05	A ND B z
Perfluoropentanoic acid (PFPeA)	ER	lb/hr	4.00E-05	J z	5.17E-05	J z	6.40E-05	J z	5.19E-05	J z
Perfluorohexanoic acid (PFHxA)	ER	lb/hr	1.18E-05	J z	1.10E-05	J z	1.42E-05	J z	1.23E-05	J z
Perfluoroheptanoic acid (PFHpA)	ER	lb/hr	1.20E-05	ND	1.20E-05	ND	1.67E-05	ND	1.36E-05	ND
Perfluorooctanoic acid (PFOA)	ER	lb/hr	9.98E-06	ND xyz	1.04E-05	ND J xyz	1.26E-05	ND xyz	1.10E-05	ND J xyz
Perfluorononanoic acid (PFNA)	ER	lb/hr	4.25E-06	J	8.55E-06	ND J	6.84E-06	ND J	6.55E-06	ND J
Perfluorodecanoic acid (PFDA)	ER	lb/hr	1.45E-06	ND	3.09E-06	ND	2.33E-06	ND	2.29E-06	ND
Perfluoroundecanoic acid (PFUnA)	ER	lb/hr	1.78E-06	ND	1.59E-05	ND J	7.94E-06	ND J I	8.56E-06	ND J I
Perfluorododecanoic acid (PFDoA)	ER	lb/hr	1.22E-06	ND J	2.71E-06	ND J	2.10E-06	ND J	2.01E-06	ND J
Perfluorotridecanoic acid (PFTriA)	ER	lb/hr	4.81E-07	ND J	3.74E-06	ND J	3.29E-06	ND J	2.50E-06	ND J
Perfluorotetradecanoic acid (PFTeA)	ER	lb/hr	5.12E-08	ND J I R	9.50E-08	ND I Cl R	9.48E-08	ND I Cl R	8.04E-08	ND J I Cl R
Perfluorobutanesulfonic acid (PFBS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	ER	lb/hr	0	ND	9.29E-09	ND J	0	ND	3.10E-09	ND J
Perfluoroheptanesulfonic acid (PFHpS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonic acid (PFOS)	ER	lb/hr	8.18E-08	ND J I xyz	2.66E-07	ND I J xy	3.94E-08	ND J I xyz	1.29E-07	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	ER	lb/hr	0	ND R	0	ND R	0	ND	0	ND R
Perfluoropentanesulfonic acid (PFPeS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ER	lb/hr	0	ND	0	ND	1.38E-07	ND J	4.59E-08	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ER	lb/hr	0	ND	5.52E-07	ND	2.86E-07	ND J	2.79E-07	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ER	lb/hr	2.44E-06	ND B z	2.12E-05	ND J B z	2.12E-05	ND J B z	1.50E-05	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ER	lb/hr	6.43E-07	ND Cl R	5.02E-08	ND J R	5.13E-08	ND J R	2.48E-07	ND Cl J R
Perfluoro-n-octadecanoic acid (PFODA)	ER	lb/hr	2.76E-08	ND J *-*1 R	5.30E-08	ND J *-*1 R	3.55E-08	ND J *-*1 R	3.87E-08	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ER	lb/hr	0	ND NR	0	ND NR	0	ND NR	0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	ER	lb/hr	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ER	lb/hr	3.92E-08	ND J R	0	ND R	0	ND R	1.31E-08	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	ER	lb/hr	3.21E-08	ND J R	4.41E-08	ND J R	3.83E-08	ND J R	3.81E-08	ND J R
Perfluorododecanesulfonic acid (PFDoS)	ER	lb/hr	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelomer carboxylic acid	ER	lb/hr	8.21E-07	ND	0	ND	0	ND	2.74E-07	ND
7:3 Fluorotelomer carboxylic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	ER	lb/hr	4.78E-07	ND J	2.75E-07	ND J	4.21E-07	ND J	3.92E-07	ND J
8:2 Fluorotelomer carboxylic acid	ER	lb/hr	9.81E-07	ND I	0	ND	0	ND	3.27E-07	ND I
8:2 Fluorotelemer unsaturated acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	ER	lb/hr	5.77E-07	ND J I *+	0	ND *+	1.61E-06	ND *+ Cl	7.28E-07	ND J I *+ Cl
3-Perfluoropropylpropanoic acid	ER	lb/hr	7.63E-06	ND	4.58E-06	ND	1.10E-05	ND	7.73E-06	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	ER	lb/hr	1.44E-06	ND Cl J	5.19E-07	ND J	4.66E-07	ND J	8.10E-07	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	ER	lb/hr	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ER	lb/hr	0	ND	0	ND	0	ND	0	ND

Determination of PFAS Concentration and Emission Rates
EPA OTM-45

RTO Inlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Data Qualifier	Run 3	Data Qualifier	Run 4	Data Qualifier	Average	Data Qualifier
Pollutant Mass Rate, lb/yr =Pollutant ER lb/hr x 8760 hours/year										
Perfluorobutanoic acid (PFBA)	ER	lb/yr	0.21	A ND B z	0.20	ND B z	0.27	ND B z	0.23	A ND B z
Perfluoropentanoic acid (PFPeA)	ER	lb/yr	0.35	J z	0.45	J z	0.56	J z	0.45	J z
Perfluorohexanoic acid (PFHxA)	ER	lb/yr	0.10	J z	0.096	J z	0.12	J z	0.11	J z
Perfluoroheptanoic acid (PFHpA)	ER	lb/yr	0.10	ND	0.11	ND	0.15	ND	0.12	ND
Perfluorooctanoic acid (PFOA)	ER	lb/yr	0.087	ND xyz	0.091	ND J xyz	0.11	ND xyz	0.096	ND J xyz
Perfluorononanoic acid (PFNA)	ER	lb/yr	0.037	J	0.075	ND J	0.060	ND J	0.057	ND J
Perfluorodecanoic acid (PFDA)	ER	lb/yr	0.013	ND	0.027	ND	0.020	ND	0.020	ND
Perfluoroundecanoic acid (PFUnA)	ER	lb/yr	0.016	ND	0.140	ND J	0.070	ND J I	0.075	ND J I
Perfluorododecanoic acid (PFDoA)	ER	lb/yr	0.011	ND J	0.024	ND J	0.018	ND J	0.018	ND J
Perfluorotridecanoic acid (PFTriA)	ER	lb/yr	0.004	ND J	0.033	ND J	0.029	ND J	0.022	ND J
Perfluorotetradecanoic acid (PFTeA)	ER	lb/yr	0.00045	ND J I R	0.00083	ND I Cl R	0.00083	ND I Cl R	0.00070	ND J I Cl R
Perfluorobutanesulfonic acid (PFBS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorohexanesulfonic acid (PFHxS)	ER	lb/yr	0	ND	0.000081	ND J	0	ND	0.000027	ND J
Perfluoroheptanesulfonic acid (PFHpS)	ER	lb/yr	0	ND	0.00000	ND	0	ND	0.00000	ND
Perfluorooctanesulfonic acid (PFOS)	ER	lb/yr	0.00072	ND J I xyz	0.0023	ND I J xy	0.00035	ND J I xyz	0.00113	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorooctanesulfonamide (FOSA)	ER	lb/yr	0	ND R	0	ND R	0	ND	0	ND R
Perfluoropentanesulfonic acid (PFPeS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluorononanesulfonic acid (PFNS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ER	lb/yr	0	ND	0	ND	0.0012	ND J	0.00040	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ER	lb/yr	0	ND	0	ND	0	ND	0.00000	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ER	lb/yr	0	ND	0.0048	ND	0.00250	ND J	0.0024	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ER	lb/yr	0.021	ND B z	0.19	ND J B z	0.19	ND J B z	0.13	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ER	lb/yr	0.0056	ND Cl R	0.00044	ND J R	0.00045	ND J R	0.0022	ND Cl J R
Perfluoro-n-octadecanoic acid (PFODA)	ER	lb/yr	0.00024	ND J *-*1 R	0.00046	ND J *-*1 R	0.00031	ND J *-*1 R	0.00034	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ER	lb/yr	0	ND NR	0	ND NR	0	ND NR	0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	ER	lb/yr	0	ND R	0	ND R	0	ND R	0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ER	lb/yr	0.00034	ND J R	0	ND R	0	ND R	0.00011	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	ER	lb/yr	0.00028	ND J R	0.00039	ND J R	0.00034	ND J R	0.00033	ND J R
Perfluorododecanesulfonic acid (PFDoS)	ER	lb/yr	0	ND *-	0	ND *-	0	ND *-	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
10:2 Fluorotelomer carboxylic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelomer carboxylic acid	ER	lb/yr	0.0072	ND	0	ND	0	ND	0.0024	ND
7:3 Fluorotelomer carboxylic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
6:2 Fluorotelemer unsaturated acid	ER	lb/yr	0.0042	ND J	0.0024	ND J	0.0037	ND J	0.0034	ND J
8:2 Fluorotelomer carboxylic acid	ER	lb/yr	0.0086	ND I	0	ND	0	ND	0.0029	ND I
8:2 Fluorotelemer unsaturated acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
5:3 Fluorotelomer carboxylic acid	ER	lb/yr	0.0051	ND J I *+	0	ND *+	0.014	ND *+ Cl	0.0064	ND J I *+ Cl
3-Perfluoropropylpropanoic acid	ER	lb/yr	0.067	ND	0.040	ND	0.096	ND	0.068	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	ER	lb/yr	0.0127	ND Cl J	0.0045	ND J	0.0041	ND J	0.0071	ND Cl J
Perfluoro-4-methoxybutanoic acid (PFMBA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	ER	lb/yr	0	ND	0	ND	0	ND	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ER	lb/yr	0	ND	0	ND	0	ND	0	ND

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

PFAS Concentrations at Minimum Detection Limit (MDL)
EPA OTM-45

RTO Inlet (PCE01)

Input Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Test Date	-	-	8/24/2022	8/25/2022	8/25/2022	--
Test Period	-	-	1323 - 1631	808 - 1115	1241 - 1547	--
Run Time	theta	min	180	180	180	180
Meter Volume at Standard Conditions Vmstd	Vmstd-ft3	cubic feet	114.87	113.46	116.53	114.95
Meter Volume at Standard Conditions Vmstd	Vmstd-m3	cubic meter	3.25	3.21	3.30	3.26
Pollutant Total Sample Mass at MDL (Sum Fractions 1,2,3), ng						
Perfluorobutanoic acid (PFBA)	MDL	ng	96	96	96	96
Perfluoropentanoic acid (PFPeA)	MDL	ng	4.8	4.8	4.8	4.8
Perfluorohexanoic acid (PFHxA)	MDL	ng	5.6	5.6	5.7	5.6
Perfluoroheptanoic acid (PFHpA)	MDL	ng	27	27	27	27
Perfluorooctanoic acid (PFOA)	MDL	ng	7.4	7.4	7.4	7.4
Perfluorononanoic acid (PFNA)	MDL	ng	9.1	9.0	9.1	9.1
Perfluorodecanoic acid (PFDA)	MDL	ng	2.4	2.4	2.4	2.4
Perfluoroundecanoic acid (PFUnA)	MDL	ng	3.0	3.0	3.0	3.0
Perfluorododecanoic acid (PFDoA)	MDL	ng	1.4	1.4	1.4	1.4
Perfluorotridecanoic acid (PFTriA)	MDL	ng	1.9	1.9	1.9	1.9
Perfluorotetradecanoic acid (PFTeA)	MDL	ng	2.6	2.6	2.6	2.6
Perfluorobutanesulfonic acid (PFBS)	MDL	ng	6.1	6.1	6.2	6.1
Perfluorohexanesulfonic acid (PFHxS)	MDL	ng	2.8	2.8	2.8	2.8
Perfluoroheptanesulfonic acid (PFHpS)	MDL	ng	2.3	2.2	2.3	2.3
Perfluorooctanesulfonic acid (PFOS)	MDL	ng	2.0	2.0	2.0	2.0
Perfluorodecanesulfonic acid (PFDS)	MDL	ng	2.2	2.2	2.2	2.2
Perfluorooctanesulfonamide (FOSA)	MDL	ng	2.6	2.6	2.7	2.6
Perfluoropentanesulfonic acid (PFPeS)	MDL	ng	2.3	2.3	2.3	2.3
Perfluorononanesulfonic acid (PFNS)	MDL	ng	1.8	1.8	1.8	1.8
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	MDL	ng	1.4	1.4	1.5	1.4
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	MDL	ng	2.1	2.1	2.1	2.1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	MDL	ng	0.80	0.80	0.81	0.80
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	MDL	ng	91	91	91	91
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	MDL	ng	1.9	1.9	1.9	1.9
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	MDL	ng	115	115	115	115
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	MDL	ng	2.0	2.0	2.0	2.0
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	MDL	ng	2.1	2.1	2.1	2.1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	MDL	ng	11	11	11	11
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	MDL	ng	2.2	2.1	2.2	2.2
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	MDL	ng	4.0	4.0	4.1	4.1
Perfluoro-n-octadecanoic acid (PFODA)	MDL	ng	6.8	6.8	6.8	6.8
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	MDL	ng	203	203	203	203
N-methylperfluorooctane sulfonamide (NMeFOSA)	MDL	ng	8.0	7.9	8.0	8.0
N-ethylperfluorooctane sulfonamide (NEtFOSA)	MDL	ng	6.9	6.9	6.9	6.9
Perfluoro-n-hexadecanoic acid (PFHxDA)	MDL	ng	3.4	3.4	3.4	3.4
Perfluorododecanesulfonic acid (PFDoS)	MDL	ng	2.0	2.0	2.0	2.0
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	MDL	ng	1.9	1.9	1.9	1.9
10:2 Fluorotelomer carboxylic acid	MDL	ng	6.0	6.0	6.0	6.0
6:2 Fluorotelomer carboxylic acid	MDL	ng	11	11	11	11
7:3 Fluorotelomer carboxylic acid	MDL	ng	6.4	6.4	6.5	6.4

PFAS Concentrations at Minimum Detection Limit (MDL)
EPA OTM-45

RTO Inlet (PCE01)

Pollutant Total Sample Mass at MDL (Sum Fractions 1,2,3), ng	Symbol	Units	Run 2	Run 3	Run 4	Average
6:2 Fluorotelemer unsaturated acid	MDL	ng	2.3	2.2	2.3	2.3
8:2 Fluorotelomer carboxylic acid	MDL	ng	4.6	4.5	4.6	4.6
8:2 Fluorotelemer unsaturated acid	MDL	ng	2.5	2.5	2.5	2.5
5:3 Fluorotelomer carboxylic acid	MDL	ng	7.9	7.8	7.9	7.9
3-Perfluoropropylpropanoic acid	MDL	ng	3.7	3.6	3.7	3.7
Perfluoro-3-methoxypropanoic acid (PFMPA)	MDL	ng	1.5	1.5	1.5	1.5
Perfluoro-4-methoxybutanoic acid (PFMBA)	MDL	ng	1.7	1.7	1.8	1.7
Perfluoro-4-ethylcyclohexanesulfonic acid	MDL	ng	1.8	1.8	1.8	1.8
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	MDL	ng	1.3	1.3	1.3	1.3
Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at MDL, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
Perfluorobutanoic acid (PFBA)	MDL-Conc	pg/M3	29371	29726	28960	29352
Perfluoropentanoic acid (PFPeA)	MDL-Conc	pg/M3	1463	1480	1445	1463
Perfluorohexanoic acid (PFHxA)	MDL-Conc	pg/M3	1736	1752	1717	1735
Perfluoroheptanoic acid (PFHpA)	MDL-Conc	pg/M3	8241	8338	8129	8236
Perfluorooctanoic acid (PFOA)	MDL-Conc	pg/M3	2265	2288	2236	2263
Perfluorononanoic acid (PFNA)	MDL-Conc	pg/M3	2782	2815	2744	2780
Perfluorodecanoic acid (PFDA)	MDL-Conc	pg/M3	747	754	739	747
Perfluoroundecanoic acid (PFUnA)	MDL-Conc	pg/M3	911	920	901	911
Perfluorododecanoic acid (PFDoA)	MDL-Conc	pg/M3	420	423	416	420
Perfluorotridecanoic acid (PFTriA)	MDL-Conc	pg/M3	596	601	591	596
Perfluorotetradecanoic acid (PFTeA)	MDL-Conc	pg/M3	802	809	795	802
Perfluorobutanesulfonic acid (PFBS)	MDL-Conc	pg/M3	1889	1908	1864	1887
Perfluorohexanesulfonic acid (PFHxS)	MDL-Conc	pg/M3	855	864	845	855
Perfluoroheptanesulfonic acid (PFHpS)	MDL-Conc	pg/M3	693	698	687	693
Perfluorooctanesulfonic acid (PFOS)	MDL-Conc	pg/M3	624	629	618	624
Perfluorodecanesulfonic acid (PFDS)	MDL-Conc	pg/M3	680	686	673	680
Perfluorooctanesulfonamide (FOSA)	MDL-Conc	pg/M3	810	816	806	811
Perfluoropentanesulfonic acid (PFPeS)	MDL-Conc	pg/M3	705	712	697	705
Perfluorononanesulfonic acid (PFNS)	MDL-Conc	pg/M3	543	548	537	543
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	MDL-Conc	pg/M3	445	448	442	445
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	MDL-Conc	pg/M3	656	662	649	656
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	MDL-Conc	pg/M3	247	248	245	247
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	MDL-Conc	pg/M3	28026	28353	27631	28003
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	MDL-Conc	pg/M3	584	589	581	585
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	MDL-Conc	pg/M3	35348	35761	34853	35321
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	MDL-Conc	pg/M3	608	614	602	608
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	MDL-Conc	pg/M3	641	647	635	641
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	MDL-Conc	pg/M3	3478	3518	3433	3476
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	MDL-Conc	pg/M3	662	667	656	662
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	MDL-Conc	pg/M3	1245	1256	1234	1245
Perfluoro-n-octadecanoic acid (PFODA)	MDL-Conc	pg/M3	2084	2106	2058	2083
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	MDL-Conc	pg/M3	62411	63162	61523	62365
N-methylperfluorooctane sulfonamide (NMeFOSA)	MDL-Conc	pg/M3	2445	2474	2414	2444
N-ethylperfluorooctane sulfonamide (NEtFOSA)	MDL-Conc	pg/M3	2129	2153	2104	2129
Perfluoro-n-hexadecanoic acid (PFHxDA)	MDL-Conc	pg/M3	1035	1044	1025	1035
Perfluorododecanesulfonic acid (PFDoS)	MDL-Conc	pg/M3	613	619	607	613

PFAS Concentrations at Minimum Detection Limit (MDL)
EPA OTM-45

RTO Inlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	MDL-Conc	pg/M3	593	597	590	593
10:2 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	1842	1857	1827	1842
6:2 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	3321	3354	3284	3320
7:3 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	1972	1988	1957	1972
6:2 Fluorotelemer unsaturated acid	MDL-Conc	pg/M3	692	698	685	692
8:2 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	1400	1409	1391	1400
8:2 Fluorotelemer unsaturated acid	MDL-Conc	pg/M3	759	763	755	759
5:3 Fluorotelomer carboxylic acid	MDL-Conc	pg/M3	2414	2436	2390	2413
3-Perfluoropropylpropanoic acid	MDL-Conc	pg/M3	1126	1135	1118	1126
Perfluoro-3-methoxypropanoic acid (PFMPA)	MDL-Conc	pg/M3	470	473	469	471
Perfluoro-4-methoxybutanoic acid (PFMBA)	MDL-Conc	pg/M3	536	538	536	537
Perfluoro-4-ethylcyclohexanesulfonic acid	MDL-Conc	pg/M3	559	562	557	559
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	MDL-Conc	pg/M3	399	401	398	399

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

PFAS Concentrations at Reporting Limit (RL)
EPA OTM-45

RTO Inlet (PCE01)

Input Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Test Date	-	-	8/24/2022	8/25/2022	8/25/2022	--
Test Period	-	-	1323 - 1631	808 - 1115	1241 - 1547	--
Run Time	theta	min	180	180	180	180
Meter Volume at Standard Conditions Vmstd	Vmstd-ft3	cubic feet	114.87	113.46	116.53	114.95
Meter Volume at Standard Conditions Vmstd	Vmstd-m3	cubic meter	3.25	3.21	3.30	3.26
Pollutant Total Sample Mass at RL (Sum Fractions 1,2,3), ng						
Perfluorobutanoic acid (PFBA)	RL	ng	103	103	103	103
Perfluoropentanoic acid (PFPeA)	RL	ng	12	12	12	12
Perfluorohexanoic acid (PFHxA)	RL	ng	12	12	12	12
Perfluoroheptanoic acid (PFHpA)	RL	ng	32	32	32	32
Perfluorooctanoic acid (PFOA)	RL	ng	12	12	12	12
Perfluorononanoic acid (PFNA)	RL	ng	12	12	12	12
Perfluorodecanoic acid (PFDA)	RL	ng	12	12	12	12
Perfluoroundecanoic acid (PFUnA)	RL	ng	12	12	12	12
Perfluorododecanoic acid (PFDoA)	RL	ng	12	12	12	12
Perfluorotridecanoic acid (PFTriA)	RL	ng	12	12	12	12
Perfluorotetradecanoic acid (PFTeA)	RL	ng	12	12	12	12
Perfluorobutanesulfonic acid (PFBS)	RL	ng	12	12	12	12
Perfluorohexanesulfonic acid (PFHxS)	RL	ng	12	12	12	12
Perfluoroheptanesulfonic acid (PFHpS)	RL	ng	12	12	12	12
Perfluorooctanesulfonic acid (PFOS)	RL	ng	12	12	12	12
Perfluorodecanesulfonic acid (PFDS)	RL	ng	12	12	12	12
Perfluorooctanesulfonamide (FOSA)	RL	ng	12	12	12	12
Perfluoropentanesulfonic acid (PFPeS)	RL	ng	12	12	12	12
Perfluorononanesulfonic acid (PFNS)	RL	ng	12	12	12	12
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	RL	ng	12	12	12	12
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	RL	ng	12	12	12	12
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	RL	ng	12	12	12	12
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	RL	ng	106	106	106	106
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	RL	ng	12	12	12	12
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	RL	ng	206	206	206	206
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	RL	ng	12	12	12	12
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	RL	ng	12	12	12	12
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	RL	ng	22	22	22	22
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	RL	ng	12	12	12	12
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	RL	ng	12	12	12	12
Perfluoro-n-octadecanoic acid (PFODA)	RL	ng	12	12	12	12
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	RL	ng	206	206	206	206
N-methylperfluorooctane sulfonamide (NMeFOSA)	RL	ng	12	12	12	12
N-ethylperfluorooctane sulfonamide (NEtFOSA)	RL	ng	12	12	12	12
Perfluoro-n-hexadecanoic acid (PFHxDA)	RL	ng	12	12	12	12
Perfluorododecanesulfonic acid (PFDoS)	RL	ng	12	12	12	12
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	RL	ng	12	12	12	12
10:2 Fluorotelomer carboxylic acid	RL	ng	12	12	12	12
6:2 Fluorotelomer carboxylic acid	RL	ng	12	12	12	12
7:3 Fluorotelomer carboxylic acid	RL	ng	12	12	12	12

PFAS Concentrations at Reporting Limit (RL)
EPA OTM-45

RTO Inlet (PCE01)

Pollutant Total Sample Mass at RL (Sum Fractions 1,2,3), ng	Symbol	Units	Run 2	Run 3	Run 4	Average
6:2 Fluorotelemer unsaturated acid	RL	ng	12	12	12	12
8:2 Fluorotelomer carboxylic acid	RL	ng	12	12	12	12
8:2 Fluorotelemer unsaturated acid	RL	ng	12	12	12	12
5:3 Fluorotelomer carboxylic acid	RL	ng	12	12	12	12
3-Perfluoropropylpropanoic acid	RL	ng	12	12	12	12
Perfluoro-3-methoxypropanoic acid (PFMPA)	RL	ng	12	12	12	12
Perfluoro-4-methoxybutanoic acid (PFMBA)	RL	ng	12	12	12	12
Perfluoro-4-ethylcyclohexanesulfonic acid	RL	ng	12	12	12	12
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	RL	ng	12	12	12	12
Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at Reporting Limit, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
Perfluorobutanoic acid (PFBA)	RL - Conc	pg/M3	31545	31919	31113	31526
Perfluoropentanoic acid (PFPeA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorohexanoic acid (PFHxA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoroheptanoic acid (PFHpA)	RL - Conc	pg/M3	9720	9827	9599	9716
Perfluorooctanoic acid (PFOA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorononanoic acid (PFNA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorodecanoic acid (PFDA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoroundecanoic acid (PFUnA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorododecanoic acid (PFDoA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorotridecanoic acid (PFTriA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorotetradecanoic acid (PFTeA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorobutanesulfonic acid (PFBS)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorohexanesulfonic acid (PFHxS)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoroheptanesulfonic acid (PFHpS)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorooctanesulfonic acid (PFOS)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorodecanesulfonic acid (PFDS)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorooctanesulfonamide (FOSA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoropentanesulfonic acid (PFPeS)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorononanesulfonic acid (PFNS)	RL - Conc	pg/M3	3572	3603	3539	3571
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	RL - Conc	pg/M3	3572	3603	3539	3571
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	RL - Conc	pg/M3	3572	3603	3539	3571
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	RL - Conc	pg/M3	3572	3603	3539	3571
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	RL - Conc	pg/M3	32468	32840	32022	32443
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	RL - Conc	pg/M3	3572	3603	3539	3571
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	RL - Conc	pg/M3	63208	63962	62324	63164
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	RL - Conc	pg/M3	3572	3603	3539	3571
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	RL - Conc	pg/M3	3572	3603	3539	3571
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	RL - Conc	pg/M3	6646	6715	6569	6643
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	RL - Conc	pg/M3	3572	3603	3539	3571
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoro-n-octadecanoic acid (PFODA)	RL - Conc	pg/M3	3572	3603	3539	3571
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	RL - Conc	pg/M3	63208	63962	62324	63164
N-methylperfluorooctane sulfonamide (NMeFOSA)	RL - Conc	pg/M3	3572	3603	3539	3571
N-ethylperfluorooctane sulfonamide (NEtFOSA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoro-n-hexadecanoic acid (PFHxDA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluorododecanesulfonic acid (PFDoS)	RL - Conc	pg/M3	3572	3603	3539	3571

PFAS Concentrations at Reporting Limit (RL)
EPA OTM-45

RTO Inlet (PCE01)

Calculated Data	Symbol	Units	Run 2	Run 3	Run 4	Average
Concentration at Reporting Limit, pg/M3 =MDL Mass, ng x 1000 / Vmstd-M3						
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	RL - Conc	pg/M3	3572	3603	3539	3571
10:2 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	3572	3603	3539	3571
6:2 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	3572	3603	3539	3571
7:3 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	3572	3603	3539	3571
6:2 Fluorotelemer unsaturated acid	RL - Conc	pg/M3	3572	3603	3539	3571
8:2 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	3572	3603	3539	3571
8:2 Fluorotelemer unsaturated acid	RL - Conc	pg/M3	3572	3603	3539	3571
5:3 Fluorotelomer carboxylic acid	RL - Conc	pg/M3	3572	3603	3539	3571
3-Perfluoropropylpropanoic acid	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoro-3-methoxypropanoic acid (PFMPA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoro-4-methoxybutanoic acid (PFMBA)	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoro-4-ethylcyclohexanesulfonic acid	RL - Conc	pg/M3	3572	3603	3539	3571
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	RL - Conc	pg/M3	3572	3603	3539	3571

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October, 21, 2022

Determination of PFAS Destruction /Removal
EPA OTM-45

RTO Inlet/Outlet

			Test Average		
Calculated Data	Symbol	Units	Inlet	Outlet	DRE, %
DRE Calculation **DRE %= (Inlet PFAS ER lb/hr - Oultet PFAS ER lb/hr) / Inlet PFAS ER lb/hr x 100**					
Perfluorobutanoic acid (PFBA)	ER	lb/hr	2.58E-05	1.11E-06	96%
Perfluoropentanoic acid (PFPeA)	ER	lb/hr	5.19E-05	2.03E-06	96%
Perfluorohexanoic acid (PFHxA)	ER	lb/hr	1.23E-05	1.41E-06	89%
Perfluoroheptanoic acid (PFHpA)	ER	lb/hr	1.36E-05	7.88E-07	94%
Perfluorooctanoic acid (PFOA)	ER	lb/hr	1.10E-05	2.54E-06	77%
Perfluorononanoic acid (PFNA)	ER	lb/hr	6.55E-06	6.66E-07	90%
Perfluorodecanoic acid (PFDA)	ER	lb/hr	2.29E-06	3.42E-07	85%
Perfluoroundecanoic acid (PFUnA)	ER	lb/hr	8.56E-06	3.84E-07	96%
Perfluorododecanoic acid (PFDoA)	ER	lb/hr	2.01E-06	1.94E-08	99%
Perfluorotridecanoic acid (PFTriA)	ER	lb/hr	2.50E-06	6.58E-08	97%
Perfluorotetradecanoic acid (PFTeA)	ER	lb/hr	8.04E-08	4.19E-08	48%
Perfluorobutanesulfonic acid (PFBS)	ER	lb/hr	0	0	#
Perfluorohexanesulfonic acid (PFHxS)	ER	lb/hr	3.10E-09	0	100%
Perfluoroheptanesulfonic acid (PFHpS)	ER	lb/hr	0	0	#
Perfluorooctanesulfonic acid (PFOS)	ER	lb/hr	1.29E-07	5.88E-08	54%
Perfluorodecanesulfonic acid (PFDS)	ER	lb/hr	0	0	#
Perfluorooctanesulfonamide (FOSA)	ER	lb/hr	0	7.36E-09	#
Perfluoropentanesulfonic acid (PFPeS)	ER	lb/hr	0	0	#
Perfluorononanesulfonic acid (PFNS)	ER	lb/hr	0	0	#
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ER	lb/hr	0	0	#
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ER	lb/hr	4.59E-08	2.30E-08	50%
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ER	lb/hr	0	0	#
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ER	lb/hr	2.79E-07	0	100%
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ER	lb/hr	0	0	#
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ER	lb/hr	1.50E-05	2.95E-06	80%
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ER	lb/hr	0	0	#
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ER	lb/hr	0	0	#
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ER	lb/hr	0	0	#
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ER	lb/hr	0	0	#
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ER	lb/hr	2.48E-07	0	100%
Perfluoro-n-octadecanoic acid (PFODA)	ER	lb/hr	3.87E-08	1.20E-07	-211%
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ER	lb/hr	0	0	#
N-methylperfluorooctane sulfonamide (NMeFOSA)	ER	lb/hr	0	0	#
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ER	lb/hr	1.31E-08	0	100%
Perfluoro-n-hexadecanoic acid (PFHxDA)	ER	lb/hr	3.81E-08	8.21E-08	-115%
Perfluorododecanesulfonic acid (PFDoS)	ER	lb/hr	0	0	#
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ER	lb/hr	0	0	#
10:2 Fluorotelomer carboxylic acid	ER	lb/hr	0	0	#
6:2 Fluorotelomer carboxylic acid	ER	lb/hr	2.74E-07	3.03E-07	-11%
7:3 Fluorotelomer carboxylic acid	ER	lb/hr	0	0	#
6:2 Fluorotelemer unsaturated acid	ER	lb/hr	3.92E-07	1.12E-07	71%
8:2 Fluorotelomer carboxylic acid	ER	lb/hr	3.27E-07	0	100%
8:2 Fluorotelemer unsaturated acid	ER	lb/hr	0	0	#
5:3 Fluorotelomer carboxylic acid	ER	lb/hr	7.28E-07	0	100%
3-Perfluoropropylpropanoic acid	ER	lb/hr	7.73E-06	0	100%
Perfluoro-3-methoxypropanoic acid (PFMPA)	ER	lb/hr	8.10E-07	1.67E-07	79%
Perfluoro-4-methoxybutanoic acid (PFMBA)	ER	lb/hr	0	0	#
Perfluoro-4-ethylcyclohexanesulfonic acid	ER	lb/hr	0	0	#
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ER	lb/hr	0	0	#

ND = result below minimum detection limit
NC = DRE not calculated

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

EPA Reference Method Data and Emissions Calculations
RTO (PCE01)

Testing performed on August 24, 2022

Test Date		08/24/22
Run Time		1323-1631
Bias Adjusted Run Average Concentrations	**Symbol**	Run 2
Inlet O_2, % dry - Bias Corrected	O_2 % dry-Corr	20.2
Inlet CO_2, % dry - Bias Corrected	CO_2 % dry-Corr	0.2
Outlet O_2, % dry - Bias Corrected	O_2 % dry-Corr	19.8
Outlet CO2, % dry - Bias Corrected	CO_2 % dry-Corr	0.6

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

EPA Reference Method Data and Emissions Calculations
RTO (PCE01)

Testing performed on August 25, 2022

Test Date		08/25/22	08/25/22
Run Time		0808-1115	1241-1547
Bias Adjusted Run Average Concentrations	**Symbol**	Run 3	Run 4
Inlet O_2, % dry - Bias Corrected	O_2 % dry-Corr	20.3	20.3
Inlet CO_2, % dry - Bias Corrected	CO_2 % dry-Corr	0.2	0.1
Outlet O_2, % dry - Bias Corrected	O_2 % dry-Corr	19.8	19.8
Outlet CO2, % dry - Bias Corrected	CO_2 % dry-Corr	0.7	0.7

Appendix B

Field Data Sheets

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EPA METHOD 2
FIELD DATA SHEET

Project	SAINT-GOBAIN
Sample Location	RTO INLET
Date	8-23-22
Operators	TMR, MTP
Duct Dimensions	60.0 inches
Port Length	7.25 inches
Pitot Tube No.	S-3 Cp 0.840
Manometer ID	C17 Bar. ID BA-02
Digital Therm ID	C17 T.C. ID S-3

	Run 1	Run 2	Run 3	Run 4
Bar Press (In Hg)	29.65			
Stat. Press (In H_2O)	-3.0			
Temp - Dry Bulb °F	225			
Temp - Wet Bulb °F	103			
Moist Content - %	2.5			
O_2 %	20.0			
Time of Meas.	1200			

Date 8/23/22

Pitot Leak Check Positive: OK Negative: OK

Traverse Point Information			Cyclonic	Velocity Head - Inches H_2O				Stack Temperature - °F			
Point	Inches From:		Flow	Run 1	Run 2	Run 3	Run 4	Run 1	Run 2	Run 3	Run 4
Number	Wall	Port	∠°	ΔP	ΔP	ΔP	ΔP	Temp.	Temp.	Temp.	Temp.
A-1	1.28	3.53	4								
-2	4.02	6.27	2								
-3	7.09	9.34	1								
-4	10.64	12.89	0								
-5	15.00	17.25	-2								
-6	21.34	23.59	0								
-7	38.66	40.91	-6								
-8	45.00	47.25	-6								
-9	49.36	51.61	-6								
-10	52.91	55.16	4								
-11	55.98	58.23	-4								
-12	58.72	60.97	0								
B-1			6								
-2			8								
-3			10								
-4			10								
-5			8								
-6			0								
-7			-2								
-8			4								
-9			4								
-10			2								
-11			1								
-12			-2								
			34								

See Report Figures

Schematic of Duct Cross-Section

	Run 1	Run 2	Run 3	Run 4
Stack Pres. - In Hg				
Duct Area - Sq Ft.				
Mole Weight - Md				
Mole Weight - Ms				
Avg. Temp. - °F				
Average $\sqrt{\Delta P}$				
Gas Vel - Ft/Sec				
ACFM				
SCFM				
DSCFM				

BARR

EPA METHOD 2
FIELD DATA SHEET

Project: SAINT-GOBAIN
Sample Location: T.O. STACK
Date: 8-23-22
Operators: TMR, OSK
Duct Dimensions: 71.0 inches
Port Length: 5.5 inches
Pitot Tube No.: B-4 Cp: 0.84
Manometer ID: C18 Bar. ID: BA-04
Digital Therm ID: C18 T.C. ID: B-4

	Run 1	Run 2	Run 3	Run 4
Bar Press (In Hg)	29.65			
Stat. Press (In H_2O)	-0.46			
Temp - Dry Bulb °F	338			
Temp - Wet Bulb °F	120			
Moist Content - %	3.1			
O_2 %	19.1			
Time of Meas.	1000			

Pitot Leak Check Positive: OK Negative: OK

Traverse Point Information			Cyclonic Flow	Velocity Head - Inches H_2O				Stack Temperature - °F			
Point Number	Inches From: Wall	Port	∠°	Run 1 ΔP	Run 2 ΔP	Run 3 ΔP	Run 4 ΔP	Run 1 Temp.	Run 2 Temp.	Run 3 Temp.	Run 4 Temp.
A-1	1.51	7.01	4	0.50							
-2	4.76	10.26	4	0.57							
-3	8.39	13.84	4	0.56							
-4	12.58	18.08	4	0.57							
-5	17.75	23.25	4	0.56							
-6	25.25	30.75	8	0.50							
-7	45.75	51.25	9	0.79							
-8	53.25	58.75	9	0.85							
-9	58.42	63.92	8	1.20							
-10	62.61	68.11	4	1.60							
-11	66.24	71.74	4	1.80							
-12	69.49	74.99	2	1.60							
B-1			6	0.40							
-2			8	0.43							
-3			5	0.41							
-4			4	0.32							
-5			4	0.36							
-6			4	0.36							
-7			6	0.80							
-8			8	0.98							
-9			6	1.31							
-10			4	1.26							
-11			4	1.52							
-12			3	1.59							
		AVG-	5.30								

See Report Figures

Schematic of Duct Cross-Section

	Run 1	Run 2	Run 3	Run 4
Stack Pres. - In Hg				
Duct Area - Sq Ft.				
Mole Weight - Md				
Mole Weight - Ms				
Avg. Temp. - °F				
Average $\sqrt{\Delta P}$				
Gas Vel - Ft/Sec				
ACFM				
SCFM				
DSCFM				

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EPA OTM-45 - Field Data Sheet - Run 2

Project	Saint-Gobain	Meter ID	C17	Probe ID	5-8	Bar.Press.	29.60	in. Hg	Sample Train Leak Rate, cfm:		
Sample Location	RTO Inlet PCE01	Meter Y	0.9902	Pitot Tube No.	5-8	Stat Press.	-3.0	in. H2O	Pretest	0.000	at 15 in. Hg
Date	08/24/22	Orifice dH@	1.7912	Pitot Cp	0.84	CPM TC	M5FO-6		Posttest	0.000	at 8 in. Hg
Test	1 Run # 2			Liner Type:	Glass	IMP Out TC	9121		Pretest Pitot leak Check Pos	PASS	@ >3" w.c
Operators	TMR /MTP					Barometer ID	BA-04		Posttest Pitot leak Check Neg	PASS	@ >3" w.c

Sample Point	Sample Time DT	Actual Meter Vol Vm, ft3	Velocity Head DP, in. H_2O	Orifice DH in. H_2O	Ideal Point Volume Vm, ft^3	Ideal Meter Vol Vm, ft3	Sample Train Vacuum in. Hg	Stack Temp Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Impinger Outlet	Meter Inlet	Meter Outlet	
Start Time	1323	225.30												
1	7.5	229.60	0.900	1.02	4.33	229.63	4.5	235	239	248	67	74	74	
2	15.0	234.00	0.900	1.02	4.34	233.98	4.5	232	240	239	61	75	75	
3	22.5	238.30	0.970	1.10	4.51	238.48	5.0	234	240	245	51	75	75	
4	30.0	242.17	1.050	1.20	4.70	243.19	5.0	230	240	238	55	75	75	
5	37.5	246.46	0.900	1.02	4.33	247.52	5.5	239	240	240	56	75	75	
6	45.0	251.18	1.050	1.18	4.67	252.19	6.0	239	240	236	56	76	76	
7	52.5	256.59	1.500	1.70	5.60	257.79	8.0	237	240	242	54	76	76	
8	60.0	262.20	1.500	1.72	5.63	263.42	8.0	228	240	241	55	76	76	
9	67.5	267.70	1.400	1.62	5.46	268.88	8.0	224	240	239	53	76	76	
10	75.0	273.26	1.250	1.45	5.16	274.04	6.5	223	240	240	53	77	77	
11	82.5	278.51	1.300	1.50	5.27	279.32	8.0	224	240	239	54	77	77	
12	90.0	283.96	1.100	1.28	4.86	284.18	7.0	221	240	241	54	77	77	
13	97.5	288.01	0.760	0.86	3.99	288.17	5.0	239	240	240	59	77	77	
14	105.0	292.10	0.840	0.95	4.20	292.38	5.5	238	239	239	55	77	77	
15	112.5	296.72	0.970	1.10	4.52	296.89	6.0	236	241	242	55	77	77	
16	120.0	301.28	1.050	1.20	4.72	301.61	6.5	231	240	240	56	77	77	
17	127.5	306.29	1.200	1.39	5.06	306.68	7.0	225	240	239	55	77	77	
18	135.0	311.48	1.300	1.51	5.28	311.96	7.5	222	238	240	56	77	77	
19	142.5	317.05	1.500	1.77	5.71	317.67	8.0	212	241	243	57	77	77	
20	150.0	322.70	1.500	1.78	5.73	323.39	8.0	208	239	239	58	77	77	
21	157.5	328.20	1.400	1.68	5.56	328.96	8.0	201	241	241	58	77	77	
22	165.0	333.60	1.200	1.45	5.18	334.14	7.5	194	241	241	59	77	77	
23	172.5	338.88	1.200	1.47	5.22	339.35	7.5	185	240	238	60	77	77	
24	180.0	344.20	1.100	1.36	5.01	344.37	7.0	181	240	241	60	77	77	
End Time	1631													
Run Time	180		Avg DH=	1.35			Avg Ts=	222.42				Avg Tm=	76.38	

Integrated Gas Sampling Data :

Bag No.	NA		Filter No.	GFF	
Bag Vol.	NA	liters	Nozzle No.	Glass 01	
Leak Rate	NA	cc/min	Nozzle Dn.	0.195	

Subtract volume for leak check 0.13 cu.ft

* Data Recorded on Field Data Sheet

MOISTURE RECOVERY DATA :

Impinger	1	2	3	4	5	6	7	Desiccant	
Final wt., g	303.1	534.0	728.9	745.8	781.0	295.5	473.9	898.5	
Initial wt., g	296.2	493.4	731.2	746.2	780.4	297.3	469.2	877.1	
Difference	6.9	40.6	-2.3	-0.4	0.6	-1.8	4.7	21.4	

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EPA OTM-45 - Field Data Sheet - Run 3

Project	Saint-Gobain	Meter ID	C17	Probe ID	5-3	Bar.Press.	29.75	in. Hg	Sample Train Leak Rate, cfm:			
Sample Location	RTO Inlet PCE01	Meter Y	0.9902	Pitot Tube No.	5-3	Stat Press.	-3.0	in. H2O	Pretest	0.000	at 15	in. Hg
Date	08/25/22	Orifice dH@	1.7912	Pitot Cp	0.84	CPM TC	M5FO-8		Posttest	0.002	at 10	in. Hg
Test	1 Run # 3			Liner Type:	Glass	IMP Out TC	9121		Pretest Pitot leak Check Pos		PASS	@ >3" w.c
Operators	TMR /MTP								Posttest Pitot leak Check Neg		PASS	@ >3" w.c

Sample Point	Sample Time DT	Actual Meter Vol Vm, ft3	Velocity Head DP, in. H_2O	Orifice DH in. H_2O	Ideal Point Volume Vm, ft^3	Ideal Meter Vol Vm, ft3	Sample Train Vacuum in. Hg	Stack Temp Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Impinger Outlet	Meter Inlet	Meter Outlet	
Start Time	808	344.70												
1	7.5	349.10	1.000	1.13	4.52	349.22	5.5	227	239	241	61	69	69	
2	15.0	353.35	0.900	1.01	4.28	353.50	5.0	230	240	240	51	70	70	
3	22.5	357.60	0.980	1.10	4.47	357.97	5.5	230	240	240	50	70	70	
4	30.0	362.20	1.100	1.24	4.74	362.71	7.0	229	240	240	50	70	70	
5	37.5	366.82	1.050	1.18	4.64	367.35	7.0	228	240	239	49	71	71	
6	45.0	371.52	1.100	1.24	4.75	372.10	7.0	228	240	239	50	71	71	
7	52.5	376.70	1.350	1.53	5.27	377.37	8.0	226	240	240	50	72	72	
8	60.0	382.16	1.500	1.71	5.57	382.94	9.0	223	240	240	50	72	72	
9	67.5	387.46	1.300	1.49	5.20	388.15	8.5	220	240	240	50	73	73	
10	75.0	392.60	1.100	1.26	4.80	392.95	7.5	220	240	241	51	73	73	
11	82.5	397.21	0.950	1.10	4.48	397.43	7.0	214	241	240	52	73	73	
12	90.0	401.81	0.900	1.04	4.36	401.79	6.5	214	240	240	53	74	74	
13	97.5	405.94	0.800	0.91	4.08	405.87	6.0	229	240	241	57	74	74	
14	105.0	410.04	0.850	0.96	4.20	410.07	6.0	229	240	239	55	74	74	
15	112.5	414.39	0.950	1.08	4.44	414.51	6.5	228	240	240	55	74	74	
16	120.0	418.93	1.050	1.19	4.67	419.18	7.0	228	240	241	56	74	74	
17	127.5	423.55	1.100	1.25	4.78	423.97	7.5	227	240	240	58	74	74	
18	135.0	428.58	1.300	1.47	5.19	429.16	8.5	228	240	238	60	74	74	
19	142.5	433.97	1.400	1.60	5.40	434.56	9.0	225	240	239	62	74	74	
20	150.0	439.49	1.500	1.71	5.59	440.15	9.5	224	240	239	64	74	74	
21	157.5	445.07	1.500	1.71	5.59	445.74	9.5	224	240	238	60	74	74	
22	165.0	450.60	1.400	1.60	5.41	451.15	9.0	223	240	239	55	74	74	
23	172.5	455.95	1.200	1.37	5.01	456.16	8.5	222	239	239	53	74	74	
24	180.0	460.76	1.000	1.15	4.59	460.75	7.5	220	240	240	53	74	74	
End Time	1115													
Run Time	180		Avg DH=	1.29			Avg Ts=	224.83				Avg Tm=	72.75	

Integrated Gas Sampling Data :

Bag No.	NA		Filter No.	GFF	
Bag Vol.	NA	liters	Nozzle No.	Glass 01	
Leak Rate	NA	cc/min	Nozzle Dn.	0.195	

Subtract volume for leak check 0.11 cu.ft

* Data Recorded on Field Data Sheet

MOISTURE RECOVERY DATA :

Impinger	1	2	3	4	5	6	7	Desiccant
Final wt., g	292.5	388.3	750.1	758.6	738.8	291.6	475.9	992.8
Initial wt., g	287.7	364.1	745.2	758.0	738.4	289.5	473.7	965.7
Difference	4.8	24.2	4.9	0.6	0.4	2.1	2.2	27.1

BARR

EPA OTM-45 - Field Data Sheet - Run 4

Project	Saint-Gobain	Meter ID	C17	Probe ID	5-8	Bar.Press.	29.75	in. Hg	Sample Train Leak Rate, cfm:		
Sample Location	RTO Inlet PCE01	Meter Y	0.9902	Pitot Tube No.	5-8	Stat Press.	-3.0	in. H2O	Pretest	0.000	at 15 in. Hg
Date	08/25/22	Orifice dH@	1.7912	Pitot Cp	0.84	CPM TC	M5FO-6		Posttest	0.000	at 9 in. Hg
Test	1 Run # 4			Liner Type:	Glass	IMP Out TC	9121		Pretest Pitot leak Check Pos	PASS	@ >3" w.c
Operators	TMR /MTP								Posttest Pitot leak Check Neg	PASS	@ >3" w.c

Sample Point	Sample Time DT	Actual Meter Vol Vm, ft3	Velocity Head DP, in. H_2O	Orifice DH in. H_2O	Ideal Point Volume Vm, ft^3	Ideal Meter Vol Vm, ft3	Sample Train Vacuum in. Hg	Stack Temp Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Impinger Outlet	Meter Inlet	Meter Outlet	
Start Time	1241	461.20												
1	7.5	465.55	0.900	1.02	4.32	465.52	4.5	228	241	238	67	74	74	
2	15.0	470.00	0.940	1.07	4.42	469.94	4.5	227	240	241	59	74	74	
3	22.5	474.59	1.150	1.30	4.89	474.83	5.0	228	241	244	54	74	74	
4	30.0	479.45	1.200	1.36	4.99	479.82	5.5	228	240	239	54	75	75	
5	37.5	484.49	1.200	1.36	5.00	484.82	5.5	229	241	240	54	75	75	
6	45.0	489.50	1.200	1.36	4.99	489.81	6.0	230	240	241	54	76	76	
7	52.5	494.85	1.400	1.59	5.40	495.21	7.0	229	241	241	54	76	76	
8	60.0	500.36	1.500	1.72	5.62	500.83	7.5	223	240	241	60	76	76	
9	67.5	506.18	1.600	1.87	5.85	506.67	8.5	212	240	238	54	76	76	
10	75.0	511.61	1.200	1.42	5.10	511.77	6.5	204	241	238	53	77	77	
11	82.5	516.88	1.200	1.43	5.12	516.90	6.5	200	239	241	53	76	76	
12	90.0	521.70	1.050	1.25	4.80	521.69	6.0	197	239	244	53	77	77	
13	97.5	526.15	0.900	1.03	4.36	526.05	5.0	226	240	242	59	77	77	
14	105.0	530.41	0.900	1.03	4.35	530.40	5.0	229	242	240	55	77	77	
15	112.5	534.71	0.950	1.09	4.48	534.87	5.0	226	241	241	55	77	77	
16	120.0	539.21	1.000	1.14	4.59	539.46	5.5	227	239	240	54	78	78	
17	127.5	543.79	1.050	1.21	4.72	544.17	6.0	225	240	239	55	78	78	
18	135.0	548.97	1.300	1.50	5.25	549.42	6.5	223	240	240	54	78	78	
19	142.5	554.63	1.450	1.67	5.54	554.97	7.5	223	240	241	53	78	78	
20	150.0	560.21	1.400	1.62	5.46	560.43	7.0	220	242	239	55	78	78	
21	157.5	565.50	1.300	1.50	5.26	565.69	6.5	220	240	240	57	78	78	
22	165.0	570.40	1.350	1.56	5.36	571.05	7.0	221	241	240	57	78	78	
23	172.5	576.05	1.350	1.56	5.36	576.41	7.0	221	240	240	58	78	78	
24	180.0	581.25	1.300	1.50	5.26	581.67	6.5	220	240	240	59	78	78	
End Time	1547													
Run Time	180		Avg DH=	1.38			Avg Ts=	221.50				Avg Tm=	76.63	

Integrated Gas Sampling Data :

Bag No.	NA		Filter No.	GFF	
Bag Vol.	NA	liters	Nozzle No.	Glass 01	
Leak Rate	NA	cc/min	Nozzle Dn.	0.195	

Subtract volume for leak check 0.12 cu.ft

* Data Recorded on Field Data Sheet

MOISTURE RECOVERY DATA :

Impinger	1	2	3	4	5	6	7	Desiccant	
Final wt., g	294.5	512.0	737.7	752.2	786.9	288.0	499.1	959.4	
Initial wt., g	289.0	473.8	740.0	752.2	786.5	291.6	496.5	936.2	
Difference	5.5	38.2	-2.3	0.0	0.4	-3.6	2.6	23.2	

BARR

EPA OTM 045
FIELD DATA SHEET

Project: Saint-Gobain Merrimack, NH | Meter ID: C17 | Probe ID: 5-3 | Bar. Pres: 29.60 in Hg
Smpl Loc: RTO Inlet | Meter Y: 0.9902 | Pitot ID: S-3 | Stat. Pres: -5.0 in H_2O
Test No.: 1 | Run: 1 | Orifice H@: 1.791 2 | Pitot Cp: 0.84 | Probe Lgth: 5 ft
Date: 8-24-22 | Operators: TMR, MTP | Liner Type: ☑ Glass ☐ Other

Sample Train Leak Rate (cfm)			
Pretest	0	at 15	in Hg
Posttest	0	at 17	in Hg
Pitot (3 in.) Pos. ☒ Neg. ☐			~~+2" W.C~~

Primary XAD Trap ID: T-3003 | Primary XAD TC ID: M23-5 | Break through XAD trap ID: T3007 | Break through XAD TC ID: M23-13 | SG Outlet TC ID: MSFO-8

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter ~~Inlet~~	Meter Outlet	Oxygen Content, %
	0	119.80												
1	7.5	123.80	0.84	0.97	11	218	248	241	47	62	65	70	230	
2	15.0	127.87	0.84	0.96	11	220	241	240	43	57	58	70	241	20.3
3	22.5	132.00	0.94	1.08	12	221	241	240	44	55	53	71	242	
4	30.0	136.20	1.00	1.15	14	223	241	239	45	56	53	71	239	20.3
5	37.5	140.42	0.95	1.09	14	223	239	240	46	56	54	71	238	
6	45.0	145.00	0.95	1.09	14	222	240	239	46	56	55	72	236	20.6
7	52.5	148.82	1.05	1.21	15	219	241	242	47	57	56	72	235	
8	60.0	153.00	1.25	1.45	17	217	241	242	47	57	56	72	235	20.6
9	67.5	157.12	1.10	1.28	15	214	239	240	46	57	56	72	230	
10	75.0	161.25	1.00	1.17	15	208	240	240	51	58	57	71	229	20.6
11	82.5	165.34	0.95	1.12	14	206	240	241	50	59	58	71	228	
12	90.0	173.42	0.90	1.06	14	207	240	240	48	57	56	71	227	20.6
1	97.5	177.12	0.62	0.71	10	220	240	241	49	61	60	71	228	
2	105.0	180.90	0.74	0.85	12	222	240	240	50	61	58	72	239	20.6
3	112.5	184.84	0.85	0.97	14	224	240	242	50	60	57	72	249	
4	120.0	188.89	0.95	1.09	15	221	240	241	51	60	56	73	251	20.6
5	127.5	192.97	1.00	1.16	16	220	240	240	52	61	59	73	248	
6	135.0	196.90	1.00	1.15	16	223	240	239	53	61	59	73	253	20.6
7	142.5	200.87	1.05	1.21	16	220	240	240	54	62	61	73	250	
8	150.0	204.92	1.15	1.33	16	221	240	240	54	63	62	73	248	20.6
9	157.5	208.82	1.25	1.44	17	223	239	240	54	62	62	73	253	
10	165.0	212.77	1.10	1.26	16	224	240	232	55	64	62	73	258	20.6
11	172.5	216.79	1.20	1.38	17	222	240	240	56	63	63	72	261	
12	180.0	725.05	1.00	1.15	16	222	240	242	56	64	67	72	260	20.6
Δ=	180	V_m 102.07		ΔH 1.14		Ts 219.2						— Tm=	71.83	

Mid-run leak check starting volume: 173.42
ending volume: 173.60

Mid-run leak check starting volume:
ending volume:

Initialization Values

Meter Temp	Oxygen Content	Moisture Content
69	20.0	2.5

Test Run Times

Start Time	End Time
0853	1267

ORSAT System

Bag No.	Bag Vol	cc/min * at 15 in Hg
NA-	Sec	EPA3A

Sample Train Components

Filter No.	Nozzle No.	Nozzle Dn
GFF	C1493 01	0.193

Nozzle Calibration

☐ See Run 1 ☐ See E-Copy
Tech. TMR Date 8-23-22

Nozzle No.	C1493 01
1	0.195
2	0.195
3	0.195
Avg. in.	0.195

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	300.0	399.2	741.7	750.5	737.8	294.2	494.7	983.8	
Initial wt., g	296.3	357.1	743.9	752	737.6	295.1	492.3	958.1	
Difference	3.7	42.1	-2.2	-1.5	0.2	-0.9	2.4	24.9	68.7

BARR

EPA OTM 045
FIELD DATA SHEET

Project	Saint-Gobain Merrimack, NH	Meter ID	C17	Probe ID	5-8	Bar. Pres	29.60 in Hg
Smpl Loc	RTO Inlet	Meter Y	0.9902	Pitot ID	5-8	Stat. Pres	-3.0 in H_2O
Test No.	1 Run 2	Orifice H@	1.7917	Pitot Cp	0.84	Probe Lgth	5 ft
Date	8-24-22	Operators	TMR, MTP	Liner Type: ☒ Glass	☐ Other		

Sample Train Leak Rate (cfm)				
Pretest	0	at	15	in Hg
Posttest	0	at	8	in Hg
Pitot (3 in.)	Pos. ☒	Neg. ☒	~~>2" W.C~~	

Primary XAD Trap ID: T-3010 Primary XAD TC ID: MZ3-16 Break through XAD trap ID: T-3014 Break through XAD TC ID: MZ3-11 SG Outlet TC ID: MSFO-6

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Probe (°F)	Filter (°F)	Prim XAD Inlet (°F)	Backup XAD (°F)	Impinger Outlet (°F)	Meter ~~Inlet~~ (°F)	Filter ~~Meter~~ Outlet (°F)	Oxygen Content, %
	0	225.30												
1	7.5	229.60	0.90	1.02	4.5	235	239	248	54	68	67	74	213	20.4
2	15.0	234.00	0.90	1.02	4.5	232	240	239	51	67	61	75	224	
3	22.5	238.30	0.97	1.10	5	234	240	245	50	64	51	75	228	20.5
4	30.0	242.17	1.05	1.20	5	230	240	238	51	65	55	75	237	
5	37.5	246.46	0.90	1.02	5.5	239	240	240	54	~~65~~	~~56~~	75	231	20.5
6	45.0	251.18	1.05	1.18	6	239	240	236	52	66	56	76	234	
7	52.5	256.59	1.50	1.70	8	237	240	242	54	65	54	76	236	20.5
8	60.0	262.20	1.50	1.72	8	228	240	241	54	65	55	76	235	
9	67.5	267.70	1.40	1.62	8	224	240	239	54	63	53	76	233	20.5
10	75.0	273.26	1.25	1.45	6.5	223	240	240	56	64	53	77	232	
11	82.5	278.51	1.30	1.50	8	224	240	239	57	62	54	77	231	20.5
12	90.0	283.96	1.10	1.28	7	221	240	241	55	63	54	77	229	
1	97.5	288.01	0.76	0.86	5	239	240	240	57	67	59	77	228	20.5
2	105.0	292.10	0.84	0.95	5.5	238	239	239	57	66	55	77	244	
3	112.5	296.72	0.97	1.10	6	236	241	242	56	66	55	77	251	20.6
4	120.0	301.28	1.05	1.20	6.5	231 ~~240~~	240	240	57	65	56	77	250	
5	127.5	306.29	1.20	1.39	7	225	240	239	57	64	55	77	256	20.6
6	135.0	311.48	1.30	1.51	7.5	222	238	240	56	62	56	77	260	
7	142.5	317.05	1.50	1.77	8	212	241	243	60	67	57	77	253	20.6
8	150.0	322.70	1.50	1.78	8	208	239	239	60	66	58	77	246	
9	157.5	328.20	1.40	1.68	8	201	241	241	59	65	58	77	250	20.7
10	165.0	333.60	1.20	1.45	7.5	194	241	241	60	66	59	77	247	
11	172.5	338.88	1.20	1.47	7.5	185	240	238	60	66	60	77	231	20.7
12	180.0	344.20	1.10	1.36	7	181	240	241	59	67	60	77	227	
Θ=	180	Vm 118.77		ΔH 1.35		Ts 222.4						—	Tm= 76.38	

Mid-run leak check starting volume:	283.96	Mid-run leak check starting volume:	
ending volume:	284.09	ending volume:	

Initialization Values			Test Run Times		ORSAT System			Sample Train Components		
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn
74	20.6	2.5	1323	1631	NA	- see	EPA3A	GFF	6/5/20?	0.195

Nozzle Calibration		
☒ See Run 1	☒	See E-Copy
Tech.	Date	
Nozzle No.		
1		
2		
3		
Avg. in.		

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	303.1	534.0	728.9	745.8	781.0	295.5	473.9	898.5	
Initial wt., g	296.2	493.4	731.2	746.2	780.4	297.3	469.2	877.1	
Difference	6.9	40.6	-2.3	-0.4	0.6	-1.8	4.7	21.4	69.7

BARR

EPA OTM 045
FIELD DATA SHEET

Project	Saint-Gobain Merrimack, NH	Meter ID	C17	Probe ID	S-3	Bar. Pres	29.75 in Hg
Smpl Loc	RTO Inlet	Meter Y	0.9902	Pitot ID	S-3	Stat. Pres	-3.0 in H_2O
Test No.	1 Run 3	Orifice H@	1.7912	Pitot Cp	0.84	Probe Lgth	5 ft
Date	8-25-22	Operators	TMR, MTP	Liner Type:	☒ Glass ☐ Other		

Sample Train Leak Rate (cfm)				
Pretest	0	at	15	in Hg
Posttest	0.007	at	10	in Hg
Pitot (3 in.) Pos. ☒ Neg. ☒ ~~2" W.C~~				

Primary XAD Trap ID: T-3017   Primary XAD TC ID: M23-5   Break through XAD trap ID: T-3021   Break through XAD TC ID: M23-17   SG Outlet TC ID: M5FO-8

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter ~~Inlet~~	~~Meter~~ Filter Outlet	Oxygen Content, %
	0	344.70												
1	7.5	349.10	1.00	1.13	5.5	227	239	241	43	59	61	69	200	20.0
2	15.0	353.35	0.90	1.01	5.0	230	240	240	41	55	51	70	223	
3	22.5	357.60	0.98	1.10	5.5	230	240	240	41	55	50	70	233	20.1
4	30.0	362.20	1.10	1.24	7.0	229	240	240	42	53	50	70	239	
5	37.5	366.82	1.05	1.18	7	228	240	239	42	53	49	71	236	20.7
6	45.0	371.52	1.10	1.24	7	228	240	239	43	53	50	71	235	
7	52.5	376.70	1.35	1.53	8	226	240	240	44	54	50	72	227	20.1
8	60.0	382.16	1.50	1.71	9	223	240	240	43	54	50	72	222	
9	67.5	387.46	1.30	1.49	8.5	220	240	240	44	53	50	73	228	20.1
10	75.0	392.60	1.10	1.26	7.5	220	240	241	45	54	51	73	228	
11	82.5	397.21	0.95	1.10	7	214	241	240	46	56	52	73	223	20.1
12	90.0	401.81	0.90	1.04	6.5	214	240	240	47	57	53	74	223	
1	97.5	405.94	0.80	0.91	6	229	240	241	50	60	57	74	227	20.1
2	105.0	410.04	0.85	0.96	6	229	240	239	49	59	55	74	247	
3	112.5	414.39	0.95	1.08	6.5	228	240	240	50	60	55	74	251	20.1
4	120.0	418.93	1.05	1.19	7	228	240	241	50	60	56	74	253	
5	127.5	423.55	1.10	1.25	7.5	227	240	240	51	60	58	74	249	20.1
6	135.0	428.58	1.30	1.47	8.5	228	240	238	52	61	60	74	258	
7	142.5	433.97	1.40	1.60	9	225	240	239	54	61	62	74	256	20.1
8	150.0	439.49	1.50	1.71	9.5	224	240	239	47	59	64	74	259	
9	157.5	445.07	1.50	1.71	9.5	224	240	238	43	56	60	74	256	20.1
10	165.0	450.60	1.40	1.60	9	223	240	239	43	54	55	74	260	
11	172.5	455.95	1.20	1.37	8.5	222	239	239	43	53	53	74	259	20.1
12	180.0	460.76	1.00	1.15	7.5	220	240	240	44	54	53	74	262	
θ=	180	Vm 115.95		ΔH 1.29		Ts 224.8							Tm= 72.75	

Mid-run leak check starting volume:	401.81	Mid-run leak check starting volume:	
ending volume:	401.92	ending volume:	

Nozzle Calibration		
☒ See Run 1	☒	See E-Copy
Tech.	Date	
Nozzle No.		
1		
2		
3		
Avg. in.		

Initialization Values: Meter Temp	Oxygen Content	Moisture Content	Test Run Times: Start Time	End Time	ORSAT System: Bag No.	Bag Vol	cc/min * at 15 in Hg	Sample Train Components: Filter No.	Nozzle No.	Nozzle Dn
69	20.6	3.0	808	1115	NA -	See	EPA 3A	6FF	Glass01	0.195

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	292.5	388.3	750.1	758.6	738.8	291.6	475.9	992.8	
Initial wt., g	287.7	364.1	745.2	758.0	738.4	289.5	473.7	965.7	
Difference	4.8	24.2	4.9	0.6	0.4	2.1	2.2	27.1	66.3

BARR

EPA OTM 045
FIELD DATA SHEET

Project	Saint-Gobain Merrimack, NH	Meter ID	C17	Probe ID	S-8	Bar. Pres	29.75	in Hg	
Smpl Loc	RTO Inlet	Meter Y	0.9902	Pitot ID	S-8	Stat. Pres	-3.0	in H_2O	
Test No.	1	Run	4	Orifice H@	1.791 2	Pitot Cp	0.84	Probe Lgth	5 ft
Date	8-25-22	Operators	TMR, MTP	Liner Type:	☑ Glass	☐ Other	T-2087		

Sample Train Leak Rate (cfm)			
Pretest	0.0	at 15	in Hg
Posttest	0.0	at 9	in Hg
Pitot (3 in.) Pos. ☒ Neg. ☒	~~>2" W.C~~		

Primary XAD Trap ID: Inlet-4 Front (T-2077) Primary XAD TC ID: M23-16 Break through XAD trap ID: Inlet 4-BT Break through XAD TC ID: ~~Inlet 4-BT~~ (M23-11) SG Outlet TC ID: MSFO-6

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter ~~Inlet~~	Meter ~~Outlet~~ Filter Outlet	Oxygen Content, %
	0	461.20												
1	7.5	465.55	0.90	1.02	4.5	228	241	238	56	64	67	74	238	20.1
2	15.0	470.00	0.90	1.07	4.5	227	240	241	55	61	59	74	247	
3	22.5	474.59	1.15	1.30	5	228	241	244	51	59	54	74	249	20.1
4	30.0	479.45	1.20	1.36	5.5	228	240	239	51	501	54	75	248	
5	37.5	484.49	1.20	1.36	5.5	229	241	240	51	58	54	75	247	20.1
6	45.0	489.50	1.20	1.36	6	230	240	241	53	57	54	76	247	
7	52.5	494.85	1.40	1.59	7	229	241	241	53	57	54	76	248	20.1
8	60.0	500.36	1.50	1.72	7.5	223	240	241	53	57	60	76	247	
9	67.5	506.18	1.60	1.87	8.5	212	240	238	52	58	54	76	244	20.2
10	75.0	511.61	1.20	1.42	6.5	204	241	238	52	56	53	77	242	
11	82.5	516.88	1.20	1.43	6.5	200	239	241	54	57	53	76	241	20.2
12	90.0	521.70	1.05	1.25	6	197	239	244	57	57	53	77	240	
1	97.5	526.15	0.90	1.03	5	226	240	242	58	63	59	77	244	20.1
2	105.0	530.41	0.90	1.03	5	229	242	240	56	60	55	77	255	
3	112.5	534.71	0.95	1.09	5	226	241	241	56	60	55	77	263	20.1
4	120.0	539.21	1.00	1.14	5.5	227	239	240	53	59	54	78	266	
5	127.5	543.79	1.05	1.21	6	225	240	239	52	60	55	78	260	20.2
6	135.0	548.97	1.30	1.50	6.5	223	240	240	52	501	54	78	258	
7	142.5	554.63	1.45	1.67	7.5	223	240	241	53	58	53	78	254	20.2
8	150.0	560.21	1.40	1.62	7	220	242	239	53	59	55	78	248	
9	157.5	565.50	1.30	1.50	6.5	220	240	240	53	60	57	78	242	20.2
10	165.0	570.40	1.35	1.56	7	221	241	240	53	60	57	78	247	
11	172.5	576.05	1.35	1.56	7	221	240	240	54	60	58	78	244	20.2
12	180.0	581.25	1.30	1.50	6.5	220	240	240	53	61	59	78	245	
Σ=	180	V_m 119.93		ΔH̄ 1.38		Ts̄ 221.5							Tm= 76.63	

Mid-run leak check starting volume:	527.30	Mid-run leak check starting volume:	
ending volume:	571.87	ending volume:	

Nozzle Calibration: ☑ See Run 1 ☐ See E-Copy

Initialization Values			Test Run Times		ORSAT System			Sample Train Components			Tech.	Date
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn	Nozzle No.	
73	20.6	3.00	1241	1547	NA-	See	EPA 3	GFF	Classic	0.195	1	
											2	
											3	
											Avg. in.	

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	294.5	512.0	737.7	752.2	786.9	288.0	499.1	459.4	
Initial wt., g	289.0	473.8	740.0	752.2	786.5	291.6	496.5	436.2	
Difference	5.5	38.2	-2.3	0.0	0.4	-3.6	2.6	23.2	64.0

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Inlet

Date 8/23, 24, 25
Operators QC

TEST RUN 1	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3003					T-3007		
	g	g	g	g	g	g	g	g
End	300.0	399.2	741.7	750.5	737.8	294.2	474.7	983.0
Start	296.3	357.1	743.9	752.0	737.6	295.1	472.3	958.1
CHANGE	3.7	42.1	-2.2	-1.5	0.2	-0.9	2.4	24.9
							MASS OF MOISTURE COLLECTED, g	68.7

TEST RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3010					T-3014		
	g	g	g	g	g	g	g	g
End	303.1	534.0	728.9	745.8	781.0	295.5	473.9	898.5
Start	296.2	493.4	731.2	746.2	780.4	297.3	469.2	877.1
CHANGE	6.9	40.6	-2.3	-0.4	0.6	-1.8	4.7	21.4
							MASS OF MOISTURE COLLECTED, g	69.7

TEST RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3017					T-3021		
	g	g	g	g	g	g	g	g
End	292.5	389.3	750.1	758.6	738.8	291.6	475.9	992.8
Start	287.7	364.1	745.2	758.0	738.4	289.5	473.7	965.7
CHANGE	4.8	24.2	4.9	0.6	0.4	2.1	2.2	27.1
							MASS OF MOISTURE COLLECTED, g	66.3

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-23-22	1 Kg	999.7
8-24-22	1 Kg	999.8
8-25-22	1 Kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Inlet

Date 8/25/22
Operators OC

TEST RUN 4	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	Inlet-4 Front					Inlet-4 B/T		
	g	g	g	g	g	g	g	g
End	294.5	512.0	737.7	752.2	786.9	288.0	499.1	959.4
Start	289.0	473.8	740.0	752.2	786.5	291.6	496.5	936.2
CHANGE	5.5	38.2	-2.3	0.0	0.4	-3.6	2.6	23.2

T-2077

MASS OF MOISTURE COLLECTED, g 64.0

T-2081

TEST RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								

MASS OF MOISTURE COLLECTED, g

TEST RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								

MASS OF MOISTURE COLLECTED, g

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-25-22	1 kg	999.7

BARR

EPA METHOD 2
FIELD DATA SHEET

Project	SAINT-GOBAIN
Sample Location	T.O. STACK
Date	2-22-22
Operators	TMZ, OSK
Duct Dimensions	71.0 inches
Port Length	5.5 inches
Pitot Tube No.	6-4 Cp 0.84
Manometer ID	C18 Bar. ID BA-04
Digital Therm ID	C18 T.C. ID 6-4

	Run 1	Run 2	Run 3	Run 4
Bar Press (In Hg)	29.65			
Stat. Press (In H_2O)	-0.46			
Temp - Dry Bulb °F	338			
Temp - Wet Bulb °F	120			
Moist Content - %	3.1			
O_2 %	19.1			
Time of Meas.	1000			

Pitot Leak Check Positive: OK Negative: OK

Traverse Point Information			Cyclonic	Velocity Head - Inches H_2O				Stack Temperature - °F			
Point Number	Inches From: Wall	Port	Flow ∠°	Run 1 ΔP	Run 2 ΔP	Run 3 ΔP	Run 4 ΔP	Run 1 Temp.	Run 2 Temp.	Run 3 Temp.	Run 4 Temp.
A-1	1.51	7.01	4	0.50							
-2	4.76	10.26	4	0.57							
-3	8.39	13.89	4	0.56							
-4	12.58	18.08	4	0.57							
-5	17.75	23.25	4	0.56							
-6	25.25	30.75	8	0.50							
-7	45.75	51.25	9	0.79							
-8	53.25	58.75	9	0.85							
-9	58.42	63.92	8	1.20							
-10	62.61	68.11	4	1.60							
-11	66.24	71.74	4	1.80							
-12	69.49	74.99	2	1.60							
B-1				0.40							
-2				0.43							
-3				0.41							
-4				0.32							
-5				0.36							
-6				0.36							
-7				0.80							
-8				0.98							
-9				1.31							
-10				1.26							
-11				1.52							
-12				1.59							

See Report Figures

Schematic of Duct Cross-Section

	Run 1	Run 2	Run 3	Run 4
Stack Pres. - In Hg				
Duct Area - Sq Ft.				
Mole Weight - Md				
Mole Weight - Ms				
Avg. Temp. - °F				
Average $\sqrt{\Delta P}$				
Gas Vel - Ft/Sec				
ACFM				
SCFM				
DSCFM				

BARR

EPA OTM-45 - Field Data Sheet - Run 2

Project	Saint Gobain	Meter ID	C-18	Probe ID	6-2	Bar.Press.	29.60	in. Hg	Sample Train Leak Rate, cfm:		
Sample Location	RTO Outlet PCE01	Meter Y	1.0053	Pitot Tube No.	6-2	Stat Press.	-0.46	in. H2O	Pretest	0.000	at 15 in. Hg
Date	08/24/22	Orifice dH@	1.8521	Pitot Cp	0.84	CPM TC	M5FO-4		Posttest	0.000	at 12 in. Hg
Test	2 Run # 2			Liner Type:	Glass	IMP Out TC	64		Pretest Pitot leak Check Pos	PASS	@ >3" w.c
Operators	TMR /DJK					Barometer ID	BA-04		Posttest Pitot leak Check Neg	PASS	@ >3" w.c

Sample Point	Sample Time DT	Actual Meter Vol Vm, ft3	Velocity Head DP, in. H_2O	Orifice DH in. H_2O	Ideal Point Volume Vm, ft^3	Ideal Meter Vol Vm, ft3	Sample Train Vacuum in. Hg	Stack Temp Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Impinger Outlet	Meter Inlet	Meter Outlet	
Start Time	1323	718.30												
1	7.5	721.70	0.370	0.67	3.39	721.69	3.5	340	249	225	67	75	75	
2	15.0	725.18	0.400	0.70	3.48	725.17	3.5	366	249	226	66	75	75	
3	22.5	729.00	0.480	0.85	3.84	729.00	4.0	354	249	225	57	75	75	
4	30.0	733.05	0.550	0.98	4.12	733.13	4.5	346	249	225	55	76	76	
5	37.5	737.14	0.650	1.12	4.39	737.52	5.0	382	248	225	55	76	76	
6	45.0	741.88	0.680	1.22	4.59	742.11	6.0	347	251	225	55	76	76	
7	52.5	746.67	0.700	1.23	4.61	746.72	6.0	365	249	225	52	77	77	
8	60.0	752.00	0.980	1.78	5.55	752.27	7.0	335	249	226	54	77	77	
9	67.5	758.50	1.400	2.43	6.47	758.74	9.0	373	248	225	54	78	78	
10	75.0	764.96	1.600	2.88	7.05	765.79	10.0	345	251	226	55	78	78	
11	82.5	772.39	2.000	3.42	7.66	773.45	12.0	389	249	225	53	78	78	
12	90.0	780.71	1.900	3.44	7.69	781.14	11.5	341	249	225	52	79	79	
13	97.5	785.41	0.700	1.24	4.64	785.78	5.5	361	249	226	54	78	78	
14	105.0	790.22	0.750	1.38	4.88	790.66	6.0	331	249	225	48	79	79	
15	112.5	795.00	0.700	1.21	4.58	795.25	5.5	382	249	225	47	79	79	
16	120.0	799.27	0.590	1.08	4.34	799.58	5.0	333	249	225	48	79	79	
17	127.5	803.31	0.440	0.79	3.72	803.30	4.5	346	249	226	49	79	79	
18	135.0	807.05	0.430	0.79	3.71	807.01	4.5	332	249	225	50	79	79	
19	142.5	812.52	1.100	1.91	5.76	812.77	7.5	375	249	225	47	79	79	
20	150.0	818.14	1.000	1.85	5.66	818.43	7.0	326	249	225	48	79	79	
21	157.5	824.70	1.500	2.58	6.68	825.11	9.5	385	249	225	48	79	79	
22	165.0	832.00	1.700	3.18	7.40	832.51	11.5	317	249	225	49	79	79	
23	172.5	839.12	1.600	2.94	7.12	839.63	10.5	330	249	225	51	79	79	
24	180.0	846.06	1.500	2.72	6.86	846.49	10.0	340	249	225	52	79	79	
End Time	1631													
Run Time	180		Avg DH=	1.77			Avg Ts=	351.71				Avg Tm=	77.79	

Integrated Gas Sampling Data :

Bag No.	NA		Filter No.	GFF	
Bag Vol.	NA	liters	Nozzle No.	Glass 02	
Leak Rate	NA	cc/min	Nozzle Dn.	0.225	

Subtract volume for leak check 0.17 cu.ft

* Data Recorded on Field Data Sheet

MOISTURE RECOVERY DATA :

Impinger	1	2	3	4	5	6	7	Desiccant	
Final wt., g	301.0	569.9	738.1	735.4	784.3	295.7	351.8	952.3	
Initial wt., g	293.0	505.9	741.0	735.4	784.1	297.2	349.3	928.3	
Difference	8.0	64.0	-2.9	0.0	0.2	-1.5	2.5	24.0	

BARR

EPA OTM-45 - Field Data Sheet - Run 3

Project	Saint Gobain	Meter ID	C-18	Probe ID	6-4	Bar.Press.	29.75	in. Hg	Sample Train Leak Rate, cfm:			
Sample Location	RTO Outlet PCE01	Meter Y	1.0053	Pitot Tube No.	6-4	Stat Press.	-0.46	in. H2O	Pretest	0.000	at 15	in. Hg
Date	08/25/22	Orifice dH@	1.8521	Pitot Cp	0.84	CPM TC	M5FO-9		Posttest	0.008	at 10	in. Hg
Test	2 Run # 3			Liner Type:	Glass	IMP Out TC	64		Pretest Pitot leak Check Pos		PASS	@ >3" w.c
Operators	TMR /DJK								Posttest Pitot leak Check Neg		PASS	@ >3" w.c

Sample Point	Sample Time DT	Actual Meter Vol Vm, ft3	Velocity Head DP, in. H_2O	Orifice DH in. H_2O	Ideal Point Volume Vm, ft^3	Ideal Meter Vol Vm, ft3	Sample Train Vacuum in. Hg	Stack Temp Ts, ℉	Sample Train Temperatures, ℉					
									Probe	Filter	Impinger Outlet	Meter Inlet	Meter Outlet	
Start Time	808	846.90												
1	7.5	851.70	0.800	1.36	4.81	851.71	5.0	373	250	226	59	71	71	
2	15.0	856.56	0.800	1.44	4.95	856.66	5.0	328	249	225	51	71	71	
3	22.5	861.37	0.760	1.27	4.65	861.31	4.5	391	249	225	52	72	72	
4	30.0	865.73	0.630	1.06	4.25	865.57	4.0	387	249	225	51	73	73	
5	37.5	869.62	0.470	0.84	3.81	869.37	3.5	333	248	225	52	73	73	
6	45.0	873.00	0.460	0.82	3.74	873.11	3.5	342	248	225	51	73	73	
7	52.5	878.00	1.000	1.65	5.32	878.43	6.5	401	257	225	50	73	73	
8	60.0	884.27	1.400	2.50	6.52	884.95	8.5	339	248	225	50	74	74	
9	67.5	891.16	1.700	2.83	6.93	891.88	10.0	399	249	225	51	75	75	
10	75.0	898.20	1.700	3.02	7.17	899.05	10.0	345	250	225	53	76	76	
11	82.5	905.23	1.700	3.06	7.23	906.28	10.0	335	246	225	53	76	76	
12	90.0	912.59	1.500	2.69	6.78	913.06	9.0	338	250	226	52	75	75	
13	97.5	916.60	0.460	0.85	3.82	916.88	4.5	317	249	225	55	75	75	
14	105.0	920.29	0.420	0.77	3.63	920.51	4.5	324	245	225	52	76	76	
15	112.5	923.79	0.400	0.67	3.39	923.90	4.0	400	250	225	53	76	76	
16	120.0	927.56	0.450	0.82	3.77	927.67	4.5	323	249	224	51	76	76	
17	127.5	931.35	0.500	0.82	3.77	931.44	4.5	409	249	225	53	76	76	
18	135.0	935.74	0.640	1.17	4.48	935.92	5.5	326	250	228	52	76	76	
19	142.5	940.31	0.750	1.24	4.61	940.54	6.0	409	254	225	53	75	75	
20	150.0	945.64	0.980	1.74	5.47	946.00	7.0	344	249	225	53	75	75	
21	157.5	951.13	1.050	1.75	5.48	951.48	7.0	397	249	225	55	75	75	
22	165.0	958.00	1.700	3.02	7.17	958.65	10.0	345	244	225	55	75	75	
23	172.5	965.03	1.750	2.85	6.97	965.62	10.0	418	249	225	56	75	75	
24	180.0	972.29	1.600	2.88	7.01	972.63	9.0	334	249	226	59	75	75	
End Time	1115													
Run Time	180		Avg DH=	1.71			Avg Ts=	360.71				Avg Tm=	74.46	

Integrated Gas Sampling Data :

Bag No.	NA		Filter No.	GFF	
Bag Vol.	NA	liters	Nozzle No.	Glass 02	
Leak Rate	NA	cc/min	Nozzle Dn.	0.225	

Subtract volume for leak check 0.13 cu.ft

* Data Recorded on Field Data Sheet

MOISTURE RECOVERY DATA :

Impinger	1	2	3	4	5	6	7	Desiccant
Final wt., g	318.6	550.3	747.5	747.1	753.9	310.8	385.4	965.6
Initial wt., g	308.2	490.0	751.3	747.6	752.9	311.9	382.2	939.1
Difference	10.4	60.3	-3.8	-0.5	1.0	-1.1	3.2	26.5

BARR

EPA OTM-45 - Field Data Sheet - Run 4

Project	Saint Gobain	Meter ID	C-18	Probe ID	6-2	Bar.Press.	29.75	in. Hg	Sample Train Leak Rate, cfm:		
Sample Location	RTO Outlet PCE01	Meter Y	1.0053	Pitot Tube No.	6-2	Stat Press.	-0.46	in. H2O	Pretest	0.000	at 15 in. Hg
Date	08/25/22	Orifice dH@	1.8521	Pitot Cp	0.84	CPM TC	M5FO-10		Posttest	0.000	at 10 in. Hg
Test	2 Run # 4			Liner Type:	Glass	IMP Out TC	64		Pretest Pitot leak Check Pos	PASS	@ >3" w.c
Operators	TMR /DJK								Posttest Pitot leak Check Neg	PASS	@ >3" w.c

Sample Point	Sample Time DT	Actual Meter Vol Vm, ft3	Velocity Head DP, in. H_2O	Orifice DH in. H_2O	Ideal Point Volume Vm, ft^3	Ideal Meter Vol Vm, ft3	Sample Train Vacuum in. Hg	Stack Temp Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Impinger Outlet	Meter Inlet	Meter Outlet	
Start Time	1241	972.70												
1	7.5	977.71	0.850	1.48	5.04	977.74	5.0	356	250	225	62	75	75	
2	15.0	982.75	0.830	1.41	4.92	982.66	5.0	380	249	225	53	75	75	
3	22.5	987.41	0.700	1.24	4.62	987.28	4.5	345	249	225	54	75	75	
4	30.0	991.40	0.610	1.03	4.20	991.48	4.0	390	249	225	54	76	76	
5	37.5	995.13	0.450	0.81	3.74	995.22	3.5	337	250	225	54	76	76	
6	45.0	998.86	0.450	0.77	3.64	998.86	3.5	380	250	226	54	76	76	
7	52.5	1003.93	0.950	1.70	5.40	1004.26	6.5	342	250	226	53	77	77	
8	60.0	1010.30	1.500	2.54	6.59	1010.85	8.5	389	249	225	52	77	77	
9	67.5	1017.37	1.700	3.01	7.18	1018.02	9.5	350	249	225	51	77	77	
10	75.0	1024.30	1.700	2.86	7.00	1025.02	9.5	393	248	226	52	78	78	
11	82.5	1031.69	1.750	3.16	7.35	1032.37	10.0	337	249	225	52	78	78	
12	90.0	1039.37	1.750	2.99	7.16	1039.53	10.0	381	249	225	53	78	78	
13	97.5	1043.10	0.400	0.73	3.56	1043.09	4.5	326	250	226	58	78	78	
14	105.0	1046.70	0.400	0.73	3.54	1046.63	4.5	333	248	225	53	78	78	
15	112.5	1050.30	0.400	0.72	3.52	1050.16	4.5	343	248	226	52	78	78	
16	120.0	1053.91	0.400	0.72	3.54	1053.70	4.5	334	250	226	51	78	78	
17	127.5	1057.82	0.520	0.87	3.89	1057.59	5.0	395	248	225	52	79	79	
18	135.0	1062.33	0.640	1.16	4.49	1062.08	5.5	333	248	225	53	78	78	
19	142.5	1067.10	0.820	1.37	4.87	1066.95	6.0	398	248	225	53	79	79	
20	150.0	1071.75	0.750	1.31	4.75	1071.70	6.0	367	250	225	55	79	79	
21	157.5	1077.30	1.000	1.82	5.60	1077.30	7.0	333	249	224	56	79	79	
22	165.0	1083.07	1.400	2.38	6.39	1083.69	8.5	389	249	225	55	79	79	
23	172.5	1090.35	1.700	3.15	7.35	1091.04	10.0	318	250	226	56	79	79	
24	180.0	1097.65	1.600	2.86	7.00	1098.04	9.0	347	248	225	56	79	79	
End Time	1547													
Run Time	180		Avg DH=	1.70			Avg Ts=	358.17				Avg Tm=	77.54	

Integrated Gas Sampling Data :

Bag No.	NA		Filter No.	GFF	
Bag Vol.	NA	liters	Nozzle No.	Glass 02	
Leak Rate	NA	cc/min	Nozzle Dn.	0.225	

Subtract volume for leak check 0.12 cu.ft

* Data Recorded on Field Data Sheet

MOISTURE RECOVERY DATA :

Impinger	1	2	3	4	5	6	7	Desiccant	
Final wt., g	297.2	543.5	729.4	735.2	740.6	277.3	401.0	967.3	
Initial wt., g	290.8	490.4	732.7	735.7	739.5	278.6	397.5	944.3	
Difference	6.4	53.1	-3.3	-0.5	1.1	-1.3	3.5	23.0	

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EPA OTM 045
FIELD DATA SHEET

Leak check
0.010 ft³/min @ 11.5 in Hg
Through probe

Project	Saint-Gobain Merrimack, NH	Meter ID	C18	Probe ID	6-4	Bar. Pres	29.60	in Hg
Smpl Loc	RTO Outlet	Meter Y	1.0053	Pitot ID	6-21	Stat. Pres	-0.46	in H_2O
Test No.	2	Run 1	Orifice H@	1.8521	Pitot Cp	0.84	Probe Lgth	6 ft
Date	9-24-22	Operators	TMR, OJK	Liner Type: [X] Glass	[ ] Other			

Sample Train Leak Rate (cfm)			
Pretest	0	at 15	in Hg
Posttest	.010	at 11	in Hg
Pitot (3 in.) Pos. [ ] Neg. [X]			~~2" W.C~~

Primary XAD Trap ID: T-3024 Primary XAD TC ID: M23-4 Break through XAD trap ID: T-3028 Break through XAD TC ID: M23-12 SG Outlet TC ID: M5F09

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter ~~Inlet~~	Filter ~~Meter~~ Outlet	Oxygen Content, %
		589.30												
A-1	7.5	593.14	0.84	1.46	5	360	257	251	45	60	67	71	250	
2	15	598.00	0.84	1.41	5	395	249	240	43	57	63	71	268	20.0
3	22.5	602.70	0.70	1.26	5	333	250	230	42	55	57	71	272	
4	30	606.92	0.56	1.03	4.5	318	249	225	43	55	57	72	267	20.2
5	37.5	610.74	0.45	0.82	4.5	323	246	225	43	56	56	72	259	
6	45	614.50	0.45	0.70	4.5	367	250	225	43	56	56	72	253	20.3
7	52.5	619.63	1.10	1.95	7.5	350	249	225	43	55	56	73	251	
8	60	625.86	1.40	2.51	8.5	341	243	225	45	54	55	73	254	20.0
9	67.5	632.39	1.60	2.71	9.5	389	249	225	46	53	56	73	251	
10	75	639.54	1.80	3.27	10.5	332	247	225	48	53	58	74	247	20.2
11	82.5	647.20	2.00	3.58	11.5	344	246	225	48	53	57	73	244	
12	90	655.61	1.60	2.94	10	322	249	225	49	53	59	74	245	20.0
B-1	97.5	659.44	0.41	0.74	4	341	250	225	48	61	63	73	246	
2	105	662.88	0.35	0.65	4	318	249	224	48	62	60	74	244	20.1
3	112.5	666.60	0.46	0.80	4.5	364	249	225	46	61	58	75	249	
4	120	670.54	0.50	0.91	5	336	249	225	49	62	58	75	254	20.0
5	127.5	674.74	0.60	1.04	5	374	249	225	47	61	57	74	253	
6	135	679.00	0.60	1.09	5	336	250	224	48	61	57	75	255	20.0
7	142.5	683.80	0.75	1.39	6	368	253	225	48	60	56	74	254	
8	150	689.42	1.10	2.04	7.5	316	250	226	50	60	58	75	240	20.0
9	157.5	695.65	1.40	2.36	9	396	249	225	51	58	59	76	247	
10	165	702.58	1.70	3.11	10.5	331	248	224	54	60	61	76	245	20.0
11	172.5	709.73	1.80	3.15	11	365	248	225	56	61	66	76	243	
12	180	717.35	1.90	3.42	11	343	248	223	56	60	65	76	244	20.2
Σ=	180	V_m 128.87		ΔH 1.85		Ts 348.4						Tm=	93.67	

Mid-run leak check starting volume:	655.61	Mid-run leak check starting volume:	
ending volume:	655.79	ending volume:	

Initialization Values			Test Run Times		ORSAT System			Sample Train Components		
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn
70	14.1	3.0	0853	1209	NA-	5L EPA	3A	61955	61955 02	0.225

Nozzle Calibration		
[ ] See Run 1	[ ] See E-Copy	
Tech. TMR	Date 8-23-22	
Nozzle No.	61955 02	
1	0.225	
2	0.225	
3	0.225	
Avg. in.	0.225	

MID Point leak check was 0.000 CFM @ 11.5 in Hg

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	293.8	557.4	743.7	746.6	754.2	289.1	383.0	977.4	
Initial wt., g	286.6	487.4	748.2	748.1	753.9	290.2	379.4	967.8	
Difference	7.2	70.3	-4.6	-1.5	0.3	-1.1	3.6	9.6	103.8

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EPA OTM 045
FIELD DATA SHEET

Project	Saint-Gobain Merrimack, NH	Meter ID	C18	Probe ID	6-2	Bar. Pres	29.60 in Hg
Smpl Loc	RTO Outlet	Meter Y	1.0053	Pitot ID	6-2	Stat. Pres	-0.46 in H_2O
Test No.	2 Run 2	Orifice H@	1.8521	Pitot Cp	0.84	Probe Lgth	6 ft
Date	8-24-22	Operators	TMZ, OJK	Liner Type: [X] Glass	[ ] Other		

Sample Train Leak Rate (cfm)			
Pretest	0	at 15	in Hg
Posttest	0	at 12	in Hg
Pitot (3 in.) Pos. [X] Neg. [X]	~~>2" W.C~~		

Primary XAD Trap ID: T-3031 Primary XAD TC ID: M2315 Break through XAD trap ID: T-3035 Break through XAD TC ID: M23-16 SG Outlet TC ID: MSFO-4

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter ~~Inlet~~	Filter ~~Meter~~ Outlet	Oxygen Content, %
		718.30												
1	7.5	721.70	0.37	0.67	2.5	340	249	225	63	49	67	75	241	19.9
2	15	725.18	0.40	0.70	3.5	366	249	226	59	48	66	75	246	
3	22.5	729.00	0.48	0.85	4	354	249	225	56	45	57	75	245	20.1
4	30	733.05	0.55	0.98	4.5	346	249	225	54	44	55	76	243	
5	37.5	737.14	0.65	1.12	5	382	248	225	54	43	55	76	244	19.9
6	45	741.88	0.68	1.22	6	347	251	225	53	44	55	76	245	
7	52.5	746.67	0.70	1.23	6	365	249	225	53	44	52	77	245	20.1
8	60	752.00	0.98	1.78	7	335	249	226	53	43	54	77	245	
9	67.5	758.50	1.40	2.43	9	373	248	225	53	44	54	78	244	20.0
10	75	764.96	1.60	2.88	10	345	251	226	53	44	55	78	243	
11	82.5	772.39	2.00	3.42	12	389	249	225	51	42	53	78	242	19.9
12	90	780.71	1.90	3.44	11.5	341	249	225	50	42	52	79	243	
1	97.5	785.41	0.70	1.24	5.5	361	249	226	54	40	54	78	240	20.0
2	105	790.22	0.75	1.38	6	331	249	225	52	50	48	79	244	
3	112.5	795.00	0.70	1.21	5.5	382	249	225	51	46	47	79	252	20.2
4	120	799.27	0.59	1.08	5	333	249	225	50	46	48	79	251	
5	127.5	803.31	0.44	0.79	4.5	346	249	226	51	46	49	79	255	20.2
6	135	807.05	0.43	0.79	4.5	332	249	225	51	45	50	79	253	
7	142.5	812.52	1.10	1.91	7.5	375	249	225	50	45	47	79	251	20.1
8	150	818.14	1.00	1.85	7	326	249	225	50	45	48	79	250	
9	157.5	824.70	1.50	2.58	9.5	385	249	225	49	44	48	79	248	20.1
10	165	832.00	1.70	3.18	11.5	317	249	225	49	44	49	79	247	
11	172.5	839.12	1.60	2.94	10.5	330	249	225	49	44	51	79	246	20.3
12	180	846.06	1.50	2.72	10	340	249	225	49	45	52	79	245	
θ=	180	Vm 127.59		ΔH 1.77		Ts 351.71						77.79	Tm=	

Mid-run leak check starting volume:	780.71	Mid-run leak check starting volume:	
ending volume:	780.88	ending volume:	

Initialization Values			Test Run Times		ORSAT System			Sample Train Components		
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn
74	20.0	3.0	1323	1631	NA -	See EPA 3A		6EF	6(45)02	0.225

Nozzle Calibration		
[X] See Run 1	[X]	See E-Copy
Tech.	Date	
Nozzle No.		
1		
2		
3		
Avg. in.		

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	201.0	569.9	738.1	735.4	784.3	295.7	357.8	952.3	
Initial wt., g	193.0	505.9	741.0	735.4	784.1	297.6	349.3	928.3	
Difference	8.0	64.0	-2.9	0.0	0.2	-1.5	7.5	24.0	94.2

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EPA OTM 045
FIELD DATA SHEET

Project	Saint-Gobain Merrimack, NH	Meter ID	C18	Probe ID	6-4	Bar. Pres	29.75	in Hg	
Smpl Loc	RTO Outlet	Meter Y	1.0053	Pitot ID	6-4	Stat. Pres	-0.46	in H_2O	
Test No.	2	Run	3	Orifice H@	1.8521	Pitot Cp	0.84	Probe Lgth	6 ft
Date	8-25-22	Operators	TMR, OSK	Liner Type: ☒ Glass	☐ Other				

Sample Train Leak Rate (cfm)			
Pretest	0	at 15	in Hg
Posttest	0.008	at 10	in Hg
Pitot (3 in.) Pos. ☒ Neg. ☑		~~32 W.C~~	

Primary XAD Trap ID: T-3038 Primary XAD TC ID: M23-17 Break through XAD trap ID: T-3042 Break through XAD TC ID: M23-14 SG Outlet TC ID: M5F0-9

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F: Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter ~~Inlet~~	Meter ~~Outlet~~	Oxygen Content, %
	0	846.90												
1	7.5	851.70	0.80	1.36	5	373	250	226	47	57	59	71	239	19.5
2	15.0	856.56	0.80	1.44	5	328	249	225	45	55	51	71	241	
3	22.5	861.31	0.76	1.27	4.5	391	249	225	46	55	52	72	244	19.5
4	30.0	865.73	0.63	1.06	4.0	387	249	225	43	54	51	73	243	
5	37.5	869.62	0.47	0.84	3.5	333	248	225	41	54	52	73	242	19.5
6	45.0	873.00	0.46	0.82	3.5	342	248	225	43	54	51	73	247	
7	52.5	878.00	1.00	1.65	6.5	401	257	225	45	55	50	73	246	19.4
8	60.0	884.27	1.40	2.50	8.5	379	248	225	46	54	50	74	245	
9	67.5	891.16	1.70	2.83	10	399	249	225	47	53	51	75	244	19.6
10	75.0	898.20	1.70	3.02	10	345	250	225	47	52	53	76	243	
11	82.5	905.23	1.70	3.06	10	335	246	225	48	54	51	76	242	19.5
12	90.0	912.59	1.50	2.69	9	338	250	226	47	53	52	75	241	
1	97.5	916.60	0.46	0.85	4.5	317	249	225	45	55	55	75	240	19.4
2	105.0	920.29	0.42	0.77	4.5	324	245	225	41	55	52	76	241	
3	112.5	923.79	0.40	0.67	4	400	250	225	41	56	53	76	242	19.5
4	120.0	927.56	0.45	0.82	4.5	323	249	224	40	55	51	76	242	
5	127.5	931.35	0.50	0.82	4.5	409	249	225	41	56	53	76	243	19.4
6	135.0	935.74	0.64	1.17	5.5	326	250	228	41	54	52	76	244	
7	142.5	940.31	0.75	1.24	6	409	254	225	42	55	53	75	252	19.4
8	150.0	945.64	0.98	1.74	7	344	249	225	44	56	53	75	254	
9	157.5	951.13	1.05	1.75	7	397	249	225	46	56	55	75	256	19.4
10	165.0	958.00	1.70	3.02	10	345	244	225	47	54	55	75	255	
11	172.5	965.03	1.75	2.85	10	418	249	225	48	55	56	75	257	19.5
12	180.0	972.29	1.60	2.88	9	334	249	226	50	54	59	75	256	
Σ=	180	V_m 125.26		ΔH 1.71		Ts 360.7							Tm= 74.46	

Mid-run leak check starting volume:	912.59	Mid-run leak check starting volume:	
ending volume:	912.72	ending volume:	

Initialization Values			Test Run Times		ORSAT System			Sample Train Components		
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn
70	20.0	3.2	808	1115	NA -	see	EPA3A	6FF	Glass02	0.225

Nozzle Calibration		
☑ See Run 1	☐ See E-Copy	
Tech.	Date	
Nozzle No.		
1		
2		
3		
Avg. in.		

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	378.6	550.3	747.5	747.1	753.9	310.8	385.4	965.6	
Initial wt., g	368.2	490.0	751.3	747.6	752.9	311.9	382.2	939.1	
Difference	10.4	60.3	-3.8	-0.5	1.0	-1.1	3.2	26.5	96.0

Field Blank started on stack @ 1012

END @ 1312

BARR

EPA OTM 045
FIELD DATA SHEET

Project	Saint-Gobain Merrimack, NH	Meter ID	C18	Probe ID	6-2	Bar. Pres	29.75 in Hg
Smpl Loc	RTO Outlet	Meter Y	1.0053	Pitot ID	6-2	Stat. Pres	-10.46 in H_2O
Test No.	2 Run 4	Orifice H@	1.8521	Pitot Cp	0.84	Probe Lgth	6 ft
Date	8-25-22	Operators	TMR, DJK	Liner Type:	☒ Glass ☐ Other		

Sample Train Leak Rate (cfm)			
Pretest	0	at 15	in Hg
Posttest	0	at 10	in Hg
Pitot (3 in.)	Pos. ☒	Neg. ☒	~~>2" W.C~~

Primary XAD Trap ID: T-2084 OUT4-Front Primary XAD TC ID: M23-13 Break through XAD trap ID: T-2088 OUT4-BT Break through XAD TC ID: M23-10 ~~OUT4-BT~~ SG Outlet TC ID: M5FO-10

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Probe (°F)	Filter (°F)	Prim XAD Inlet (°F)	Backup XAD (°F)	Impinger Outlet (°F)	Meter ~~Inlet~~ (°F)	Filter ~~Meter~~ Outlet (°F)	Oxygen Content, %
		972.70												
1	7.5	977.71	0.85	1.48	5	356	250	225	47	60	62	75	241	19.7
2	15	982.75	0.83	1.41	5	380	249	225	45	56	53	75	242	
3	22.5	987.41	0.70	1.24	4.5	345	249	225	46	56	54	75	245	19.7
4	30	991.40	0.61	1.03	4	390	249	225	47	56	54	76	244	
5	37.5	995.13	0.45	0.81	3.5	337	250	225	46	56	54	76	246	19.4
6	45	998.86	0.45	0.77	3.5	380	250	226	46	56	54	76	247	
7	52.5	1003.93	0.95	1.70	6.5	342	250	226	46	55	53	77	249	19.4
8	60	1010.30	1.50	2.54	8.5	389	249	225	47	54	52	77	250	
9	67.5	1017.37	1.70	3.01	9.5	350	249	225	48	52	51	77	248	19.5
10	75	1024.30	1.70	2.86	9.5	393	248	226	48	52	52	78	249	
11	82.5	1031.69	1.75	3.16	10	337	249	225	49	52	52	78	251	19.5
12	90	1039.37	1.75	2.99	10	381	249	225	50	53	53	78	252	/
1	97.5	1043.10	0.40	0.73	4.5	326	250	226	47	58	58	78	253	19.5
2	105	1046.70	0.40	0.73	4.5	333	248	225	46	56	53	78	254	
3	112.5	1050.30	0.40	0.72	4.5	343	248	226	46	55	52	78	256	19.4
4	120	1053.91	0.40	0.72	4.5	334	250	226	45	55	51	78	258	
5	127.5	1057.82	0.52	0.87	5	395	248	225	46	56	52	79	257	19.4
6	135	1062.33	0.64	1.16	5.5	333	248	225	47	56	53	78	258	
7	142.5	1067.10	0.82	1.37	6	398	248	225	48	57	53	79	259	19.4
8	150	1071.75	0.75	1.31	6	367	250	225	48	58	55	79	258	
9	157.5	1077.30	1.00	1.82	7	333	249	224	50	58	56	79	260	19.6
10	165	1083.07	1.40	2.38	8.5	389	249	225	49	56	55	79	262	
11	172.5	1090.35	1.70	3.15	10	318	250	226	49	56	56	79	260	19.3
12	180	1097.65	1.60	2.86	9	347	248	225	50	55	52	79	261	
θ=	180	Vm 124.83		ΔH 1.70		Ts 358.2						—	Tm= 77.54	

Mid-run leak check starting volume:	1039.37	Mid-run leak check starting volume:	
ending volume:	1039.49	ending volume:	

Initialization Values			Test Run Times		ORSAT System			Sample Train Components		
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn
73	20.0	3.5	1241	1547	NA -	see	EPA 3A	6FT	6IX507	0.225

Nozzle Calibration	
☐ See Run 1	☒ See E-Copy
Tech.	Date
Nozzle No.	
1	
2	
3	
Avg. in.	

MOISTURE RECOVERY:

Impinger	XAD Prim	Knockout 1	DI Imp 1	DI Imp 2	DI Imp 3	XAD Brk thr	Knockout 2	Dessicant	Total
Final wt., g	297.2	543.5	729.4	735.2	740.6	277.3	401.0	967.3	
Initial wt., g	290.8	490.4	732.7	735.7	739.5	278.6	397.5	944.3	
Difference	6.4	53.1	-3.3	-0.5	1.1	-1.3	3.5	23.0	82.0

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Outlet

Date 8/23, 24, 25
Operators DC

TEST ____ RUN 1	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3024					T-3028		
	g	g	g	g	g	g	g	g
End	293.8	557.7	743.9	746.6	754.2	289.1	383.0	977.4
Start	286.6	487.4	748.5	748.1	753.9	290.2	379.4	947.8
CHANGE	7.2	70.3	-4.6	-1.5	0.3	-1.1	3.6	29.6
							MASS OF MOISTURE COLLECTED, g	103.8

TEST ____ RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3031					T-3035		
	g	g	g	g	g	g	g	g
End	301.0	569.9	738.1	735.4	784.3	295.7	351.8	952.3
Start	293.0	505.9	741.0	735.4	784.1	297.2	349.3	928.3
CHANGE	8.0	64.0	-2.9	0.0	0.2	-1.5	2.5	24.0
							MASS OF MOISTURE COLLECTED, g	94.3

TEST ____ RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3038					T-3042		
	g	g	g	g	g	g	g	g
End	318.6	550.3	747.5	747.1	753.9	310.8	385.4	965.6
Start	308.2	490.0	751.3	747.6	752.9	311.9	382.2	939.1
CHANGE	10.4	60.3	-3.8	-0.5	1.0	-1.1	3.2	26.5
							MASS OF MOISTURE COLLECTED, g	96.0

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-23-22	1 Kg	999.7
8-24-22	1 Kg	999.8
8-25-22	1 Kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Outlet

Date 8-25-22
Operators DC

TEST RUN 1	RUN 4	Impinger /Trap Mass weights						
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	Out-4 front					Out-4 BT		
	g	g	g	g	g	g	g	g
End	297.2	543.5	729.4	735.2	740.6	277.3	401.0	962.3
Start	290.8	490.4	732.7	735.7	739.5	278.6	397.5	944.3
CHANGE	6.4	53.1	-3.3	-0.5	1.1	-1.3	3.5	23.0
	T-2084					MASS OF MOISTURE COLLECTED, g	T-2088	82.0

TEST RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
						MASS OF MOISTURE COLLECTED, g		

TEST RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
						MASS OF MOISTURE COLLECTED, g		

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-25-22	1 kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St. Gobain
Project No.
Source:
Sample Location: Blank Trains

Date 8/23, 24, 25
Operators DC

Proof TEST ____ RUN 1 Blank	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3052					T-3056		
	g	g	g	g	g	g	g	g
End	294,0	487,4	742,9	742,2	752,8		379,4	947,8
Start	294,0	487,4	742,8	742,2	752,8	298,1	379,4	947,8
CHANGE	0	0	,1	0	0	298,1	~~379,4~~	0,0
MASS OF MOISTURE COLLECTED, g								

FBT TEST ____ RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3045					T-3049		
	g	g	g	g	g	g	g	g
End	297,2	508,2	745,4	738,3	789,6	296,8	352,2	948,3
Start	297,0	507,7	744,5	737,9	789,2	295,5	352,1	947,2
CHANGE								
MASS OF MOISTURE COLLECTED, g								

TEST ____ RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
MASS OF MOISTURE COLLECTED, g								

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-23-22	1 Kg	999.7
8-24-22	1 Kg	999.8
8-25-22	1 Kg	999.7

Appendix C

Laboratory Reports and Sample Chain of Custody

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

OTM-45 Laboratory Results Summary
Trip Blank
RTO Outlet (PCE01)

	XAD Resin Trap			
Laboratory Sample ID	**140-28651-13**			
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**
Perfluorobutanoic acid (PFBA)	0		10.0	9.40
Perfluoropentanoic acid (PFPeA)	0		1.00	0.450
Perfluorohexanoic acid (PFHxA)	0		1.00	0.520
Perfluoroheptanoic acid (PFHpA)	0		3.00	2.60
Perfluorooctanoic acid (PFOA)	0		1.00	0.660
Perfluorononanoic acid (PFNA)	0		1.00	0.890
Perfluorodecanoic acid (PFDA)	0		1.00	0.210
Perfluoroundecanoic acid (PFUnA)	0		1.00	0.270
Perfluorododecanoic acid (PFDoA)	0		1.00	0.120
Perfluorotridecanoic acid (PFTriA)	0		1.00	0.170
Perfluorotetradecanoic acid (PFTeA)	0		1.00	0.230
Perfluorobutanesulfonic acid (PFBS)	0		1.00	0.520
Perfluorohexanesulfonic acid (PFHxS)	0		1.00	0.260
Perfluoroheptanesulfonic acid (PFHpS)	0		1.00	0.200
Perfluorooctanesulfonic acid (PFOS)	0		1.00	0.150
Perfluorodecanesulfonic acid (PFDS)	0		1.00	0.200
Perfluorooctanesulfonamide (FOSA)	0		1.00	0.230
Perfluoropentanesulfonic acid (PFPeS)	0		1.00	0.210
Perfluorononanesulfonic acid (PFNS)	0		1.00	0.160
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		1.00	0.120
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		1.00	0.190
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		1.00	0.0640
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		10.0	8.70
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		1.00	0.160
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		20.0	11.0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		1.00	0.180
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		1.00	0.180
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		2.00	1.10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		1.00	0.170
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		1.00	0.370
Perfluoro-n-octadecanoic acid (PFODA)	0	*- *1	1.00	0.640
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		20.0	19.8
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		1.00	0.770
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		1.00	0.660

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

OTM-45 Laboratory Results Summary
Trip Blank
RTO Outlet (PCE01)

	XAD Resin Trap			
Laboratory Sample ID	**140-28651-13**			
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**
Perfluoro-n-hexadecanoic acid (PFHxDA)	0		1.00	0.290
Perfluorododecanesulfonic acid (PFDoS)	0	*-	1.00	0.180
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		1.00	0.160
10:2 Fluorotelomer carboxylic acid	0		1.00	0.520
6:2 Fluorotelomer carboxylic acid	0		1.00	1.00
7:3 Fluorotelomer carboxylic acid	0		1.00	0.560
6:2 Fluorotelemer unsaturated acid	0		1.00	0.200
8:2 Fluorotelomer carboxylic acid	0		1.00	0.380
8:2 Fluorotelemer unsaturated acid	0		1.00	0.200
5:3 Fluorotelomer carboxylic acid	0	*+	1.00	0.700
3-Perfluoropropylpropanoic acid	0		1.00	0.310
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		1.00	0.120
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		1.00	0.130
Perfluoro-4-ethylcyclohexanesulfonic acid	0		1.00	0.140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		1.00	0.100

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

OTM-45 Laboratory Results Summary
Reagent Blanks (FSMB)
RTO Outlet (PCE01)

	XAD Resin Trap				MEOH/5% NH4OH				Filter				DI Water			
Laboratory Sample ID	**140-28651-10**				**140-28651-9**				**140-28651-12**				**140-28651-11**			
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**
Perfluorobutanoic acid (PFBA)	0	Cl M	10.0	9.40	0		10.0	9.40	0		2.00	1.30	0		0.880	0.352
Perfluoropentanoic acid (PFPeA)	0		1.00	0.450	0		1.00	0.450	0		1.00	0.180	0		0.880	0.114
Perfluorohexanoic acid (PFHxA)	0		1.00	0.520	0		1.00	0.520	0		1.00	0.210	0		0.880	0.334
Perfluoroheptanoic acid (PFHpA)	0		3.00	2.60	0		3.00	2.60	0		1.00	0.620	0		0.880	0.268
Perfluorooctanoic acid (PFOA)	1.02		1.00	0.660	0		1.00	0.660	0		1.00	0.650	0		0.880	0.167
Perfluorononanoic acid (PFNA)	0		1.00	0.890	0		1.00	0.890	0		1.00	0.0850	0		0.880	0.0924
Perfluorodecanoic acid (PFDA)	0		1.00	0.210	0		1.00	0.210	0		1.00	0.250	0		0.880	0.114
Perfluoroundecanoic acid (PFUnA)	0		1.00	0.270	0		1.00	0.270	0		1.00	0.170	0		0.880	0.132
Perfluorododecanoic acid (PFDoA)	0		1.00	0.120	0		1.00	0.120	0		1.00	0.100	0		0.880	0.0924
Perfluorotridecanoic acid (PFTriA)	0		1.00	0.170	0		1.00	0.170	0		1.00	0.140	0		0.880	0.141
Perfluorotetradecanoic acid (PFTeA)	0		1.00	0.230	0		1.00	0.230	0		1.00	0.170	0		0.880	0.198
Perfluorobutanesulfonic acid (PFBS)	0		1.00	0.520	0		1.00	0.520	0		1.00	0.890	0		0.880	0.0792
Perfluorohexanesulfonic acid (PFHxS)	0		1.00	0.260	0		1.00	0.260	0		1.00	0.110	0		0.880	0.101
Perfluoroheptanesulfonic acid (PFHpS)	0		1.00	0.200	0		1.00	0.200	0		1.00	0.110	0		0.880	0.202
Perfluorooctanesulfonic acid (PFOS)	0.159	J I	1.00	0.150	0		1.00	0.150	0		1.00	0.450	0		0.880	0.114
Perfluorodecanesulfonic acid (PFDS)	0		1.00	0.200	0		1.00	0.200	0		1.00	0.110	0		0.880	0.145
Perfluorooctanesulfonamide (FOSA)	0		1.00	0.230	0		1.00	0.230	0		1.00	0.0880	0		0.880	0.352
Perfluoropentanesulfonic acid (PFPeS)	0		1.00	0.210	0		1.00	0.210	0		1.00	0.120	0		0.880	0.106
Perfluorononanesulfonic acid (PFNS)	0		1.00	0.160	0		1.00	0.160	0		1.00	0.120	0		0.880	0.0660
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		1.00	0.120	0		1.00	0.120	0		1.00	0.120	0		0.880	0.180
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		1.00	0.190	0		1.00	0.190	0		1.00	0.140	0		0.880	0.132
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		1.00	0.0640	0		1.00	0.0640	0		1.00	0.0910	0		0.880	0.101
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		10.0	8.70	0		10.0	8.70	0		5.00	4.00	0		0.880	0.242
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		1.00	0.160	0		1.00	0.160	0		1.00	0.140	0		0.880	0.229
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		20.0	11.0	0		20.0	11.0	0		5.00	4.70	0		0.880	0.414
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		1.00	0.180	0		1.00	0.180	0		1.00	0.0980	0		0.880	0.114
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		1.00	0.180	0		1.00	0.180	0		1.00	0.200	0		0.880	0.123
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		2.00	1.10	0		2.00	1.10	0		1.00	0.140	0		0.880	0.246
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		1.00	0.170	0		1.00	0.170	0		1.00	0.320	0		0.880	0.189
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		1.00	0.370	0		1.00	0.370	0		1.00	0.120	0		0.880	0.326
Perfluoro-n-octadecanoic acid (PFODA)	0	*- *1	1.00	0.640	0	*- *1	1.00	0.640	0		1.00	0.220	0		0.880	0.224
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		20.0	19.8	0		20.0	19.8	0		5.00	4.90	0		0.880	0.180
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		1.00	0.770	0		1.00	0.770	0		1.00	0.150	0		0.880	0.150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		1.00	0.660	0		1.00	0.660	0		1.00	0.160	0		0.880	0.238
Perfluoro-n-hexadecanoic acid (PFHxDA)	0		1.00	0.290	0		1.00	0.290	0		1.00	0.290	0		0.880	0.251
Perfluorododecanesulfonic acid (PFDoS)	0	*-	1.00	0.180	0	*-	1.00	0.180	0		1.00	0.0950	0		0.880	0.141

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

OTM-45 Laboratory Results Summary
Reagent Blanks (FSMB)
RTO Outlet (PCE01)

	XAD Resin Trap				MEOH/5% NH4OH				Filter				DI Water			
Laboratory Sample ID	**140-28651-10**				**140-28651-9**				**140-28651-12**				**140-28651-11**			
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		1.00	0.160	0		1.00	0.160	0		1.00	0.150	0		0.880	0.255
10:2 Fluorotelomer carboxylic acid	0		1.00	0.520	0		1.00	0.520	0		1.00	0.420	0		0.880	0.528
6:2 Fluorotelomer carboxylic acid	0		1.00	1.00	0		1.00	1.00	0		1.00	0.430	0		0.880	0.528
7:3 Fluorotelomer carboxylic acid	0		1.00	0.560	0		1.00	0.560	0		1.00	0.350	0		0.880	0.660
6:2 Fluorotelemer unsaturated acid	0		1.00	0.200	0		1.00	0.200	0		1.00	0.140	0		0.880	0.158
8:2 Fluorotelomer carboxylic acid	0		1.00	0.380	0		1.00	0.380	0		1.00	0.350	0		0.880	0.572
8:2 Fluorotelemer unsaturated acid	0		1.00	0.200	0		1.00	0.200	0		1.00	0.220	0		0.880	0.352
5:3 Fluorotelomer carboxylic acid	0	*+	1.00	0.700	0	*+	1.00	0.700	0		1.00	0.480	0		0.880	0.528
3-Perfluoropropylpropanoic acid	0		1.00	0.310	0		1.00	0.310	0		1.00	0.290	0		0.880	0.387
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		1.00	0.120	0		1.00	0.120	0		1.00	0.150	0		0.880	0.255
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		1.00	0.130	0		1.00	0.130	0		1.00	0.200	0		0.880	0.348
Perfluoro-4-ethylcyclohexanesulfonic acid	0		1.00	0.140	0		1.00	0.140	0		1.00	0.220	0		0.880	0.282
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		1.00	0.100	0		1.00	0.100	0		1.00	0.140	0		0.880	0.224

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

OTM-45 Laboratory Results Summary
Sample Train Proof Blank (STPB)
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water and Rinse				Fraction 4, ng Back up XAD trap				Fractions 1-3 Total Mass, ng	
Laboratory Sample ID	140-28651-5				140-28651-6				140-28651-7				140-28651-8					
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**
Perfluorobutanoic acid (PFBA)	0		1.97	1.28	0	M Cl	10.0	9.40	0		0.640	0.256	0	M Cl	10.0	9.40	0	ND M Cl
Perfluoropentanoic acid (PFPeA)	0		0.986	0.177	0		1.00	0.450	0		0.640	0.0832	0		1.00	0.450	0	ND
Perfluorohexanoic acid (PFHxA)	0		0.986	0.207	0		1.00	0.520	0		0.640	0.243	0		1.00	0.520	0	ND
Perfluoroheptanoic acid (PFHpA)	0		0.986	0.611	0		3.00	2.60	0		0.640	0.195	0		3.00	2.60	0	ND
Perfluorooctanoic acid (PFOA)	0		0.986	0.641	0		1.00	0.660	0		0.640	0.122	1.00		1.00	0.660	0	ND x
Perfluorononanoic acid (PFNA)	0		0.986	0.0838	0		1.00	0.890	0		0.640	0.0672	0		1.00	0.890	0	ND
Perfluorodecanoic acid (PFDA)	0		0.986	0.246	0		1.00	0.210	0		0.640	0.0832	0		1.00	0.210	0	ND
Perfluoroundecanoic acid (PFUnA)	0		0.986	0.168	0		1.00	0.270	0		0.640	0.0960	0		1.00	0.270	0	ND
Perfluorododecanoic acid (PFDoA)	0		0.986	0.0986	0		1.00	0.120	0		0.640	0.0672	0		1.00	0.120	0	ND
Perfluorotridecanoic acid (PFTriA)	0		0.986	0.138	0		1.00	0.170	0		0.640	0.102	0		1.00	0.170	0	ND
Perfluorotetradecanoic acid (PFTeA)	0		0.986	0.168	0		1.00	0.230	0		0.640	0.144	0		1.00	0.230	0	ND
Perfluorobutanesulfonic acid (PFBS)	0		0.986	0.877	0		1.00	0.520	0		0.640	0.0576	0		1.00	0.520	0	ND
Perfluorohexanesulfonic acid (PFHxS)	0		0.986	0.108	0		1.00	0.260	0		0.640	0.0736	0		1.00	0.260	0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0		0.986	0.108	0		1.00	0.200	0		0.640	0.147	0		1.00	0.200	0	ND
Perfluorooctanesulfonic acid (PFOS)	0		0.986	0.444	0.165	J	1.00	0.150	0		0.640	0.0832	0.196	J I	1.00	0.150	0.165	ND J I x
Perfluorodecanesulfonic acid (PFDS)	0		0.986	0.108	0		1.00	0.200	0		0.640	0.106	0		1.00	0.200	0	ND
Perfluorooctanesulfonamide (FOSA)	0		0.986	0.0867	0		1.00	0.230	0		0.640	0.256	0		1.00	0.230	0	ND
Perfluoropentanesulfonic acid (PFPeS)	0		0.986	0.118	0		1.00	0.210	0		0.640	0.0768	0		1.00	0.210	0	ND
Perfluorononanesulfonic acid (PFNS)	0		0.986	0.118	0		1.00	0.160	0		0.640	0.0480	0		1.00	0.160	0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		0.986	0.118	0		1.00	0.120	0		0.640	0.131	0		1.00	0.120	0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		0.986	0.138	0		1.00	0.190	0		0.640	0.0960	0		1.00	0.190	0	ND
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		0.986	0.0897	0		1.00	0.0640	0		0.640	0.0736	0		1.00	0.0640	0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		4.93	3.94	0		10.0	8.70	0		0.640	0.176	0		10.0	8.70	0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		0.986	0.138	0		1.00	0.160	0		0.640	0.166	0		1.00	0.160	0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		4.93	4.63	0		20.0	11.0	0		0.640	0.301	0		20.0	11.0	0	ND
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		0.986	0.0966	0		1.00	0.180	0		0.640	0.0832	0		1.00	0.180	0	ND
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		0.986	0.197	0		1.00	0.180	0		0.640	0.0896	0		1.00	0.180	0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		0.986	0.138	0		2.00	1.10	0		0.640	0.179	0		2.00	1.10	0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		0.986	0.315	0		1.00	0.170	0		0.640	0.138	0		1.00	0.170	0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		0.986	0.118	0		1.00	0.370	0		0.640	0.237	0		1.00	0.370	0	ND
Perfluoro-n-octadecanoic acid (PFODA)	0		0.986	0.217	0	*- *1	1.00	0.640	0		0.640	0.163	0	*- *1	1.00	0.640	0	ND *-*1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		4.93	4.83	0		20.0	19.8	0		0.640	0.131	0		20.0	19.8	0	ND
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		0.986	0.148	0		1.00	0.770	0		0.640	0.109	0		1.00	0.770	0	ND
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		0.986	0.158	0		1.00	0.660	0		0.640	0.173	0		1.00	0.660	0	ND
Perfluoro-n-hexadecanoic acid (PFHxDA)	0		0.986	0.286	0		1.00	0.290	0		0.640	0.182	0		1.00	0.290	0	ND
Perfluorododecanesulfonic acid (PFDoS)	0		0.986	0.0936	0	*-	1.00	0.180	0		0.640	0.102	0	*-	1.00	0.180	0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		0.986	0.148	0		1.00	0.160	0		0.640	0.186	0		1.00	0.160	0	ND
10:2 Fluorotelomer carboxylic acid	0		0.986	0.414	0		1.00	0.520	0		0.640	0.384	0		1.00	0.520	0	ND
6:2 Fluorotelomer carboxylic acid	0		0.986	0.424	0		1.00	1.00	0		0.640	0.384	0		1.00	1.00	0	ND
7:3 Fluorotelomer carboxylic acid	0		0.986	0.345	0		1.00	0.560	0		0.640	0.480	0		1.00	0.560	0	ND

OTM-45 Laboratory Results Summary
Sample Train Proof Blank (STPB)
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water and Rinse				Fraction 4, ng Back up XAD trap				Fractions 1-3 Total Mass, ng	
Laboratory Sample ID	140-28651-5				140-28651-6				140-28651-7				140-28651-8					
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**
6:2 Fluorotelemer unsaturated acid	0		0.986	0.138	0		1.00	0.200	0		0.640	0.115	0		1.00	0.200	0	ND
8:2 Fluorotelomer carboxylic acid	0		0.986	0.345	0		1.00	0.380	0		0.640	0.416	0		1.00	0.380	0	ND
8:2 Fluorotelemer unsaturated acid	0		0.986	0.217	0		1.00	0.200	0		0.640	0.256	0		1.00	0.200	0	ND
5:3 Fluorotelomer carboxylic acid	0		0.986	0.473	0	*+	1.00	0.700	0		0.640	0.384	0	*+	1.00	0.700	0	ND *+
3-Perfluoropropylpropanoic acid	0		0.986	0.286	0		1.00	0.310	0		0.640	0.282	0		1.00	0.310	0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		0.986	0.148	0		1.00	0.120	0		0.640	0.186	0		1.00	0.120	0	ND
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		0.986	0.197	0		1.00	0.130	0		0.640	0.253	0		1.00	0.130	0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		0.986	0.217	0		1.00	0.140	0		0.640	0.205	0		1.00	0.140	0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		0.986	0.138	0		1.00	0.100	0		0.640	0.163	0		1.00	0.100	0	ND

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 20, 2022

OTM-45 Laboratory Results Summary
Sample Train Field Blank (STFB)
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Back up XAD trap				STFB Total Mass Fractions 1-3, ng		Proof Blank combined fractions 1-3
Laboratory Sample ID	**140-28651-1**				**140-28651-2**				**140-28651-3**				**140-28651-4**						
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Result, ng**
Perfluorobutanoic acid (PFBA)	0		2.00	1.30	0	M CI	10.0	9.40	0		0.580	0.232	0	M CI	10.0	9.40	0	ND M CI	0
Perfluoropentanoic acid (PFPeA)	0.308	J	1.00	0.180	0		1.00	0.450	0		0.580	0.0754	0		1.00	0.450	0.308	ND J	0
Perfluorohexanoic acid (PFHxA)	0.281	J	1.00	0.210	0		1.00	0.520	0		0.580	0.220	0		1.00	0.520	0.281	ND J	0
Perfluoroheptanoic acid (PFHpA)	0		1.00	0.620	0		3.00	2.60	0		0.580	0.177	0		3.00	2.60	0	ND	0
Perfluorooctanoic acid (PFOA)	0		1.00	0.650	0		1.00	0.660	0		0.580	0.110	1.00		1.00	0.660	0	ND xy	0
Perfluorononanoic acid (PFNA)	0		1.00	0.0850	0		1.00	0.890	0		0.580	0.0609	0		1.00	0.890	0	ND	0
Perfluorodecanoic acid (PFDA)	0		1.00	0.250	0		1.00	0.210	0		0.580	0.0754	0		1.00	0.210	0	ND	0
Perfluoroundecanoic acid (PFUnA)	0		1.00	0.170	0		1.00	0.270	0		0.580	0.0870	0		1.00	0.270	0	ND	0
Perfluorododecanoic acid (PFDoA)	0		1.00	0.100	0		1.00	0.120	0		0.580	0.0609	0		1.00	0.120	0	ND	0
Perfluorotridecanoic acid (PFTriA)	0		1.00	0.140	0		1.00	0.170	0		0.580	0.0928	0		1.00	0.170	0	ND	0
Perfluorotetradecanoic acid (PFTeA)	0		1.00	0.170		R	1.00	0.230	0		0.580	0.130	0		1.00	0.230	0	ND R	0
Perfluorobutanesulfonic acid (PFBS)	0		1.00	0.890	0		1.00	0.520	0		0.580	0.0522	0		1.00	0.520	0	ND	0
Perfluorohexanesulfonic acid (PFHxS)	0		1.00	0.110	0		1.00	0.260	0		0.580	0.0667	0		1.00	0.260	0	ND	0
Perfluoroheptanesulfonic acid (PFHpS)	0		1.00	0.110	0		1.00	0.200	0		0.580	0.133	0		1.00	0.200	0	ND	0
Perfluorooctanesulfonic acid (PFOS)	0		1.00	0.450	0.209	J	1.00	0.150	0		0.580	0.0754	0		1.00	0.150	0.209	ND J xy	0.165
Perfluorodecanesulfonic acid (PFDS)	0		1.00	0.110	0		1.00	0.200	0		0.580	0.0957	0		1.00	0.200	0	ND	0
Perfluorooctanesulfonamide (FOSA)	0		1.00	0.0880	0		1.00	0.230	0		0.580	0.232	0		1.00	0.230	0	ND	0
Perfluoropentanesulfonic acid (PFPeS)	0		1.00	0.120	0		1.00	0.210	0		0.580	0.0696	0		1.00	0.210	0	ND	0
Perfluorononanesulfonic acid (PFNS)	0		1.00	0.120	0		1.00	0.160	0		0.580	0.0435	0		1.00	0.160	0	ND	0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		1.00	0.120	0		1.00	0.120	0		0.580	0.119	0		1.00	0.120	0	ND	0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		1.00	0.140	0		1.00	0.190	0		0.580	0.0870	0		1.00	0.190	0	ND	0
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		1.00	0.0910	0		1.00	0.0640	0		0.580	0.0667	0		1.00	0.0640	0	ND	0
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		5.00	4.00	0		10.0	8.70	0		0.580	0.159	0		10.0	8.70	0	ND	0
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		1.00	0.140	0		1.00	0.160	0		0.580	0.151	0		1.00	0.160	0	ND	0
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		5.00	4.70	0		20.0	11.0	0		0.580	0.273	22.6		20.0	11.0	0	ND	0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		1.00	0.0980	0		1.00	0.180	0		0.580	0.0754	0		1.00	0.180	0	ND	0
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		1.00	0.200	0		1.00	0.180	0		0.580	0.0812	0		1.00	0.180	0	ND	0
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		1.00	0.140	0		2.00	1.10	0		0.580	0.162	0		2.00	1.10	0	ND	0
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		1.00	0.320	0		1.00	0.170	0		0.580	0.125	0		1.00	0.170	0	ND	0
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		1.00	0.120		R	1.00	0.370	0		0.580	0.215	0		1.00	0.370	0	ND R	0
Perfluoro-n-octadecanoic acid (PFODA)	0		1.00	0.220		*- *1 R	1.00	0.640	0		0.580	0.148	0	*- *1	1.00	0.640	0	ND *-*1 R	0
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		5.00	4.90		R	20.0	19.8	0		0.580	0.119	0		20.0	19.8	0	ND R	0
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		1.00	0.150		R	1.00	0.770	0		0.580	0.0986	0		1.00	0.770	0	ND R	0
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		1.00	0.160		R	1.00	0.660	0		0.580	0.157	0		1.00	0.660	0	ND R	0
Perfluoro-n-hexadecanoic acid (PFHxDA)	0		1.00	0.290		R	1.00	0.290	0		0.580	0.165	0		1.00	0.290	0	ND R	0
Perfluorododecanesulfonic acid (PFDoS)	0		1.00	0.0950	0	*-	1.00	0.180	0		0.580	0.0928	0	*-	1.00	0.180	0	ND *-	0
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		1.00	0.150	0		1.00	0.160	0		0.580	0.168	0		1.00	0.160	0	ND	0
10:2 Fluorotelomer carboxylic acid	0		1.00	0.420	0		1.00	0.520	0		0.580	0.348	0		1.00	0.520	0	ND	0
6:2 Fluorotelomer carboxylic acid	0		1.00	0.430	0		1.00	1.00	0		0.580	0.348	0		1.00	1.00	0	ND	0
7:3 Fluorotelomer carboxylic acid	0		1.00	0.350	0		1.00	0.560	0		0.580	0.435	0		1.00	0.560	0	ND	0
6:2 Fluorotelemer unsaturated acid	0		1.00	0.140	0		1.00	0.200	0		0.580	0.104	0		1.00	0.200	0	ND	0
8:2 Fluorotelomer carboxylic acid	0		1.00	0.350	0		1.00	0.380	0		0.580	0.377	0		1.00	0.380	0	ND	0

OTM-45 Laboratory Results Summary
Sample Train Field Blank (STFB)
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Back up XAD trap				STFB Total Mass Fractions 1-3, ng		Proof Blank combined fractions 1-3
Laboratory Sample ID	**140-28651-1**				**140-28651-2**				**140-28651-3**				**140-28651-4**						
Compound	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Reporting Limit**	**MDL**	**Result, ng**	**Flag**	**Result, ng**
8:2 Fluorotelemer unsaturated acid	0		1.00	0.220	0		1.00	0.200	0		0.580	0.232	0		1.00	0.200	0	ND	0
5:3 Fluorotelomer carboxylic acid	0		1.00	0.480	0	*+	1.00	0.700	0		0.580	0.348	0	*+	1.00	0.700	0	ND *+	0
3-Perfluoropropylpropanoic acid	0		1.00	0.290	0		1.00	0.310	0		0.580	0.255	0		1.00	0.310	0	ND	0
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		1.00	0.150	0		1.00	0.120	0		0.580	0.168	0		1.00	0.120	0	ND	0
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		1.00	0.200	0		1.00	0.130	0		0.580	0.229	0		1.00	0.130	0	ND	0
Perfluoro-4-ethylcyclohexanesulfonic acid	0		1.00	0.220	0		1.00	0.140	0		0.580	0.186	0		1.00	0.140	0	ND	0
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		1.00	0.140	0		1.00	0.100	0		0.580	0.148	0		1.00	0.100	0	ND	0

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ANALYTICAL REPORT

Eurofins Knoxville
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Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-28651-1
Client Project/Site: St.Gobain CPT OTM-45 - QC
Revision: 3

For:
Barr Engineering Company
5150 West 76th Street
Edina, Minnesota 55439

Attn: Tom Kuchinski

Authorized for release by:
10/20/2022 9:42:33 AM

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Table of Contents

Definitions/Glossary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R	Result Unusable
S1-	Surrogate recovery exceeds control limits, low biased.

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: 140-28651-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative
140-28651-1

Revision Notes

Revision 1: This report was revised on 9/21/22 to correct the analyte reporting order in the front half fractions.

Revision 2: This report was revised on 10/19/22 to add “R” qualifiers to target analytes with IDA recoveries less than 10%.

Revision 3: This report was revised on 10/20/22 to remove additional calculation pages from the PFBA EMPC calculations.

Comments

Target results with “R” flagged results or reported as “NR” are associated with IDAs with recoveries that cannot be quantitated. These results are considered unusable.

Field surrogates are added to both the primary and breakthrough XAD modules. The two surrogates were evaluated in the condensate fraction to assess breakthrough.

Hits for PFBA flagged with a “CI” are artificially elevated due to a chromatographic interference. These results should be considered estimated. Estimated maximum concentrations are presented following this narrative.

Receipt

The samples were received on 8/29/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.7º C.

LCMS

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT (140-28651-2), T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT (140-28651-4), T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT (140-28651-6), T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT (140-28651-8), T-3058 CPT QC OTM-45 XAD-2 RB (140-28651-10), C-1520 MEDIA CHECK OTM-45 XAD (140-28651-13), (LCSD 140-64806/3-B) and (MB 140-64806/14-B). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

One or more Isotope Dilution Analyte (IDA) recoveries associated with the following samples are below the method recommended limit: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT (140-28651-2), C-1520 MEDIA CHECK OTM-45 XAD (140-28651-13), (LCSD 140-64806/3-B) and (MB 140-64806/1-B). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

One or more Isotope Dilution Analyte (IDA) recoveries associated with these samples are below the method recommended limit of 10%. Generally, re-extraction of samples should be performed if the signal to noise ratio for any IDA is less than 10:1 or the IDA recoveries fall below 10%. With the low IDA recoveries, the target analytes associated with these IDAs may have a high bias. The entire sample was consumed during the extraction or analysis, therefore the data has been reported. The following samples are impacted: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT (140-28651-2) and (LCS 140-64806/2-B)

Method 537 (modified): The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside acceptance limits for multiple analytes. There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported.

Method 537 (modified): The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside control limits for multiple analytes.

PFBA results in the samples have been re-calculated based on the relative peak height ratio to the PFBA daily standard. Back-up calculations and documentation are attached.		
Sample	Estimated PFBA Result	Units
140-28651-2	4.20	ng/sample
140-28651-4	3.18	ng/sample
140-28651-6	2.33	ng/sample
140-28651-8	3.20	ng/sample
140-28651-10	3.29	ng/sample

Calculation Legend:

CCVISc = quantitated concentration of the calibration standard (0.95898 ng/mL)
CCVISh = height of PFBA in the calibration standard (1397482)
Sh = height of PFBA in the sample
DF = dilution factor (2)
FV = final volume of extract (10 mL/sample)
IV = initial volume of extract (360 mL)
SF = amount of extract used in concentration (180 mL)
IDArec = IDA recovery in decimal format

Concentration (ng/sample) = (CCVISc * Sh * DF * FV * IV) / (SF * CCVISh * IDArec)

Report Date: 30-Sep-2022 15:17:03 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville

Area/Height Percent Report

Data File: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_007.d
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 13-Sep-2022 20:36:45 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0025130-007 ccvis
Misc. Info.: Plate: 10 Rack: 1
Operator ID: Cochran, Bobby Instrument ID: LCA
Sublist: chrom-PFC_LCA*sub19

Method: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m
Limit Group: LC - PFC- ICAL
Last Update: 19-Sep-2022 10:38:18 Calib Date: 12-Sep-2022 19:22:42
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d
Process Host: CTX1667

First Level Reviewer: G3DS Date: 14-Sep-2022 09:21:16

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 3535, EDL Height: 8837 Baseline: 375, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.313	2.256	2.340	2585	740		
2.483	2.340	2.493	12149	2140		
2.600	2.493	2.671	31367	3423		
2.806	2.671	2.959	6165519	1397482		1 Perfluorobutanoic acid =0.9598 ng/ml on-col.
3.112	2.959	3.439	142638	6706		
3.581	3.439	3.833	85150	12627		

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 227, EDL Height: 567 Baseline: 19, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.806	2.682	3.157	11589770	2601154		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 5
Noise Measurement: Avg Noise: 1531, EDL Height: 3827 Baseline: 106, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.719	2.630	2.756	3765	551		
2.844	2.794	2.883	1124	430		
3.112	2.895	3.358	7114014	1528004		6 Perfluoropentanoic acid
3.581	3.473	3.683	5666	906		
3.850	3.799	3.900	698	259		

Report Date: 30-Sep-2022 15:34:09 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_058.d				
Lims ID:	140-28651-A-2-B				
Client ID:	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT				
Sample Type:	Client				
Inject. Date:	14-Sep-2022 04:06:00	ALS Bottle#:	4	Worklist Smp#:	58
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Sample Info:	140-0025130-058 140-28651-a-2-b				
Misc. Info.:	Plate: 11 Rack: 1				
Operator ID:	Cochran, Bobby	Instrument ID:	LCA		
Method:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m				
Limit Group:	LC - PFC- ICAL				
Last Update:	19-Sep-2022 10:38:18	Calib Date:	12-Sep-2022 19:22:42		
Integrator:	Picker				
Quant Method:	Isotopic Dilution	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d				
Process Host:	CTX1667				
First Level Reviewer: DH7M		Date:	17-Sep-2022 10:28:29		

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 5
Noise Measurement: Avg Noise: 580094, EDL Height: 1450235 Baseline: 48392, RT Window: 0.197- 8.003

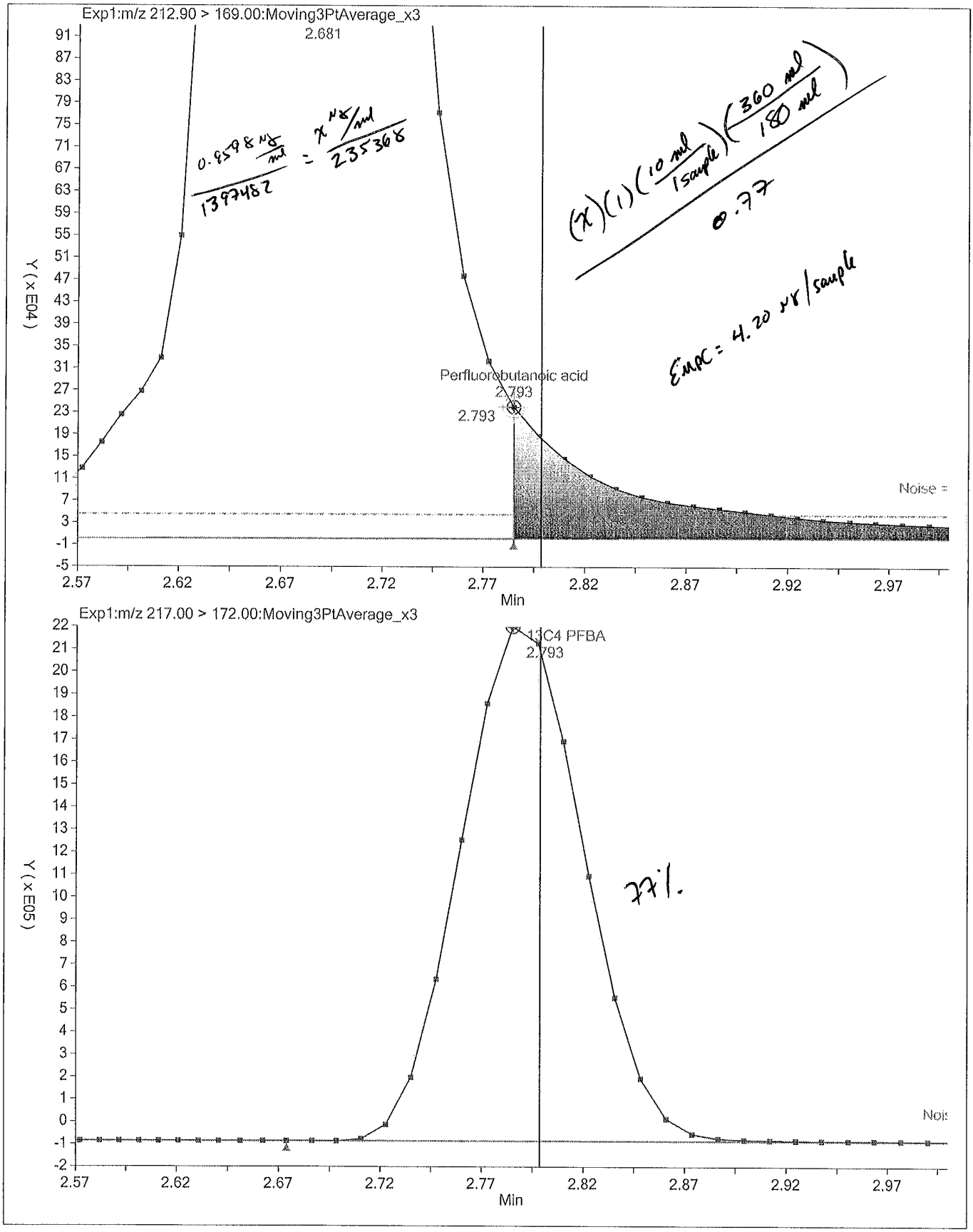
RT	Start	End	Area	Height	Flags	Compound Identification
2.322	2.255	2.358	19436	4439		
2.531	2.358	2.550	326920	81453	M	
2.681	2.550	2.793	26966950	5799963	M	
2.793	2.793	3.421	1134455	235368	M	1 Perfluorobutanoic acid
3.561	3.421	3.831	7514	18569	M	

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 269, EDL Height: 672 Baseline: 20, RT Window: 0.197- 8.003

RT	Start	End	Area	Height	Flags	Compound Identification
2.793	2.681	3.279	9071998	2130187		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 8
Noise Measurement: Avg Noise: 6422, EDL Height: 16055 Baseline: 616, RT Window: 0.197- 8.003

RT	Start	End	Area	Height	Flags	Compound Identification
2.681	2.619	2.706	30394	9502		
2.780	2.706	2.932	190504	22661		
2.971	2.932	2.984	1869	975	M	
3.082	2.984	3.186	92644	16811	M	6 Perfluoropentanoic acid
3.217	3.186	3.326	4174	960	M	
3.405	3.326	3.543	17431	1863	M	
3.649	3.543	3.731	42533	4623		
3.865	3.731	4.181	61746	5221		


Exp1:m/z 212.90 > 169.00:Moving3PtAverage_x3
2.681
Perfluorobutanoic acid
2.793
2.793
Noise =
Y (x E04)
Min
Exp1:m/z 217.00 > 172.00:Moving3PtAverage_x3
13C4 PFBA
2.793
77%
Y (x E05)
Min

Report Date: 30-Sep-2022 15:35:29 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_059.d				
Lims ID:	140-28651-A-4-B				
Client ID:	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT				
Sample Type:	Client				
Inject. Date:	14-Sep-2022 04:14:47	ALS Bottle#:	5	Worklist Smp#:	59
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Sample Info:	140-0025130-059 140-28651-a-4-b				
Misc. Info.:	Plate: 11 Rack: 1				
Operator ID:	Cochran, Bobby	Instrument ID:	LCA		
Method:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m				
Limit Group:	LC - PFC- ICAL				
Last Update:	19-Sep-2022 10:38:18	Calib Date:	12-Sep-2022 19:22:42		
Integrator:	Picker				
Quant Method:	Isotopic Dilution	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d				
Process Host:	CTX1667				
First Level Reviewer: DH7M		Date:	17-Sep-2022 10:32:48		

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 261909, EDL Height: 654772 Baseline: 27146, RT Window: 0.197- 8.004

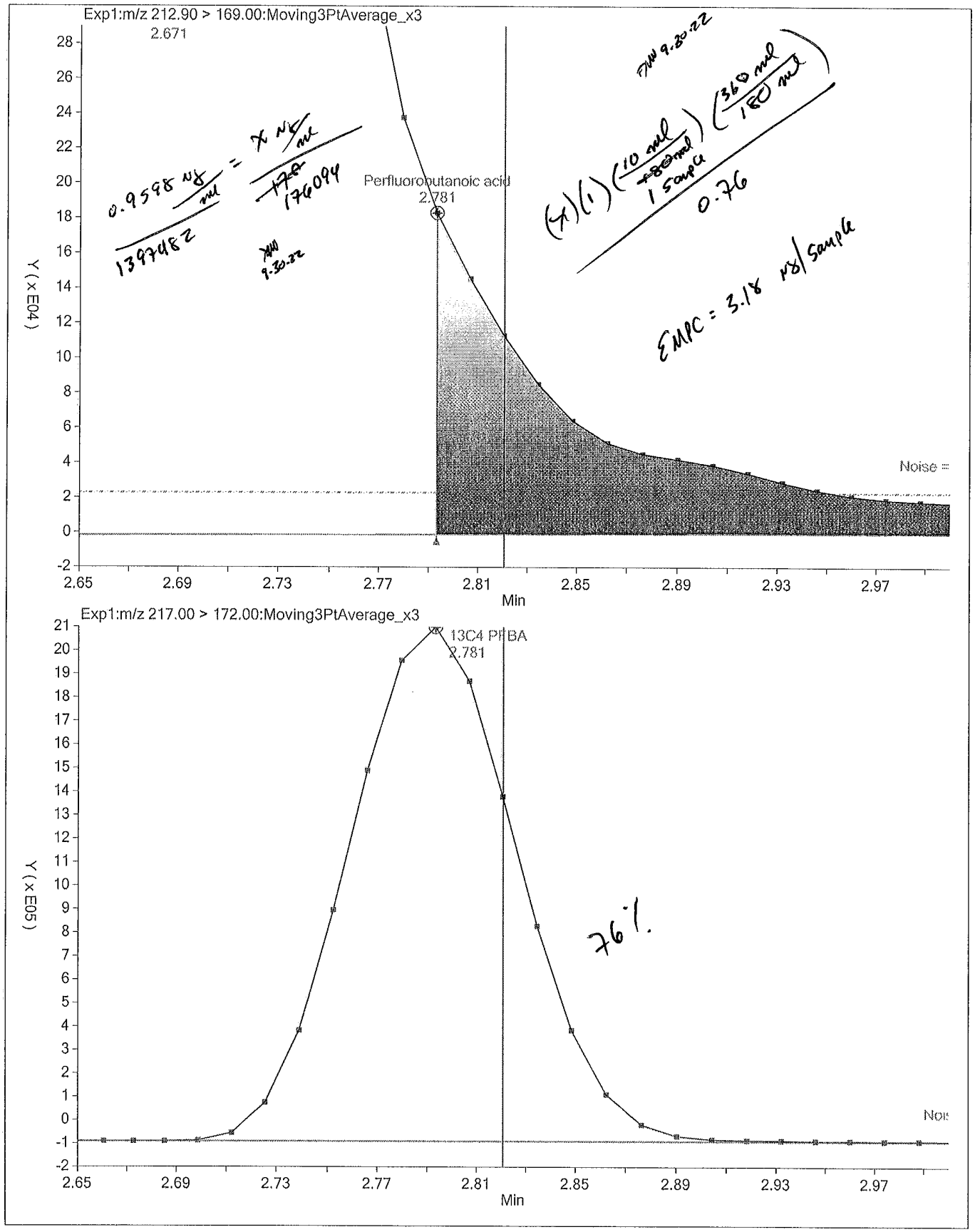
RT	Start	End	Area	Height	Flags	Compound Identification
2.331	2.256	2.340	9356	2666		
2.512	2.358	2.512	153497	41961	M	
2.671	2.512	2.781	14760009	2793939	M	
2.781	2.781	3.112	728223	176094	M	1 Perfluorobutanoic acid
3.188	3.112	3.439	130258	16829	M	
3.544	3.439	3.833	142893	17652		

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 314, EDL Height: 785 Baseline: 26, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.781	2.629	3.098	8803085	2031970		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 7
Noise Measurement: Avg Noise: 8818, EDL Height: 22045 Baseline: 878, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.682	2.620	2.731	129725	29123		
2.768	2.731	2.908	206066	25391		
2.959	2.908	2.999	5858	1452	M	
3.083	2.999	3.172	64175	11905	M	6 Perfluoropentanoic acid
3.172	3.172	3.456	18404	1812	M	
3.562	3.456	3.598	8507	1388		
3.699	3.598	3.866	29127	3458		


Exp1:m/z 212.90 > 169.00:Moving3PtAverage_x3
2.671
Perfluorobutanoic acid
2.781
Noise =
Y (x E04)
Min
Exp1:m/z 217.00 > 172.00:Moving3PtAverage_x3
13C4 PFBA
2.781
Y (x E05)
Min
0.9598 ng/ml = X ng/ml / 176094
1397482
(X)(1)(10 ml / 1 sample)(360 ml / 180 ml) / 0.76
EMPC = 3.18 ng/sample
76%

Report Date: 30-Sep-2022 15:36:26 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_060.d				
Lims ID:	140-28651-A-6-B				
Client ID:	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT				
Sample Type:	Client				
Inject. Date:	14-Sep-2022 04:23:36	ALS Bottle#:	6	Worklist Smp#:	60
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Sample Info:	140-0025130-060 140-28651-a-6-b				
Misc. Info.:	Plate: 11 Rack: 1				
Operator ID:	Cochran, Bobby	Instrument ID:	LCA		
Method:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m				
Limit Group:	LC - PFC- ICAL				
Last Update:	19-Sep-2022 10:38:18	Calib Date:	12-Sep-2022 19:22:42		
Integrator:	Picker				
Quant Method:	Isotopic Dilution	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d				
Process Host:	CTX1667				
First Level Reviewer: DH7M		Date:	17-Sep-2022 10:37:43		

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 5
Noise Measurement: Avg Noise: 358740, EDL Height: 896850 Baseline: 30111, RT Window: 0.197- 8.003

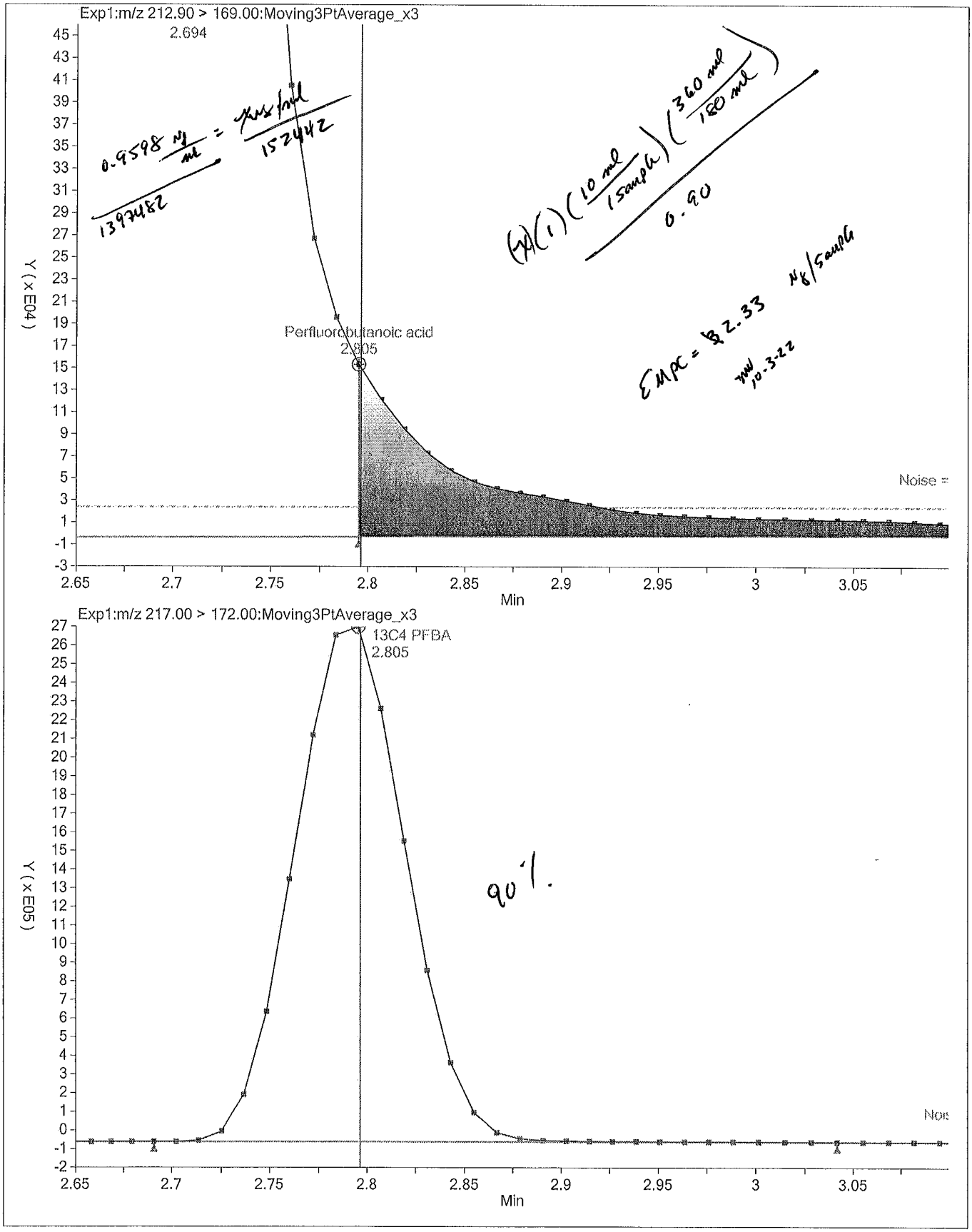
RT	Start	End	Area	Height	Flags	Compound Identification
2.313	2.255	2.331	2656	125	M	
2.560	2.331	2.560	200405	52285	M	
2.694	2.560	2.805	16641288	3467477	M	
2.805	2.805	3.454	767293	152442	M	1 Perfluorobutanoic acid
3.561	3.454	3.831	41040	7793	M	

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 313, EDL Height: 782 Baseline: 28, RT Window: 0.197- 8.003

RT	Start	End	Area	Height	Flags	Compound Identification
2.805	2.694	3.068	11168133	2619755		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 7
Noise Measurement: Avg Noise: 4065, EDL Height: 10162 Baseline: 384, RT Window: 0.197- 8.003

RT	Start	End	Area	Height	Flags	Compound Identification
2.681	2.619	2.706	18495	5690		
2.817	2.706	2.932	29365	3689	M	
2.984	2.932	3.039	18692	3510	M	
3.096	3.039	3.217	45528	8694	M	6 Perfluoropentanoic acid
3.217	3.217	3.263	1511	510	M	
3.525	3.341	3.615	4846	731		
3.831	3.748	3.848	927	179		



Chrom

Printed: 9/30/2022 3:37:10 PM

Report Date: 30-Sep-2022 15:37:28 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_061.d
Lims ID: 140-28651-A-8-B
Client ID: T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT
Sample Type: Client
Inject. Date: 14-Sep-2022 04:32:24 ALS Bottle#: 7 Worklist Smp#: 61
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0025130-061 140-28651-a-8-b
Misc. Info.: Plate: 11 Rack: 1
Operator ID: Cochran, Bobby Instrument ID: LCA

Method: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m
Limit Group: LC - PFC- ICAL
Last Update: 19-Sep-2022 10:38:18 Calib Date: 12-Sep-2022 19:22:42
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d
Process Host: CTX1667

First Level Reviewer: DH7M Date: 17-Sep-2022 10:42:07

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 5
Noise Measurement: Avg Noise: 490215, EDL Height: 1225537 Baseline: 40687, RT Window: 0.197- 8.004

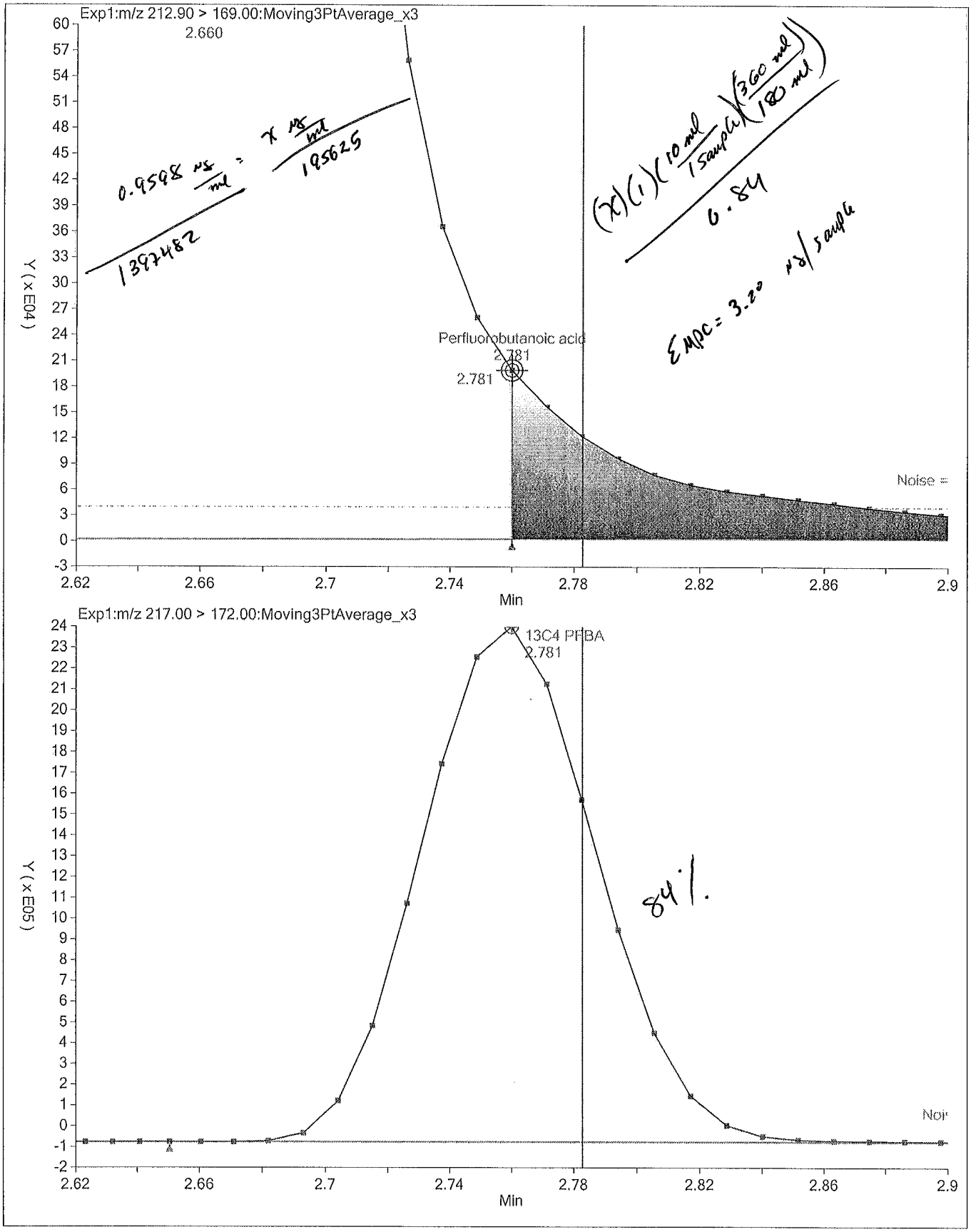
RT	Start	End	Area	Height	Flags	Compound Identification
2.322	2.256	2.349	9676	2582		
2.512	2.349	2.512	158477	43526	M	
2.660	2.512	2.781	21255204	4156176	M	
2.781	2.781	3.439	967505	195625	M	1 Perfluorobutanoic acid
3.544	3.439	3.833	115754	14204		

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 338, EDL Height: 845 Baseline: 29, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.781	2.660	3.069	10100295	2322838		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 8
Noise Measurement: Avg Noise: 4103, EDL Height: 10257 Baseline: 382, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.682	2.620	2.707	12289	8	M	
2.781	2.707	2.806	9126	2334	M	
2.870	2.806	2.921	19915	3443	M	
2.959	2.921	3.012	18034	3712	M	
3.083	3.012	3.188	76230	15303	M	6 Perfluoropentanoic acid
3.188	3.188	3.327	1463	413	M	
3.526	3.327	3.732	70917	3719		
3.816	3.732	4.183	36955	2738		


Exp1:m/z 212.90 > 169.00:Moving3PtAverage_x3
2.660
Perfluorobutanoic acid
2.781
2.781
Noise =
Y (x E04)
Min
Exp1:m/z 217.00 > 172.00:Moving3PtAverage_x3
13C4 PFBA
2.781
Y (x E05)
Min
0.9598 ng/ml = x ng/ml / 195625
1397482
(x)(1)(10 ml / 1 sample)(360 ml / 180 ml) / 6.84
EMPC = 3.2 ng/sample
84%

Report Date: 30-Sep-2022 15:38:38 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_063.d				
Lims ID:	140-28651-A-10-B				
Client ID:	T-3058 CPT QC OTM-45 XAD-2 RB				
Sample Type:	Client				
Inject. Date:	14-Sep-2022 04:50:00	ALS Bottle#:	9	Worklist Smp#:	63
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Sample Info:	140-0025130-063 140-28651-a-10-b				
Misc. Info.:	Plate: 11 Rack: 1				
Operator ID:	Cochran, Bobby	Instrument ID:	LCA		
Method:	\\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m				
Limit Group:	LC - PFC- ICAL				
Last Update:	19-Sep-2022 10:38:18	Calib Date:	12-Sep-2022 19:22:42		
Integrator:	Picker				
Quant Method:	Isotopic Dilution	Quant By:	Initial Calibration		
Last ICal File:	\\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d				
Process Host:	CTX1667				
First Level Reviewer: DH7M		Date:	17-Sep-2022 10:49:26		

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 5
Noise Measurement: Avg Noise: 387064, EDL Height: 967660 Baseline: 28543, RT Window: 0.197- 8.004

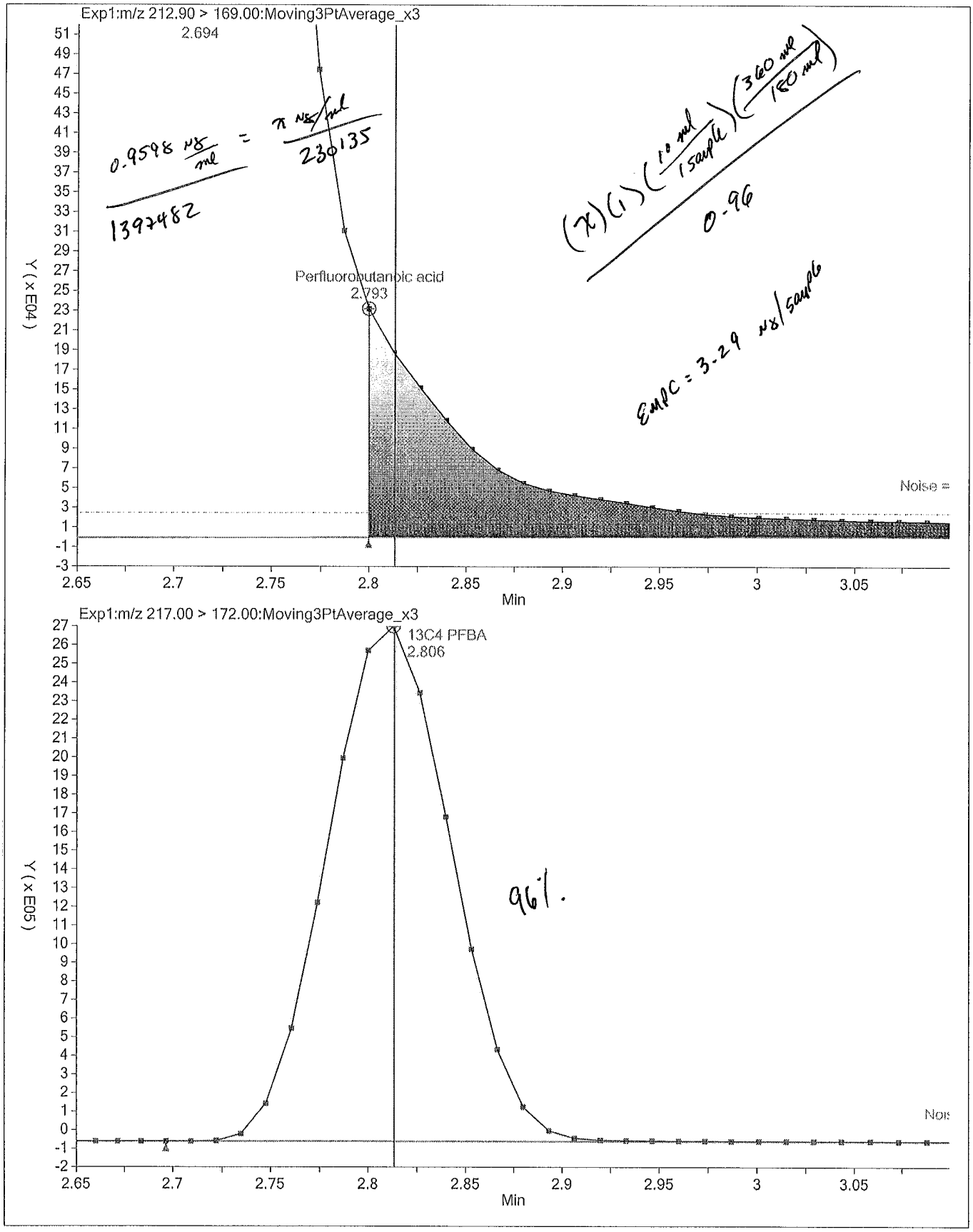
RT	Start	End	Area	Height	Flags	Compound Identification
2.331	2.255	2.367	3823	818	M	
2.561	2.367	2.561	165168	45245	M	
2.694	2.561	2.793	17604031	3737408	M	
2.793	2.793	3.473	1037726	230135	M	1 Perfluorobutanoic acid
3.562	3.473	3.833	30853	8619	M	

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 298, EDL Height: 745 Baseline: 26, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.806	2.694	3.141	11494480	2696017		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 7
Noise Measurement: Avg Noise: 3856, EDL Height: 9640 Baseline: 348, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.682	2.619	2.719	5178	1449	M	
2.819	2.719	2.946	32131	3445	M	
2.999	2.946	3.026	14370	3476	M	
3.112	3.026	3.264	88674	15776	M	6 Perfluoropentanoic acid
3.311	3.264	3.358	1065	276	M	
3.562	3.358	3.749	61953	3202		
3.866	3.749	4.031	30684	2424		



0.9598 ng/ml = π ng/µl / 230135

1397482

(x)(1)(10 µl / 1 sample)(360 µl / 150 µl) / 0.96

EMPC = 3.29 ng/sample

96%.

Chrom

Printed: 9/30/2022 3:39:11 PM

10/3/22

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3043,T-3044 CPT QC OTM-45 FH FBT
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28651-1
Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoropentanoic acid (PFPeA)	**0.308**	**J**	1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorohexanoic acid (PFHxA)	**0.281**	**J**	1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 15:19	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3043,T-3044 CPT QC OTM-45 FH FBT
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28651-1
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C2 PFDoA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C2 PFHxA	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C2 PFHxDA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C2 PFTeDA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C2 PFUnA	*111*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C3 HFPO-DA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C3 PFBS	*107*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C4 PFBA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C4 PFHpA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C4 PFOA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C4 PFOS	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C5 PFNA	*109*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C5 PFPeA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C8 FOSA	*107*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
18O2 PFHxS	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
d3-NMeFOSAA	*122*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
d5-NEtFOSAA	*124*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
d7-N-MeFOSE-M	*107*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
d9-N-EtFOSE-M	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
d-N-EtFOSA-M	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
d-N-MeFOSA-M	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
M2-4:2 FTS	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
M2-6:2 FTS	*127*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
M2-8:2 FTS	*147*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C-10:2 FTCA	*105*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*
13C-6:2 FTCA	*45*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:19*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3043,T-3044 CPT QC OTM-45 FH FBT

Lab Sample ID: 140-28651-1

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTUCA	109		25 - 150	08/31/22 10:35	09/07/22 15:19	1
13C-8:2 FTCA	81		25 - 150	08/31/22 10:35	09/07/22 15:19	1
13C-8:2 FTUCA	149		25 - 150	08/31/22 10:35	09/07/22 15:19	1
13C2 10:2 FTS	103		25 - 150	08/31/22 10:35	09/07/22 15:19	1

Client Sample ID: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT

Lab Sample ID: 140-28651-2

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**112**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorotetradecanoic acid (PFTeA)	ND	R	1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorooctanesulfonic acid (PFOS)	**0.209**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:06	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT

Lab Sample ID: 140-28651-2

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND	R	20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:06	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C4 PFBA	*77*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C5 PFPeA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C2 PFHxA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C4 PFHpA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C4 PFOA	*108*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C5 PFNA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C2 PFDA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C2 PFUnA	*73*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C2 PFDoA	*24*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C2 PFTeDA	*0.8*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*
13C3 PFBS	*115*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:06*	*1*

Client Sample ID: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT

Lab Sample ID: 140-28651-2

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	102		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C4 PFOS	90		25 - 150	08/30/22 12:05	09/14/22 04:06	1
d3-NMeFOSAA	94		25 - 150	08/30/22 12:05	09/14/22 04:06	1
d5-NEtFOSAA	88		25 - 150	08/30/22 12:05	09/14/22 04:06	1
M2-4:2 FTS	161	*5+	25 - 150	08/30/22 12:05	09/14/22 04:06	1
M2-6:2 FTS	146		25 - 150	08/30/22 12:05	09/14/22 04:06	1
M2-8:2 FTS	106		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C3 HFPO-DA	85		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C2 PFHxDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 04:06	1
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 04:06	1
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 04:06	1
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 04:06	1
d-N-EtFOSA-M	0.8	*5-	25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C2 10:2 FTS	35		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C-10:2 FTCA	47		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C-6:2 FTCA	31		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C-6:2 FTUCA	91		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C-8:2 FTCA	64		25 - 150	08/30/22 12:05	09/14/22 04:06	1
13C-8:2 FTUCA	162	*5+	25 - 150	08/30/22 12:05	09/14/22 04:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	96		50 - 150	08/30/22 12:05	09/14/22 04:06	1
13C8 PFOS	98		50 - 150	08/30/22 12:05	09/14/22 04:06	1

Client Sample ID: T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT

Lab Sample ID: 140-28651-3

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.580	0.232	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoropentanoic acid (PFPeA)	ND		0.580	0.0754	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorohexanoic acid (PFHxA)	ND		0.580	0.220	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoroheptanoic acid (PFHpA)	ND		0.580	0.177	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorooctanoic acid (PFOA)	ND		0.580	0.110	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorononanoic acid (PFNA)	ND		0.580	0.0609	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorodecanoic acid (PFDA)	ND		0.580	0.0754	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoroundecanoic acid (PFUnA)	ND		0.580	0.0870	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorododecanoic acid (PFDoA)	ND		0.580	0.0609	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorotridecanoic acid (PFTriA)	ND		0.580	0.0928	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.580	0.130	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.580	0.0522	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.580	0.0667	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.580	0.133	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.580	0.0754	ng/Sample		09/01/22 08:23	09/13/22 22:40	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT
Lab Sample ID: 140-28651-3
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		0.580	0.0957	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorooctanesulfonamide (FOSA)	ND		0.580	0.232	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.580	0.0696	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorononanesulfonic acid (PFNS)	ND		0.580	0.0435	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.580	0.119	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.580	0.0870	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.580	0.0667	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.580	0.159	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.580	0.151	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.580	0.273	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.580	0.0754	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.580	0.0812	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.580	0.162	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.580	0.125	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.580	0.215	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.580	0.148	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.580	0.119	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.580	0.0986	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.580	0.157	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.580	0.165	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.580	0.0928	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.580	0.168	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
10:2 Fluorotelomer carboxylic acid	ND		0.580	0.348	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
6:2 Fluorotelomer carboxylic acid	ND		0.580	0.348	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
7:3 Fluorotelomer carboxylic acid	ND		0.580	0.435	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
6:2 Fluorotelemer unsaturated acid	ND		0.580	0.104	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
8:2 Fluorotelomer carboxylic acid	ND		0.580	0.377	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
8:2 Fluorotelemer unsaturated acid	ND		0.580	0.232	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
5:3 Fluorotelomer carboxylic acid	ND		0.580	0.348	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
3-Perfluoropropylpropanoic acid	ND		0.580	0.255	ng/Sample		09/01/22 08:23	09/13/22 22:40	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT

Lab Sample ID: 140-28651-3

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.580	0.168	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.580	0.229	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.580	0.186	ng/Sample		09/01/22 08:23	09/13/22 22:40	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.580	0.148	ng/Sample		09/01/22 08:23	09/13/22 22:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*104*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C4 PFBA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C5 PFPeA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 PFHxA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C4 PFHpA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C4 PFOA	*103*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C5 PFNA	*103*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 PFDA	*108*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 PFUnA	*111*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 PFDoA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 PFTeDA	*71*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C3 PFBS	*93*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
18O2 PFHxS	*107*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C4 PFOS	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
d3-NMeFOSAA	*112*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
d5-NEtFOSAA	*112*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
M2-4:2 FTS	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
M2-6:2 FTS	*108*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
M2-8:2 FTS	*114*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C3 HFPO-DA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 PFHxDA	*73*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
d-N-MeFOSA-M	*93*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
d7-N-MeFOSE-M	*62*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
d9-N-EtFOSE-M	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
d-N-EtFOSA-M	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C2 10:2 FTS	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C-10:2 FTCA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C-6:2 FTCA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C-6:2 FTUCA	*114*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C-8:2 FTCA	*95*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C-8:2 FTUCA	*118*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*0.002*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*
13C8 PFOS	*0*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 22:40*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28651-4
Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**63.5**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorooctanoic acid (PFOA)	**1.00**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**22.6**		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:14	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT
Lab Sample ID: 140-28651-4
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C4 PFBA	*76*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C5 PFPeA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C2 PFHxA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C4 PFHpA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C4 PFOA	*113*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C5 PFNA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C2 PFDA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C2 PFUnA	*113*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C2 PFDoA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C3 PFBS	*118*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
18O2 PFHxS	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C4 PFOS	*110*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
d3-NMeFOSAA	*119*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
d5-NEtFOSAA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
M2-4:2 FTS	*177*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
M2-6:2 FTS	*156*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
M2-8:2 FTS	*147*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C3 HFPO-DA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
13C2 PFHxDA	*70*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
d-N-MeFOSA-M	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
d7-N-MeFOSE-M	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*
d9-N-EtFOSE-M	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:14*	*1*

Client Sample ID: T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT

Lab Sample ID: 140-28651-4

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	94		25 - 150	08/30/22 12:05	09/14/22 04:14	1
13C2 10:2 FTS	125		25 - 150	08/30/22 12:05	09/14/22 04:14	1
13C-10:2 FTCA	79		25 - 150	08/30/22 12:05	09/14/22 04:14	1
13C-6:2 FTCA	82		25 - 150	08/30/22 12:05	09/14/22 04:14	1
13C-6:2 FTUCA	176	*5+	25 - 150	08/30/22 12:05	09/14/22 04:14	1
13C-8:2 FTCA	74		25 - 150	08/30/22 12:05	09/14/22 04:14	1
13C-8:2 FTUCA	175	*5+	25 - 150	08/30/22 12:05	09/14/22 04:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	93		50 - 150	08/30/22 12:05	09/14/22 04:14	1
13C8 PFOS	102		50 - 150	08/30/22 12:05	09/14/22 04:14	1

Client Sample ID: T-3050,T-3051 CPT QC OTM-45 FH PBT

Lab Sample ID: 140-28651-5

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.97	1.28	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoropentanoic acid (PFPeA)	ND		0.986	0.177	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorohexanoic acid (PFHxA)	ND		0.986	0.207	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoroheptanoic acid (PFHpA)	ND		0.986	0.611	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorooctanoic acid (PFOA)	ND		0.986	0.641	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorononanoic acid (PFNA)	ND		0.986	0.0838	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorodecanoic acid (PFDA)	ND		0.986	0.246	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoroundecanoic acid (PFUnA)	ND		0.986	0.168	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorododecanoic acid (PFDoA)	ND		0.986	0.0986	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorotridecanoic acid (PFTriA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.986	0.168	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.986	0.877	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.986	0.444	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorooctanesulfonamide (FOSA)	ND		0.986	0.0867	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorononanesulfonic acid (PFNS)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.986	0.0897	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		4.93	3.94	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 15:45	1

Client Sample ID: T-3050,T-3051 CPT QC OTM-45 FH PBT **Lab Sample ID: 140-28651-5**
Date Collected: 08/23/22 00:00 **Matrix: Air**
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.93	4.63	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.986	0.0966	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.986	0.197	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.986	0.315	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		4.93	4.83	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.986	0.158	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.986	0.286	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.986	0.0936	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
10:2 Fluorotelomer carboxylic acid	ND		0.986	0.414	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
6:2 Fluorotelomer carboxylic acid	ND		0.986	0.424	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
7:3 Fluorotelomer carboxylic acid	ND		0.986	0.345	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
6:2 Fluorotelemer unsaturated acid	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
8:2 Fluorotelomer carboxylic acid	ND		0.986	0.345	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
8:2 Fluorotelemer unsaturated acid	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
5:3 Fluorotelomer carboxylic acid	ND		0.986	0.473	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
3-Perfluoropropylpropanoic acid	ND		0.986	0.286	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.986	0.197	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 15:45	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 15:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C2 PFDoA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C2 PFHxA	*86*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C2 PFHxDA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C2 PFTeDA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C2 PFUnA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C3 HFPO-DA	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C3 PFBS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*

Client Sample ID: T-3050,T-3051 CPT QC OTM-45 FH PBT

Lab Sample ID: 140-28651-5

Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C4 PFHpA	*107*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C4 PFOA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C4 PFOS	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C5 PFNA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C5 PFPeA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C8 FOSA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
18O2 PFHxS	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
d3-NMeFOSAA	*111*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
d5-NEtFOSAA	*116*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
d7-N-MeFOSE-M	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
d9-N-EtFOSE-M	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
d-N-EtFOSA-M	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
d-N-MeFOSA-M	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
M2-4:2 FTS	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
M2-6:2 FTS	*105*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
M2-8:2 FTS	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C-10:2 FTCA	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C-6:2 FTCA	*72*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C-6:2 FTUCA	*115*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C-8:2 FTCA	*81*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C-8:2 FTUCA	*135*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*
13C2 10:2 FTS	*111*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:45*	*1*

Client Sample ID: T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT

Lab Sample ID: 140-28651-6

Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**56.2**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorooctanesulfonic acid (PFOS)	**0.165**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:23	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT

Lab Sample ID: 140-28651-6

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:23	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT

Lab Sample ID: 140-28651-6

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C4 PFBA	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C5 PFPeA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 PFHxA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C4 PFHpA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C4 PFOA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C5 PFNA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 PFDA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 PFUnA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 PFDoA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 PFTeDA	*78*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C3 PFBS	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C4 PFOS	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
d3-NMeFOSAA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
d5-NEtFOSAA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
M2-4:2 FTS	*156*	**5+*	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
M2-6:2 FTS	*159*	**5+*	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
M2-8:2 FTS	*143*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C3 HFPO-DA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 PFHxDA	*40*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
d-N-MeFOSA-M	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
d7-N-MeFOSE-M	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
d9-N-EtFOSE-M	*79*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
d-N-EtFOSA-M	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C2 10:2 FTS	*115*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C-10:2 FTCA	*59*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C-6:2 FTCA	*61*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C-6:2 FTUCA	*161*	**5+*	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C-8:2 FTCA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C-8:2 FTUCA	*160*	**5+*	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*91*		*50 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*
13C8 PFOS	*96*		*50 - 150*	*08/30/22 12:05*	*09/14/22 04:23*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT

Lab Sample ID: 140-28651-7

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.640	0.256	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoropentanoic acid (PFPeA)	ND		0.640	0.0832	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorohexanoic acid (PFHxA)	ND		0.640	0.243	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoroheptanoic acid (PFHpA)	ND		0.640	0.195	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorooctanoic acid (PFOA)	ND		0.640	0.122	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorononanoic acid (PFNA)	ND		0.640	0.0672	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorodecanoic acid (PFDA)	ND		0.640	0.0832	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.640	0.0960	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.640	0.0672	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorotridecanoic acid (PFTriA)	ND		0.640	0.102	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.640	0.144	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.640	0.0576	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.640	0.0736	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.640	0.147	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.640	0.0832	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.640	0.106	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorooctanesulfonamide (FOSA)	ND		0.640	0.256	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.640	0.0768	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorononanesulfonic acid (PFNS)	ND		0.640	0.0480	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.640	0.131	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.640	0.0960	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.640	0.0736	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.640	0.176	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.640	0.166	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.640	0.301	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.640	0.0832	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.640	0.0896	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.640	0.179	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.640	0.138	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.640	0.237	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.640	0.163	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.640	0.131	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.640	0.109	ng/Sample		09/01/22 08:23	09/13/22 22:48	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT

Lab Sample ID: 140-28651-7

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.640	0.173	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.640	0.182	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.640	0.102	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.640	0.186	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
10:2 Fluorotelomer carboxylic acid	ND		0.640	0.384	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
6:2 Fluorotelomer carboxylic acid	ND		0.640	0.384	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
7:3 Fluorotelomer carboxylic acid	ND		0.640	0.480	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
6:2 Fluorotelemer unsaturated acid	ND		0.640	0.115	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
8:2 Fluorotelomer carboxylic acid	ND		0.640	0.416	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
8:2 Fluorotelemer unsaturated acid	ND		0.640	0.256	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
5:3 Fluorotelomer carboxylic acid	ND		0.640	0.384	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
3-Perfluoropropylpropanoic acid	ND		0.640	0.282	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.640	0.186	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.640	0.253	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.640	0.205	ng/Sample		09/01/22 08:23	09/13/22 22:48	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.640	0.163	ng/Sample		09/01/22 08:23	09/13/22 22:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*80*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C4 PFBA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C5 PFPeA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C2 PFHxA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C4 PFHpA	*104*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C4 PFOA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C5 PFNA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C2 PFDA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C2 PFUnA	*109*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C2 PFDoA	*88*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C2 PFTeDA	*67*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C3 PFBS	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
18O2 PFHxS	*103*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C4 PFOS	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
d3-NMeFOSAA	*107*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
d5-NEtFOSAA	*109*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
M2-4:2 FTS	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
M2-8:2 FTS	*107*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
13C2 PFHxDA	*68*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
d-N-MeFOSA-M	*61*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
d7-N-MeFOSE-M	*59*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*
d9-N-EtFOSE-M	*58*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:48*	*1*

Client Sample ID: T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT

Lab Sample ID: 140-28651-7

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	64		25 - 150	09/01/22 08:23	09/13/22 22:48	1
13C2 10:2 FTS	103		25 - 150	09/01/22 08:23	09/13/22 22:48	1
13C-10:2 FTCA	91		25 - 150	09/01/22 08:23	09/13/22 22:48	1
13C-6:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 22:48	1
13C-6:2 FTUCA	105		25 - 150	09/01/22 08:23	09/13/22 22:48	1
13C-8:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 22:48	1
13C-8:2 FTUCA	119		25 - 150	09/01/22 08:23	09/13/22 22:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.003	S1-	50 - 150	09/01/22 08:23	09/13/22 22:48	1
13C8 PFOS	0	S1-	50 - 150	09/01/22 08:23	09/13/22 22:48	1

Client Sample ID: T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT

Lab Sample ID: 140-28651-8

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**79.4**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorooctanoic acid (PFOA)	**1.00**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorooctanesulfonic acid (PFOS)	**0.196**	**J I**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:32	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT
Lab Sample ID: 140-28651-8
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:32	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:32*	*1*
13C4 PFBA	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:32*	*1*
13C5 PFPeA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:32*	*1*

Client Sample ID: T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT

Lab Sample ID: 140-28651-8

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C4 PFHpA	106		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C4 PFOA	111		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C5 PFNA	110		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C2 PFDA	111		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C2 PFUnA	108		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C2 PFDoA	99		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C2 PFTeDA	82		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C3 PFBS	113		25 - 150	08/30/22 12:05	09/14/22 04:32	1
18O2 PFHxS	105		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C4 PFOS	107		25 - 150	08/30/22 12:05	09/14/22 04:32	1
d3-NMeFOSAA	112		25 - 150	08/30/22 12:05	09/14/22 04:32	1
d5-NEtFOSAA	119		25 - 150	08/30/22 12:05	09/14/22 04:32	1
M2-4:2 FTS	164	*5+	25 - 150	08/30/22 12:05	09/14/22 04:32	1
M2-6:2 FTS	157	*5+	25 - 150	08/30/22 12:05	09/14/22 04:32	1
M2-8:2 FTS	139		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C3 HFPO-DA	90		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C2 PFHxDA	32		25 - 150	08/30/22 12:05	09/14/22 04:32	1
d-N-MeFOSA-M	98		25 - 150	08/30/22 12:05	09/14/22 04:32	1
d7-N-MeFOSE-M	78		25 - 150	08/30/22 12:05	09/14/22 04:32	1
d9-N-EtFOSE-M	68		25 - 150	08/30/22 12:05	09/14/22 04:32	1
d-N-EtFOSA-M	97		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C2 10:2 FTS	119		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C-10:2 FTCA	64		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C-6:2 FTCA	65		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C-6:2 FTUCA	186	*5+	25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C-8:2 FTCA	68		25 - 150	08/30/22 12:05	09/14/22 04:32	1
13C-8:2 FTUCA	182	*5+	25 - 150	08/30/22 12:05	09/14/22 04:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	92		50 - 150	08/30/22 12:05	09/14/22 04:32	1
13C8 PFOS	92		50 - 150	08/30/22 12:05	09/14/22 04:32	1

Client Sample ID: T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB

Lab Sample ID: 140-28651-9

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:41	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB

Lab Sample ID: 140-28651-9

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:41	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB

Lab Sample ID: 140-28651-9

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:41	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C4 PFBA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C5 PFPeA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 PFHxA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C4 PFHpA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C4 PFOA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 PFDA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 PFUnA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 PFDoA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 PFTeDA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C3 PFBS	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
18O2 PFHxS	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C4 PFOS	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
d3-NMeFOSAA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
d5-NEtFOSAA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
M2-4:2 FTS	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
M2-6:2 FTS	*119*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
M2-8:2 FTS	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C3 HFPO-DA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 PFHxDA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
d-N-MeFOSA-M	*86*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
d7-N-MeFOSE-M	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
d9-N-EtFOSE-M	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
d-N-EtFOSA-M	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C2 10:2 FTS	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C-10:2 FTCA	*87*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C-6:2 FTCA	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C-6:2 FTUCA	*123*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C-8:2 FTCA	*82*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*
13C-8:2 FTUCA	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:41*	*1*

Client Sample ID: T-3058 CPT QC OTM-45 XAD-2 RB

Lab Sample ID: 140-28651-10

Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**58.5**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorooctanoic acid (PFOA)	**1.02**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorooctanesulfonic acid (PFOS)	**0.159**	**J I**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:50	1

Client Sample ID: T-3058 CPT QC OTM-45 XAD-2 RB

Lab Sample ID: 140-28651-10

Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:50	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*108*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C5 PFPeA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C2 PFHxA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C4 PFHpA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C4 PFOA	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C5 PFNA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C2 PFDA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C2 PFUnA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C2 PFDoA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C2 PFTeDA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C3 PFBS	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
18O2 PFHxS	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C4 PFOS	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
d3-NMeFOSAA	*119*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
d5-NEtFOSAA	*116*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
M2-4:2 FTS	*170*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
M2-6:2 FTS	*151*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
M2-8:2 FTS	*128*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C3 HFPO-DA	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
13C2 PFHxDA	*55*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
d-N-MeFOSA-M	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
d7-N-MeFOSE-M	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
d9-N-EtFOSE-M	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*
d-N-EtFOSA-M	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:50*	*1*

Client Sample ID: T-3058 CPT QC OTM-45 XAD-2 RB

Lab Sample ID: 140-28651-10
Matrix: Air
Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 10:2 FTS	134		25 - 150	08/30/22 12:05	09/14/22 04:50	1
13C-10:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 04:50	1
13C-6:2 FTCA	70		25 - 150	08/30/22 12:05	09/14/22 04:50	1
13C-6:2 FTUCA	181	*5+	25 - 150	08/30/22 12:05	09/14/22 04:50	1
13C-8:2 FTCA	71		25 - 150	08/30/22 12:05	09/14/22 04:50	1
13C-8:2 FTUCA	182	*5+	25 - 150	08/30/22 12:05	09/14/22 04:50	1

Client Sample ID: T-3059 CPT QC OTM-45 DI WATER RB

Lab Sample ID: 140-28651-11
Matrix: Air
Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.880	0.352	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoropentanoic acid (PFPeA)	ND		0.880	0.114	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorohexanoic acid (PFHxA)	ND		0.880	0.334	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoroheptanoic acid (PFHpA)	ND		0.880	0.268	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorooctanoic acid (PFOA)	ND		0.880	0.167	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorononanoic acid (PFNA)	ND		0.880	0.0924	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorodecanoic acid (PFDA)	ND		0.880	0.114	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoroundecanoic acid (PFUnA)	ND		0.880	0.132	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorododecanoic acid (PFDoA)	ND		0.880	0.0924	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorotridecanoic acid (PFTriA)	ND		0.880	0.141	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.880	0.198	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.880	0.0792	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.880	0.101	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.880	0.202	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.880	0.114	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.880	0.145	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorooctanesulfonamide (FOSA)	ND		0.880	0.352	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.880	0.106	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorononanesulfonic acid (PFNS)	ND		0.880	0.0660	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.880	0.180	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.880	0.132	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.880	0.101	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.880	0.242	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.880	0.229	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.880	0.414	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.880	0.114	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.880	0.123	ng/Sample		09/01/22 08:23	09/13/22 22:57	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3059 CPT QC OTM-45 DI WATER RB
Lab Sample ID: 140-28651-11
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.880	0.246	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.880	0.189	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.880	0.326	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.880	0.224	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.880	0.180	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.880	0.150	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.880	0.238	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.880	0.251	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.880	0.141	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.880	0.255	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
10:2 Fluorotelomer carboxylic acid	ND		0.880	0.528	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
6:2 Fluorotelomer carboxylic acid	ND		0.880	0.528	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
7:3 Fluorotelomer carboxylic acid	ND		0.880	0.660	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
6:2 Fluorotelemer unsaturated acid	ND		0.880	0.158	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
8:2 Fluorotelomer carboxylic acid	ND		0.880	0.572	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
8:2 Fluorotelemer unsaturated acid	ND		0.880	0.352	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
5:3 Fluorotelomer carboxylic acid	ND		0.880	0.528	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
3-Perfluoropropylpropanoic acid	ND		0.880	0.387	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.880	0.255	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.880	0.348	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.880	0.282	ng/Sample		09/01/22 08:23	09/13/22 22:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.880	0.224	ng/Sample		09/01/22 08:23	09/13/22 22:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C4 PFBA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C5 PFPeA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C2 PFHxA	*91*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C4 PFHpA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C4 PFOA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C5 PFNA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C2 PFDA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C2 PFUnA	*89*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C2 PFDoA	*71*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C2 PFTeDA	*64*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
13C3 PFBS	*91*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*
18O2 PFHxS	*94*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:57*	*1*

Client Sample ID: T-3059 CPT QC OTM-45 DI WATER RB

Lab Sample ID: 140-28651-11

Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	91		25 - 150	09/01/22 08:23	09/13/22 22:57	1
d3-NMeFOSAA	91		25 - 150	09/01/22 08:23	09/13/22 22:57	1
d5-NEtFOSAA	86		25 - 150	09/01/22 08:23	09/13/22 22:57	1
M2-4:2 FTS	101		25 - 150	09/01/22 08:23	09/13/22 22:57	1
M2-6:2 FTS	106		25 - 150	09/01/22 08:23	09/13/22 22:57	1
M2-8:2 FTS	99		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C3 HFPO-DA	92		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C2 PFHxDA	66		25 - 150	09/01/22 08:23	09/13/22 22:57	1
d-N-MeFOSA-M	54		25 - 150	09/01/22 08:23	09/13/22 22:57	1
d7-N-MeFOSE-M	58		25 - 150	09/01/22 08:23	09/13/22 22:57	1
d9-N-EtFOSE-M	60		25 - 150	09/01/22 08:23	09/13/22 22:57	1
d-N-EtFOSA-M	62		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C2 10:2 FTS	65		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C-10:2 FTCA	78		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C-6:2 FTCA	86		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C-6:2 FTUCA	110		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C-8:2 FTCA	86		25 - 150	09/01/22 08:23	09/13/22 22:57	1
13C-8:2 FTUCA	113		25 - 150	09/01/22 08:23	09/13/22 22:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.003	S1-	50 - 150	09/01/22 08:23	09/13/22 22:57	1
13C8 PFOS	0	S1-	50 - 150	09/01/22 08:23	09/13/22 22:57	1

Client Sample ID: T-3060 CPT QC OTM-45 FILTER RB

Lab Sample ID: 140-28651-12

Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:54	1

Client Sample ID: T-3060 CPT QC OTM-45 FILTER RB
Lab Sample ID: 140-28651-12
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 15:54	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:54	1

Client Sample ID: T-3060 CPT QC OTM-45 FILTER RB

Lab Sample ID: 140-28651-12
Matrix: Air
Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C2 PFDoA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C2 PFHxA	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C2 PFHxDA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C2 PFTeDA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C2 PFUnA	*107*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C3 PFBS	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C4 PFBA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C4 PFHpA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C4 PFOA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C4 PFOS	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C5 PFNA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C5 PFPeA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C8 FOSA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
18O2 PFHxS	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
d3-NMeFOSAA	*115*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
d5-NEtFOSAA	*115*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
d7-N-MeFOSE-M	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
d9-N-EtFOSE-M	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
d-N-EtFOSA-M	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
d-N-MeFOSA-M	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
M2-4:2 FTS	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
M2-6:2 FTS	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
M2-8:2 FTS	*120*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C-10:2 FTCA	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C-6:2 FTCA	*73*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C-6:2 FTUCA	*122*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C-8:2 FTCA	*75*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C-8:2 FTUCA	*138*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*
13C2 10:2 FTS	*114*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:54*	*1*

Client Sample ID: C-1520 MEDIA CHECK OTM-45 XAD

Lab Sample ID: 140-28651-13
Matrix: Air
Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:58	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: C-1520 MEDIA CHECK OTM-45 XAD
Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28651-13
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 04:58	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: C-1520 MEDIA CHECK OTM-45 XAD
Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28651-13
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 04:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 04:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C4 PFBA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C5 PFPeA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 PFHxA	*98*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C4 PFHpA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C4 PFOA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C5 PFNA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 PFDA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 PFUnA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 PFDoA	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 PFTeDA	*56*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C3 PFBS	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
18O2 PFHxS	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C4 PFOS	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
d3-NMeFOSAA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
M2-4:2 FTS	*133*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
M2-6:2 FTS	*127*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
M2-8:2 FTS	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 PFHxDA	*13*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
d-N-MeFOSA-M	*18*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
d7-N-MeFOSE-M	*73*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
d9-N-EtFOSE-M	*66*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
d-N-EtFOSA-M	*13*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C2 10:2 FTS	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C-10:2 FTCA	*62*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C-6:2 FTCA	*67*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C-6:2 FTUCA	*164*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C-8:2 FTCA	*61*		*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*
13C-8:2 FTUCA	*159*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 04:58*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: C-1521 MEDIA CHECK OTM-45 FILTER
Lab Sample ID: 140-28651-14
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 16:03	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: C-1521 MEDIA CHECK OTM-45 FILTER **Lab Sample ID: 140-28651-14**
Date Collected: 08/23/22 00:00 **Matrix: Air**
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 16:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 16:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C2 PFDoA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C2 PFHxA	*83*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C2 PFHxDA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C2 PFTeDA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C2 PFUnA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C3 HFPO-DA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C3 PFBS	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C4 PFBA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C4 PFHpA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C4 PFOA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C5 PFNA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C8 FOSA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
18O2 PFHxS	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
d3-NMeFOSAA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
d5-NEtFOSAA	*113*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
d7-N-MeFOSE-M	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
d9-N-EtFOSE-M	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
d-N-EtFOSA-M	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
d-N-MeFOSA-M	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
M2-4:2 FTS	*80*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C-10:2 FTCA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*
13C-6:2 FTCA	*76*		*25 - 150*	*08/31/22 10:35*	*09/07/22 16:03*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: C-1521 MEDIA CHECK OTM-45 FILTER
Lab Sample ID: 140-28651-14
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTUCA	115		25 - 150	08/31/22 10:35	09/07/22 16:03	1
13C-8:2 FTCA	73		25 - 150	08/31/22 10:35	09/07/22 16:03	1
13C-8:2 FTUCA	138		25 - 150	08/31/22 10:35	09/07/22 16:03	1
13C2 10:2 FTS	112		25 - 150	08/31/22 10:35	09/07/22 16:03	1

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
10:2 Fluorotelomer carboxylic acid	1.00	0.420	ng/Sample
10:2 Fluorotelomer carboxylic acid	1.00	0.520	ng/Sample
10:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.200	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.180	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	2.00	0.280	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.140	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.160	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	0.520	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.320	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.170	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	2.00	0.430	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0910	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0640	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	0.230	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	5.00	4.00	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	10.0	8.70	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	0.550	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.120	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.370	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	2.00	0.740	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	5.00	4.90	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	2.00	0.410	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.290	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.310	ng/Sample
3-Perfluoropropylpropanoic acid	2.00	0.880	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.00	0.140	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.10	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	0.560	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.480	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.700	ng/Sample
5:3 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.140	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
6:2 Fluorotelemer unsaturated acid	2.00	0.360	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	0.430	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	1.00	ng/Sample
6:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.560	ng/Sample
7:3 Fluorotelomer carboxylic acid	2.00	1.50	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.220	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
8:2 Fluorotelemer unsaturated acid	2.00	0.800	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.380	ng/Sample
8:2 Fluorotelomer carboxylic acid	2.00	1.30	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.0980	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.180	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	2.00	0.260	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	5.00	4.70	ng/Sample

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

Prep: None

Analyte	RL	MDL	Units
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	11.0	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	0.940	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.160	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.660	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.00	0.540	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.140	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.190	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	0.300	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.150	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.770	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.00	0.340	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.00	0.120	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	0.410	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.150	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.160	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	0.580	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.140	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.100	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	0.510	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.150	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.120	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	0.580	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.220	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.140	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	2.00	0.640	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.200	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.130	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	0.790	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.890	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.520	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	2.00	0.180	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	1.30	ng/Sample
Perfluorobutanoic acid (PFBA)	10.0	9.40	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	0.800	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.110	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.200	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	2.00	0.330	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.250	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.210	ng/Sample
Perfluorodecanoic acid (PFDA)	2.00	0.260	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.0950	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.180	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	2.00	0.320	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.100	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.120	ng/Sample
Perfluorododecanoic acid (PFDoA)	2.00	0.210	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.110	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.200	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

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

Prep: None

Analyte	RL	MDL	Units
Perfluoroheptanesulfonic acid (PFHpS)	2.00	0.460	ng/Sample
Perfluoroheptanoic acid (PFHpA)	1.00	0.620	ng/Sample
Perfluoroheptanoic acid (PFHpA)	3.00	2.60	ng/Sample
Perfluoroheptanoic acid (PFHpA)	2.00	0.610	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.110	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.260	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	2.00	0.230	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.210	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.520	ng/Sample
Perfluorohexanoic acid (PFHxA)	2.00	0.760	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.00	0.290	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	2.00	0.570	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.220	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.640	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	2.00	0.510	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.120	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.160	ng/Sample
Perfluorononanesulfonic acid (PFNS)	2.00	0.150	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.0850	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.890	ng/Sample
Perfluorononanoic acid (PFNA)	2.00	0.210	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.0880	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.230	ng/Sample
Perfluorooctanesulfonamide (FOSA)	2.00	0.800	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.450	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.150	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	2.00	0.260	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.650	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.660	ng/Sample
Perfluorooctanoic acid (PFOA)	2.00	0.380	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.120	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.210	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	2.00	0.240	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.180	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.450	ng/Sample
Perfluoropentanoic acid (PFPeA)	2.00	0.260	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.170	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.230	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	2.00	0.450	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.140	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	2.00	0.320	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.170	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.270	ng/Sample
Perfluoroundecanoic acid (PFUnA)	2.00	0.300	ng/Sample

Surrogate Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	C8PFOA (50-150)	C8PFOS (50-150)										
140-28651-2	T-3045,T-3046,T-3048 CPT QC	96	98										
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT	0.002 S1-	0 S1-										
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE FBT	93	102										
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	91	96										
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT	0.003 S1-	0 S1-										
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE PBT	92	92										
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	0.003 S1-	0 S1-										

Surrogate Legend

C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air | **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDA (25-150)	PFDoA (25-150)	PFHxA (25-150)	PFHxDA (25-150)	PFTDA (25-150)	PFUnA (25-150)	HFPODA (25-150)	C3PFBS (25-150)
140-28651-1	T-3043,T-3044 CPT QC OTM-45	110	94	95	102	100	111	92	107
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	97	24 *5-	103	0 *5-	0.8 *5-	73	85	115
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT	108	100	100	73	71	111	100	93
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE FBT	114	104	107	70	98	113	91	118
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	104	101	86	100	97	103	91	92
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	102	93	100	40	78	103	97	105
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT	97	88	99	68	67	109	96	100
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE PBT	111	99	103	32	82	108	90	113
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	99	96	88	91	95	101	89	92
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	106	101	100	55	88	102	92	111
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	98	71	91	66	64	89	92	91
140-28651-12	T-3060 CPT QC OTM-45 FILTEI RB	103	97	89	96	100	107	88	89
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	107	90	98	13 *5-	56	100	93	102
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	97	97	83	97	99	103	87	89
LCS 140-64806/2-B	Lab Control Sample	100	90	90	6 *5-	61	99	84	101
LCS 140-64841/2-B	Lab Control Sample	101	101	90	99	103	103	92	93
LCS 140-64880/2-B	Lab Control Sample	104	84	101	71	67	107	99	102
LCSD 140-64806/3-B	Lab Control Sample Dup	111	96	96	10 *5-	59	105	100	109
LCSD 140-64841/3-B	Lab Control Sample Dup	99	98	84	95	99	107	89	92
LCSD 140-64880/3-B	Lab Control Sample Dup	100	96	95	79	81	110	96	98
MB 140-64806/14-B	Method Blank	68	26	102	3 *5-	12 *5-	46	94	105
MB 140-64806/1-B	Method Blank	94	89	94	18 *5-	69	95	88	97
MB 140-64841/1-B	Method Blank	102	99	84	101	101	108	70	92
MB 140-64880/1-B	Method Blank	101	80	97	75	69	101	96	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFPeA (25-150)	PFOSA (25-150)	PFHxS (25-150)
140-28651-1	T-3043,T-3044 CPT QC OTM-45	100	88	104	100	109	97	107	110
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	77	100	108	90	101	100	103	102
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT	102	102	103	99	103	105	104	107
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE FBT	76	109	113	110	105	102	111	109

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28651-1
Project/Site: St.Gobain CPT OTM-45 - QC

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

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFPeA (25-150)	PFOSA (25-150)	PFHxS (25-150)
140-28651-5	T-3050,T-3051 CPT QC OTM-45	94	107	101	97	104	97	101	98
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	90	100	109	104	105	99	107	100
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT	105	104	100	99	101	100	80	103
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE PBT	84	106	111	107	110	104	107	105
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	97	91	97	96	96	94	101	95
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	96	103	111	106	112	105	108	105
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	98	100	99	91	96	98	75	94
140-28651-12	T-3060 CPT QC OTM-45 FILTEI RB	94	98	97	99	94	94	103	103
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	101	106	106	94	99	101	95	105
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	94	94	96	91	92	92	101	103
LCS 140-64806/2-B	Lab Control Sample	96	100	95	90	94	94	91	100
LCS 140-64841/2-B	Lab Control Sample	100	92	97	96	93	94	99	100
LCS 140-64880/2-B	Lab Control Sample	106	109	106	99	107	104	79	105
LCSD 140-64806/3-B	Lab Control Sample Dup	105	116	99	98	106	111	103	111
LCSD 140-64841/3-B	Lab Control Sample Dup	95	92	94	92	93	97	101	97
LCSD 140-64880/3-B	Lab Control Sample Dup	102	97	94	97	101	97	81	97
MB 140-64806/14-B	Method Blank	106	105	95	58	81	105	40	96
MB 140-64806/1-B	Method Blank	96	99	93	91	97	95	97	100
MB 140-64841/1-B	Method Blank	96	98	98	96	96	94	103	101
MB 140-64880/1-B	Method Blank	102	102	96	96	103	101	71	96

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d3NMFOS (25-150)	d5NEFOS (25-150)	NMFM (25-150)	NEFM (25-150)	dEtFOSA (25-150)	dMeFOSA (25-150)	M242FTS (25-150)	M262FTS (25-150)
140-28651-1	T-3043,T-3044 CPT QC OTM-45	122	124	107	104	91	95	98	127
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	94	88	0 *5-	0 *5-	0.8 *5-	0 *5-	161 *5+	146
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT	112	112	62	63	100	93	100	108
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE FBT	119	122	84	91	94	90	177 *5+	156 *5+
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	111	116	102	102	96	91	94	105
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	104	112	81	79	97	92	156 *5+	159 *5+
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT	107	109	59	58	64	61	101	111
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE PBT	112	119	78	68	97	98	164 *5+	157 *5+
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	103	99	89	89	100	86	103	119

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

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

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d3NMFOS (25-150)	d5NEFOS (25-150)	NMFM (25-150)	NEFM (25-150)	dEtFOSA (25-150)	dMeFOSA (25-150)	M242FTS (25-150)	M262FTS (25-150)
140-28651-10	T-3058 CPT QC OTM-45 XAD-2	119	116	89	81	96	94	170 *5+	151 *5+
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	91	86	58	60	62	54	101	106
140-28651-12	T-3060 CPT QC OTM-45 FILTEI RB	115	115	103	103	98	90	84	98
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	103	104	73	66	13 *5-	18 *5-	133	127
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	104	113	106	98	93	89	80	97
LCS 140-64806/2-B	Lab Control Sample	102	98	82	82	68	71	125	120
LCS 140-64841/2-B	Lab Control Sample	110	111	114	115	101	98	91	95
LCS 140-64880/2-B	Lab Control Sample	98	89	68	69	73	68	100	107
LCSD 140-64806/3-B	Lab Control Sample Dup	108	110	86	90	66	74	142	121
LCSD 140-64841/3-B	Lab Control Sample Dup	115	116	114	104	98	97	88	91
LCSD 140-64880/3-B	Lab Control Sample Dup	98	93	74	79	92	80	99	93
MB 140-64806/14-B	Method Blank	52	44	18 *5-	12 *5-	3 *5-	5 *5-	125	97
MB 140-64806/1-B	Method Blank	103	104	74	79	50	52	125	117
MB 140-64841/1-B	Method Blank	113	122	109	110	97	98	90	97
MB 140-64880/1-B	Method Blank	96	88	62	65	67	63	106	106

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	M282FTS (25-150)	MFDEA (25-150)	MFHEA (25-150)	MFHUEA (25-150)	MFOEA (25-150)	MFOUEA (25-150)	M102FTS (25-150)
140-28651-1	T-3043,T-3044 CPT QC OTM-45	147	105	45	109	81	149	103
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	106	47	31	91	64	162 *5+	35
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT	114	98	98	114	95	118	98
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE FBT	147	79	82	176 *5+	74	175 *5+	125
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	101	90	72	115	81	135	111
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	143	59	61	161 *5+	69	160 *5+	115
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT	107	91	88	105	88	119	103
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESI TUBE PBT	139	64	65	186 *5+	68	182 *5+	119
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	103	87	90	123	82	121	101
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	128	67	70	181 *5+	71	182 *5+	134
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	99	78	86	110	86	113	65
140-28651-12	T-3060 CPT QC OTM-45 FILTEI RB	120	91	73	122	75	138	114
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	112	62	67	164 *5+	61	159 *5+	100
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	104	94	76	115	73	138	112
LCS 140-64806/2-B	Lab Control Sample	110	66	66	144	63	145	96

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28651-1
Project/Site: St.Gobain CPT OTM-45 - QC

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

Matrix: Air
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	M282FTS (25-150)	MFDEA (25-150)	MFHEA (25-150)	MFHUEA (25-150)	MFOEA (25-150)	MFOUEA (25-150)	M102FTS (25-150)
LCS 140-64841/2-B	Lab Control Sample	95	98	82	123	75	133	108
LCS 140-64880/2-B	Lab Control Sample	109	75	87	118	96	123	84
LCSD 140-64806/3-B	Lab Control Sample Dup	110	80	79	162 *5+	73	152 *5+	111
LCSD 140-64841/3-B	Lab Control Sample Dup	92	92	81	121	72	142	111
LCSD 140-64880/3-B	Lab Control Sample Dup	102	93	77	109	97	114	94
MB 140-64806/14-B	Method Blank	71	19 *5-	58	161 *5+	45	126	28
MB 140-64806/1-B	Method Blank	104	76	71	141	67	136	99
MB 140-64841/1-B	Method Blank	99	94	82	125	82	146	103
MB 140-64880/1-B	Method Blank	104	87	88	114	88	115	83

Surrogate Legend

PFDA = 13C2 PFDA
PFDoA = 13C2 PFDoA
PFHxA = 13C2 PFHxA
PFHxDA = 13C2 PFHxDA
PFTDA = 13C2 PFTeDA
PFUnA = 13C2 PFUnA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFPeA = 13C5 PFPeA
PFOSA = 13C8 FOSA
PFHxS = 18O2 PFHxS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
dEtFOSA = d-N-EtFOSA-M
dMeFOSA = d-N-MeFOSA-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
MFDEA = 13C-10:2 FTCA
MFHEA = 13C-6:2 FTCA
MFHUEA = 13C-6:2 FTUCA
MFOEA = 13C-8:2 FTCA
MFOUEA = 13C-8:2 FTUCA
M102FTS = 13C2 10:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-64806/14-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	CI	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	R	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:22	1

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

Lab Sample ID: MB 140-64806/14-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 03:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*68*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFDoA	*26*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFHxA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFTeDA	*12*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFUnA	*46*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C3 HFPO-DA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C3 PFBS	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFBA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFHxDA	*3*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFHpA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFOS	*58*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C5 PFNA	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C5 PFPeA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C8 FOSA	*40*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
18O2 PFHxS	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d3-NMeFOSAA	*52*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d5-NEtFOSAA	*44*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d7-N-MeFOSE-M	*18*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d9-N-EtFOSE-M	*12*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d-N-EtFOSA-M	*3*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d-N-MeFOSA-M	*5*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
M2-8:2 FTS	*71*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C-10:2 FTCA	*19*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*

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

Lab Sample ID: MB 140-64806/14-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	58		25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C2 10:2 FTS	28		25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C-6:2 FTUCA	161	*5+	25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C-8:2 FTCA	45		25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C-8:2 FTUCA	126		25 - 150	08/30/22 12:05	09/14/22 03:22	1

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFDoA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFUnA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 PFBS	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxDA	*18*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFHpA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFPeA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C8 FOSA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	103		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d5-NEtFOSAA	104		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d7-N-MeFOSE-M	74		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d9-N-EtFOSE-M	79		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d-N-EtFOSA-M	50		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d-N-MeFOSA-M	52		25 - 150	08/30/22 12:05	09/14/22 01:01	1
M2-4:2 FTS	125		25 - 150	08/30/22 12:05	09/14/22 01:01	1
M2-6:2 FTS	117		25 - 150	08/30/22 12:05	09/14/22 01:01	1
M2-8:2 FTS	104		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-10:2 FTCA	76		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-6:2 FTCA	71		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C2 10:2 FTS	99		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-6:2 FTUCA	141		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTUCA	136		25 - 150	08/30/22 12:05	09/14/22 01:01	1

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	20.86		ng/Sample		104	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	19.86		ng/Sample		99	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.29		ng/Sample		101	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	20.12		ng/Sample		101	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	18.77		ng/Sample		94	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	19.09		ng/Sample		95	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	16.31		ng/Sample		82	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	19.40		ng/Sample		97	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	15.99		ng/Sample		90	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.93		ng/Sample		99	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.89		ng/Sample		104	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	18.04		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	16.74		ng/Sample		87	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	20.60		ng/Sample		103	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	17.68		ng/Sample		94	60 - 140
Perfluorononanesulfonic acid (PFNS)	19.2	19.48		ng/Sample		101	60 - 140

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.20		ng/Sample		106	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.62		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	20.38		ng/Sample		109	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	17.67		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	19.04		ng/Sample		99	60 - 140
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	23.22		ng/Sample		116	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	19.32		ng/Sample		104	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	16.27		ng/Sample		86	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	20.82		ng/Sample		111	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	20.77		ng/Sample		108	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	19.28		ng/Sample		96	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	ND	*- R	ng/Sample		0.7	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	22.56		ng/Sample		113	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	21.41		ng/Sample		107	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.33		ng/Sample		102	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.15	R	ng/Sample		96	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	8.815	*-	ng/Sample		46	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	19.65		ng/Sample		98	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	16.80		ng/Sample		84	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	18.79		ng/Sample		94	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	27.51		ng/Sample		138	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.54		ng/Sample		88	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.65		ng/Sample		118	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	16.06		ng/Sample		80	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	26.86		ng/Sample		134	60 - 140
3-Perfluoropropylpropanoic acid	20.0	19.12		ng/Sample		96	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	19.78		ng/Sample		99	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.84		ng/Sample		99	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	18.4	16.97		ng/Sample		92	60 - 140

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	16.35		ng/Sample		92	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*90*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*61*		*25 - 150*
13C2 PFUnA	*99*		*25 - 150*
13C3 HFPO-DA	*84*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
13C4 PFBA	*96*		*25 - 150*
13C2 PFHxDA	*6*	**5-*	*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*95*		*25 - 150*
13C4 PFOS	*90*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*91*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
d3-NMeFOSAA	*102*		*25 - 150*
d5-NEtFOSAA	*98*		*25 - 150*
d7-N-MeFOSE-M	*82*		*25 - 150*
d9-N-EtFOSE-M	*82*		*25 - 150*
d-N-EtFOSA-M	*68*		*25 - 150*
d-N-MeFOSA-M	*71*		*25 - 150*
M2-4:2 FTS	*125*		*25 - 150*
M2-6:2 FTS	*120*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*66*		*25 - 150*
13C-6:2 FTCA	*66*		*25 - 150*
13C2 10:2 FTS	*96*		*25 - 150*
13C-6:2 FTUCA	*144*		*25 - 150*
13C-8:2 FTCA	*63*		*25 - 150*
13C-8:2 FTUCA	*145*		*25 - 150*

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	21.94		ng/Sample		110	60 - 140	5	30
Perfluoropentanoic acid (PFPeA)			20.0	20.58		ng/Sample		103	60 - 140	4	30
Perfluorohexanoic acid (PFHxA)			20.0	23.71		ng/Sample		119	60 - 140	16	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.06		ng/Sample		105	60 - 140	5	30
Perfluorooctanoic acid (PFOA)			20.0	23.52		ng/Sample		118	60 - 140	11	30
Perfluorononanoic acid (PFNA)			20.0	21.46		ng/Sample		107	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			20.0	20.28		ng/Sample		101	60 - 140	4	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroundecanoic acid (PFUnA)			20.0	19.76		ng/Sample		99	60 - 140	5	30
Perfluorododecanoic acid (PFDoA)			20.0	21.10		ng/Sample		106	60 - 140	10	30
Perfluorotridecanoic acid (PFTriA)			20.0	18.31		ng/Sample		92	60 - 140	12	30
Perfluorotetradecanoic acid (PFTeA)			20.0	21.51		ng/Sample		108	60 - 140	10	30
Perfluorobutanesulfonic acid (PFBS)			17.7	17.23		ng/Sample		97	60 - 140	7	30
Perfluorohexanesulfonic acid (PFHxS)			18.2	18.78		ng/Sample		103	60 - 140	5	30
Perfluoroheptanesulfonic acid (PFHpS)			19.0	20.73		ng/Sample		109	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)			18.6	19.78		ng/Sample		107	60 - 140	9	30
Perfluorodecanesulfonic acid (PFDS)			19.3	16.80		ng/Sample		87	60 - 140	0	30
Perfluorooctanesulfonamide (FOSA)			20.0	21.27		ng/Sample		106	60 - 140	3	30
Perfluoropentanesulfonic acid (PFPeS)			18.8	18.66		ng/Sample		99	60 - 140	5	30
Perfluorononanesulfonic acid (PFNS)			19.2	19.86		ng/Sample		103	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			20.0	22.11		ng/Sample		111	60 - 140	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			20.0	21.03		ng/Sample		105	60 - 140	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			18.7	21.14		ng/Sample		113	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			19.0	19.78		ng/Sample		104	60 - 140	11	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			19.2	21.52		ng/Sample		112	60 - 140	12	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			20.0	22.35		ng/Sample		112	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			18.6	19.79		ng/Sample		106	60 - 140	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			18.8	16.06		ng/Sample		85	60 - 140	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			18.8	22.30		ng/Sample		118	60 - 140	7	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			19.3	19.95		ng/Sample		103	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			20.0	19.75		ng/Sample		99	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)			20.0	0.7203	J *- *1	ng/Sample		4	60 - 140	137	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			20.0	24.80		ng/Sample		124	60 - 140	9	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			20.0	21.72		ng/Sample		109	60 - 140	1	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	22.57		ng/Sample		113	60 - 140	10	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	21.24		ng/Sample		106	60 - 140	10	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	8.141	*-	ng/Sample		42	60 - 140	8	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	22.43		ng/Sample		112	60 - 140	13	30
10:2 Fluorotelomer carboxylic acid			20.0	15.45		ng/Sample		77	60 - 140	8	30
6:2 Fluorotelomer carboxylic acid			20.0	18.62		ng/Sample		93	60 - 140	1	30
7:3 Fluorotelomer carboxylic acid			20.0	27.75		ng/Sample		139	60 - 140	1	30
6:2 Fluorotelemer unsaturated acid			20.0	18.51		ng/Sample		93	60 - 140	5	30
8:2 Fluorotelomer carboxylic acid			20.0	22.25		ng/Sample		111	60 - 140	6	30
8:2 Fluorotelemer unsaturated acid			20.0	18.27		ng/Sample		91	60 - 140	13	30
5:3 Fluorotelomer carboxylic acid			20.0	28.93	*+	ng/Sample		145	60 - 140	7	30
3-Perfluoropropylpropanoic acid			20.0	20.94		ng/Sample		105	60 - 140	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	19.94		ng/Sample		100	60 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.88		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	17.64		ng/Sample		96	60 - 140	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.11		ng/Sample		102	60 - 140	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*111*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C2 PFTeDA	*59*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C3 HFPO-DA	*100*		*25 - 150*
13C3 PFBS	*109*		*25 - 150*
13C4 PFBA	*105*		*25 - 150*
13C2 PFHxDA	*10*	*5-	*25 - 150*
13C4 PFHpA	*116*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*
13C4 PFOS	*98*		*25 - 150*
13C5 PFNA	*106*		*25 - 150*
13C5 PFPeA	*111*		*25 - 150*
13C8 FOSA	*103*		*25 - 150*
18O2 PFHxS	*111*		*25 - 150*
d3-NMeFOSAA	*108*		*25 - 150*
d5-NEtFOSAA	*110*		*25 - 150*
d7-N-MeFOSE-M	*86*		*25 - 150*
d9-N-EtFOSE-M	*90*		*25 - 150*
d-N-EtFOSA-M	*66*		*25 - 150*
d-N-MeFOSA-M	*74*		*25 - 150*
M2-4:2 FTS	*142*		*25 - 150*
M2-6:2 FTS	*121*		*25 - 150*

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*80*		*25 - 150*
13C-6:2 FTCA	*79*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*162*	*5+	*25 - 150*
13C-8:2 FTCA	*73*		*25 - 150*
13C-8:2 FTUCA	*152*	*5+	*25 - 150*

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFDoA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFTeDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFUnA	*108*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 HFPO-DA	*70*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 PFBS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFHpA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOS	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFPeA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	103		25 - 150	08/31/22 10:35	09/07/22 13:59	1
18O2 PFHxS	101		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d3-NMeFOSAA	113		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d5-NEtFOSAA	122		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d7-N-MeFOSE-M	109		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d9-N-EtFOSE-M	110		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d-N-EtFOSA-M	97		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d-N-MeFOSA-M	98		25 - 150	08/31/22 10:35	09/07/22 13:59	1
M2-4:2 FTS	90		25 - 150	08/31/22 10:35	09/07/22 13:59	1
M2-6:2 FTS	97		25 - 150	08/31/22 10:35	09/07/22 13:59	1
M2-8:2 FTS	99		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-10:2 FTCA	94		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-6:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C2 10:2 FTS	103		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-6:2 FTUCA	125		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTUCA	146		25 - 150	08/31/22 10:35	09/07/22 13:59	1

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	19.27		ng/Sample		96	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	20.89		ng/Sample		104	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.71		ng/Sample		104	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	22.01		ng/Sample		110	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	23.07		ng/Sample		115	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.08		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	20.14		ng/Sample		101	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	21.23		ng/Sample		106	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	22.19		ng/Sample		111	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	21.09		ng/Sample		105	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	18.17		ng/Sample		103	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.74		ng/Sample		97	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.55		ng/Sample		103	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	17.90		ng/Sample		96	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	18.66		ng/Sample		97	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	22.68		ng/Sample		113	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	19.21		ng/Sample		102	60 - 140

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	19.2	20.89		ng/Sample		109	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.75		ng/Sample		109	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.52		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	19.99		ng/Sample		107	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	19.09		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	18.70		ng/Sample		98	60 - 140
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	20.93		ng/Sample		105	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	20.06		ng/Sample		108	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	19.09		ng/Sample		101	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	19.11		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	21.12		ng/Sample		110	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	18.97		ng/Sample		95	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	23.44		ng/Sample		117	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	20.10		ng/Sample		101	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	19.97		ng/Sample		100	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.04		ng/Sample		100	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.36		ng/Sample		97	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	19.56		ng/Sample		101	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	22.32		ng/Sample		112	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	20.81		ng/Sample		104	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	21.08		ng/Sample		105	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	26.90		ng/Sample		135	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.79		ng/Sample		89	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.81		ng/Sample		119	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	19.64		ng/Sample		98	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	25.36		ng/Sample		127	60 - 140
3-Perfluoropropylpropanoic acid	20.0	22.70		ng/Sample		114	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	20.08		ng/Sample		100	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.76		ng/Sample		99	60 - 140

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	19.58		ng/Sample		106	60 - 140		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.20		ng/Sample		102	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*101*		*25 - 150*
13C2 PFDoA	*101*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*103*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C3 HFPO-DA	*92*		*25 - 150*
13C3 PFBS	*93*		*25 - 150*
13C4 PFBA	*100*		*25 - 150*
13C2 PFHxDA	*99*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
13C5 PFNA	*93*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*99*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
d3-NMeFOSAA	*110*		*25 - 150*
d5-NEtFOSAA	*111*		*25 - 150*
d7-N-MeFOSE-M	*114*		*25 - 150*
d9-N-EtFOSE-M	*115*		*25 - 150*
d-N-EtFOSA-M	*101*		*25 - 150*
d-N-MeFOSA-M	*98*		*25 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*95*		*25 - 150*
M2-8:2 FTS	*95*		*25 - 150*
13C-10:2 FTCA	*98*		*25 - 150*
13C-6:2 FTCA	*82*		*25 - 150*
13C2 10:2 FTS	*108*		*25 - 150*
13C-6:2 FTUCA	*123*		*25 - 150*
13C-8:2 FTCA	*75*		*25 - 150*
13C-8:2 FTUCA	*133*		*25 - 150*

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	18.89		ng/Sample		94	60 - 140	2	30
Perfluoropentanoic acid (PFPeA)			20.0	19.56		ng/Sample		98	60 - 140	7	30
Perfluorohexanoic acid (PFHxA)			20.0	21.91		ng/Sample		110	60 - 140	6	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.44		ng/Sample		107	60 - 140	3	30
Perfluorooctanoic acid (PFOA)			20.0	20.81		ng/Sample		104	60 - 140	10	30
Perfluorononanoic acid (PFNA)			20.0	21.47		ng/Sample		107	60 - 140	2	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorodecanoic acid (PFDA)	20.0	21.93		ng/Sample		110	60 - 140	4	30
Perfluoroundecanoic acid (PFUnA)	20.0	18.12		ng/Sample		91	60 - 140	11	30
Perfluorododecanoic acid (PFDoA)	20.0	20.76		ng/Sample		104	60 - 140	2	30
Perfluorotridecanoic acid (PFTriA)	20.0	21.21		ng/Sample		106	60 - 140	5	30
Perfluorotetradecanoic acid (PFTeA)	20.0	20.48		ng/Sample		102	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)	17.7	17.96		ng/Sample		102	60 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)	18.2	18.14		ng/Sample		100	60 - 140	2	30
Perfluoroheptanesulfonic acid (PFHpS)	19.0	18.58		ng/Sample		98	60 - 140	5	30
Perfluorooctanesulfonic acid (PFOS)	18.6	19.27		ng/Sample		104	60 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)	19.3	19.80		ng/Sample		103	60 - 140	6	30
Perfluorooctanesulfonamide (FOSA)	20.0	20.24		ng/Sample		101	60 - 140	11	30
Perfluoropentanesulfonic acid (PFPeS)	18.8	18.86		ng/Sample		101	60 - 140	2	30
Perfluorononanesulfonic acid (PFNS)	19.2	20.24		ng/Sample		105	60 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	19.95		ng/Sample		100	60 - 140	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	18.32		ng/Sample		92	60 - 140	11	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	19.01		ng/Sample		102	60 - 140	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	19.29		ng/Sample		102	60 - 140	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	19.97		ng/Sample		104	60 - 140	7	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	20.05		ng/Sample		100	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	19.50		ng/Sample		105	60 - 140	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	20.27		ng/Sample		108	60 - 140	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	19.03		ng/Sample		101	60 - 140	0	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	20.25		ng/Sample		105	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	18.66		ng/Sample		93	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)	20.0	23.25		ng/Sample		116	60 - 140	1	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	17.79		ng/Sample		89	60 - 140	12	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	18.88		ng/Sample		94	60 - 140	6	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	19.90		ng/Sample		99	60 - 140	1	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	19.63		ng/Sample		98	60 - 140	1	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	19.46		ng/Sample		100	60 - 140	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	21.81		ng/Sample		109	60 - 140	2	30
10:2 Fluorotelomer carboxylic acid			20.0	17.57		ng/Sample		88	60 - 140	17	30
6:2 Fluorotelomer carboxylic acid			20.0	18.72		ng/Sample		94	60 - 140	12	30
7:3 Fluorotelomer carboxylic acid			20.0	27.31		ng/Sample		137	60 - 140	2	30
6:2 Fluorotelemer unsaturated acid			20.0	17.90		ng/Sample		90	60 - 140	1	30
8:2 Fluorotelomer carboxylic acid			20.0	23.34		ng/Sample		117	60 - 140	2	30
8:2 Fluorotelemer unsaturated acid			20.0	17.13		ng/Sample		86	60 - 140	14	30
5:3 Fluorotelomer carboxylic acid			20.0	24.42		ng/Sample		122	60 - 140	4	30
3-Perfluoropropylpropanoic acid			20.0	21.47		ng/Sample		107	60 - 140	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	18.95		ng/Sample		95	60 - 140	6	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.84		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	18.69		ng/Sample		101	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.49		ng/Sample		104	60 - 140	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*99*		*25 - 150*
13C2 PFDoA	*98*		*25 - 150*
13C2 PFHxA	*84*		*25 - 150*
13C2 PFTeDA	*99*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C3 HFPO-DA	*89*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
13C4 PFBA	*95*		*25 - 150*
13C2 PFHxDA	*95*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*92*		*25 - 150*
13C5 PFNA	*93*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*101*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*115*		*25 - 150*
d5-NEtFOSAA	*116*		*25 - 150*
d7-N-MeFOSE-M	*114*		*25 - 150*
d9-N-EtFOSE-M	*104*		*25 - 150*
d-N-EtFOSA-M	*98*		*25 - 150*
d-N-MeFOSA-M	*97*		*25 - 150*

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*88*		*25 - 150*
M2-6:2 FTS	*91*		*25 - 150*
M2-8:2 FTS	*92*		*25 - 150*
13C-10:2 FTCA	*92*		*25 - 150*
13C-6:2 FTCA	*81*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*121*		*25 - 150*
13C-8:2 FTCA	*72*		*25 - 150*
13C-8:2 FTUCA	*142*		*25 - 150*

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.3631	J	0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanoic acid (PFPeA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanoic acid (PFHxA)	ND		0.500	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.500	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanoic acid (PFOA)	ND		0.500	0.0950	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanoic acid (PFNA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanoic acid (PFDA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.500	0.113	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.500	0.0450	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.500	0.115	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.500	0.0825	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonamide (FOSA)	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.500	0.0600	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanesulfonic acid (PFNS)	ND		0.500	0.0375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.500	0.138	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.500	0.130	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.4171	J	0.500	0.235	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.500	0.0700	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.500	0.140	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.500	0.108	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.185	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.500	0.0850	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.500	0.135	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.500	0.143	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
10:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
7:3 Fluorotelomer carboxylic acid	ND		0.500	0.375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelemer unsaturated acid	ND		0.500	0.0900	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelomer carboxylic acid	ND		0.500	0.325	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelemer unsaturated acid	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
5:3 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
3-Perfluoropropylpropanoic acid	ND		0.500	0.220	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.500	0.198	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.500	0.160	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFDoA	*80*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFUnA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 PFBS	*94*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFBA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFHpA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFOA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	96		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C5 PFNA	103		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C5 PFPeA	101		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C8 FOSA	71		25 - 150	09/01/22 08:23	09/13/22 21:03	1
18O2 PFHxS	96		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d3-NMeFOSAA	96		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d5-NEtFOSAA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d7-N-MeFOSE-M	62		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d9-N-EtFOSE-M	65		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d-N-EtFOSA-M	67		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d-N-MeFOSA-M	63		25 - 150	09/01/22 08:23	09/13/22 21:03	1
M2-4:2 FTS	106		25 - 150	09/01/22 08:23	09/13/22 21:03	1
M2-6:2 FTS	106		25 - 150	09/01/22 08:23	09/13/22 21:03	1
M2-8:2 FTS	104		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-10:2 FTCA	87		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-6:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C2 10:2 FTS	83		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-6:2 FTUCA	114		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTUCA	115		25 - 150	09/01/22 08:23	09/13/22 21:03	1

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.461		ng/Sample		95	60 - 140
Perfluoropentanoic acid (PFPeA)	10.0	9.656		ng/Sample		97	60 - 140
Perfluorohexanoic acid (PFHxA)	10.0	9.497		ng/Sample		95	60 - 140
Perfluoroheptanoic acid (PFHpA)	10.0	9.450		ng/Sample		94	60 - 140
Perfluorooctanoic acid (PFOA)	10.0	9.843		ng/Sample		98	60 - 140
Perfluorononanoic acid (PFNA)	10.0	9.685		ng/Sample		97	60 - 140
Perfluorodecanoic acid (PFDA)	10.0	10.36		ng/Sample		104	60 - 140
Perfluoroundecanoic acid (PFUnA)	10.0	8.999		ng/Sample		90	60 - 140
Perfluorododecanoic acid (PFDoA)	10.0	9.680		ng/Sample		97	60 - 140
Perfluorotridecanoic acid (PFTriA)	10.0	8.040		ng/Sample		80	60 - 140
Perfluorotetradecanoic acid (PFTeA)	10.0	10.09		ng/Sample		101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	8.84	8.245		ng/Sample		93	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	9.10	8.738		ng/Sample		96	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	9.52	9.397		ng/Sample		99	60 - 140
Perfluorooctanesulfonic acid (PFOS)	9.28	8.955		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	9.64	7.528		ng/Sample		78	60 - 140

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	10.0	10.21		ng/Sample		102	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	9.38	8.484		ng/Sample		90	60 - 140
Perfluorononanesulfonic acid (PFNS)	9.60	9.442		ng/Sample		98	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	10.23		ng/Sample		102	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	9.848		ng/Sample		98	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.34	8.707		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.48	9.525		ng/Sample		100	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.58	9.342		ng/Sample		98	60 - 140
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10.0	9.737		ng/Sample		97	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9.32	9.404		ng/Sample		101	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	9.42	6.707		ng/Sample		71	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.42	9.279		ng/Sample		99	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.64	9.016		ng/Sample		94	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	10.0	9.716		ng/Sample		97	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	10.0	10.83		ng/Sample		108	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	10.0	10.39		ng/Sample		104	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	10.60		ng/Sample		106	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	10.12		ng/Sample		101	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	9.847		ng/Sample		98	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	9.68	6.021		ng/Sample		62	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	10.38		ng/Sample		104	60 - 140
10:2 Fluorotelomer carboxylic acid	10.0	7.838		ng/Sample		78	60 - 140
6:2 Fluorotelomer carboxylic acid	10.0	10.11		ng/Sample		101	60 - 140
7:3 Fluorotelomer carboxylic acid	10.0	9.628		ng/Sample		96	60 - 140
6:2 Fluorotelemer unsaturated acid	10.0	8.206		ng/Sample		82	60 - 140
8:2 Fluorotelomer carboxylic acid	10.0	9.672		ng/Sample		97	60 - 140
8:2 Fluorotelemer unsaturated acid	10.0	8.692	I	ng/Sample		87	60 - 140
5:3 Fluorotelomer carboxylic acid	10.0	10.78		ng/Sample		108	60 - 140
3-Perfluoropropylpropanoic acid	10.0	10.05		ng/Sample		101	60 - 140

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoro-3-methoxypropanoic acid (PFMPA)			10.0	9.429		ng/Sample		94	60 - 140		
Perfluoro-4-methoxybutanoic acid (PFMBA)			10.0	9.992		ng/Sample		100	60 - 140		
Perfluoro-4-ethylcyclohexanesulfonic acid			9.22	8.175		ng/Sample		89	60 - 140		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			8.90	8.383		ng/Sample		94	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*104*		*25 - 150*
13C2 PFDoA	*84*		*25 - 150*
13C2 PFHxA	*101*		*25 - 150*
13C2 PFTeDA	*67*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C3 HFPO-DA	*99*		*25 - 150*
13C3 PFBS	*102*		*25 - 150*
13C4 PFBA	*106*		*25 - 150*
13C2 PFHxDA	*71*		*25 - 150*
13C4 PFHpA	*109*		*25 - 150*
13C4 PFOA	*106*		*25 - 150*
13C4 PFOS	*99*		*25 - 150*
13C5 PFNA	*107*		*25 - 150*
13C5 PFPeA	*104*		*25 - 150*
13C8 FOSA	*79*		*25 - 150*
18O2 PFHxS	*105*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*89*		*25 - 150*
d7-N-MeFOSE-M	*68*		*25 - 150*
d9-N-EtFOSE-M	*69*		*25 - 150*
d-N-EtFOSA-M	*73*		*25 - 150*
d-N-MeFOSA-M	*68*		*25 - 150*
M2-4:2 FTS	*100*		*25 - 150*
M2-6:2 FTS	*107*		*25 - 150*
M2-8:2 FTS	*109*		*25 - 150*
13C-10:2 FTCA	*75*		*25 - 150*
13C-6:2 FTCA	*87*		*25 - 150*
13C2 10:2 FTS	*84*		*25 - 150*
13C-6:2 FTUCA	*118*		*25 - 150*
13C-8:2 FTCA	*96*		*25 - 150*
13C-8:2 FTUCA	*123*		*25 - 150*

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.49		ng/Sample		105	60 - 140	10	30
Perfluoropentanoic acid (PFPeA)			10.0	9.881		ng/Sample		99	60 - 140	2	30
Perfluorohexanoic acid (PFHxA)			10.0	9.386		ng/Sample		94	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroheptanoic acid (PFHpA)	10.0	10.16		ng/Sample		102	60 - 140	7	30
Perfluorooctanoic acid (PFOA)	10.0	10.47		ng/Sample		105	60 - 140	6	30
Perfluorononanoic acid (PFNA)	10.0	9.474		ng/Sample		95	60 - 140	2	30
Perfluorodecanoic acid (PFDA)	10.0	10.39		ng/Sample		104	60 - 140	0	30
Perfluoroundecanoic acid (PFUnA)	10.0	8.841		ng/Sample		88	60 - 140	2	30
Perfluorododecanoic acid (PFDoA)	10.0	9.695		ng/Sample		97	60 - 140	0	30
Perfluorotridecanoic acid (PFTriA)	10.0	8.789		ng/Sample		88	60 - 140	9	30
Perfluorotetradecanoic acid (PFTeA)	10.0	9.487		ng/Sample		95	60 - 140	6	30
Perfluorobutanesulfonic acid (PFBS)	8.84	8.210		ng/Sample		93	60 - 140	0	30
Perfluorohexanesulfonic acid (PFHxS)	9.10	8.677		ng/Sample		95	60 - 140	1	30
Perfluoroheptanesulfonic acid (PFHpS)	9.52	8.993		ng/Sample		94	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)	9.28	8.865		ng/Sample		96	60 - 140	1	30
Perfluorodecanesulfonic acid (PFDS)	9.64	9.073		ng/Sample		94	60 - 140	19	30
Perfluorooctanesulfonamide (FOSA)	10.0	10.11		ng/Sample		101	60 - 140	1	30
Perfluoropentanesulfonic acid (PFPeS)	9.38	8.585		ng/Sample		92	60 - 140	1	30
Perfluorononanesulfonic acid (PFNS)	9.60	9.654		ng/Sample		101	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	9.934		ng/Sample		99	60 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	9.749		ng/Sample		97	60 - 140	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.34	9.090		ng/Sample		97	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.48	9.764		ng/Sample		103	60 - 140	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.58	9.368		ng/Sample		98	60 - 140	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10.0	11.27		ng/Sample		113	60 - 140	15	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9.32	9.301		ng/Sample		100	60 - 140	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	9.42	8.187		ng/Sample		87	60 - 140	20	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.42	9.439		ng/Sample		100	60 - 140	2	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.64	9.515		ng/Sample		99	60 - 140	5	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	10.0	9.276		ng/Sample		93	60 - 140	5	30
Perfluoro-n-octadecanoic acid (PFODA)	10.0	9.809		ng/Sample		98	60 - 140	10	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			10.0	10.32		ng/Sample		103	60 - 140	1	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			10.0	10.63		ng/Sample		106	60 - 140	0	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			10.0	9.371		ng/Sample		94	60 - 140	8	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			10.0	9.872		ng/Sample		99	60 - 140	0	30
Perfluorododecanesulfonic acid (PFDoS)			9.68	7.833		ng/Sample		81	60 - 140	26	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			10.0	8.655		ng/Sample		87	60 - 140	18	30
10:2 Fluorotelomer carboxylic acid			10.0	7.621		ng/Sample		76	60 - 140	3	30
6:2 Fluorotelomer carboxylic acid			10.0	9.988		ng/Sample		100	60 - 140	1	30
7:3 Fluorotelomer carboxylic acid			10.0	9.154		ng/Sample		92	60 - 140	5	30
6:2 Fluorotelemer unsaturated acid			10.0	9.502		ng/Sample		95	60 - 140	15	30
8:2 Fluorotelomer carboxylic acid			10.0	9.780		ng/Sample		98	60 - 140	1	30
8:2 Fluorotelemer unsaturated acid			10.0	8.757		ng/Sample		88	60 - 140	1	30
5:3 Fluorotelomer carboxylic acid			10.0	12.16		ng/Sample		122	60 - 140	12	30
3-Perfluoropropylpropanoic acid			10.0	10.05		ng/Sample		101	60 - 140	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			10.0	9.656		ng/Sample		97	60 - 140	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			10.0	9.530		ng/Sample		95	60 - 140	5	30
Perfluoro-4-ethylcyclohexanesulfonic acid			9.22	8.613		ng/Sample		93	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			8.90	8.052		ng/Sample		90	60 - 140	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C2 PFUnA	*110*		*25 - 150*
13C3 HFPO-DA	*96*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
13C4 PFBA	*102*		*25 - 150*
13C2 PFHxDA	*79*		*25 - 150*
13C4 PFHpA	*97*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*81*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*93*		*25 - 150*

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
d7-N-MeFOSE-M	74		25 - 150
d9-N-EtFOSE-M	79		25 - 150
d-N-EtFOSA-M	92		25 - 150
d-N-MeFOSA-M	80		25 - 150
M2-4:2 FTS	99		25 - 150
M2-6:2 FTS	93		25 - 150
M2-8:2 FTS	102		25 - 150
13C-10:2 FTCA	93		25 - 150
13C-6:2 FTCA	77		25 - 150
13C2 10:2 FTS	94		25 - 150
13C-6:2 FTUCA	109		25 - 150
13C-8:2 FTCA	97		25 - 150
13C-8:2 FTUCA	114		25 - 150

LCMS

Prep Batch: 64806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	Total/NA	Air	None	
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD	Total/NA	Air	None	
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	Total/NA	Air	None	
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD	Total/NA	Air	None	
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	Total/NA	Air	None	
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	Total/NA	Air	None	
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	Total/NA	Air	None	
MB 140-64806/14-B	Method Blank	Total/NA	Air	None	
MB 140-64806/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-1	T-3043,T-3044 CPT QC OTM-45 FH FBT	Total/NA	Air	None	
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	Total/NA	Air	None	
140-28651-12	T-3060 CPT QC OTM-45 FILTER RB	Total/NA	Air	None	
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	Total/NA	Air	None	
MB 140-64841/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CO	Total/NA	Air	None	
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CO	Total/NA	Air	None	
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	Total/NA	Air	None	
MB 140-64880/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 64889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-1	T-3043,T-3044 CPT QC OTM-45 FH FBT	Total/NA	Air	Split	64841
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	Total/NA	Air	Split	64841
140-28651-12	T-3060 CPT QC OTM-45 FILTER RB	Total/NA	Air	Split	64841
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	Total/NA	Air	Split	64841
MB 140-64841/1-B	Method Blank	Total/NA	Air	Split	64841
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	Split	64841
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64841

Cleanup Batch: 64951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	Total/NA	Air	Split	64806
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD	Total/NA	Air	Split	64806
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	Total/NA	Air	Split	64806
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD	Total/NA	Air	Split	64806
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	Total/NA	Air	Split	64806
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	Total/NA	Air	Split	64806
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	Total/NA	Air	Split	64806
MB 140-64806/14-B	Method Blank	Total/NA	Air	Split	64806

LCMS (Continued)

Cleanup Batch: 64951 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 140-64806/1-B	Method Blank	Total/NA	Air	Split	64806
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	Split	64806
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64806

Analysis Batch: 65050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-1	T-3043,T-3044 CPT QC OTM-45 FH FBT	Total/NA	Air	537 (modified)	64889
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	Total/NA	Air	537 (modified)	64889
140-28651-12	T-3060 CPT QC OTM-45 FILTER RB	Total/NA	Air	537 (modified)	64889
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	Total/NA	Air	537 (modified)	64889
MB 140-64841/1-B	Method Blank	Total/NA	Air	537 (modified)	64889
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64889
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64889

Cleanup Batch: 65113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CO	Total/NA	Air	Split	64880
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CO	Total/NA	Air	Split	64880
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	Total/NA	Air	Split	64880
MB 140-64880/1-B	Method Blank	Total/NA	Air	Split	64880
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	Split	64880
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64880

Analysis Batch: 65245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	Total/NA	Air	537 (modified)	64951
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CO	Total/NA	Air	537 (modified)	65113
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAI	Total/NA	Air	537 (modified)	64951
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	Total/NA	Air	537 (modified)	64951
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CO	Total/NA	Air	537 (modified)	65113
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAI	Total/NA	Air	537 (modified)	64951
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	Total/NA	Air	537 (modified)	64951
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	Total/NA	Air	537 (modified)	64951
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	Total/NA	Air	537 (modified)	65113
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	Total/NA	Air	537 (modified)	64951
MB 140-64806/14-B	Method Blank	Total/NA	Air	537 (modified)	64951
MB 140-64806/1-B	Method Blank	Total/NA	Air	537 (modified)	64951
MB 140-64880/1-B	Method Blank	Total/NA	Air	537 (modified)	65113
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64951
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	65113
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64951
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	65113

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3043,T-3044 CPT QC OTM-45 FH FBT

Lab Sample ID: 140-28651-1

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	76 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			38 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 15:19	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT

Lab Sample ID: 140-28651-2

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:06	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT

Lab Sample ID: 140-28651-3

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.86207 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 22:40	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT

Lab Sample ID: 140-28651-4

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:14	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28651-1
Project/Site: St.Gobain CPT OTM-45 - QC

Client Sample ID: T-3050,T-3051 CPT QC OTM-45 FH PBT
Lab Sample ID: 140-28651-5
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	69 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			35 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 15:45	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT
Lab Sample ID: 140-28651-6
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:23	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT
Lab Sample ID: 140-28651-7
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.78125 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 22:48	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT
Lab Sample ID: 140-28651-8
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:32	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB

Lab Sample ID: 140-28651-9

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:41	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3058 CPT QC OTM-45 XAD-2 RB

Lab Sample ID: 140-28651-10

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:50	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3059 CPT QC OTM-45 DI WATER RB

Lab Sample ID: 140-28651-11

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.56818 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 22:57	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3060 CPT QC OTM-45 FILTER RB

Lab Sample ID: 140-28651-12

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 15:54	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: C-1520 MEDIA CHECK OTM-45 XAD

Lab Sample ID: 140-28651-13

Date Collected: 08/23/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 04:58	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: C-1521 MEDIA CHECK OTM-45 FILTER
Lab Sample ID: 140-28651-14
Date Collected: 08/23/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 16:03	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64806/14-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 03:22	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64806/1-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:01	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64841/1-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 13:59	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64880/1-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:03	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28651-1
Project/Site: St.Gobain CPT OTM-45 - QC

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64806/2-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:09	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64841/2-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:08	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64880/2-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:11	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-64806/3-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:18	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-64841/3-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:17	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Client Sample ID: Lab Control Sample Dup

Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64880/3-B

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:20	CAC	EET KNX
	Instrument ID: LCA									

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Laboratory: Eurofins Knoxville

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-25
ANAB	Dept. of Energy	L2311.01	02-13-25
ANAB	ISO/IEC 17025	L2311	02-13-25
Arkansas DEQ	State	88-0688	06-16-23
California	State	2423	06-30-22 *
Colorado	State	TN00009	02-28-23
Connecticut	State	PH-0223	09-30-23
Florida	NELAP	E87177	06-30-23
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-22
Kansas	NELAP	E-10349	10-31-22
Kentucky (DW)	State	90101	12-31-22
Louisiana	NELAP	83979	06-30-23
Louisiana (All)	NELAP	83979	09-15-22
Louisiana (DW)	State	LA019	12-31-22
Maryland	State	277	03-31-23
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-23
New Hampshire	NELAP	299919	01-17-23
New Jersey	NELAP	TN001	06-30-23
New York	NELAP	10781	03-31-23
North Carolina (DW)	State	21705	07-31-23
North Carolina (WW/SW)	State	64	12-31-22
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-23
Oregon	NELAP	TNI0189	12-31-22
Pennsylvania	NELAP	68-00576	12-31-22
Tennessee	State	02014	07-27-25
Texas	NELAP	T104704380-22-17	08-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-19-00236	12-31-22
Utah	NELAP	TN00009	07-31-23
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-23
West Virginia (DW)	State	9955C	12-31-22
West Virginia DEP	State	345	04-30-23
Wisconsin	State	998044300	08-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET KNX
None	Leaching Procedure	TAL SOP	EET KNX
None	Leaching Procedure for Condensate	TAL SOP	EET KNX
None	Leaching Procedure for Filter	TAL SOP	EET KNX
Split	Source Air Split	None	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT OTM-45 - QC

Job ID: 140-28651-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-28651-1	T-3043,T-3044 CPT QC OTM-45 FH FBT	Air	08/25/22 00:00	08/29/22 08:00
140-28651-2	T-3045,T-3046,T-3048 CPT QC OTM-45 BH FBT	Air	08/25/22 00:00	08/29/22 08:00
140-28651-3	T-3047 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE FBT	Air	08/25/22 00:00	08/29/22 08:00
140-28651-4	T-3049 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE FBT	Air	08/25/22 00:00	08/29/22 08:00
140-28651-5	T-3050,T-3051 CPT QC OTM-45 FH PBT	Air	08/23/22 00:00	08/29/22 08:00
140-28651-6	T-3052,T-3053,T-3055 CPT QC OTM-45 BH PBT	Air	08/23/22 00:00	08/29/22 08:00
140-28651-7	T-3054 CPT QC OTM-45 IMPINGERS 1,2&3 CONDENSATE PBT	Air	08/23/22 00:00	08/29/22 08:00
140-28651-8	T-3056 CPT QC OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE PBT	Air	08/23/22 00:00	08/29/22 08:00
140-28651-9	T-3057 CPT QC OTM-45 MEOH/5% NH4OH RB	Air	08/23/22 00:00	08/29/22 08:00
140-28651-10	T-3058 CPT QC OTM-45 XAD-2 RB	Air	08/23/22 00:00	08/29/22 08:00
140-28651-11	T-3059 CPT QC OTM-45 DI WATER RB	Air	08/23/22 00:00	08/29/22 08:00
140-28651-12	T-3060 CPT QC OTM-45 FILTER RB	Air	08/23/22 00:00	08/29/22 08:00
140-28651-13	C-1520 MEDIA CHECK OTM-45 XAD	Air	08/23/22 00:00	08/29/22 08:00
140-28651-14	C-1521 MEDIA CHECK OTM-45 FILTER	Air	08/23/22 00:00	08/29/22 08:00

Request for Analysis/Chain-of-Custody – RFA/COC #003
Barr Engineering St. Gobain CPT
EPA Method OTM-45 Train Sampling
Field QC PFAS Testing

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Project Identification:	**St. Gobain CPT**
Client Name:	Barr Engineering
Client Contact:	Tom Kuchinski (763) 548-4954
TestAmerica Project Manager:	Ms. Courtney Adkins Office: (865) 291-3019
TestAmerica Program Manager:	Mr. Billy Anderson Office: (865) 291-3080 Cell: (865) 206-9004

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows: "BT" = Blank Train, "RB" = Reagent Blank, "MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate, "DUP" = Duplicate, "PBT" = Proof Blank Train, "TB" = Trip Blank

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	28 Days from Lab Receipt
Laboratory Destination:	Eurofins TestAmerica 5815 Middlebrook Pike Knoxville, TN 37921
Lab Phone Number:	(865) 291-3000
Courier:	Hand Deliver

Project Deliverables:
Report analytical results on TALS Report form Std_Tal_L4. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	**Holding Time Requirements:**	**Preservation Requirements:**
PFAS Compounds	14 Days to Extraction; 40 Days to Analysis	Cool, 4°C

Field Sample No./Sample Coding ID	**Run No.**	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type**	**Analytical Specifications**
T-3043 CPT QC OTM-45 Filter FBT (Combine with T-3044)	QC	8-25-22	Field Blank Train	125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3044 CPT QC OTM-45 FH of Filter Holder & Probe MeOH Rinse FBT (Combine with T-3043)	QC	8-25-22	Field Blank Train	125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.

140-28651 Chain of Custody

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3045 CPT QC OTM-45 XAD-2 Resin Tube FBT	QC	8-25-22	Field Blank Train	XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3046 CPT QC OTM-45 BH of Filter Holder & Condenser MeOH Rinse FBT (Combine with T-3045)	QC	8-25-22	Field Blank Train	125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3047 CPT QC OTM-45 Impingers 1,2 & 3 Condensate FBT	QC	8-25-22	Field Blank Train	1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3048 CPT QC OTM-45 Impinger Glassware MeOH Rinse FBT (Combine with T-3047)	QC	8-25-22	Field Blank Train	250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3049 CPT QC OTM-45 Breakthrough XAD-2 Resin Tube FBT	QC	8-25-22	Field Blank Train	XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3050 CPT QC OTM-45 Filter PBT (Combine with T-3051)	QC	8-23-22	Proof Blank Train	125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3051 CPT QC OTM-45 FH of Filter Holder & Probe MeOH Rinse PBT (Combine with T-3050)	QC	8-23-22	Proof Blank Train	125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3052 CPT QC OTM-45 XAD-2 Resin Tube PBT	QC	8-23-22	Proof Blank Train	XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3053 CPT QC OTM-45 BH of Filter Holder & Condenser MeOH Rinse PBT (Combine with T-3052)	QC	8-23-22	Proof Blank Train	125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3054 CPT QC OTM-45 Impingers 1,2 & 3 Condensate PBT	QC	8-23-22	Proof Blank Train	1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Request for Analysis/Chain-of-Custody – RFA/COC #003
Barr Engineering St. Gobain CPT
EPA Method OTM-45 Train Sampling
Field QC PFAS Testing

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Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3055 CPT QC OTM-45 Impinger Glassware MeOH Rinse PBT (Combine with T-3052)	QC	8-23-22	Proof Blank Train	250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3056 CPT QC OTM-45 Breakthrough XAD-2 Resin Tube PBT	QC	8-23-22	Proof Blank Train	XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3057 CPT QC OTM-45 MeOH / 5% NH_4OH RB	QC	8-23-22	Reagent Blank	250 mL HDPE Wide-Mouth bottle	**Methanol / 5% NH_4OH Reagent Blank** OTM-45 Train PFAS Analyses	Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3058 CPT QC OTM-45 XAD-2 RB	QC	8-23-22	Reagent Blank	XAD-2 Resin Tube	**XAD-2 Resin Tube Reagent Blank** OTM-45 Train PFAS Analyses	Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3059 CPT QC OTM-45 DI Water RB	QC	8-23-22	Reagent Blank	500 mL HDPE Wide-Mouth Bottle	**DI Water Reagent Blank** OTM-45 Train PFAS Analyses	Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3060 CPT QC OTM-45 Filter RB	QC	8-23-22	Reagent Blank	250 mL HDPE Wide-Mouth Bottle	**Filter Reagent Blank** OTM-45 Train PFAS Analyses	Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

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Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NONE
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	RT 3.6/CT 3.7°C
(3) Record any apparent sample loss/breakage.	NONE
(4) Record any unidentified samples transported with this shipment of samples:	NONE
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	HAND DELIVERED, NO CUSTODY SEALS

Custody Transfer:

	Name	Company	Date/Time
Relinquished By:	-Tim Russell	BARR	8-25-22
Accepted By:	Doug Cahill	ETA KNOX	8/25/22
Relinquished By:	Doug Cahill	ETA KNOX	8/27/22 1915
Accepted By:		ETA-KNX	8:29:22 08:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ **Containers, Broken**
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			✓	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : S173 Correction factor: +0.1°C	✓			☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	✓			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	✓			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	✓			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	✓			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?			✓	☐ **Sampler Not Listed on COC**
11. Is the client and project name/# identified?	✓			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	✓			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	✓			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	✓			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			✓	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 8-29-22

QA026R32.doc, 062719

OTM-45 Laboratory Results Summary
Test Run 2
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28650-5				140-28650-6				140-28650-7				140-28650-8								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
Perfluorobutanoic acid (PFBA)	0		1.98	1.28	0		10.0	9.40	7.46	B	0.680	0.272	0	M CI	10.0	9.40	7.46			7.46	ND B M CI
Perfluoropentanoic acid (PFPeA)	0		0.988	0.178	4.08		1.00	0.450	6.44		0.680	0.0884	0		1.00	0.450	10.52			10.52	ND z
Perfluorohexanoic acid (PFHxA)	0		0.988	0.207	11.6		1.00	0.520	7.42		0.680	0.258	0		1.00	0.520	19.02			19.02	ND z
Perfluoroheptanoic acid (PFHpA)	0		0.988	0.612	5.63		3.00	2.60	0.818		0.680	0.207	0		3.00	2.60	6.448			6.448	ND
Perfluorooctanoic acid (PFOA)	0		0.988	0.642	31.7		1.00	0.660	1.33		0.680	0.129	0		1.00	0.660	33.03			33.03	ND xyz
Perfluorononanoic acid (PFNA)	0.0965	J	0.988	0.0839	4.16		1.00	0.890	0.123	J I	0.680	0.0714	0		1.00	0.890	4.3795			4.3795	ND J I
Perfluorodecanoic acid (PFDA)	0		0.988	0.247	3.28		1.00	0.210	0		0.680	0.0884	0		1.00	0.210	3.28			3.28	ND
Perfluoroundecanoic acid (PFUnA)	0		0.988	0.168	3.23		1.00	0.270	0		0.680	0.102	0		1.00	0.270	3.23			3.23	ND
Perfluorododecanoic acid (PFDoA)	0.167	J	0.988	0.0988		R	1.00	0.120	0		0.680	0.0714	0		1.00	0.120	0.167			0.167	ND J R
Perfluorotridecanoic acid (PFTriA)	0.322	J	0.988	0.138		R	1.00	0.170	0		0.680	0.109	0		1.00	0.170	0.322			0.322	ND J R
Perfluorotetradecanoic acid (PFTeA)	0.269	J	0.988	0.168		R	1.00	0.230	0		0.680	0.153	0		1.00	0.230	0.269			0.269	ND J R
Perfluorobutanesulfonic acid (PFBS)	0		0.988	0.879	0		1.00	0.520	0		0.680	0.0612	0		1.00	0.520	0			0	ND
Perfluorohexanesulfonic acid (PFHxS)	0		0.988	0.109	0		1.00	0.260	0		0.680	0.0782	0		1.00	0.260	0			0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0		0.988	0.109	0		1.00	0.200	0		0.680	0.156	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonic acid (PFOS)	0		0.988	0.444	0.448	J	1.00	0.150	0		0.680	0.0884	0.157	J	1.00	0.150	0.448	35	A	0.605	A ND J xyz
Perfluorodecanesulfonic acid (PFDS)	0		0.988	0.109	0		1.00	0.200	0		0.680	0.112	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonamide (FOSA)	0		0.988	0.0869	0.301	J	1.00	0.230	0		0.680	0.272	0		1.00	0.230	0.301			0.301	ND J
Perfluoropentanesulfonic acid (PFPeS)	0		0.988	0.119	0		1.00	0.210	0		0.680	0.0816	0		1.00	0.210	0			0	ND
Perfluorononanesulfonic acid (PFNS)	0		0.988	0.119	0		1.00	0.160	0		0.680	0.0510	0		1.00	0.160	0			0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		0.988	0.119	0		1.00	0.120	0		0.680	0.139	0		1.00	0.120	0			0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		0.988	0.138	0.570	J	1.00	0.190	0		0.680	0.102	0		1.00	0.190	0.57			0.57	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		0.988	0.0899	0		1.00	0.0640	0		0.680	0.0782	0		1.00	0.0640	0			0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		4.94	3.95	0		10.0	8.70	0		0.680	0.187	0		10.0	8.70	0			0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		0.988	0.138	0		1.00	0.160	0		0.680	0.177	0		1.00	0.160	0			0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		4.94	4.64	0		20.0	11.0	6.46	B	0.680	0.320	0		20.0	11.0	6.46			6.46	ND B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		0.988	0.0968	0		1.00	0.180	0		0.680	0.0884	0		1.00	0.180	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 2
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28650-5				140-28650-6				140-28650-7				140-28650-8								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		0.988	0.198	0		1.00	0.180	0		0.680	0.0952	0		1.00	0.180	0			0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		0.988	0.138	0		2.00	1.10	0		0.680	0.190	0		2.00	1.10	0			0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		0.988	0.316	0		1.00	0.170	0		0.680	0.146	0		1.00	0.170	0			0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		0.988	0.119		NR	1.00	0.370	0		0.680	0.252	0		1.00	0.370	0			0	ND NR
Perfluoro-n-octadecanoic acid (PFODA)	0.713	J	0.988	0.217		*- *1 R	1.00	0.640	0		0.680	0.173	0	*- *1	1.00	0.640	0.713			0.713	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		4.94	4.84		R	20.0	19.8	0		0.680	0.139	0		20.0	19.8	0			0	ND R
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		0.988	0.148		R	1.00	0.770	0		0.680	0.116	0		1.00	0.770	0			0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		0.988	0.158		R	1.00	0.660	0		0.680	0.184	0		1.00	0.660	0			0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.582	J	0.988	0.286		R	1.00	0.290	0		0.680	0.194	0		1.00	0.290	0.582			0.582	ND J R
Perfluorododecanesulfonic acid (PFDoS)	0		0.988	0.0938	0	*-	1.00	0.180	0		0.680	0.109	0	*-	1.00	0.180	0			0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		0.988	0.148	0		1.00	0.160	0		0.680	0.197	0		1.00	0.160	0			0	ND
10:2 Fluorotelomer carboxylic acid	0		0.988	0.415	0		1.00	0.520	0		0.680	0.408	0		1.00	0.520	0			0	ND
6:2 Fluorotelomer carboxylic acid	0		0.988	0.425	4.80		1.00	1.00	0		0.680	0.408	0		1.00	1.00	4.8			4.8	ND
7:3 Fluorotelomer carboxylic acid	0		0.988	0.346	0		1.00	0.560	0		0.680	0.510	0		1.00	0.560	0			0	ND
6:2 Fluorotelemer unsaturated acid	0		0.988	0.138	1.78		1.00	0.200	0		0.680	0.122	0		1.00	0.200	1.78			1.78	ND
8:2 Fluorotelomer carboxylic acid	0		0.988	0.346	0		1.00	0.380	0		0.680	0.442	0		1.00	0.380	0			0	ND
8:2 Fluorotelemer unsaturated acid	0		0.988	0.217	0		1.00	0.200	0		0.680	0.272	0		1.00	0.200	0			0	ND
5:3 Fluorotelomer carboxylic acid	0		0.988	0.474	0	*+	1.00	0.700	0		0.680	0.408	0	*+	1.00	0.700	0			0	ND *+
3-Perfluoropropylpropanoic acid	0		0.988	0.286	0		1.00	0.310	0		0.680	0.299	0		1.00	0.310	0			0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		0.988	0.148	4.27	CI	1.00	0.120	0.330	J	0.680	0.197	0		1.00	0.120	4.6			4.6	ND CI J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		0.988	0.198	0		1.00	0.130	0		0.680	0.269	0		1.00	0.130	0			0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		0.988	0.217	0		1.00	0.140	0		0.680	0.218	0		1.00	0.140	0			0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		0.988	0.138	0		1.00	0.100	0		0.680	0.173	0		1.00	0.100	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 3
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28650-9				140-28650-10				140-28650-11				140-28650-12								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
Perfluorobutanoic acid (PFBA)	0		1.98	1.29	10.0		10.0	9.40	10.4	B	0.620	0.248	0	M CI	10.0	9.40	20.4			20.4	ND B M CI
Perfluoropentanoic acid (PFPeA)	0.424	J	0.990	0.178	18.8		1.00	0.450	29.0		0.620	0.0806	0.768	J	1.00	0.450	48.224	2		48.224	J z
Perfluorohexanoic acid (PFHxA)	0.217	J	0.990	0.208	11.5		1.00	0.520	7.81		0.620	0.236	0.602	J	1.00	0.520	19.527	3		19.527	J z
Perfluoroheptanoic acid (PFHpA)	0		0.990	0.614	14.6		3.00	2.60	2.19		0.620	0.189	0		3.00	2.60	16.79			16.79	ND
Perfluorooctanoic acid (PFOA)	0		0.990	0.644	33.9		1.00	0.660	0.884		0.620	0.118	0		1.00	0.660	34.784			34.784	ND xz
Perfluorononanoic acid (PFNA)	0.169	J	0.990	0.0842	13.9		1.00	0.890	0.194	J I	0.620	0.0651	0		1.00	0.890	14.263			14.263	ND J I
Perfluorodecanoic acid (PFDA)	0		0.990	0.248	6.28		1.00	0.210	0		0.620	0.0806	0		1.00	0.210	6.28			6.28	ND
Perfluoroundecanoic acid (PFUnA)	0.254	J	0.990	0.168		R	1.00	0.270	0		0.620	0.0930	0		1.00	0.270	0.254			0.254	ND J R
Perfluorododecanoic acid (PFDoA)	0.203	J	0.990	0.0990		R	1.00	0.120	0		0.620	0.0651	0		1.00	0.120	0.203			0.203	ND J R
Perfluorotridecanoic acid (PFTriA)	0.807	J	0.990	0.139		R	1.00	0.170	0		0.620	0.0992	0		1.00	0.170	0.807			0.807	ND J R
Perfluorotetradecanoic acid (PFTeA)	0.545	J	0.990	0.168		R	1.00	0.230	0		0.620	0.140	0		1.00	0.230	0.545			0.545	ND J R
Perfluorobutanesulfonic acid (PFBS)	0		0.990	0.881	0		1.00	0.520	0		0.620	0.0558	0		1.00	0.520	0			0	ND
Perfluorohexanesulfonic acid (PFHxS)	0		0.990	0.109	0		1.00	0.260	0		0.620	0.0713	0		1.00	0.260	0			0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0		0.990	0.109	0		1.00	0.200	0		0.620	0.143	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonic acid (PFOS)	0.447	J I	0.990	0.446	0.612	J	1.00	0.150	0		0.620	0.0806	0.165	J I	1.00	0.150	1.059	16		1.224	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	0		0.990	0.109	0		1.00	0.200	0		0.620	0.102	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonamide (FOSA)	0		0.990	0.0872		J R	1.00	0.230	0		0.620	0.248	0		1.00	0.230	0			0	ND J R
Perfluoropentanesulfonic acid (PFPeS)	0		0.990	0.119	0		1.00	0.210	0		0.620	0.0744	0		1.00	0.210	0			0	ND
Perfluorononanesulfonic acid (PFNS)	0		0.990	0.119	0		1.00	0.160	0		0.620	0.0465	0		1.00	0.160	0			0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		0.990	0.119	0		1.00	0.120	0		0.620	0.127	0		1.00	0.120	0			0	ND J
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		0.990	0.139		J R	1.00	0.190	0		0.620	0.0930	0		1.00	0.190	0			0	ND J R
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		0.990	0.0901	0		1.00	0.0640	0		0.620	0.0713	0		1.00	0.0640	0			0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		4.95	3.96	0		10.0	8.70	0		0.620	0.171	0		10.0	8.70	0			0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		0.990	0.139	0		1.00	0.160	0		0.620	0.161	0		1.00	0.160	0			0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		4.95	4.65	34.6		20.0	11.0	22.6	B	0.620	0.291	0		20.0	11.0	57.2			57.2	ND B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		0.990	0.0971	0		1.00	0.180	0		0.620	0.0806	0		1.00	0.180	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 3
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28650-9				140-28650-10				140-28650-11				140-28650-12								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		0.990	0.198	0		1.00	0.180	0		0.620	0.0868	0		1.00	0.180	0			0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		0.990	0.139	0		2.00	1.10	0		0.620	0.174	0		2.00	1.10	0			0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		0.990	0.317		R	1.00	0.170	0		0.620	0.133	0		1.00	0.170	0			0	ND R
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		0.990	0.119		R	1.00	0.370	0		0.620	0.229	0		1.00	0.370	0			0	ND R
Perfluoro-n-octadecanoic acid (PFODA)	2.15		0.990	0.218		*- *1 R	1.00	0.640	0		0.620	0.158	0	*- *1	1.00	0.640	2.15			2.15	ND *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		4.95	4.85		NR	20.0	19.8	0		0.620	0.127	0		20.0	19.8	0			0	NR ND
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		0.990	0.149		R	1.00	0.770	0		0.620	0.105	0		1.00	0.770	0			0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		0.990	0.158		R	1.00	0.660	0		0.620	0.167	0		1.00	0.660	0			0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.08		0.990	0.287		R	1.00	0.290	0		0.620	0.177	0		1.00	0.290	1.08			1.08	ND R
Perfluorododecanesulfonic acid (PFDoS)	0		0.990	0.0941	0	*-	1.00	0.180	0		0.620	0.0992	0	*-	1.00	0.180	0			0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		0.990	0.149	0		1.00	0.160	0		0.620	0.180	0		1.00	0.160	0			0	ND
10:2 Fluorotelomer carboxylic acid	0		0.990	0.416		R	1.00	0.520	0		0.620	0.372	0		1.00	0.520	0			0	ND R
6:2 Fluorotelomer carboxylic acid	0		0.990	0.426	3.17		1.00	1.00	0		0.620	0.372	0		1.00	1.00	3.17			3.17	ND
7:3 Fluorotelomer carboxylic acid	0		0.990	0.347	0		1.00	0.560	0		0.620	0.465	0		1.00	0.560	0			0	ND
6:2 Fluorotelemer unsaturated acid	0		0.990	0.139	1.38		1.00	0.200	0		0.620	0.112	0		1.00	0.200	1.38			1.38	ND
8:2 Fluorotelomer carboxylic acid	0		0.990	0.347	0		1.00	0.380	0		0.620	0.403	0		1.00	0.380	0			0	ND
8:2 Fluorotelemer unsaturated acid	0		0.990	0.218	0		1.00	0.200	0		0.620	0.248	0		1.00	0.200	0			0	ND
5:3 Fluorotelomer carboxylic acid	0		0.990	0.475	0	*+	1.00	0.700	0		0.620	0.372	0	*+	1.00	0.700	0			0	ND *+
3-Perfluoropropylpropanoic acid	0		0.990	0.287	0		1.00	0.310	0		0.620	0.273	0		1.00	0.310	0			0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		0.990	0.149	1.10		1.00	0.120	0.322	J	0.620	0.180	0		1.00	0.120	1.422			1.422	ND J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		0.990	0.198	0		1.00	0.130	0		0.620	0.245	0		1.00	0.130	0			0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		0.990	0.218	0		1.00	0.140	0		0.620	0.198	0		1.00	0.140	0			0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		0.990	0.139	0		1.00	0.100	0		0.620	0.158	0		1.00	0.100	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 4
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28650-13				140-28650-14				140-28650-15				140-28650-16								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
Perfluorobutanoic acid (PFBA)	0		2.00	1.30	9.52	J	10.0	9.40	7.67	B	0.670	0.268	0	M CI	10.0	9.40	17.19			17.19	ND J B M CI
Perfluoropentanoic acid (PFPeA)	0.529	J	1.00	0.180	10.9		1.00	0.450	12.5		0.670	0.0871	0		1.00	0.450	23.929			23.929	ND J z
Perfluorohexanoic acid (PFHxA)	0.330	J	1.00	0.210	10.7		1.00	0.520	7.84		0.670	0.255	0		1.00	0.520	18.87			18.87	ND J z
Perfluoroheptanoic acid (PFHpA)	0		1.00	0.620	7.92		3.00	2.60	0.980		0.670	0.204	0		3.00	2.60	8.9			8.9	ND
Perfluorooctanoic acid (PFOA)	1.28		1.00	0.650	34.1		1.00	0.660	0.552	J	0.670	0.127	0		1.00	0.660	35.932			35.932	ND J xz
Perfluorononanoic acid (PFNA)	0.352	J	1.00	0.0850	8.06		1.00	0.890	0.105	J I	0.670	0.0703	0		1.00	0.890	8.517			8.517	ND J I
Perfluorodecanoic acid (PFDA)	0.272	J	1.00	0.250	4.11		1.00	0.210	0		0.670	0.0871	0		1.00	0.210	4.382			4.382	ND J
Perfluoroundecanoic acid (PFUnA)	0.515	J	1.00	0.170	11.6		1.00	0.270	0		0.670	0.100	0		1.00	0.270	12.115			12.115	ND J
Perfluorododecanoic acid (PFDoA)	0.419	J	1.00	0.100		R	1.00	0.120	0		0.670	0.0703	0		1.00	0.120	0.419			0.419	ND J R
Perfluorotridecanoic acid (PFTriA)	1.55		1.00	0.140		R	1.00	0.170	0		0.670	0.107	0		1.00	0.170	1.55			1.55	ND R
Perfluorotetradecanoic acid (PFTeA)	0.892	J	1.00	0.170		R	1.00	0.230	0		0.670	0.151	0		1.00	0.230	0.892			0.892	ND J R
Perfluorobutanesulfonic acid (PFBS)	0		1.00	0.890	0		1.00	0.520	0		0.670	0.0603	0		1.00	0.520	0			0	ND
Perfluorohexanesulfonic acid (PFHxS)	0		1.00	0.110	0		1.00	0.260	0		0.670	0.0770	0		1.00	0.260	0			0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0		1.00	0.110	0		1.00	0.200	0		0.670	0.154	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonic acid (PFOS)	0		1.00	0.450	0.571	J I	1.00	0.150	0		0.670	0.0871	0		1.00	0.150	0.571			0.571	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	0		1.00	0.110	0		1.00	0.200	0		0.670	0.111	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonamide (FOSA)	0		1.00	0.0880	0		1.00	0.230	0		0.670	0.268	0		1.00	0.230	0			0	ND
Perfluoropentanesulfonic acid (PFPeS)	0		1.00	0.120	0		1.00	0.210	0		0.670	0.0804	0		1.00	0.210	0			0	ND
Perfluorononanesulfonic acid (PFNS)	0		1.00	0.120	0		1.00	0.160	0		0.670	0.0502	0		1.00	0.160	0			0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		1.00	0.120	0		1.00	0.120	0		0.670	0.137	0		1.00	0.120	0			0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		1.00	0.140	0.367	J	1.00	0.190	0		0.670	0.100	0		1.00	0.190	0.367			0.367	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		1.00	0.0910	0		1.00	0.0640	0		0.670	0.0770	0		1.00	0.0640	0			0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		5.00	4.00	0		10.0	8.70	0		0.670	0.184	0		10.0	8.70	0			0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		1.00	0.140	0		1.00	0.160	0		0.670	0.174	0		1.00	0.160	0			0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		5.00	4.70	31.4		20.0	11.0	25.1	B	0.670	0.315	0		20.0	11.0	56.5			56.5	ND B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		1.00	0.0980	0		1.00	0.180	0		0.670	0.0871	0		1.00	0.180	0			0	ND

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 21, 2022

OTM-45 Laboratory Results Summary
Test Run 4
RTO Outlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28650-13				140-28650-14				140-28650-15				140-28650-16								
Compound	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	%	Qualifier	Total Mass, ng	Qualifier
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		1.00	0.200	0		1.00	0.180	0		0.670	0.0938	0		1.00	0.180	0			0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		1.00	0.140	0		2.00	1.10	0		0.670	0.188	0		2.00	1.10	0			0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		1.00	0.320	0		1.00	0.170	0		0.670	0.144	0		1.00	0.170	0			0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0		1.00	0.120		R	1.00	0.370	0		0.670	0.248	0		1.00	0.370	0			0	ND R
Perfluoro-n-octadecanoic acid (PFODA)	2.04		1.00	0.220		*- *1 R	1.00	0.640	0		0.670	0.171	0	*- *1	1.00	0.640	2.04			2.04	ND *-* 1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		5.00	4.90		NR	20.0	19.8	0		0.670	0.137	0		20.0	19.8	0			0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		1.00	0.150		R	1.00	0.770	0		0.670	0.114	0		1.00	0.770	0			0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		1.00	0.160		R	1.00	0.660	0		0.670	0.181	0		1.00	0.660	0			0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.68		1.00	0.290		R	1.00	0.290	0		0.670	0.191	0		1.00	0.290	1.68			1.68	ND R
Perfluorododecanesulfonic acid (PFDoS)	0		1.00	0.0950	0	*-	1.00	0.180	0		0.670	0.107	0	*-	1.00	0.180	0			0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		1.00	0.150	0		1.00	0.160	0		0.670	0.194	0		1.00	0.160	0			0	ND
10:2 Fluorotelomer carboxylic acid	0		1.00	0.420	0		1.00	0.520	0		0.670	0.402	0		1.00	0.520	0			0	ND
6:2 Fluorotelomer carboxylic acid	0		1.00	0.430	4.40		1.00	1.00	0		0.670	0.402	0		1.00	1.00	4.4			4.4	ND
7:3 Fluorotelomer carboxylic acid	0		1.00	0.350	0		1.00	0.560	0		0.670	0.502	0		1.00	0.560	0			0	ND
6:2 Fluorotelemer unsaturated acid	0		1.00	0.140	1.42		1.00	0.200	0		0.670	0.121	0		1.00	0.200	1.42			1.42	ND
8:2 Fluorotelomer carboxylic acid	0		1.00	0.350	0		1.00	0.380	0		0.670	0.435	0		1.00	0.380	0			0	ND
8:2 Fluorotelemer unsaturated acid	0		1.00	0.220	0		1.00	0.200	0		0.670	0.268	0		1.00	0.200	0			0	ND
5:3 Fluorotelomer carboxylic acid	0		1.00	0.480	0	*+	1.00	0.700	0		0.670	0.402	0	*+	1.00	0.700	0			0	ND *+
3-Perfluoropropylpropanoic acid	0		1.00	0.290	0		1.00	0.310	0		0.670	0.295	0		1.00	0.310	0			0	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		1.00	0.150	0.810	J	1.00	0.120	0		0.670	0.194	0		1.00	0.120	0.81			0.81	ND J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		1.00	0.200	0		1.00	0.130	0		0.670	0.265	0		1.00	0.130	0			0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		1.00	0.220	0		1.00	0.140	0		0.670	0.214	0		1.00	0.140	0			0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		1.00	0.140	0		1.00	0.100	0		0.670	0.171	0		1.00	0.100	0			0	ND

Project Qualifiers
Note = results below MDL, no detected mass. Lab reported ND set to 0
A = >30 breakthrough
X= compound was above MDL in FMSB
Y = Proof Blank results is > 10% of sample mass
Z = Field Blank results is > 10% of sample mass
M = sample mass manually calculated due to chromatographic interference (CI) causing high bias

Lab Qualifiers
*- LCS and/or LCSD is outside acceptance limits, low biased.
*+ LCS and/or LCSD is outside acceptance limits, high biased.
*1 LCS/LCSD RPD exceeds control limits.
*5- Isotope dilution analyte is outside acceptance limits, low biased.
*5+ Isotope dilution analyte is outside acceptance limits, high biased.
B Compound was found in the blank and sample.
CI The peak identified by the data system exhibited chromotographic interference that could not be resolved. There is reason to suspect there may be a high bias
I Value is EMPC (estimated maximum possible concentration).
J Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R Result Unuseable
S1- Surrogate recovery exceeds control limits, low bias
ND Below analytical detection limit
NR Not reported

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ANALYTICAL REPORT

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-28650-1
Client Project/Site: St.Gobain CPT - Outlet OTM-45
Revision: 5

For:
Barr Engineering Company
5150 West 76th Street
Edina, Minnesota 55439

Attn: Tom Kuchinski

Authorized for release by:
10/20/2022 10:26:00 AM

Courtney Adkins, Project Manager II
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Table of Contents

Definitions/Glossary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R	Result Unusable
S1-	Surrogate recovery exceeds control limits, low biased.

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: 140-28650-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative
140-28650-1

Revision Notes

Revision 1: This report was revised on 9/21/22 to correct the analyte reporting order in the front half fractions.

Revision 2: This report was revised on 10/19/22 to add “R” qualifiers to target analytes with IDA recoveries less than 10%.

Revision 3: The level II report was revised on 10/19/22 to include the PFBA EMPC calculations.

Revision 4: This report was revised on 10/20/22 to remove additional calculation pages from the PFBA EMPC calculations and to include missing receipt information.

Revision 5: The level II report was revised on 10/20/22 to include the PFBA EMPC calculations

Comments

Target results with “R” flagged results or reported as “NR” are associated with IDAs with recoveries that cannot be quantitated. These results are considered unusable.

Field surrogates are added to both the primary and breakthrough XAD modules. The two surrogates were evaluated in the condensate fraction to assess breakthrough.

Hits for PFBA flagged with a “CI” are artificially elevated due to a chromatographic interference. These results should be considered estimated. Estimated maximum concentrations are presented following this narrative.

Receipt

The samples were received on 8/29/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.5º C and 3.9º C.

LCMS

One of more Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: T-3029,T-3030 OUTLET CPT R2 OTM-45 FH (140-28650-5), T-3036,T-3037 OUTLET CPT R3 OTM-45 FH (140-28650-9), T-2082,T-2083 OUTLET CPT R4 OTM-45 FH (140-28650-13), T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28650-7), T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28650-8), T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH (140-28650-10), T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28650-11), T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28650-12), T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28650-15), T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28650-16), (LCSD 140-64806/3-B), (MB 140-64806/14-B), T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH (140-28650-6) and T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH (140-28650-14). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

One or more Isotope Dilution Analyte (IDA) recoveries associated with the following samples are below the method recommended limit: T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28650-8), T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH (140-28650-10), T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28650-12), (LCSD 140-64806/3-B), (MB 140-64806/1-B), (MB 140-64806/14-B), T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH (140-28650-6) and T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH (140-28650-14). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

One or more Isotope Dilution Analyte (IDA) recoveries associated with these samples are below the method recommended limit of 10%. Generally, re-extraction of samples should be performed if the signal to noise ratio for any IDA is less than 10:1 or the IDA recoveries fall below 10%. With the low IDA recoveries, the target analytes associated with these IDAs may have a high bias. The entire sample was

Job ID: 140-28650-1 (Continued)

Laboratory: Eurofins Knoxville (Continued)

consumed during the extraction or analysis, therefore the data has been reported. The following samples are impacted: T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH (140-28650-10), (LCS 140-64806/2-B), (MB 140-64806/14-B) T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH (140-28650-6) and T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH (140-28650-14)

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside acceptance limits for multiple analytes. There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside control limits for multiple analytes.

PFBA results in the samples have been re-calculated based on the relative peak height ratio to the PFBA daily standard. Back-up calculations and documentation are attached.		
Sample	**Estimated PFBA Result**	**Units**
140-28650-8	3.24	ng/sample
140-28650-12	4.03	ng/sample
140-28650-16	3.53	ng/sample

Calculation Legend:

CCVISc = quantitated concentration of the calibration standard (0.95898 ng/mL)
CCVISh = height of PFBA in the calibration standard (1397482)
Sh = height of PFBA in the sample
DF = dilution factor (2)
FV = final volume of extract (10 mL/sample)
IV = initial volume of extract (360 mL)
SF = amount of extract used in concentration (180 mL)
IDArec = IDA recovery in decimal format

Concentration (ng/sample) = (CCVISc * Sh * DF * FV * IV) / (SF * CCVISh * IDArec)

Report Date: 30-Sep-2022 15:17:03 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville

Area/Height Percent Report

Data File: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_007.d
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 13-Sep-2022 20:36:45 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0025130-007 ccvis
Misc. Info.: Plate: 10 Rack: 1
Operator ID: Cochran, Bobby Instrument ID: LCA
Sublist: chrom-PFC_LCA*sub19

Method: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m
Limit Group: LC - PFC- ICAL
Last Update: 19-Sep-2022 10:38:18 Calib Date: 12-Sep-2022 19:22:42
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d
Process Host: CTX1667

First Level Reviewer: G3DS Date: 14-Sep-2022 09:21:16

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 3535, EDL Height: 8837 Baseline: 375, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.313	2.256	2.340	2585	740		
2.483	2.340	2.493	12149	2140		
2.600	2.493	2.671	31367	3423		
2.806	2.671	2.959	6165519	1397482		1 Perfluorobutanoic acid =0.9598 ng/ml on-col.
3.112	2.959	3.439	142638	6706		
3.581	3.439	3.833	85150	12627		

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 227, EDL Height: 567 Baseline: 19, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.806	2.682	3.157	11589770	2601154		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 5
Noise Measurement: Avg Noise: 1531, EDL Height: 3827 Baseline: 106, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.719	2.630	2.756	3765	551		
2.844	2.794	2.883	1124	430		
3.112	2.895	3.358	7114014	1528004		6 Perfluoropentanoic acid
3.581	3.473	3.683	5666	906		
3.850	3.799	3.900	698	259		

Report Date: 30-Sep-2022 15:27:12 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_050.d
Lims ID: 140-28650-A-8-B
Client ID: T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Sample Type: Client
Inject. Date: 14-Sep-2022 02:55:41 ALS Bottle#: 50 Worklist Smp#: 50
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0025130-050 140-28650-a-8-b
Misc. Info.: Plate: 10 Rack: 1
Operator ID: Cochran, Bobby Instrument ID: LCA

Method: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m
Limit Group: LC - PFC- ICAL
Last Update: 19-Sep-2022 10:38:18 Calib Date: 12-Sep-2022 19:22:42
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d
Process Host: CTX1667

First Level Reviewer: DH7M Date: 17-Sep-2022 09:49:57

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 319107, EDL Height: 797767 Baseline: 31629, RT Window: 0.197- 8.003

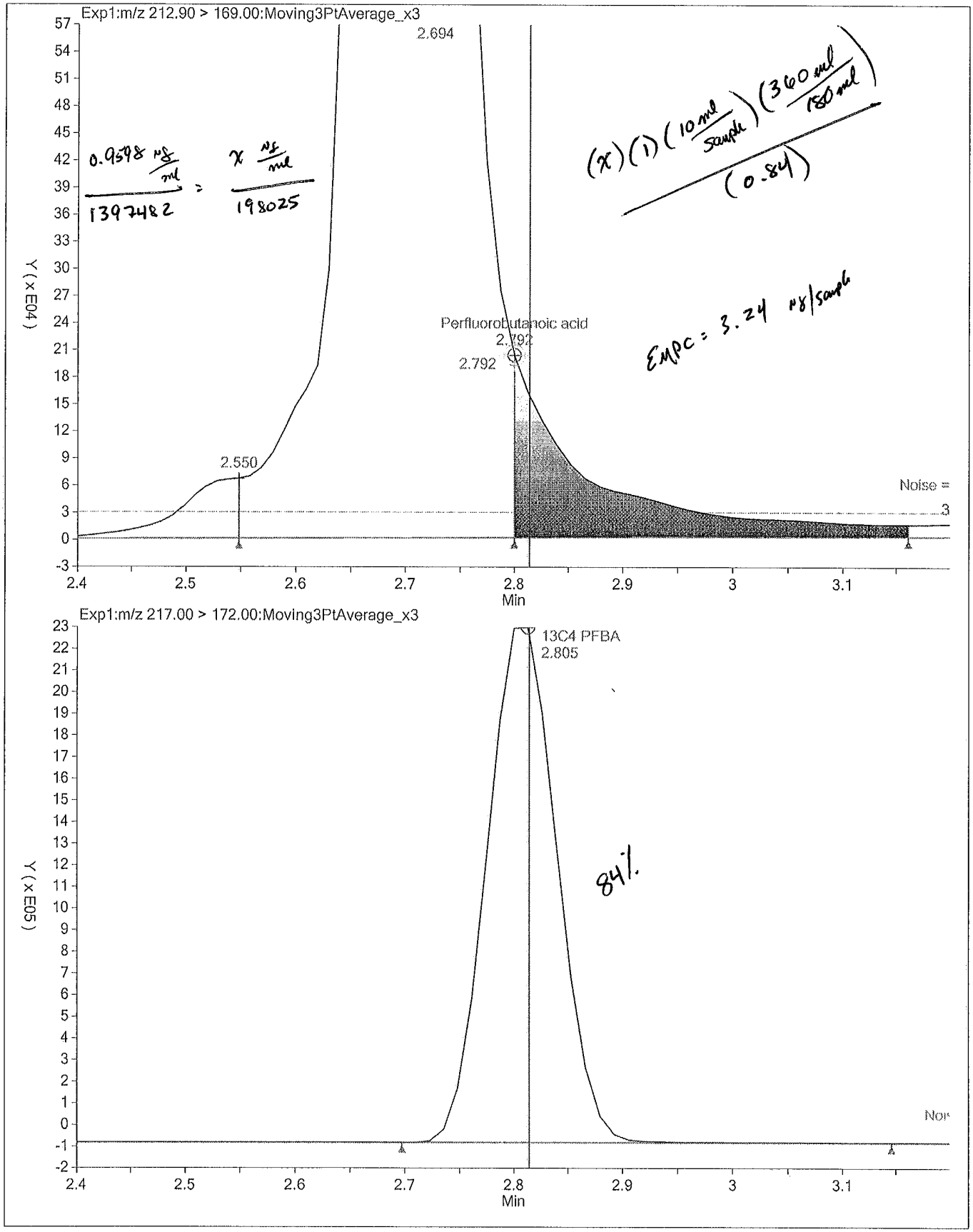
RT	Start	End	Area	Height	Flags	Compound Identification
2.349	2.255	2.358	2500	126	M	
2.550	2.358	2.550	233469	64815	M	
2.694	2.550	2.792	18747951	3892827	M	
2.792	2.792	3.140	904004	198025	M	1 Perfluorobutanoic acid
3.187	3.140	3.455	116622	13854	M	
3.561	3.455	3.832	58541	6103	M	

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 301, EDL Height: 752 Baseline: 26, RT Window: 0.197- 8.003

RT	Start	End	Area	Height	Flags	Compound Identification
2.805	2.694	3.125	9559972	2204418		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 5718, EDL Height: 14295 Baseline: 521, RT Window: 0.197- 8.003

RT	Start	End	Area	Height	Flags	Compound Identification
2.681	2.619	2.718	36183	9430		
2.818	2.718	3.025	72899	8713	M	
3.111	3.025	3.279	64434	11484	M	6 Perfluoropentanoic acid
3.310	3.279	3.372	2134	356	M	
3.615	3.543	3.748	10761	1301		
3.832	3.748	4.015	16619	1412		


Exp1:m/z 212.90 > 169.00:Moving3PtAverage_x3
2.694
Perfluorobutanoic acid
2.792
2.792
2.550
Noise =
3
Y (x E04)
Min
Exp1:m/z 217.00 > 172.00:Moving3PtAverage_x3
13C4 PFBA
2.805
Y (x E05)
Min
0.9598 ng/ml / 1397482 = x ng/ml / 198025
(x)(1)(10 ml/sample)(360 ml/150 ml) / (0.84)
EMPC = 3.24 ng/sample
84%

Report Date: 30-Sep-2022 15:30:03 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_052.d
Lims ID: 140-28650-A-12-B
Client ID: T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Sample Type: Client
Inject. Date: 14-Sep-2022 03:13:16 ALS Bottle#: 52 Worklist Smp#: 52
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0025130-052 140-28650-a-12-b
Misc. Info.: Plate: 10 Rack: 1
Operator ID: Cochran, Bobby Instrument ID: LCA

Method: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m
Limit Group: LC - PFC- ICAL
Last Update: 19-Sep-2022 10:38:18 Calib Date: 12-Sep-2022 19:22:42
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d
Process Host: CTX1667

First Level Reviewer: DH7M Date: 17-Sep-2022 10:06:45

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 378199, EDL Height: 945497 Baseline: 38616, RT Window: 0.197- 8.005

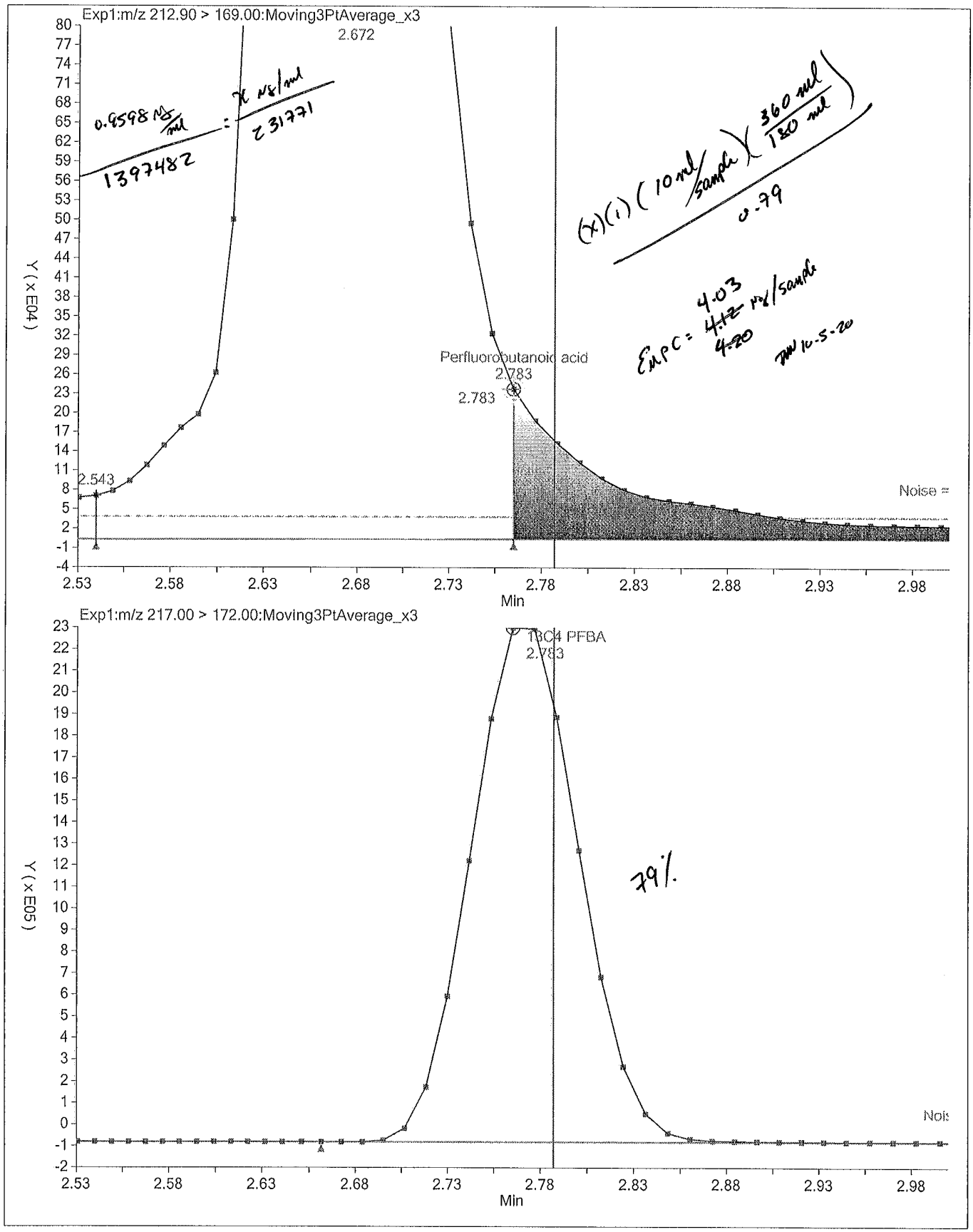
RT	Start	End	Area	Height	Flags	Compound Identification
2.333	2.257	2.342	9436	2752		
2.543	2.342	2.543	282738	67327	M	
2.672	2.543	2.783	21917639	4490867	M	
2.783	2.783	3.085	1000860	231771	M	1 Perfluorobutanoic acid
3.190	3.085	3.459	318413	39327	M	
3.547	3.459	3.817	45057	7978	M	

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 335, EDL Height: 837 Baseline: 28, RT Window: 0.197- 8.005

RT	Start	End	Area	Height	Flags	Compound Identification
2.783	2.672	3.085	9685968	2240732		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 7
Noise Measurement: Avg Noise: 7492, EDL Height: 18730 Baseline: 685, RT Window: 0.197- 8.005

RT	Start	End	Area	Height	Flags	Compound Identification
2.684	2.621	2.733	69145	15388		
2.820	2.733	3.001	256757	25788		
3.100	3.001	3.267	302284	65485	M	6 Perfluoropentanoic acid
3.267	3.267	3.282	112	29	M	
3.282	3.282	3.425	4549	212	M	
3.565	3.425	3.716	58943	3821		
3.817	3.716	4.183	55602	4663		


Exp1:m/z 212.90 > 169.00:Moving3PtAverage_x3
2.672
Perfluorobutanoic acid
2.783
2.783
2.543
Noise =
Y (x E04)
Min
Exp1:m/z 217.00 > 172.00:Moving3PtAverage_x3
13C4 PFBA
2.783
79%
Nois
Y (x E05)
Min

Report Date: 30-Sep-2022 15:32:43 Chrom Revision: 2.3 22-Sep-2022 21:23:26

Preliminary Report

Eurofins Knoxville
Area/Height Percent Report

Data File: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b_057.d
Lims ID: 140-28650-A-16-B
Client ID: T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Sample Type: Client
Inject. Date: 14-Sep-2022 03:57:11 ALS Bottle#: 3 Worklist Smp#: 57
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 140-0025130-057 140-28650-a-16-b
Misc. Info.: Plate: 11 Rack: 1
Operator ID: Cochran, Bobby Instrument ID: LCA

Method: \\chromfs\Knoxville\ChromData\LCA\20220913-25130.b\PFC_LCA.m
Limit Group: LC - PFC- ICAL
Last Update: 19-Sep-2022 10:38:18 Calib Date: 12-Sep-2022 19:22:42
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Knoxville\ChromData\LCA\20220912-25114.b_012.d
Process Host: CTX1667

First Level Reviewer: DH7M Date: 17-Sep-2022 10:23:05

m/z: 212.90 > 169.00 Detector: F1, Number of Peaks: 6
Noise Measurement: Avg Noise: 298092, EDL Height: 745230 Baseline: 30704, RT Window: 0.197- 8.004

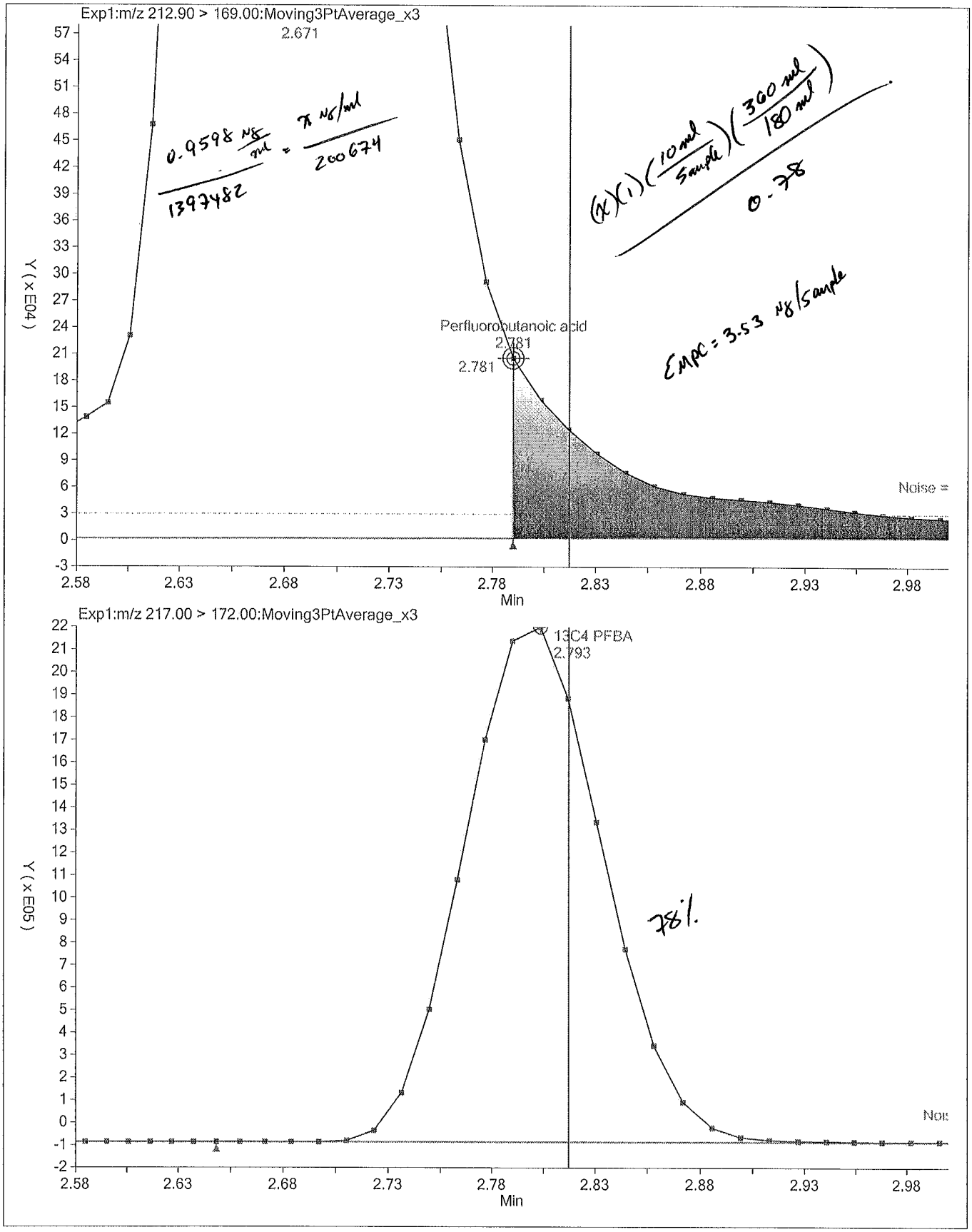
RT	Start	End	Area	Height	Flags	Compound Identification
2.367	2.256	2.367	3717	172	M	
2.532	2.367	2.532	195455	47472	M	
2.671	2.532	2.781	17756572	3442798	M	
2.781	2.781	3.069	813563	200674	M	1 Perfluorobutanoic acid
3.069	3.069	3.439	155593	14337	M	
3.544	3.439	3.833	116450	14150		

m/z: 217.00 > 172.00 Detector: F1, Number of Peaks: 1
Noise Measurement: Avg Noise: 289, EDL Height: 722 Baseline: 23, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.793	2.649	3.141	9439380	2151466		D 2 13C4 PFBA

m/z: 262.90 > 219.00 Detector: F1, Number of Peaks: 9
Noise Measurement: Avg Noise: 5116, EDL Height: 12790 Baseline: 473, RT Window: 0.197- 8.004

RT	Start	End	Area	Height	Flags	Compound Identification
2.682	2.620	2.707	12879	288	M	
2.793	2.707	2.921	60276	7989	M	
2.972	2.921	3.012	25020	5653	M	
3.098	3.012	3.203	150465	29343	M	6 Perfluoropentanoic acid
3.203	3.203	3.218	915	998	M	
3.218	3.218	3.296	1835	988	M	
3.373	3.296	3.490	9078	1313		
3.580	3.508	3.634	2040	459		
3.833	3.783	4.031	11238	643		


Exp1:m/z 212.90 > 169.00:Moving3PtAverage_x3
2.671
Perfluorobutanoic acid
2.781
2.781
Noise =
Y (x E04)
Min
Exp1:m/z 217.00 > 172.00:Moving3PtAverage_x3
13C4 PFBA
2.793
Y (x E05)
Min

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3029,T-3030 OUTLET CPT R2 OTM-45 FH
Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28650-5
Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.98	1.28	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoropentanoic acid (PFPeA)	ND		0.988	0.178	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorohexanoic acid (PFHxA)	ND		0.988	0.207	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoroheptanoic acid (PFHpA)	ND		0.988	0.612	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorooctanoic acid (PFOA)	ND		0.988	0.642	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorononanoic acid (PFNA)	**0.0965**	**J**	0.988	0.0839	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorodecanoic acid (PFDA)	ND		0.988	0.247	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoroundecanoic acid (PFUnA)	ND		0.988	0.168	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorododecanoic acid (PFDoA)	**0.167**	**J**	0.988	0.0988	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorotridecanoic acid (PFTriA)	**0.322**	**J**	0.988	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorotetradecanoic acid (PFTeA)	**0.269**	**J**	0.988	0.168	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.988	0.879	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.988	0.109	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.988	0.109	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.988	0.444	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.988	0.109	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorooctanesulfonamide (FOSA)	ND		0.988	0.0869	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.988	0.119	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorononanesulfonic acid (PFNS)	ND		0.988	0.119	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.988	0.119	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.988	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.988	0.0899	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		4.94	3.95	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.988	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.94	4.64	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.988	0.0968	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.988	0.198	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.988	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.988	0.316	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.988	0.119	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.713**	**J**	0.988	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		4.94	4.84	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.988	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:52	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3029,T-3030 OUTLET CPT R2 OTM-45 FH
Lab Sample ID: 140-28650-5
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.988	0.158	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.582**	**J**	0.988	0.286	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.988	0.0938	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.988	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
10:2 Fluorotelomer carboxylic acid	ND		0.988	0.415	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
6:2 Fluorotelomer carboxylic acid	ND		0.988	0.425	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
7:3 Fluorotelomer carboxylic acid	ND		0.988	0.346	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
6:2 Fluorotelemer unsaturated acid	ND		0.988	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
8:2 Fluorotelomer carboxylic acid	ND		0.988	0.346	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
8:2 Fluorotelemer unsaturated acid	ND		0.988	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
5:3 Fluorotelomer carboxylic acid	ND		0.988	0.474	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
3-Perfluoropropylpropanoic acid	ND		0.988	0.286	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.988	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.988	0.198	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.988	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:52	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.988	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C2 PFDoA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C2 PFHxA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C2 PFHxDA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C2 PFUnA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C3 HFPO-DA	*78*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C3 PFBS	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C4 PFBA	*83*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C4 PFHpA	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C4 PFOS	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C5 PFNA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
13C8 FOSA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
18O2 PFHxS	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
d3-NMeFOSAA	*138*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
d5-NEtFOSAA	*111*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
d7-N-MeFOSE-M	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
d9-N-EtFOSE-M	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
d-N-EtFOSA-M	*85*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
d-N-MeFOSA-M	*80*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
M2-4:2 FTS	*121*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
M2-6:2 FTS	*136*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*
M2-8:2 FTS	*158*	*5+	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:52*	*1*

Client Sample ID: T-3029,T-3030 OUTLET CPT R2 OTM-45 FH

Lab Sample ID: 140-28650-5

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-10:2 FTCA	112		25 - 150	08/31/22 10:35	09/07/22 14:52	1
13C-6:2 FTCA	65		25 - 150	08/31/22 10:35	09/07/22 14:52	1
13C-6:2 FTUCA	114		25 - 150	08/31/22 10:35	09/07/22 14:52	1
13C-8:2 FTCA	78		25 - 150	08/31/22 10:35	09/07/22 14:52	1
13C-8:2 FTUCA	145		25 - 150	08/31/22 10:35	09/07/22 14:52	1
13C2 10:2 FTS	118		25 - 150	08/31/22 10:35	09/07/22 14:52	1

Client Sample ID: T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28650-6

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoropentanoic acid (PFPeA)	**4.08**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorohexanoic acid (PFHxA)	**11.6**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoroheptanoic acid (PFHpA)	**5.63**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorooctanoic acid (PFOA)	**31.7**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorononanoic acid (PFNA)	**4.16**		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorodecanoic acid (PFDA)	**3.28**		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoroundecanoic acid (PFUnA)	**3.23**		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorododecanoic acid (PFDoA)	**2.25**	**R**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorotridecanoic acid (PFTriA)	ND	R	1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorotetradecanoic acid (PFTeA)	ND	R	1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorooctanesulfonic acid (PFOS)	**0.448**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorooctanesulfonamide (FOSA)	**0.301**	**J**	1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	**0.570**	**J**	1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:37	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28650-6

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**NR**		1.00	0.370	ng/mL		08/30/22 12:05	09/14/22 13:37	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND	R	20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
6:2 Fluorotelomer carboxylic acid	**4.80**		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
6:2 Fluorotelemer unsaturated acid	**1.78**		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**4.27**	**CI**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 13:37	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 13:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*19*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*
13C4 PFBA	*60*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*
13C5 PFPeA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*
13C2 PFHxA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*
13C4 PFHpA	*110*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*
13C4 PFOA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*
13C5 PFNA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:37*	*1*

Client Sample ID: T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28650-6

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	63		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C2 PFUnA	33		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C2 PFDoA	6	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C2 PFTeDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C3 PFBS	131		25 - 150	08/30/22 12:05	09/14/22 13:37	1
18O2 PFHxS	105		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C4 PFOS	50		25 - 150	08/30/22 12:05	09/14/22 13:37	1
d3-NMeFOSAA	64		25 - 150	08/30/22 12:05	09/14/22 13:37	1
d5-NEtFOSAA	56		25 - 150	08/30/22 12:05	09/14/22 13:37	1
M2-4:2 FTS	218	*5+	25 - 150	08/30/22 12:05	09/14/22 13:37	1
M2-6:2 FTS	271	*5+	25 - 150	08/30/22 12:05	09/14/22 13:37	1
M2-8:2 FTS	163	*5+	25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C3 HFPO-DA	83		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C2 PFHxDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
d-N-EtFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C2 10:2 FTS	16	*5-	25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C-10:2 FTCA	30		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C-6:2 FTCA	57		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C-6:2 FTUCA	136		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C-8:2 FTCA	61		25 - 150	08/30/22 12:05	09/14/22 13:37	1
13C-8:2 FTUCA	173	*5+	25 - 150	08/30/22 12:05	09/14/22 13:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	92		50 - 150	08/30/22 12:05	09/14/22 13:37	1
13C8 PFOS	98		50 - 150	08/30/22 12:05	09/14/22 13:37	1

Client Sample ID: T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.46**	**B**	0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoropentanoic acid (PFPeA)	**6.44**		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorohexanoic acid (PFHxA)	**7.42**		0.680	0.258	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoroheptanoic acid (PFHpA)	**0.818**		0.680	0.207	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorooctanoic acid (PFOA)	**1.33**		0.680	0.129	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorononanoic acid (PFNA)	**0.123**	**J I**	0.680	0.0714	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorodecanoic acid (PFDA)	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoroundecanoic acid (PFUnA)	ND		0.680	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorododecanoic acid (PFDoA)	ND		0.680	0.0714	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorotridecanoic acid (PFTriA)	ND		0.680	0.109	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.680	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:56	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28650-7
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.680	0.0612	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.680	0.0782	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.680	0.156	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.680	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorooctanesulfonamide (FOSA)	ND		0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.680	0.0816	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorononanesulfonic acid (PFNS)	ND		0.680	0.0510	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.680	0.139	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.680	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.680	0.0782	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.680	0.187	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.680	0.177	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**6.46**	**B**	0.680	0.320	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.680	0.0952	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.680	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.680	0.146	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.680	0.252	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.680	0.173	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.680	0.139	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.680	0.116	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.680	0.184	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.680	0.194	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.680	0.109	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.680	0.197	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
10:2 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
6:2 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
7:3 Fluorotelomer carboxylic acid	ND		0.680	0.510	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
6:2 Fluorotelemer unsaturated acid	ND		0.680	0.122	ng/Sample		09/01/22 08:23	09/13/22 21:56	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28650-7
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 Fluorotelomer carboxylic acid	ND		0.680	0.442	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
8:2 Fluorotelemer unsaturated acid	ND		0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
5:3 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
3-Perfluoropropylpropanoic acid	ND		0.680	0.299	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.330**	**J**	0.680	0.197	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.680	0.269	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.680	0.218	ng/Sample		09/01/22 08:23	09/13/22 21:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.680	0.173	ng/Sample		09/01/22 08:23	09/13/22 21:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*81*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C4 PFBA	*77*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C5 PFPeA	*86*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 PFHxA	*95*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C4 PFHpA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C4 PFOA	*103*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C5 PFNA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 PFDA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 PFUnA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 PFDoA	*79*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C3 PFBS	*114*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
18O2 PFHxS	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C4 PFOS	*91*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
d3-NMeFOSAA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
M2-4:2 FTS	*238*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
M2-6:2 FTS	*288*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
M2-8:2 FTS	*254*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C3 HFPO-DA	*76*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 PFHxDA	*73*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
d-N-MeFOSA-M	*71*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
d7-N-MeFOSE-M	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
d9-N-EtFOSE-M	*74*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
d-N-EtFOSA-M	*78*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C2 10:2 FTS	*95*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C-10:2 FTCA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C-6:2 FTCA	*89*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C-6:2 FTUCA	*112*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C-8:2 FTCA	*112*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C-8:2 FTUCA	*146*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*0.4*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*
13C8 PFOS	*0.1*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 21:56*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28650-8
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**74.2**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorooctanesulfonic acid (PFOS)	**0.157**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 02:55	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28650-8
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 02:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 02:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*113*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C4 PFBA	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C5 PFPeA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C2 PFHxA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C4 PFHpA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C4 PFOA	*119*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C5 PFNA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C2 PFDA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C2 PFUnA	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C2 PFDoA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C2 PFTeDA	*52*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C3 PFBS	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
18O2 PFHxS	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C4 PFOS	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
d3-NMeFOSAA	*123*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
d5-NEtFOSAA	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
M2-4:2 FTS	*176*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
M2-6:2 FTS	*164*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
M2-8:2 FTS	*145*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C3 HFPO-DA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
13C2 PFHxDA	*9*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
d-N-MeFOSA-M	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
d7-N-MeFOSE-M	*59*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*
d9-N-EtFOSE-M	*44*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:55*	*1*

Client Sample ID: T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28650-8

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	87		25 - 150	08/30/22 12:05	09/14/22 02:55	1
13C2 10:2 FTS	119		25 - 150	08/30/22 12:05	09/14/22 02:55	1
13C-10:2 FTCA	62		25 - 150	08/30/22 12:05	09/14/22 02:55	1
13C-6:2 FTCA	72		25 - 150	08/30/22 12:05	09/14/22 02:55	1
13C-6:2 FTUCA	196	*5+	25 - 150	08/30/22 12:05	09/14/22 02:55	1
13C-8:2 FTCA	72		25 - 150	08/30/22 12:05	09/14/22 02:55	1
13C-8:2 FTUCA	192	*5+	25 - 150	08/30/22 12:05	09/14/22 02:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	93		50 - 150	08/30/22 12:05	09/14/22 02:55	1
13C8 PFOS	104		50 - 150	08/30/22 12:05	09/14/22 02:55	1

Client Sample ID: T-3036,T-3037 OUTLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28650-9

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.98	1.29	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoropentanoic acid (PFPeA)	**0.424**	**J**	0.990	0.178	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorohexanoic acid (PFHxA)	**0.217**	**J**	0.990	0.208	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoroheptanoic acid (PFHpA)	ND		0.990	0.614	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorooctanoic acid (PFOA)	ND		0.990	0.644	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorononanoic acid (PFNA)	**0.169**	**J**	0.990	0.0842	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorodecanoic acid (PFDA)	ND		0.990	0.248	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoroundecanoic acid (PFUnA)	**0.254**	**J**	0.990	0.168	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorododecanoic acid (PFDoA)	**0.203**	**J**	0.990	0.0990	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorotridecanoic acid (PFTriA)	**0.807**	**J**	0.990	0.139	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorotetradecanoic acid (PFTeA)	**0.545**	**J**	0.990	0.168	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.990	0.881	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.990	0.109	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.990	0.109	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorooctanesulfonic acid (PFOS)	**0.447**	**J I**	0.990	0.446	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.990	0.109	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorooctanesulfonamide (FOSA)	ND		0.990	0.0872	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.990	0.119	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorononanesulfonic acid (PFNS)	ND		0.990	0.119	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.990	0.119	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.990	0.139	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.990	0.0901	ng/Sample		08/31/22 10:35	09/07/22 15:01	1

Client Sample ID: T-3036,T-3037 OUTLET CPT R3 OTM-45 FH
Lab Sample ID: 140-28650-9
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		4.95	3.96	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.990	0.139	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.95	4.65	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.990	0.0971	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.990	0.198	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.990	0.139	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.990	0.317	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.990	0.119	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoro-n-octadecanoic acid (PFODA)	**2.15**		0.990	0.218	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		4.95	4.85	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.990	0.149	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.990	0.158	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**1.08**		0.990	0.287	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.990	0.0941	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.990	0.149	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
10:2 Fluorotelomer carboxylic acid	ND		0.990	0.416	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
6:2 Fluorotelomer carboxylic acid	ND		0.990	0.426	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
7:3 Fluorotelomer carboxylic acid	ND		0.990	0.347	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
6:2 Fluorotelemer unsaturated acid	ND		0.990	0.139	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
8:2 Fluorotelomer carboxylic acid	ND		0.990	0.347	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
8:2 Fluorotelemer unsaturated acid	ND		0.990	0.218	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
5:3 Fluorotelomer carboxylic acid	ND		0.990	0.475	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
3-Perfluoropropylpropanoic acid	ND		0.990	0.287	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.990	0.149	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.990	0.198	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.990	0.218	ng/Sample		08/31/22 10:35	09/07/22 15:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.990	0.139	ng/Sample		08/31/22 10:35	09/07/22 15:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:01*	*1*
13C2 PFDoA	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:01*	*1*
13C2 PFHxA	*78*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:01*	*1*
13C2 PFHxDA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:01*	*1*

Client Sample ID: T-3036,T-3037 OUTLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28650-9

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	94		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C2 PFUnA	102		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C3 HFPO-DA	79		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C3 PFBS	102		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C4 PFBA	87		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C4 PFHpA	96		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C4 PFOA	92		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C4 PFOS	87		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C5 PFNA	102		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C5 PFPeA	91		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C8 FOSA	98		25 - 150	08/31/22 10:35	09/07/22 15:01	1
18O2 PFHxS	94		25 - 150	08/31/22 10:35	09/07/22 15:01	1
d3-NMeFOSAA	122		25 - 150	08/31/22 10:35	09/07/22 15:01	1
d5-NEtFOSAA	120		25 - 150	08/31/22 10:35	09/07/22 15:01	1
d7-N-MeFOSE-M	116		25 - 150	08/31/22 10:35	09/07/22 15:01	1
d9-N-EtFOSE-M	103		25 - 150	08/31/22 10:35	09/07/22 15:01	1
d-N-EtFOSA-M	88		25 - 150	08/31/22 10:35	09/07/22 15:01	1
d-N-MeFOSA-M	85		25 - 150	08/31/22 10:35	09/07/22 15:01	1
M2-4:2 FTS	112		25 - 150	08/31/22 10:35	09/07/22 15:01	1
M2-6:2 FTS	141		25 - 150	08/31/22 10:35	09/07/22 15:01	1
M2-8:2 FTS	173	*5+	25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C-10:2 FTCA	89		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C-6:2 FTCA	33		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C-6:2 FTUCA	74		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C-8:2 FTCA	72		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C-8:2 FTUCA	147		25 - 150	08/31/22 10:35	09/07/22 15:01	1
13C2 10:2 FTS	114		25 - 150	08/31/22 10:35	09/07/22 15:01	1

Client Sample ID: T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28650-10

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**10.0**		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoropentanoic acid (PFPeA)	**18.8**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorohexanoic acid (PFHxA)	**11.5**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoroheptanoic acid (PFHpA)	**14.6**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorooctanoic acid (PFOA)	**33.9**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorononanoic acid (PFNA)	**13.9**		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorodecanoic acid (PFDA)	**6.28**		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoroundecanoic acid (PFUnA)	**29.0**	**R**	1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorododecanoic acid (PFDoA)	**6.22**	**R**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorotridecanoic acid (PFTriA)	**4.09**	**R**	1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorotetradecanoic acid (PFTeA)	ND	R	1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:04	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28650-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorooctanesulfonic acid (PFOS)	**0.612**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorooctanesulfonamide (FOSA)	**0.398**	**J R**	1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	**0.410**	**J R**	1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**34.6**		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	R	1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		20.0	19.8	ng/mL		08/30/22 12:05	09/14/22 03:04	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
10:2 Fluorotelomer carboxylic acid	ND	R	1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
6:2 Fluorotelomer carboxylic acid	**3.17**		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 03:04	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28650-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelemer unsaturated acid	**1.38**		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**1.10**		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 03:04	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 03:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*6*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C4 PFBA	*83*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 PFHxA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C4 PFHpA	*74*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C4 PFOA	*64*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C5 PFNA	*27*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 PFDA	*12*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 PFUnA	*5*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 PFDoA	*1*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 PFTeDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C3 PFBS	*124*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
18O2 PFHxS	*59*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C4 PFOS	*11*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
d3-NMeFOSAA	*10*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
d5-NEtFOSAA	*8*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
M2-4:2 FTS	*168*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
M2-6:2 FTS	*79*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
M2-8:2 FTS	*17*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C3 HFPO-DA	*85*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 PFHxDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
d-N-MeFOSA-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
d7-N-MeFOSE-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
d9-N-EtFOSE-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
d-N-EtFOSA-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C2 10:2 FTS	*2*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C-10:2 FTCA	*3*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C-6:2 FTCA	*48*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C-6:2 FTUCA	*120*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C-8:2 FTCA	*18*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*
13C-8:2 FTUCA	*44*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:04*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28650-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	98		50 - 150	08/30/22 12:05	09/14/22 03:04	1
13C8 PFOS	94		50 - 150	08/30/22 12:05	09/14/22 03:04	1

Client Sample ID: T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**10.4**	**B**	0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoropentanoic acid (PFPeA)	**29.0**		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorohexanoic acid (PFHxA)	**7.81**		0.620	0.236	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoroheptanoic acid (PFHpA)	**2.19**		0.620	0.189	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorooctanoic acid (PFOA)	**0.884**		0.620	0.118	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorononanoic acid (PFNA)	**0.194**	**J I**	0.620	0.0651	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorodecanoic acid (PFDA)	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoroundecanoic acid (PFUnA)	ND		0.620	0.0930	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorododecanoic acid (PFDoA)	ND		0.620	0.0651	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorotridecanoic acid (PFTriA)	ND		0.620	0.0992	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.620	0.140	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.620	0.0558	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.620	0.0713	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.620	0.143	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.620	0.102	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorooctanesulfonamide (FOSA)	ND		0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.620	0.0744	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorononanesulfonic acid (PFNS)	ND		0.620	0.0465	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.620	0.127	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.620	0.0930	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.620	0.0713	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.620	0.171	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.620	0.161	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**22.6**	**B**	0.620	0.291	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.620	0.0868	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.620	0.174	ng/Sample		09/01/22 08:23	09/13/22 22:04	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28650-11
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.620	0.133	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.620	0.229	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.620	0.158	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.620	0.127	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.620	0.105	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.620	0.167	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.620	0.177	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.620	0.0992	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.620	0.180	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
10:2 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
6:2 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
7:3 Fluorotelomer carboxylic acid	ND		0.620	0.465	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
6:2 Fluorotelemer unsaturated acid	ND		0.620	0.112	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
8:2 Fluorotelomer carboxylic acid	ND		0.620	0.403	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
8:2 Fluorotelemer unsaturated acid	ND		0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
5:3 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
3-Perfluoropropylpropanoic acid	ND		0.620	0.273	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.322**	**J**	0.620	0.180	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.620	0.245	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.620	0.198	ng/Sample		09/01/22 08:23	09/13/22 22:04	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.620	0.158	ng/Sample		09/01/22 08:23	09/13/22 22:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*94*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C4 PFBA	*77*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C5 PFPeA	*76*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C2 PFHxA	*93*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C4 PFHpA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C4 PFOA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C5 PFNA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C2 PFDA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C2 PFUnA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C2 PFDoA	*81*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
13C3 PFBS	*108*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*
18O2 PFHxS	*92*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:04*	*1*

Client Sample ID: T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	87		25 - 150	09/01/22 08:23	09/13/22 22:04	1
d3-NMeFOSAA	106		25 - 150	09/01/22 08:23	09/13/22 22:04	1
d5-NEtFOSAA	116		25 - 150	09/01/22 08:23	09/13/22 22:04	1
M2-4:2 FTS	199	*5+	25 - 150	09/01/22 08:23	09/13/22 22:04	1
M2-6:2 FTS	277	*5+	25 - 150	09/01/22 08:23	09/13/22 22:04	1
M2-8:2 FTS	200	*5+	25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C3 HFPO-DA	78		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C2 PFHxDA	76		25 - 150	09/01/22 08:23	09/13/22 22:04	1
d-N-MeFOSA-M	68		25 - 150	09/01/22 08:23	09/13/22 22:04	1
d7-N-MeFOSE-M	64		25 - 150	09/01/22 08:23	09/13/22 22:04	1
d9-N-EtFOSE-M	74		25 - 150	09/01/22 08:23	09/13/22 22:04	1
d-N-EtFOSA-M	75		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C2 10:2 FTS	107		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C-10:2 FTCA	79		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C-6:2 FTCA	91		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C-6:2 FTUCA	120		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C-8:2 FTCA	113		25 - 150	09/01/22 08:23	09/13/22 22:04	1
13C-8:2 FTUCA	139		25 - 150	09/01/22 08:23	09/13/22 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.04	S1-	50 - 150	09/01/22 08:23	09/13/22 22:04	1
13C8 PFOS	0.01	S1-	50 - 150	09/01/22 08:23	09/13/22 22:04	1

Client Sample ID: T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28650-12

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**85.4**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoropentanoic acid (PFPeA)	**0.768**	**J**	1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorohexanoic acid (PFHxA)	**0.602**	**J**	1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorooctanesulfonic acid (PFOS)	**0.165**	**J I**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 03:13	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28650-12
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 03:13	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28650-12
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 03:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 03:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C4 PFBA	*79*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C5 PFPeA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 PFHxA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C4 PFHpA	*108*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C4 PFOA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C5 PFNA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 PFDA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 PFUnA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 PFDoA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 PFTeDA	*67*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C3 PFBS	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
18O2 PFHxS	*98*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C4 PFOS	*98*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
d3-NMeFOSAA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
d5-NEtFOSAA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
M2-4:2 FTS	*163*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
M2-6:2 FTS	*146*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
M2-8:2 FTS	*132*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C3 HFPO-DA	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 PFHxDA	*21*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
d-N-MeFOSA-M	*80*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
d7-N-MeFOSE-M	*64*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
d9-N-EtFOSE-M	*61*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
d-N-EtFOSA-M	*78*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C2 10:2 FTS	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C-10:2 FTCA	*66*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C-6:2 FTCA	*64*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C-6:2 FTUCA	*177*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C-8:2 FTCA	*72*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C-8:2 FTUCA	*179*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*91*		*50 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*
13C8 PFOS	*94*		*50 - 150*	*08/30/22 12:05*	*09/14/22 03:13*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2082,T-2083 OUTLET CPT R4 OTM-45 FH
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28650-13
Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoropentanoic acid (PFPeA)	**0.529**	**J**	1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorohexanoic acid (PFHxA)	**0.330**	**J**	1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorooctanoic acid (PFOA)	**1.28**		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorononanoic acid (PFNA)	**0.352**	**J**	1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorodecanoic acid (PFDA)	**0.272**	**J**	1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoroundecanoic acid (PFUnA)	**0.515**	**J**	1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorododecanoic acid (PFDoA)	**0.419**	**J**	1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorotridecanoic acid (PFTriA)	**1.55**		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorotetradecanoic acid (PFTeA)	**0.892**	**J**	1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoro-n-octadecanoic acid (PFODA)	**2.04**		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 15:10	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2082,T-2083 OUTLET CPT R4 OTM-45 FH
Lab Sample ID: 140-28650-13
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**1.68**		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 15:10	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 15:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C2 PFDoA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C2 PFHxA	*85*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C2 PFHxDA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C2 PFTeDA	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C2 PFUnA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C3 HFPO-DA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C3 PFBS	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C4 PFBA	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C4 PFHpA	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C4 PFOA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C5 PFNA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
13C8 FOSA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
18O2 PFHxS	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
d3-NMeFOSAA	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
d5-NEtFOSAA	*120*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
d7-N-MeFOSE-M	*124*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
d9-N-EtFOSE-M	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
d-N-EtFOSA-M	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
d-N-MeFOSA-M	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*
M2-4:2 FTS	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 15:10*	*1*

Client Sample ID: T-2082,T-2083 OUTLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28650-13

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	151	*5+	25 - 150	08/31/22 10:35	09/07/22 15:10	1
M2-8:2 FTS	172	*5+	25 - 150	08/31/22 10:35	09/07/22 15:10	1
13C-10:2 FTCA	95		25 - 150	08/31/22 10:35	09/07/22 15:10	1
13C-6:2 FTCA	32		25 - 150	08/31/22 10:35	09/07/22 15:10	1
13C-6:2 FTUCA	100		25 - 150	08/31/22 10:35	09/07/22 15:10	1
13C-8:2 FTCA	69		25 - 150	08/31/22 10:35	09/07/22 15:10	1
13C-8:2 FTUCA	156	*5+	25 - 150	08/31/22 10:35	09/07/22 15:10	1
13C2 10:2 FTS	117		25 - 150	08/31/22 10:35	09/07/22 15:10	1

Client Sample ID: T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28650-14

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.52**	**J**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoropentanoic acid (PFPeA)	**10.9**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorohexanoic acid (PFHxA)	**10.7**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoroheptanoic acid (PFHpA)	**7.92**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorooctanoic acid (PFOA)	**34.1**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorononanoic acid (PFNA)	**8.06**		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorodecanoic acid (PFDA)	**4.11**		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoroundecanoic acid (PFUnA)	**11.6**		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorododecanoic acid (PFDoA)	**3.41**	**R**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorotridecanoic acid (PFTriA)	**2.44**	**R**	1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorotetradecanoic acid (PFTeA)	ND	R	1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorooctanesulfonic acid (PFOS)	**0.571**	**J I**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	**0.367**	**J**	1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 13:45	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28650-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**31.4**		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		20.0	19.8	ng/mL		08/30/22 12:05	09/14/22 13:45	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
6:2 Fluorotelomer carboxylic acid	**4.40**		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
6:2 Fluorotelemer unsaturated acid	**1.42**		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.810**	**J**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 13:45	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 13:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*13*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:45*	*1*
13C4 PFBA	*61*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:45*	*1*
13C5 PFPeA	*82*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:45*	*1*
13C2 PFHxA	*98*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:45*	*1*
13C4 PFHpA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:45*	*1*
13C4 PFOA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:45*	*1*

Client Sample ID: T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28650-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	102		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C2 PFDA	54		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C2 PFUnA	21	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C2 PFDoA	6	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C2 PFTeDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C3 PFBS	130		25 - 150	08/30/22 12:05	09/14/22 13:45	1
18O2 PFHxS	101		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C4 PFOS	51		25 - 150	08/30/22 12:05	09/14/22 13:45	1
d3-NMeFOSAA	44		25 - 150	08/30/22 12:05	09/14/22 13:45	1
d5-NEtFOSAA	36		25 - 150	08/30/22 12:05	09/14/22 13:45	1
M2-4:2 FTS	189	*5+	25 - 150	08/30/22 12:05	09/14/22 13:45	1
M2-6:2 FTS	228	*5+	25 - 150	08/30/22 12:05	09/14/22 13:45	1
M2-8:2 FTS	118		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C3 HFPO-DA	78		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C2 PFHxDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
d-N-EtFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C2 10:2 FTS	12	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C-10:2 FTCA	12	*5-	25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C-6:2 FTCA	29		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C-6:2 FTUCA	65		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C-8:2 FTCA	50		25 - 150	08/30/22 12:05	09/14/22 13:45	1
13C-8:2 FTUCA	141		25 - 150	08/30/22 12:05	09/14/22 13:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	104		50 - 150	08/30/22 12:05	09/14/22 13:45	1
13C8 PFOS	100		50 - 150	08/30/22 12:05	09/14/22 13:45	1

Client Sample ID: T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.67**	**B**	0.670	0.268	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoropentanoic acid (PFPeA)	**12.5**		0.670	0.0871	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorohexanoic acid (PFHxA)	**7.84**		0.670	0.255	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoroheptanoic acid (PFHpA)	**0.980**		0.670	0.204	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorooctanoic acid (PFOA)	**0.552**	**J**	0.670	0.127	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorononanoic acid (PFNA)	**0.105**	**J I**	0.670	0.0703	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorodecanoic acid (PFDA)	ND		0.670	0.0871	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoroundecanoic acid (PFUnA)	ND		0.670	0.100	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorododecanoic acid (PFDoA)	ND		0.670	0.0703	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorotridecanoic acid (PFTriA)	ND		0.670	0.107	ng/Sample		09/01/22 08:23	09/13/22 22:31	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28650-15
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		0.670	0.151	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.670	0.0603	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.670	0.0770	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.670	0.154	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.670	0.0871	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.670	0.111	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorooctanesulfonamide (FOSA)	ND		0.670	0.268	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.670	0.0804	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorononanesulfonic acid (PFNS)	ND		0.670	0.0502	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.670	0.137	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.670	0.100	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.670	0.0770	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.670	0.184	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.670	0.174	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**25.1**	**B**	0.670	0.315	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.670	0.0871	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.670	0.0938	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.670	0.188	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.670	0.144	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.670	0.248	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.670	0.171	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.670	0.137	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.670	0.114	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.670	0.181	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.670	0.191	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.670	0.107	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.670	0.194	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
10:2 Fluorotelomer carboxylic acid	ND		0.670	0.402	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
6:2 Fluorotelomer carboxylic acid	ND		0.670	0.402	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
7:3 Fluorotelomer carboxylic acid	ND		0.670	0.502	ng/Sample		09/01/22 08:23	09/13/22 22:31	1

Client Sample ID: T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28650-15
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelemer unsaturated acid	ND		0.670	0.121	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
8:2 Fluorotelomer carboxylic acid	ND		0.670	0.435	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
8:2 Fluorotelemer unsaturated acid	ND		0.670	0.268	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
5:3 Fluorotelomer carboxylic acid	ND		0.670	0.402	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
3-Perfluoropropylpropanoic acid	ND		0.670	0.295	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.670	0.194	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.670	0.265	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.670	0.214	ng/Sample		09/01/22 08:23	09/13/22 22:31	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.670	0.171	ng/Sample		09/01/22 08:23	09/13/22 22:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*73*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C4 PFBA	*81*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C5 PFPeA	*86*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 PFHxA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C4 PFHpA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C4 PFOA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C5 PFNA	*108*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 PFDA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 PFUnA	*92*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 PFDoA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 PFTeDA	*62*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C3 PFBS	*113*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
18O2 PFHxS	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C4 PFOS	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
M2-4:2 FTS	*204*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
M2-6:2 FTS	*255*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
M2-8:2 FTS	*203*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C3 HFPO-DA	*76*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
d-N-MeFOSA-M	*54*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
d7-N-MeFOSE-M	*56*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
d9-N-EtFOSE-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
d-N-EtFOSA-M	*61*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C2 10:2 FTS	*95*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C-10:2 FTCA	*67*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C-6:2 FTCA	*95*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C-6:2 FTUCA	*121*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C-8:2 FTCA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*
13C-8:2 FTUCA	*144*		*25 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*0.1*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 22:31*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	0.02	S1-	50 - 150	09/01/22 08:23	09/13/22 22:31	1

Client Sample ID: T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28650-16

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**71.0**	**CI**	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 03:57	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28650-16
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 03:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 03:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*113*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C4 PFBA	*78*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C5 PFPeA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C2 PFHxA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C4 PFHpA	*108*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C4 PFOA	*115*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C5 PFNA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C2 PFDA	*108*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C2 PFUnA	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C2 PFDoA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C2 PFTeDA	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
13C3 PFBS	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*
18O2 PFHxS	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:57*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28650-16

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	109		25 - 150	08/30/22 12:05	09/14/22 03:57	1
d3-NMeFOSAA	122		25 - 150	08/30/22 12:05	09/14/22 03:57	1
d5-NEtFOSAA	121		25 - 150	08/30/22 12:05	09/14/22 03:57	1
M2-4:2 FTS	160	*5+	25 - 150	08/30/22 12:05	09/14/22 03:57	1
M2-6:2 FTS	159	*5+	25 - 150	08/30/22 12:05	09/14/22 03:57	1
M2-8:2 FTS	152	*5+	25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C3 HFPO-DA	89		25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C2 PFHxDA	49		25 - 150	08/30/22 12:05	09/14/22 03:57	1
d-N-MeFOSA-M	78		25 - 150	08/30/22 12:05	09/14/22 03:57	1
d7-N-MeFOSE-M	57		25 - 150	08/30/22 12:05	09/14/22 03:57	1
d9-N-EtFOSE-M	51		25 - 150	08/30/22 12:05	09/14/22 03:57	1
d-N-EtFOSA-M	72		25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C2 10:2 FTS	121		25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C-10:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C-6:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C-6:2 FTUCA	200	*5+	25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C-8:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 03:57	1
13C-8:2 FTUCA	192	*5+	25 - 150	08/30/22 12:05	09/14/22 03:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	93		50 - 150	08/30/22 12:05	09/14/22 03:57	1
13C8 PFOS	97		50 - 150	08/30/22 12:05	09/14/22 03:57	1

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
10:2 Fluorotelomer carboxylic acid	1.00	0.520	ng/Sample
10:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
10:2 Fluorotelomer carboxylic acid	1.00	0.420	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.180	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	2.00	0.280	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.200	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.160	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	0.520	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.140	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.170	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	2.00	0.430	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.320	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0640	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	0.230	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0910	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	10.0	8.70	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	0.550	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	5.00	4.00	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.370	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	2.00	0.740	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.120	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.370	ng/mL
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/mL
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	2.00	0.410	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	5.00	4.90	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.310	ng/Sample
3-Perfluoropropylpropanoic acid	2.00	0.880	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.290	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.10	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	0.560	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.00	0.140	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.700	ng/Sample
5:3 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.480	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
6:2 Fluorotelemer unsaturated acid	2.00	0.360	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.140	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	1.00	ng/Sample
6:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	0.430	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.560	ng/Sample
7:3 Fluorotelomer carboxylic acid	2.00	1.50	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
8:2 Fluorotelemer unsaturated acid	2.00	0.800	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.220	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.380	ng/Sample
8:2 Fluorotelomer carboxylic acid	2.00	1.30	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.180	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	2.00	0.260	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

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

Prep: None

Analyte	RL	MDL	Units
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.0980	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	11.0	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	0.940	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	5.00	4.70	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.660	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.00	0.540	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.160	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.190	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	0.300	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.140	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.770	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.00	0.340	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.150	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.00	0.120	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	0.410	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.160	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	0.580	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.150	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.100	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	0.510	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.140	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.120	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	0.580	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.150	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.140	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	2.00	0.640	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.220	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.130	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	0.790	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.200	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.520	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	2.00	0.180	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.890	ng/Sample
Perfluorobutanoic acid (PFBA)	10.0	9.40	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	0.800	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	1.30	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.200	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	2.00	0.330	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.110	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.210	ng/Sample
Perfluorodecanoic acid (PFDA)	2.00	0.260	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.250	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.180	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	2.00	0.320	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.0950	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.120	ng/Sample
Perfluorododecanoic acid (PFDoA)	2.00	0.210	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.100	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

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

Prep: None

Analyte	RL	MDL	Units
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.200	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	2.00	0.460	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.110	ng/Sample
Perfluoroheptanoic acid (PFHpA)	3.00	2.60	ng/Sample
Perfluoroheptanoic acid (PFHpA)	2.00	0.610	ng/Sample
Perfluoroheptanoic acid (PFHpA)	1.00	0.620	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.260	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	2.00	0.230	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.110	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.520	ng/Sample
Perfluorohexanoic acid (PFHxA)	2.00	0.760	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.210	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.00	0.290	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	2.00	0.570	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.640	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	2.00	0.510	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.220	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.160	ng/Sample
Perfluorononanesulfonic acid (PFNS)	2.00	0.150	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.120	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.890	ng/Sample
Perfluorononanoic acid (PFNA)	2.00	0.210	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.0850	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.230	ng/Sample
Perfluorooctanesulfonamide (FOSA)	2.00	0.800	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.0880	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.150	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	2.00	0.260	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.450	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.660	ng/Sample
Perfluorooctanoic acid (PFOA)	2.00	0.380	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.650	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.210	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	2.00	0.240	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.120	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.450	ng/Sample
Perfluoropentanoic acid (PFPeA)	2.00	0.260	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.180	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.230	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	2.00	0.450	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	2.00	0.320	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.140	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.270	ng/Sample
Perfluoroundecanoic acid (PFUnA)	2.00	0.300	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.170	ng/Sample

Surrogate Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	C8PFOA (50-150)	C8PFOS (50-150)										
140-28650-6	T-3031,T-3032,T-3034 OUTLET	92	98										
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.4 S1-	0.1 S1-										
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	93	104										
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH	98	94										
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.04 S1-	0.01 S1-										
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	91	94										
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH	104	100										
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.1 S1-	0.02 S1-										
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	93	97										

Surrogate Legend

C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
140-28650-5	T-3029,T-3030 OUTLET CPT R2	97	83	92	87	90	93	99	104
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH	19 *5-	60	89	99	110	114	106	63
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	81	77	86	95	102	103	105	105
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	113	84	106	112	114	119	114	112
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	98	87	91	78	96	92	102	106
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH	6 *5-	83	92	101	74	64	27	12 *5-
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	94	77	76	93	97	105	105	99
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	102	79	101	101	108	105	102	105
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	98	89	92	85	95	102	104	103
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH	13 *5-	61	82	98	96	105	102	54
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	73	81	86	97	100	102	108	100
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	113	78	102	101	108	115	107	108
LCS 140-64806/2-B	Lab Control Sample	91	96	94	90	100	95	94	100
LCS 140-64841/2-B	Lab Control Sample	99	100	94	90	92	97	93	101
LCS 140-64880/2-B	Lab Control Sample	79	106	104	101	109	106	107	104
LCSD 140-64806/3-B	Lab Control Sample Dup	103	105	111	96	116	99	106	111
LCSD 140-64841/3-B	Lab Control Sample Dup	101	95	97	84	92	94	93	99
LCSD 140-64880/3-B	Lab Control Sample Dup	81	102	97	95	97	94	101	100
MB 140-64806/14-B	Method Blank	40	106	105	102	105	95	81	68
MB 140-64806/1-B	Method Blank	97	96	95	94	99	93	97	94
MB 140-64841/1-B	Method Blank	103	96	94	84	98	98	96	102
MB 140-64880/1-B	Method Blank	71	102	101	97	102	96	103	101

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
140-28650-5	T-3029,T-3030 OUTLET CPT R2	102	87	98	100	98	99	138	111
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH	33	6 *5-	0 *5-	131	105	50	64	56
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	97	79	69	114	97	91	99	96
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	111	93	52	121	111	112	123	121
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	102	90	94	102	94	87	122	120

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

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
140-28650-10	T-3038,T-3039,T-3041 OUTLET	5 *5-	1 *5-	0 *5-	124	59	11 *5-	10 *5-	8 *5-
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	96	81	69	108	92	87	106	116
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	101	91	67	112	98	98	109	107
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	101	92	95	98	98	91	110	120
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH	21 *5-	6 *5-	0 *5-	130	101	51	44	36
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	92	75	62	113	96	87	87	85
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	107	95	81	117	106	109	122	121
LCS 140-64806/2-B	Lab Control Sample	99	90	61	101	100	90	102	98
LCS 140-64841/2-B	Lab Control Sample	103	101	103	93	100	96	110	111
LCS 140-64880/2-B	Lab Control Sample	107	84	67	102	105	99	98	89
LCSD 140-64806/3-B	Lab Control Sample Dup	105	96	59	109	111	98	108	110
LCSD 140-64841/3-B	Lab Control Sample Dup	107	98	99	92	97	92	115	116
LCSD 140-64880/3-B	Lab Control Sample Dup	110	96	81	98	97	97	98	93
MB 140-64806/14-B	Method Blank	46	26	12 *5-	105	96	58	52	44
MB 140-64806/1-B	Method Blank	95	89	69	97	100	91	103	104
MB 140-64841/1-B	Method Blank	108	99	101	92	101	96	113	122
MB 140-64880/1-B	Method Blank	101	80	69	94	96	96	96	88

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)	PFHxDA (25-150)	dMeFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
140-28650-5	T-3029,T-3030 OUTLET CPT R2	121	136	158 *5+	78	96	80	91	104
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH	218 *5+	271 *5+	163 *5+	83	0 *5-	0 *5-	0 *5-	0 *5-
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	238 *5+	288 *5+	254 *5+	76	73	71	69	74
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	176 *5+	164 *5+	145	93	9 *5-	93	59	44
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	112	141	173 *5+	79	93	85	116	103
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH	168 *5+	79	17 *5-	85	0 *5-	0 *5-	0 *5-	0 *5-
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	199 *5+	277 *5+	200 *5+	78	76	68	64	74
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	163 *5+	146	132	90	21 *5-	80	64	61
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	110	151 *5+	172 *5+	77	93	93	124	106
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH	189 *5+	228 *5+	118	78	0 *5-	0 *5-	0 *5-	0 *5-

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28650-1
Project/Site: St.Gobain CPT - Outlet OTM-45

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

Matrix: Air
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)	PFHxDA (25-150)	dMeFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
140-28650-15	T-2086 OUTLET CPT R4 OTM-4	204 *5+	255 *5+	203 *5+	76	75	54	56	65
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	160 *5+	159 *5+	152 *5+	89	49	78	57	51
LCS 140-64806/2-B	Lab Control Sample	125	120	110	84	6 *5-	71	82	82
LCS 140-64841/2-B	Lab Control Sample	91	95	95	92	99	98	114	115
LCS 140-64880/2-B	Lab Control Sample	100	107	109	99	71	68	68	69
LCSD 140-64806/3-B	Lab Control Sample Dup	142	121	110	100	10 *5-	74	86	90
LCSD 140-64841/3-B	Lab Control Sample Dup	88	91	92	89	95	97	114	104
LCSD 140-64880/3-B	Lab Control Sample Dup	99	93	102	96	79	80	74	79
MB 140-64806/14-B	Method Blank	125	97	71	94	3 *5-	5 *5-	18 *5-	12 *5-
MB 140-64806/1-B	Method Blank	125	117	104	88	18 *5-	52	74	79
MB 140-64841/1-B	Method Blank	90	97	99	70	101	98	109	110
MB 140-64880/1-B	Method Blank	106	106	104	96	75	63	62	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	dEtFOSA (25-150)	M102FTS (25-150)	MFDEA (25-150)	MFHEA (25-150)	MFHUEA (25-150)	MFOEA (25-150)	MFOUEA (25-150)
140-28650-5	T-3029,T-3030 OUTLET CPT R2	85	118	112	65	114	78	145
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH	0 *5-	16 *5-	30	57	136	61	173 *5+
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	78	95	75	89	112	112	146
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	87	119	62	72	196 *5+	72	192 *5+
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	88	114	89	33	74	72	147
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH	0 *5-	2 *5-	3 *5-	48	120	18 *5-	44
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	75	107	79	91	120	113	139
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	78	117	66	64	177 *5+	72	179 *5+
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	90	117	95	32	100	69	156 *5+
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH	0 *5-	12 *5-	12 *5-	29	65	50	141
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	61	95	67	95	121	105	144
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	72	121	67	67	200 *5+	67	192 *5+
LCS 140-64806/2-B	Lab Control Sample	68	96	66	66	144	63	145
LCS 140-64841/2-B	Lab Control Sample	101	108	98	82	123	75	133
LCS 140-64880/2-B	Lab Control Sample	73	84	75	87	118	96	123
LCSD 140-64806/3-B	Lab Control Sample Dup	66	111	80	79	162 *5+	73	152 *5+
LCSD 140-64841/3-B	Lab Control Sample Dup	98	111	92	81	121	72	142
LCSD 140-64880/3-B	Lab Control Sample Dup	92	94	93	77	109	97	114
MB 140-64806/14-B	Method Blank	3 *5-	28	19 *5-	58	161 *5+	45	126
MB 140-64806/1-B	Method Blank	50	99	76	71	141	67	136

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28650-1
Project/Site: St.Gobain CPT - Outlet OTM-45

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

Matrix: Air
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	dEtFOSA (25-150)	M102FTS (25-150)	MFDEA (25-150)	MFHEA (25-150)	MFHUEA (25-150)	MFOEA (25-150)	MFOUEA (25-150)	
MB 140-64841/1-B	Method Blank	97	103	94	82	125	82	146	
MB 140-64880/1-B	Method Blank	67	83	87	88	114	88	115	

Surrogate Legend

PFOSA = 13C8 FOSA
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
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
PFHxDA = 13C2 PFHxDA
dMeFOSA = d-N-MeFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
dEtFOSA = d-N-EtFOSA-M
M102FTS = 13C2 10:2 FTS
MFDEA = 13C-10:2 FTCA
MFHEA = 13C-6:2 FTCA
MFHUEA = 13C-6:2 FTUCA
MFOEA = 13C-8:2 FTCA
MFOUEA = 13C-8:2 FTUCA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-64806/14-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	CI	10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	R	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 03:22	1

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

Lab Sample ID: MB 140-64806/14-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 03:22	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 03:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*68*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFDoA	*26*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFHxA	*102*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFTeDA	*12*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFUnA	*46*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C3 HFPO-DA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C3 PFBS	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFBA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C2 PFHxDA	*3*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFHpA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C4 PFOS	*58*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C5 PFNA	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C5 PFPeA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C8 FOSA	*40*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
18O2 PFHxS	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d3-NMeFOSAA	*52*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d5-NEtFOSAA	*44*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d7-N-MeFOSE-M	*18*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d9-N-EtFOSE-M	*12*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d-N-EtFOSA-M	*3*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
d-N-MeFOSA-M	*5*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
M2-8:2 FTS	*71*		*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*
13C-10:2 FTCA	*19*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 03:22*	*1*

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

Lab Sample ID: MB 140-64806/14-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	58		25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C2 10:2 FTS	28		25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C-6:2 FTUCA	161	*5+	25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C-8:2 FTCA	45		25 - 150	08/30/22 12:05	09/14/22 03:22	1
13C-8:2 FTUCA	126		25 - 150	08/30/22 12:05	09/14/22 03:22	1

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFDoA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFUnA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 PFBS	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxDA	*18*	**5-*	*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFHpA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFPeA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C8 FOSA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	103		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d5-NEtFOSAA	104		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d7-N-MeFOSE-M	74		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d9-N-EtFOSE-M	79		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d-N-EtFOSA-M	50		25 - 150	08/30/22 12:05	09/14/22 01:01	1
d-N-MeFOSA-M	52		25 - 150	08/30/22 12:05	09/14/22 01:01	1
M2-4:2 FTS	125		25 - 150	08/30/22 12:05	09/14/22 01:01	1
M2-6:2 FTS	117		25 - 150	08/30/22 12:05	09/14/22 01:01	1
M2-8:2 FTS	104		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-10:2 FTCA	76		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-6:2 FTCA	71		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C2 10:2 FTS	99		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-6:2 FTUCA	141		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTUCA	136		25 - 150	08/30/22 12:05	09/14/22 01:01	1

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	20.86		ng/Sample		104	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	19.86		ng/Sample		99	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.29		ng/Sample		101	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	20.12		ng/Sample		101	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	18.77		ng/Sample		94	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	19.09		ng/Sample		95	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	16.31		ng/Sample		82	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	19.40		ng/Sample		97	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	15.99		ng/Sample		90	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.93		ng/Sample		99	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.89		ng/Sample		104	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	18.04		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	16.74		ng/Sample		87	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	20.60		ng/Sample		103	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	17.68		ng/Sample		94	60 - 140
Perfluorononanesulfonic acid (PFNS)	19.2	19.48		ng/Sample		101	60 - 140

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.20		ng/Sample		106	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.62		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	20.38		ng/Sample		109	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	17.67		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	19.04		ng/Sample		99	60 - 140
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	23.22		ng/Sample		116	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	19.32		ng/Sample		104	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	16.27		ng/Sample		86	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	20.82		ng/Sample		111	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	20.77		ng/Sample		108	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	19.28		ng/Sample		96	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	ND	*- R	ng/Sample		0.7	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	22.56		ng/Sample		113	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	21.41		ng/Sample		107	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.33		ng/Sample		102	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.15	R	ng/Sample		96	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	8.815	*-	ng/Sample		46	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	19.65		ng/Sample		98	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	16.80		ng/Sample		84	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	18.79		ng/Sample		94	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	27.51		ng/Sample		138	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.54		ng/Sample		88	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.65		ng/Sample		118	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	16.06		ng/Sample		80	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	26.86		ng/Sample		134	60 - 140
3-Perfluoropropylpropanoic acid	20.0	19.12		ng/Sample		96	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	19.78		ng/Sample		99	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.84		ng/Sample		99	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	18.4	16.97		ng/Sample		92	60 - 140

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	16.35		ng/Sample		92	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*90*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*61*		*25 - 150*
13C2 PFUnA	*99*		*25 - 150*
13C3 HFPO-DA	*84*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
13C4 PFBA	*96*		*25 - 150*
13C2 PFHxDA	*6*	*5-	*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*95*		*25 - 150*
13C4 PFOS	*90*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*91*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
d3-NMeFOSAA	*102*		*25 - 150*
d5-NEtFOSAA	*98*		*25 - 150*
d7-N-MeFOSE-M	*82*		*25 - 150*
d9-N-EtFOSE-M	*82*		*25 - 150*
d-N-EtFOSA-M	*68*		*25 - 150*
d-N-MeFOSA-M	*71*		*25 - 150*
M2-4:2 FTS	*125*		*25 - 150*
M2-6:2 FTS	*120*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*66*		*25 - 150*
13C-6:2 FTCA	*66*		*25 - 150*
13C2 10:2 FTS	*96*		*25 - 150*
13C-6:2 FTUCA	*144*		*25 - 150*
13C-8:2 FTCA	*63*		*25 - 150*
13C-8:2 FTUCA	*145*		*25 - 150*

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	21.94		ng/Sample		110	60 - 140	5	30
Perfluoropentanoic acid (PFPeA)			20.0	20.58		ng/Sample		103	60 - 140	4	30
Perfluorohexanoic acid (PFHxA)			20.0	23.71		ng/Sample		119	60 - 140	16	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.06		ng/Sample		105	60 - 140	5	30
Perfluorooctanoic acid (PFOA)			20.0	23.52		ng/Sample		118	60 - 140	11	30
Perfluorononanoic acid (PFNA)			20.0	21.46		ng/Sample		107	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			20.0	20.28		ng/Sample		101	60 - 140	4	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroundecanoic acid (PFUnA)			20.0	19.76		ng/Sample		99	60 - 140	5	30
Perfluorododecanoic acid (PFDoA)			20.0	21.10		ng/Sample		106	60 - 140	10	30
Perfluorotridecanoic acid (PFTriA)			20.0	18.31		ng/Sample		92	60 - 140	12	30
Perfluorotetradecanoic acid (PFTeA)			20.0	21.51		ng/Sample		108	60 - 140	10	30
Perfluorobutanesulfonic acid (PFBS)			17.7	17.23		ng/Sample		97	60 - 140	7	30
Perfluorohexanesulfonic acid (PFHxS)			18.2	18.78		ng/Sample		103	60 - 140	5	30
Perfluoroheptanesulfonic acid (PFHpS)			19.0	20.73		ng/Sample		109	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)			18.6	19.78		ng/Sample		107	60 - 140	9	30
Perfluorodecanesulfonic acid (PFDS)			19.3	16.80		ng/Sample		87	60 - 140	0	30
Perfluorooctanesulfonamide (FOSA)			20.0	21.27		ng/Sample		106	60 - 140	3	30
Perfluoropentanesulfonic acid (PFPeS)			18.8	18.66		ng/Sample		99	60 - 140	5	30
Perfluorononanesulfonic acid (PFNS)			19.2	19.86		ng/Sample		103	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			20.0	22.11		ng/Sample		111	60 - 140	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			20.0	21.03		ng/Sample		105	60 - 140	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			18.7	21.14		ng/Sample		113	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			19.0	19.78		ng/Sample		104	60 - 140	11	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			19.2	21.52		ng/Sample		112	60 - 140	12	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			20.0	22.35		ng/Sample		112	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			18.6	19.79		ng/Sample		106	60 - 140	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			18.8	16.06		ng/Sample		85	60 - 140	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			18.8	22.30		ng/Sample		118	60 - 140	7	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			19.3	19.95		ng/Sample		103	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			20.0	19.75		ng/Sample		99	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)			20.0	0.7203	J *- *1	ng/Sample		4	60 - 140	137	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			20.0	24.80		ng/Sample		124	60 - 140	9	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			20.0	21.72		ng/Sample		109	60 - 140	1	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	22.57		ng/Sample		113	60 - 140	10	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	21.24		ng/Sample		106	60 - 140	10	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	8.141	*-	ng/Sample		42	60 - 140	8	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	22.43		ng/Sample		112	60 - 140	13	30
10:2 Fluorotelomer carboxylic acid			20.0	15.45		ng/Sample		77	60 - 140	8	30
6:2 Fluorotelomer carboxylic acid			20.0	18.62		ng/Sample		93	60 - 140	1	30
7:3 Fluorotelomer carboxylic acid			20.0	27.75		ng/Sample		139	60 - 140	1	30
6:2 Fluorotelemer unsaturated acid			20.0	18.51		ng/Sample		93	60 - 140	5	30
8:2 Fluorotelomer carboxylic acid			20.0	22.25		ng/Sample		111	60 - 140	6	30
8:2 Fluorotelemer unsaturated acid			20.0	18.27		ng/Sample		91	60 - 140	13	30
5:3 Fluorotelomer carboxylic acid			20.0	28.93	*+	ng/Sample		145	60 - 140	7	30
3-Perfluoropropylpropanoic acid			20.0	20.94		ng/Sample		105	60 - 140	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	19.94		ng/Sample		100	60 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.88		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	17.64		ng/Sample		96	60 - 140	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.11		ng/Sample		102	60 - 140	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*111*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C2 PFTeDA	*59*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C3 HFPO-DA	*100*		*25 - 150*
13C3 PFBS	*109*		*25 - 150*
13C4 PFBA	*105*		*25 - 150*
13C2 PFHxDA	*10*	*5-	*25 - 150*
13C4 PFHpA	*116*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*
13C4 PFOS	*98*		*25 - 150*
13C5 PFNA	*106*		*25 - 150*
13C5 PFPeA	*111*		*25 - 150*
13C8 FOSA	*103*		*25 - 150*
18O2 PFHxS	*111*		*25 - 150*
d3-NMeFOSAA	*108*		*25 - 150*
d5-NEtFOSAA	*110*		*25 - 150*
d7-N-MeFOSE-M	*86*		*25 - 150*
d9-N-EtFOSE-M	*90*		*25 - 150*
d-N-EtFOSA-M	*66*		*25 - 150*
d-N-MeFOSA-M	*74*		*25 - 150*
M2-4:2 FTS	*142*		*25 - 150*
M2-6:2 FTS	*121*		*25 - 150*

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*80*		*25 - 150*
13C-6:2 FTCA	*79*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*162*	*5+	*25 - 150*
13C-8:2 FTCA	*73*		*25 - 150*
13C-8:2 FTUCA	*152*	*5+	*25 - 150*

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFDoA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFTeDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFUnA	*108*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 HFPO-DA	*70*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 PFBS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFHpA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOS	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFPeA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	103		25 - 150	08/31/22 10:35	09/07/22 13:59	1
18O2 PFHxS	101		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d3-NMeFOSAA	113		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d5-NEtFOSAA	122		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d7-N-MeFOSE-M	109		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d9-N-EtFOSE-M	110		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d-N-EtFOSA-M	97		25 - 150	08/31/22 10:35	09/07/22 13:59	1
d-N-MeFOSA-M	98		25 - 150	08/31/22 10:35	09/07/22 13:59	1
M2-4:2 FTS	90		25 - 150	08/31/22 10:35	09/07/22 13:59	1
M2-6:2 FTS	97		25 - 150	08/31/22 10:35	09/07/22 13:59	1
M2-8:2 FTS	99		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-10:2 FTCA	94		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-6:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C2 10:2 FTS	103		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-6:2 FTUCA	125		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTUCA	146		25 - 150	08/31/22 10:35	09/07/22 13:59	1

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	19.27		ng/Sample		96	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	20.89		ng/Sample		104	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.71		ng/Sample		104	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	22.01		ng/Sample		110	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	23.07		ng/Sample		115	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.08		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	20.14		ng/Sample		101	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	21.23		ng/Sample		106	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	22.19		ng/Sample		111	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	21.09		ng/Sample		105	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	18.17		ng/Sample		103	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.74		ng/Sample		97	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.55		ng/Sample		103	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	17.90		ng/Sample		96	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	18.66		ng/Sample		97	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	22.68		ng/Sample		113	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	19.21		ng/Sample		102	60 - 140

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	19.2	20.89		ng/Sample		109	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.75		ng/Sample		109	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.52		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	19.99		ng/Sample		107	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	19.09		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	18.70		ng/Sample		98	60 - 140
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	20.93		ng/Sample		105	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	20.06		ng/Sample		108	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	19.09		ng/Sample		101	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	19.11		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	21.12		ng/Sample		110	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	18.97		ng/Sample		95	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	23.44		ng/Sample		117	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	20.10		ng/Sample		101	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	19.97		ng/Sample		100	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.04		ng/Sample		100	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.36		ng/Sample		97	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	19.56		ng/Sample		101	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	22.32		ng/Sample		112	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	20.81		ng/Sample		104	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	21.08		ng/Sample		105	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	26.90		ng/Sample		135	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.79		ng/Sample		89	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.81		ng/Sample		119	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	19.64		ng/Sample		98	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	25.36		ng/Sample		127	60 - 140
3-Perfluoropropylpropanoic acid	20.0	22.70		ng/Sample		114	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	20.08		ng/Sample		100	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.76		ng/Sample		99	60 - 140

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	19.58		ng/Sample		106	60 - 140		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.20		ng/Sample		102	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*101*		*25 - 150*
13C2 PFDoA	*101*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*103*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C3 HFPO-DA	*92*		*25 - 150*
13C3 PFBS	*93*		*25 - 150*
13C4 PFBA	*100*		*25 - 150*
13C2 PFHxDA	*99*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
13C5 PFNA	*93*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*99*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
d3-NMeFOSAA	*110*		*25 - 150*
d5-NEtFOSAA	*111*		*25 - 150*
d7-N-MeFOSE-M	*114*		*25 - 150*
d9-N-EtFOSE-M	*115*		*25 - 150*
d-N-EtFOSA-M	*101*		*25 - 150*
d-N-MeFOSA-M	*98*		*25 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*95*		*25 - 150*
M2-8:2 FTS	*95*		*25 - 150*
13C-10:2 FTCA	*98*		*25 - 150*
13C-6:2 FTCA	*82*		*25 - 150*
13C2 10:2 FTS	*108*		*25 - 150*
13C-6:2 FTUCA	*123*		*25 - 150*
13C-8:2 FTCA	*75*		*25 - 150*
13C-8:2 FTUCA	*133*		*25 - 150*

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	18.89		ng/Sample		94	60 - 140	2	30
Perfluoropentanoic acid (PFPeA)			20.0	19.56		ng/Sample		98	60 - 140	7	30
Perfluorohexanoic acid (PFHxA)			20.0	21.91		ng/Sample		110	60 - 140	6	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.44		ng/Sample		107	60 - 140	3	30
Perfluorooctanoic acid (PFOA)			20.0	20.81		ng/Sample		104	60 - 140	10	30
Perfluorononanoic acid (PFNA)			20.0	21.47		ng/Sample		107	60 - 140	2	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorodecanoic acid (PFDA)	20.0	21.93		ng/Sample		110	60 - 140	4	30
Perfluoroundecanoic acid (PFUnA)	20.0	18.12		ng/Sample		91	60 - 140	11	30
Perfluorododecanoic acid (PFDoA)	20.0	20.76		ng/Sample		104	60 - 140	2	30
Perfluorotridecanoic acid (PFTriA)	20.0	21.21		ng/Sample		106	60 - 140	5	30
Perfluorotetradecanoic acid (PFTeA)	20.0	20.48		ng/Sample		102	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)	17.7	17.96		ng/Sample		102	60 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)	18.2	18.14		ng/Sample		100	60 - 140	2	30
Perfluoroheptanesulfonic acid (PFHpS)	19.0	18.58		ng/Sample		98	60 - 140	5	30
Perfluorooctanesulfonic acid (PFOS)	18.6	19.27		ng/Sample		104	60 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)	19.3	19.80		ng/Sample		103	60 - 140	6	30
Perfluorooctanesulfonamide (FOSA)	20.0	20.24		ng/Sample		101	60 - 140	11	30
Perfluoropentanesulfonic acid (PFPeS)	18.8	18.86		ng/Sample		101	60 - 140	2	30
Perfluorononanesulfonic acid (PFNS)	19.2	20.24		ng/Sample		105	60 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	19.95		ng/Sample		100	60 - 140	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	18.32		ng/Sample		92	60 - 140	11	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	19.01		ng/Sample		102	60 - 140	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	19.29		ng/Sample		102	60 - 140	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	19.97		ng/Sample		104	60 - 140	7	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	20.05		ng/Sample		100	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	19.50		ng/Sample		105	60 - 140	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	20.27		ng/Sample		108	60 - 140	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	19.03		ng/Sample		101	60 - 140	0	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	20.25		ng/Sample		105	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	18.66		ng/Sample		93	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)	20.0	23.25		ng/Sample		116	60 - 140	1	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	17.79		ng/Sample		89	60 - 140	12	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	18.88		ng/Sample		94	60 - 140	6	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	19.90		ng/Sample		99	60 - 140	1	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	19.63		ng/Sample		98	60 - 140	1	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	19.46		ng/Sample		100	60 - 140	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	21.81		ng/Sample		109	60 - 140	2	30
10:2 Fluorotelomer carboxylic acid			20.0	17.57		ng/Sample		88	60 - 140	17	30
6:2 Fluorotelomer carboxylic acid			20.0	18.72		ng/Sample		94	60 - 140	12	30
7:3 Fluorotelomer carboxylic acid			20.0	27.31		ng/Sample		137	60 - 140	2	30
6:2 Fluorotelemer unsaturated acid			20.0	17.90		ng/Sample		90	60 - 140	1	30
8:2 Fluorotelomer carboxylic acid			20.0	23.34		ng/Sample		117	60 - 140	2	30
8:2 Fluorotelemer unsaturated acid			20.0	17.13		ng/Sample		86	60 - 140	14	30
5:3 Fluorotelomer carboxylic acid			20.0	24.42		ng/Sample		122	60 - 140	4	30
3-Perfluoropropylpropanoic acid			20.0	21.47		ng/Sample		107	60 - 140	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	18.95		ng/Sample		95	60 - 140	6	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.84		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	18.69		ng/Sample		101	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.49		ng/Sample		104	60 - 140	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*99*		*25 - 150*
13C2 PFDoA	*98*		*25 - 150*
13C2 PFHxA	*84*		*25 - 150*
13C2 PFTeDA	*99*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C3 HFPO-DA	*89*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
13C4 PFBA	*95*		*25 - 150*
13C2 PFHxDA	*95*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*92*		*25 - 150*
13C5 PFNA	*93*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*101*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*115*		*25 - 150*
d5-NEtFOSAA	*116*		*25 - 150*
d7-N-MeFOSE-M	*114*		*25 - 150*
d9-N-EtFOSE-M	*104*		*25 - 150*
d-N-EtFOSA-M	*98*		*25 - 150*
d-N-MeFOSA-M	*97*		*25 - 150*

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
M2-4:2 FTS	88		25 - 150
M2-6:2 FTS	91		25 - 150
M2-8:2 FTS	92		25 - 150
13C-10:2 FTCA	92		25 - 150
13C-6:2 FTCA	81		25 - 150
13C2 10:2 FTS	111		25 - 150
13C-6:2 FTUCA	121		25 - 150
13C-8:2 FTCA	72		25 - 150
13C-8:2 FTUCA	142		25 - 150

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.3631	J	0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanoic acid (PFPeA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanoic acid (PFHxA)	ND		0.500	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.500	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanoic acid (PFOA)	ND		0.500	0.0950	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanoic acid (PFNA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanoic acid (PFDA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.500	0.113	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.500	0.0450	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.500	0.115	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.500	0.0825	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonamide (FOSA)	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.500	0.0600	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanesulfonic acid (PFNS)	ND		0.500	0.0375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.500	0.138	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.500	0.130	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.4171	J	0.500	0.235	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.500	0.0700	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.500	0.140	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.500	0.108	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.185	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.500	0.0850	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.500	0.135	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.500	0.143	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
10:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
7:3 Fluorotelomer carboxylic acid	ND		0.500	0.375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelemer unsaturated acid	ND		0.500	0.0900	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelomer carboxylic acid	ND		0.500	0.325	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelemer unsaturated acid	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
5:3 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
3-Perfluoropropylpropanoic acid	ND		0.500	0.220	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.500	0.198	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.500	0.160	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFDoA	*80*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFUnA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 PFBS	*94*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFBA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFHpA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFOA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	96		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C5 PFNA	103		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C5 PFPeA	101		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C8 FOSA	71		25 - 150	09/01/22 08:23	09/13/22 21:03	1
18O2 PFHxS	96		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d3-NMeFOSAA	96		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d5-NEtFOSAA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d7-N-MeFOSE-M	62		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d9-N-EtFOSE-M	65		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d-N-EtFOSA-M	67		25 - 150	09/01/22 08:23	09/13/22 21:03	1
d-N-MeFOSA-M	63		25 - 150	09/01/22 08:23	09/13/22 21:03	1
M2-4:2 FTS	106		25 - 150	09/01/22 08:23	09/13/22 21:03	1
M2-6:2 FTS	106		25 - 150	09/01/22 08:23	09/13/22 21:03	1
M2-8:2 FTS	104		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-10:2 FTCA	87		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-6:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C2 10:2 FTS	83		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-6:2 FTUCA	114		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTUCA	115		25 - 150	09/01/22 08:23	09/13/22 21:03	1

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.461		ng/Sample		95	60 - 140
Perfluoropentanoic acid (PFPeA)	10.0	9.656		ng/Sample		97	60 - 140
Perfluorohexanoic acid (PFHxA)	10.0	9.497		ng/Sample		95	60 - 140
Perfluoroheptanoic acid (PFHpA)	10.0	9.450		ng/Sample		94	60 - 140
Perfluorooctanoic acid (PFOA)	10.0	9.843		ng/Sample		98	60 - 140
Perfluorononanoic acid (PFNA)	10.0	9.685		ng/Sample		97	60 - 140
Perfluorodecanoic acid (PFDA)	10.0	10.36		ng/Sample		104	60 - 140
Perfluoroundecanoic acid (PFUnA)	10.0	8.999		ng/Sample		90	60 - 140
Perfluorododecanoic acid (PFDoA)	10.0	9.680		ng/Sample		97	60 - 140
Perfluorotridecanoic acid (PFTriA)	10.0	8.040		ng/Sample		80	60 - 140
Perfluorotetradecanoic acid (PFTeA)	10.0	10.09		ng/Sample		101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	8.84	8.245		ng/Sample		93	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	9.10	8.738		ng/Sample		96	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	9.52	9.397		ng/Sample		99	60 - 140
Perfluorooctanesulfonic acid (PFOS)	9.28	8.955		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	9.64	7.528		ng/Sample		78	60 - 140

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	10.0	10.21		ng/Sample		102	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	9.38	8.484		ng/Sample		90	60 - 140
Perfluorononanesulfonic acid (PFNS)	9.60	9.442		ng/Sample		98	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	10.23		ng/Sample		102	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	9.848		ng/Sample		98	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.34	8.707		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.48	9.525		ng/Sample		100	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.58	9.342		ng/Sample		98	60 - 140
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10.0	9.737		ng/Sample		97	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9.32	9.404		ng/Sample		101	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	9.42	6.707		ng/Sample		71	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.42	9.279		ng/Sample		99	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.64	9.016		ng/Sample		94	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	10.0	9.716		ng/Sample		97	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	10.0	10.83		ng/Sample		108	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	10.0	10.39		ng/Sample		104	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	10.60		ng/Sample		106	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	10.12		ng/Sample		101	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	9.847		ng/Sample		98	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	9.68	6.021		ng/Sample		62	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	10.38		ng/Sample		104	60 - 140
10:2 Fluorotelomer carboxylic acid	10.0	7.838		ng/Sample		78	60 - 140
6:2 Fluorotelomer carboxylic acid	10.0	10.11		ng/Sample		101	60 - 140
7:3 Fluorotelomer carboxylic acid	10.0	9.628		ng/Sample		96	60 - 140
6:2 Fluorotelemer unsaturated acid	10.0	8.206		ng/Sample		82	60 - 140
8:2 Fluorotelomer carboxylic acid	10.0	9.672		ng/Sample		97	60 - 140
8:2 Fluorotelemer unsaturated acid	10.0	8.692	I	ng/Sample		87	60 - 140
5:3 Fluorotelomer carboxylic acid	10.0	10.78		ng/Sample		108	60 - 140
3-Perfluoropropylpropanoic acid	10.0	10.05		ng/Sample		101	60 - 140

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoro-3-methoxypropanoic acid (PFMPA)			10.0	9.429		ng/Sample		94	60 - 140		
Perfluoro-4-methoxybutanoic acid (PFMBA)			10.0	9.992		ng/Sample		100	60 - 140		
Perfluoro-4-ethylcyclohexanesulfonic acid			9.22	8.175		ng/Sample		89	60 - 140		
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			8.90	8.383		ng/Sample		94	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*104*		*25 - 150*
13C2 PFDoA	*84*		*25 - 150*
13C2 PFHxA	*101*		*25 - 150*
13C2 PFTeDA	*67*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C3 HFPO-DA	*99*		*25 - 150*
13C3 PFBS	*102*		*25 - 150*
13C4 PFBA	*106*		*25 - 150*
13C2 PFHxDA	*71*		*25 - 150*
13C4 PFHpA	*109*		*25 - 150*
13C4 PFOA	*106*		*25 - 150*
13C4 PFOS	*99*		*25 - 150*
13C5 PFNA	*107*		*25 - 150*
13C5 PFPeA	*104*		*25 - 150*
13C8 FOSA	*79*		*25 - 150*
18O2 PFHxS	*105*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*89*		*25 - 150*
d7-N-MeFOSE-M	*68*		*25 - 150*
d9-N-EtFOSE-M	*69*		*25 - 150*
d-N-EtFOSA-M	*73*		*25 - 150*
d-N-MeFOSA-M	*68*		*25 - 150*
M2-4:2 FTS	*100*		*25 - 150*
M2-6:2 FTS	*107*		*25 - 150*
M2-8:2 FTS	*109*		*25 - 150*
13C-10:2 FTCA	*75*		*25 - 150*
13C-6:2 FTCA	*87*		*25 - 150*
13C2 10:2 FTS	*84*		*25 - 150*
13C-6:2 FTUCA	*118*		*25 - 150*
13C-8:2 FTCA	*96*		*25 - 150*
13C-8:2 FTUCA	*123*		*25 - 150*

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.49		ng/Sample		105	60 - 140	10	30
Perfluoropentanoic acid (PFPeA)			10.0	9.881		ng/Sample		99	60 - 140	2	30
Perfluorohexanoic acid (PFHxA)			10.0	9.386		ng/Sample		94	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroheptanoic acid (PFHpA)	10.0	10.16		ng/Sample		102	60 - 140	7	30
Perfluorooctanoic acid (PFOA)	10.0	10.47		ng/Sample		105	60 - 140	6	30
Perfluorononanoic acid (PFNA)	10.0	9.474		ng/Sample		95	60 - 140	2	30
Perfluorodecanoic acid (PFDA)	10.0	10.39		ng/Sample		104	60 - 140	0	30
Perfluoroundecanoic acid (PFUnA)	10.0	8.841		ng/Sample		88	60 - 140	2	30
Perfluorododecanoic acid (PFDoA)	10.0	9.695		ng/Sample		97	60 - 140	0	30
Perfluorotridecanoic acid (PFTriA)	10.0	8.789		ng/Sample		88	60 - 140	9	30
Perfluorotetradecanoic acid (PFTeA)	10.0	9.487		ng/Sample		95	60 - 140	6	30
Perfluorobutanesulfonic acid (PFBS)	8.84	8.210		ng/Sample		93	60 - 140	0	30
Perfluorohexanesulfonic acid (PFHxS)	9.10	8.677		ng/Sample		95	60 - 140	1	30
Perfluoroheptanesulfonic acid (PFHpS)	9.52	8.993		ng/Sample		94	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)	9.28	8.865		ng/Sample		96	60 - 140	1	30
Perfluorodecanesulfonic acid (PFDS)	9.64	9.073		ng/Sample		94	60 - 140	19	30
Perfluorooctanesulfonamide (FOSA)	10.0	10.11		ng/Sample		101	60 - 140	1	30
Perfluoropentanesulfonic acid (PFPeS)	9.38	8.585		ng/Sample		92	60 - 140	1	30
Perfluorononanesulfonic acid (PFNS)	9.60	9.654		ng/Sample		101	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	9.934		ng/Sample		99	60 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	9.749		ng/Sample		97	60 - 140	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.34	9.090		ng/Sample		97	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.48	9.764		ng/Sample		103	60 - 140	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.58	9.368		ng/Sample		98	60 - 140	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10.0	11.27		ng/Sample		113	60 - 140	15	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9.32	9.301		ng/Sample		100	60 - 140	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	9.42	8.187		ng/Sample		87	60 - 140	20	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.42	9.439		ng/Sample		100	60 - 140	2	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.64	9.515		ng/Sample		99	60 - 140	5	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	10.0	9.276		ng/Sample		93	60 - 140	5	30
Perfluoro-n-octadecanoic acid (PFODA)	10.0	9.809		ng/Sample		98	60 - 140	10	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			10.0	10.32		ng/Sample		103	60 - 140	1	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			10.0	10.63		ng/Sample		106	60 - 140	0	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			10.0	9.371		ng/Sample		94	60 - 140	8	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			10.0	9.872		ng/Sample		99	60 - 140	0	30
Perfluorododecanesulfonic acid (PFDoS)			9.68	7.833		ng/Sample		81	60 - 140	26	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			10.0	8.655		ng/Sample		87	60 - 140	18	30
10:2 Fluorotelomer carboxylic acid			10.0	7.621		ng/Sample		76	60 - 140	3	30
6:2 Fluorotelomer carboxylic acid			10.0	9.988		ng/Sample		100	60 - 140	1	30
7:3 Fluorotelomer carboxylic acid			10.0	9.154		ng/Sample		92	60 - 140	5	30
6:2 Fluorotelemer unsaturated acid			10.0	9.502		ng/Sample		95	60 - 140	15	30
8:2 Fluorotelomer carboxylic acid			10.0	9.780		ng/Sample		98	60 - 140	1	30
8:2 Fluorotelemer unsaturated acid			10.0	8.757		ng/Sample		88	60 - 140	1	30
5:3 Fluorotelomer carboxylic acid			10.0	12.16		ng/Sample		122	60 - 140	12	30
3-Perfluoropropylpropanoic acid			10.0	10.05		ng/Sample		101	60 - 140	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			10.0	9.656		ng/Sample		97	60 - 140	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			10.0	9.530		ng/Sample		95	60 - 140	5	30
Perfluoro-4-ethylcyclohexanesulfonic acid			9.22	8.613		ng/Sample		93	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			8.90	8.052		ng/Sample		90	60 - 140	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C2 PFUnA	*110*		*25 - 150*
13C3 HFPO-DA	*96*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
13C4 PFBA	*102*		*25 - 150*
13C2 PFHxDA	*79*		*25 - 150*
13C4 PFHpA	*97*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*81*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*93*		*25 - 150*

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
d7-N-MeFOSE-M	74		25 - 150
d9-N-EtFOSE-M	79		25 - 150
d-N-EtFOSA-M	92		25 - 150
d-N-MeFOSA-M	80		25 - 150
M2-4:2 FTS	99		25 - 150
M2-6:2 FTS	93		25 - 150
M2-8:2 FTS	102		25 - 150
13C-10:2 FTCA	93		25 - 150
13C-6:2 FTCA	77		25 - 150
13C2 10:2 FTS	94		25 - 150
13C-6:2 FTUCA	109		25 - 150
13C-8:2 FTCA	97		25 - 150
13C-8:2 FTUCA	114		25 - 150

LCMS

Prep Batch: 64806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45	Total/NA	Air	None	
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHRO	Total/NA	Air	None	
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45	Total/NA	Air	None	
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHRO	Total/NA	Air	None	
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45	Total/NA	Air	None	
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHRO	Total/NA	Air	None	
MB 140-64806/14-B	Method Blank	Total/NA	Air	None	
MB 140-64806/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-5	T-3029,T-3030 OUTLET CPT R2 OTM-45 FH	Total/NA	Air	None	
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	Total/NA	Air	None	
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	Total/NA	Air	None	
MB 140-64841/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1	Total/NA	Air	None	
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1	Total/NA	Air	None	
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1	Total/NA	Air	None	
MB 140-64880/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 64889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-5	T-3029,T-3030 OUTLET CPT R2 OTM-45 FH	Total/NA	Air	Split	64841
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	Total/NA	Air	Split	64841
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	Total/NA	Air	Split	64841
MB 140-64841/1-B	Method Blank	Total/NA	Air	Split	64841
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	Split	64841
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64841

Cleanup Batch: 64951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45	Total/NA	Air	Split	64806
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHRO	Total/NA	Air	Split	64806
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45	Total/NA	Air	Split	64806
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHRO	Total/NA	Air	Split	64806
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45	Total/NA	Air	Split	64806
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHRO	Total/NA	Air	Split	64806
MB 140-64806/14-B	Method Blank	Total/NA	Air	Split	64806
MB 140-64806/1-B	Method Blank	Total/NA	Air	Split	64806
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	Split	64806
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64806

QC Association Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

LCMS

Analysis Batch: 65050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-5	T-3029,T-3030 OUTLET CPT R2 OTM-45 FH	Total/NA	Air	537 (modified)	64889
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	Total/NA	Air	537 (modified)	64889
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	Total/NA	Air	537 (modified)	64889
MB 140-64841/1-B	Method Blank	Total/NA	Air	537 (modified)	64889
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64889
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64889

Cleanup Batch: 65113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1	Total/NA	Air	Split	64880
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1	Total/NA	Air	Split	64880
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1	Total/NA	Air	Split	64880
MB 140-64880/1-B	Method Blank	Total/NA	Air	Split	64880
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	Split	64880
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64880

Analysis Batch: 65245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1	Total/NA	Air	537 (modified)	65113
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHRO	Total/NA	Air	537 (modified)	64951
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45	Total/NA	Air	537 (modified)	64951
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1	Total/NA	Air	537 (modified)	65113
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHRO	Total/NA	Air	537 (modified)	64951
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1	Total/NA	Air	537 (modified)	65113
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHRO	Total/NA	Air	537 (modified)	64951
MB 140-64806/14-B	Method Blank	Total/NA	Air	537 (modified)	64951
MB 140-64806/1-B	Method Blank	Total/NA	Air	537 (modified)	64951
MB 140-64880/1-B	Method Blank	Total/NA	Air	537 (modified)	65113
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64951
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	65113
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64951
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	65113

Analysis Batch: 65265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45	Total/NA	Air	537 (modified)	64951
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45	Total/NA	Air	537 (modified)	64951

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28650-1
Project/Site: St.Gobain CPT - Outlet OTM-45

Client Sample ID: T-3029,T-3030 OUTLET CPT R2 OTM-45 FH
Lab Sample ID: 140-28650-5
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	79 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			40 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:52	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH
Lab Sample ID: 140-28650-6
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65265	09/14/22 13:37	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28650-7
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.73529 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:56	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28650-8
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 02:55	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3036,T-3037 OUTLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28650-9

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	103 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			52 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 15:01	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28650-10

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 03:04	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-11

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.80645 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 22:04	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28650-12

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 03:13	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: T-2082,T-2083 OUTLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28650-13

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	98 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			49 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 15:10	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28650-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65265	09/14/22 13:45	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28650-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.74627 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 22:31	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28650-16

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 03:57	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64806/14-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 03:22	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64806/1-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:01	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64841/1-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 13:59	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64880/1-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:03	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64806/2-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:09	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64841/2-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:08	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64880/2-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:11	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-64806/3-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:18	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-64841/3-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:17	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-64880/3-B
Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:20	CAC	EET KNX
	Instrument ID: LCA									

Laboratory References:
EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Barr Engineering Company
Job ID: 140-28650-1
Project/Site: St.Gobain CPT - Outlet OTM-45

Laboratory: Eurofins Knoxville

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-25
ANAB	Dept. of Energy	L2311.01	02-13-25
ANAB	ISO/IEC 17025	L2311	02-13-25
Arkansas DEQ	State	88-0688	06-16-23
California	State	2423	06-30-22 *
Colorado	State	TN00009	02-28-23
Connecticut	State	PH-0223	09-30-23
Florida	NELAP	E87177	06-30-23
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-22
Kansas	NELAP	E-10349	10-31-22
Kentucky (DW)	State	90101	12-31-22
Louisiana	NELAP	83979	06-30-23
Louisiana (All)	NELAP	83979	09-15-22
Louisiana (DW)	State	LA019	12-31-22
Maryland	State	277	03-31-23
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-23
New Hampshire	NELAP	299919	01-17-23
New Jersey	NELAP	TN001	06-30-23
New York	NELAP	10781	03-31-23
North Carolina (DW)	State	21705	07-31-23
North Carolina (WW/SW)	State	64	12-31-22
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-23
Oregon	NELAP	TNI0189	12-31-22
Pennsylvania	NELAP	68-00576	12-31-22
Tennessee	State	02014	07-27-25
Texas	NELAP	T104704380-22-17	08-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-19-00236	12-31-22
Utah	NELAP	TN00009	07-31-23
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-23
West Virginia (DW)	State	9955C	12-31-22
West Virginia DEP	State	345	04-30-23
Wisconsin	State	998044300	08-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET KNX
None	Leaching Procedure	TAL SOP	EET KNX
None	Leaching Procedure for Condensate	TAL SOP	EET KNX
None	Leaching Procedure for Filter	TAL SOP	EET KNX
Split	Source Air Split	None	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Outlet OTM-45

Job ID: 140-28650-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-28650-5	T-3029,T-3030 OUTLET CPT R2 OTM-45 FH	Air	08/24/22 00:00	08/29/22 08:00
140-28650-6	T-3031,T-3032,T-3034 OUTLET CPT R2 OTM-45 BH	Air	08/24/22 00:00	08/29/22 08:00
140-28650-7	T-3033 OUTLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/24/22 00:00	08/29/22 08:00
140-28650-8	T-3035 OUTLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/24/22 00:00	08/29/22 08:00
140-28650-9	T-3036,T-3037 OUTLET CPT R3 OTM-45 FH	Air	08/25/22 00:00	08/29/22 08:00
140-28650-10	T-3038,T-3039,T-3041 OUTLET CPT R3 OTM-45 BH	Air	08/25/22 00:00	08/29/22 08:00
140-28650-11	T-3040 OUTLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/25/22 00:00	08/29/22 08:00
140-28650-12	T-3042 OUTLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/25/22 00:00	08/29/22 08:00
140-28650-13	T-2082,T-2083 OUTLET CPT R4 OTM-45 FH	Air	08/25/22 00:00	08/29/22 08:00
140-28650-14	T-2084,T-2085,T-2087 OUTLET CPT R4 OTM-45 BH	Air	08/25/22 00:00	08/29/22 08:00
140-28650-15	T-2086 OUTLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/25/22 00:00	08/29/22 08:00
140-28650-16	T-2088 OUTLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/25/22 00:00	08/29/22 08:00

Request for Analysis/Chain-of-Custody – RFA/COC #002
Barr Engineering St. Gobain CPT
EPA Method OTM-45 Train Sampling
PFAS Testing on the Outlet (Stack)

eurofins | Environment Testing TestAmerica

Project Identification:	**St. Gobain CPT**
Client Name:	Barr Engineering
Client Contact:	Tom Kuchinski (763) 548-4954
TestAmerica Project Manager:	Ms. Courtney Adkins Office: (865) 291-3019
TestAmerica Program Manager:	Mr. Billy Anderson Office: (865) 291-3080 Cell: (865) 206-9004

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows: "BT" = Blank Train, "RB" = Reagent Blank, "MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate, "DUP" = Duplicate, "PBT" = Proof Blank Train, "TB" = Trip Blank

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	28 Days from Lab Receipt
Laboratory Destination:	Eurofins TestAmerica 5815 Middlebrook Pike Knoxville, TN 37921
Lab Phone Number:	(865) 291-3000
Courier:	Hand Deliver

Project Deliverables:
Report analytical results on TALS Report form Std_Tal_L4. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	**Holding Time Requirements:**	**Preservation Requirements:**
PFAS Compounds	14 Days to Extraction; 40 Days to Analysis	Cool, 4°C

Field Sample No./Sample Coding ID	**Run No.**	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type**	**Analytical Specifications**
T-3022 OUTLET CPT R1 OTM-45 Filter (Combine with T-3023)	1	8-24-22	Hold RUN 1	125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3023 OUTLET CPT R1 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3022)	1	8-24-22	"	125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3024 OUTLET CPT R1 OTM-45 XAD-2 Resin Tube	1	8-24-22	Hold RWN 1	XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3025 OUTLET CPT R1 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3024)	1	8/24/22	"	125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3026 OUTLET CPT R1 OTM-45 Impingers 1,2 & 3 Condensate	1	8-24-22	"	1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3027 OUTLET CPT R1 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3026)	1	8-24-22	"	250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3028 OUTLET CPT R1 OTM-45 Breakthrough XAD-2 Resin Tube	1	8-24-22	"	XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3029 OUTLET CPT R2 OTM-45 Filter (Combine with T-3030)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3030 OUTLET CPT R2 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3029)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3031 OUTLET CPT R2 OTM-45 XAD-2 Resin Tube	2	8-24-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3032 OUTLET CPT R2 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3031)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3033 OUTLET CPT R2 OTM-45 Impingers 1,2 & 3 Condensate	2	8-24-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3034 OUTLET CPT R2 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3031)	2	8-24-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3035 OUTLET CPT R2 OTM-45 Breakthrough XAD-2 Resin Tube	2	8-24-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3036 OUTLET CPT R3 OTM-45 Filter (Combine with T-3037)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3037 OUTLET CPT R3 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3036)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3038 OUTLET CPT R3 OTM-45 XAD-2 Resin Tube	3	8-25-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3039 OUTLET CPT R3 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3038)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3040 OUTLET CPT R3 OTM-45 Impingers 1,2 & 3 Condensate	3	8-25-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3041 OUTLET CPT R3 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3038)	3	8-25-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3042 OUTLET CPT R3 OTM-45 Breakthrough XAD-2 Resin Tube	3	8-25-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2082 OUTLET CPT R4 OTM-45 Filter (Combine with T-2083)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-2083 OUTLET CPT R4 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-2082)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-2084 OUTLET CPT R4 OTM-45 XAD-2 Resin Tube	4	8-25-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-2085 OUTLET CPT R4 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-2084)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-2086 OUTLET CPT R4 OTM-45 Impingers 1,2 & 3 Condensate	4	8-25-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2087 OUTLET CPT R4 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-2084)	4	8-25-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-2088 OUTLET CPT R4 OTM-45 Breakthrough XAD-2 Resin Tube	4	8-25-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NONE
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	RT 3.8, 3.4 / CT 3.9, 3.5°C
(3) Record any apparent sample loss/breakage.	NONE
(4) Record any unidentified samples transported with this shipment of samples:	NONE
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	HAND DELIVERED, NO CUSTODY SEALS

Custody Transfer:

	Name	Company	Date/Time
Relinquished By:	-Tim Russell	BARR	8-25-22
Accepted By:		ETA KNOX	8-25-22
Relinquished By:		ETA KNOX	8-27-22 1915
Accepted By:		ETA KNOX	8-29-22 08:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ Containers, Broken
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			✓	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID: SC73 Correction factor: +0.1°C	✓			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt
5. Were all of the sample containers received intact?	✓			☐ Containers, Broken
6. Were samples received in appropriate containers?	✓			☐ Containers, Improper; Client Contacted; Proceed/Cancel
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received
8. Were all of the samples listed on the COC received?	✓			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received
9. Is the date/time of sample collection noted?	✓			☐ COC; No Date/Time; Client Contacted
10. Was the sampler identified on the COC?			✓	☐ Sampler Not Listed on COC
11. Is the client and project name/# identified?	✓			☐ COC Incorrect/Incomplete
12. Are tests/parameters listed for each sample?	✓			☐ COC No tests on COC
13. Is the matrix of the samples noted?	✓			☐ COC Incorrect/Incomplete
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ COC Incorrect/Incomplete
15. Were samples received within holding time?	✓			☐ Holding Time - Receipt
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative
17. Were VOA samples received without headspace?			✓	☐ Headspace (VOA only)
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ Residual Chlorine
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 8.29.22

QA026R32.doc, 062719

10/20/2022 (Rev. 5)

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-28649-1
Client Project/Site: St.Gobain CPT - Inlet OTM-45
Revision: 2

For:
Barr Engineering Company
5150 West 76th Street
Edina, Minnesota 55439

Attn: Tom Kuchinski

Authorized for release by:
10/19/2022 3:01:36 PM

Courtney Adkins, Project Manager II
(865)291-3019
Courtney.Adkins@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R	Result Unusable
S1-	Surrogate recovery exceeds control limits, low biased.

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: 140-28649-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative
140-28649-1

Revision Notes

This report was revised on 9/21/22 to correct the analyte reporting order in the front half fractions.

This report was revised on 10/19/22 to add “R” qualifiers to target analytes with IDA recoveries less than 10%.

Comments

Target results with “R” flagged results or reported as “NR” are associated with IDAs with recoveries that cannot be quantitated. These results are considered unusable.

Field surrogates are added to both the primary and breakthrough XAD modules. The two surrogates were evaluated in the condensate fraction to assess breakthrough.

Receipt

The samples were received on 8/29/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2º C and 2.2º C.

LCMS

One of more Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: T-3008,T-3009 INLET CPT R2 OTM-45 FH (140-28649-5), T-3015,T-3016 INLET CPT R3 OTM-45 FH (140-28649-9), T-2075,T-2076 INLET CPT R4 OTM-45 FH (140-28649-13), T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28649-7), T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28649-8), T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28649-11), T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28649-12), T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28649-15), T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28649-16), (LCSD 140-64806/3-B), T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH (140-28649-6), T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH (140-28649-10) and T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH (140-28649-14). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

One or more Isotope Dilution Analyte (IDA) recoveries associated with the following samples are below the method recommended limit: (LCSD 140-64806/3-B) and (MB 140-64806/1-B). T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH (140-28649-6), T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH (140-28649-10) and T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH (140-28649-14). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

One or more Isotope Dilution Analyte (IDA) recoveries associated with this sample are below the method recommended limit of 10%. Generally, re-extraction of samples should be performed if the signal to noise ratio for any IDA is less than 10:1 or the IDA recoveries fall below 10%. With the low IDA recoveries, the target analytes associated with these IDAs may have a high bias. The entire sample was consumed during the extraction or analysis, therefore the data has been reported. The following samples are impacted: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH (140-28649-6), T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH (140-28649-10) and T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH (140-28649-14)

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside acceptance limits for multiple analytes. There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside control limits for multiple analytes.

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH
Lab Sample ID: 140-28649-5
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoropentanoic acid (PFPeA)	**0.533**	**J**	1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorohexanoic acid (PFHxA)	**0.282**	**J**	1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorononanoic acid (PFNA)	**0.161**	**J**	1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorododecanoic acid (PFDoA)	**0.139**	**J**	1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorotridecanoic acid (PFTriA)	**0.195**	**J**	1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorotetradecanoic acid (PFTeA)	**0.736**	**J I**	1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorooctanesulfonic acid (PFOS)	**0.895**	**J I**	1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**9.24**	**CI**	1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.397**	**J**	1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 14:26	1

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH

Lab Sample ID: 140-28649-5

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	**0.564**	**J**	1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.461**	**J**	1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*109*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFDoA	*82*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFHxA	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFHxDA	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFTeDA	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFUnA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C3 HFPO-DA	*74*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C3 PFBS	*114*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFBA	*85*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFHpA	*105*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFOS	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C5 PFNA	*105*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C5 PFPeA	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C8 FOSA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
18O2 PFHxS	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d3-NMeFOSAA	*139*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d5-NEtFOSAA	*112*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d7-N-MeFOSE-M	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d9-N-EtFOSE-M	*120*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d-N-EtFOSA-M	*81*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d-N-MeFOSA-M	*75*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
M2-4:2 FTS	*299*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH

Lab Sample ID: 140-28649-5

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	455	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1
M2-8:2 FTS	318	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-10:2 FTCA	77		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-6:2 FTCA	39		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-6:2 FTUCA	92		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-8:2 FTCA	93		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-8:2 FTUCA	179	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C2 10:2 FTS	188	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28649-6

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**208**		100	94.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoropentanoic acid (PFPeA)	**402**		10.0	4.50	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorohexanoic acid (PFHxA)	**124**		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoroheptanoic acid (PFHpA)	**149**		30.0	26.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorooctanoic acid (PFOA)	**142**		10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorononanoic acid (PFNA)	**60.8**		10.0	8.90	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorodecanoic acid (PFDA)	**20.8**		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoroundecanoic acid (PFUnA)	**25.6**		10.0	2.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorododecanoic acid (PFDoA)	**17.4**		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorotridecanoic acid (PFTriA)	**6.72**	**J**	10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorotetradecanoic acid (PFTeA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorobutanesulfonic acid (PFBS)	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorohexanesulfonic acid (PFHxS)	ND		10.0	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorooctanesulfonic acid (PFOS)	ND		10.0	1.50	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorodecanesulfonic acid (PFDS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorooctanesulfonamide (FOSA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoropentanesulfonic acid (PFPeS)	ND		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorononanesulfonic acid (PFNS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		10.0	1.90	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		10.0	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		100	87.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28649-6

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		200	110	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	10.0	3.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	10.0	6.40	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		200	198	ng/mL		08/30/22 12:05	09/14/22 13:10	10
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	10.0	7.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	10.0	2.90	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
10:2 Fluorotelomer carboxylic acid	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
6:2 Fluorotelomer carboxylic acid	**11.8**		10.0	10.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
7:3 Fluorotelomer carboxylic acid	ND		10.0	5.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
6:2 Fluorotelemer unsaturated acid	**6.87**	**J**	10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
8:2 Fluorotelomer carboxylic acid	**14.1**	**I**	10.0	3.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
8:2 Fluorotelemer unsaturated acid	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
5:3 Fluorotelomer carboxylic acid	**8.29**	**J I *+**	10.0	7.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
3-Perfluoropropylpropanoic acid	**106**		10.0	3.10	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	**19.5**	**CI**	10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		10.0	1.30	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		10.0	1.40	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		10.0	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*5*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C4 PFBA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C5 PFPeA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C2 PFHxA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C4 PFHpA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C4 PFOA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28649-6

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	83		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFDA	48		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFUnA	28		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFDoA	12	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFTeDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C3 PFBS	139		25 - 150	08/30/22 12:05	09/14/22 13:10	10
18O2 PFHxS	104		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C4 PFOS	38		25 - 150	08/30/22 12:05	09/14/22 13:10	10
d3-NMeFOSAA	44		25 - 150	08/30/22 12:05	09/14/22 13:10	10
d5-NEtFOSAA	35		25 - 150	08/30/22 12:05	09/14/22 13:10	10
M2-4:2 FTS	240	*5+	25 - 150	08/30/22 12:05	09/14/22 13:10	10
M2-6:2 FTS	231	*5+	25 - 150	08/30/22 12:05	09/14/22 13:10	10
M2-8:2 FTS	143		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C3 HFPO-DA	92		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFHxDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d-N-EtFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 10:2 FTS	21	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-10:2 FTCA	14	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-6:2 FTCA	55		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-6:2 FTUCA	130		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-8:2 FTCA	28		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-8:2 FTUCA	86		25 - 150	08/30/22 12:05	09/14/22 13:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	101		50 - 150	08/30/22 12:05	09/14/22 13:10	10
13C8 PFOS	91		50 - 150	08/30/22 12:05	09/14/22 13:10	10

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**41.5**	**B**	0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoropentanoic acid (PFPeA)	**48.3**		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorohexanoic acid (PFHxA)	**23.1**		0.620	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoroheptanoic acid (PFHpA)	**4.54**		0.620	0.189	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorooctanoic acid (PFOA)	**1.39**		0.620	0.118	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorononanoic acid (PFNA)	**0.0779**	**J**	0.620	0.0651	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorodecanoic acid (PFDA)	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoroundecanoic acid (PFUnA)	ND		0.620	0.0930	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorododecanoic acid (PFDoA)	ND		0.620	0.0651	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorotridecanoic acid (PFTriA)	ND		0.620	0.0992	ng/Sample		09/01/22 08:23	09/13/22 21:29	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		0.620	0.140	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.620	0.0558	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.620	0.0713	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.620	0.143	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorooctanesulfonic acid (PFOS)	**0.103**	**J I**	0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.620	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorooctanesulfonamide (FOSA)	ND		0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.620	0.0744	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorononanesulfonic acid (PFNS)	ND		0.620	0.0465	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.620	0.127	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.620	0.0930	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.620	0.0713	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.620	0.171	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.620	0.161	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**35.0**	**B**	0.620	0.291	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.620	0.0868	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.620	0.174	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.620	0.133	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.620	0.229	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.620	0.158	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.620	0.127	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.620	0.105	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.620	0.167	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.620	0.177	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.620	0.0992	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.620	0.180	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
10:2 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
6:2 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
7:3 Fluorotelomer carboxylic acid	ND		0.620	0.465	ng/Sample		09/01/22 08:23	09/13/22 21:29	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelemer unsaturated acid	ND		0.620	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
8:2 Fluorotelomer carboxylic acid	ND		0.620	0.403	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
8:2 Fluorotelemer unsaturated acid	ND		0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
5:3 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
3-Perfluoropropylpropanoic acid	**3.66**		0.620	0.273	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**1.26**		0.620	0.180	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.620	0.245	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.620	0.198	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.620	0.158	ng/Sample		09/01/22 08:23	09/13/22 21:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*78*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFBA	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C5 PFPeA	*74*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFHxA	*90*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFHpA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFOA	*104*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C5 PFNA	*109*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFDA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFUnA	*90*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFDoA	*67*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFTeDA	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C3 PFBS	*116*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
18O2 PFHxS	*91*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFOS	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d3-NMeFOSAA	*76*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d5-NEtFOSAA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
M2-4:2 FTS	*287*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
M2-6:2 FTS	*402*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
M2-8:2 FTS	*292*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C3 HFPO-DA	*72*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d-N-MeFOSA-M	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d7-N-MeFOSE-M	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d9-N-EtFOSE-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d-N-EtFOSA-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 10:2 FTS	*83*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-10:2 FTCA	*61*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-6:2 FTCA	*82*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-6:2 FTUCA	*119*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-8:2 FTCA	*117*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-8:2 FTUCA	*157*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*0.1*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	0.02	S1-	50 - 150	09/01/22 08:23	09/13/22 21:29	1

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-8

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**89.9**		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoropentanoic acid (PFPeA)	**124**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorohexanoic acid (PFHxA)	**21.9**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoroheptanoic acid (PFHpA)	**18.7**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorooctanoic acid (PFOA)	**3.00**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorononanoic acid (PFNA)	**1.55**		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorooctanesulfonic acid (PFOS)	**0.178**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 01:36	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28649-8
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
6:2 Fluorotelemer unsaturated acid	**0.204**	**J**	1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
3-Perfluoropropylpropanoic acid	**1.01**		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.208**	**J**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 01:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C4 PFBA	*74*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C5 PFPeA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFHxA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C4 PFHpA	*116*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C4 PFOA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C5 PFNA	*113*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFDA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFUnA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFDoA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFTeDA	*87*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C3 PFBS	*119*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
18O2 PFHxS	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-8

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	107		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d3-NMeFOSAA	122		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d5-NEtFOSAA	125		25 - 150	08/30/22 12:05	09/14/22 01:36	1
M2-4:2 FTS	189	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
M2-6:2 FTS	204	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
M2-8:2 FTS	189	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C3 HFPO-DA	91		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C2 PFHxDA	46		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d-N-MeFOSA-M	94		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d7-N-MeFOSE-M	84		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d9-N-EtFOSE-M	81		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d-N-EtFOSA-M	98		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C2 10:2 FTS	131		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-10:2 FTCA	81		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-6:2 FTCA	78		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-6:2 FTUCA	181	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-8:2 FTCA	82		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-8:2 FTUCA	199	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	88		50 - 150	08/30/22 12:05	09/14/22 01:36	1
13C8 PFOS	100		50 - 150	08/30/22 12:05	09/14/22 01:36	1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28649-9

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.97	1.28	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoropentanoic acid (PFPeA)	**0.540**	**J**	0.986	0.178	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorohexanoic acid (PFHxA)	**0.305**	**J**	0.986	0.207	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.986	0.611	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorooctanoic acid (PFOA)	ND		0.986	0.641	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorononanoic acid (PFNA)	**0.275**	**J**	0.986	0.0838	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorodecanoic acid (PFDA)	ND		0.986	0.247	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoroundecanoic acid (PFUnA)	**0.253**	**J**	0.986	0.168	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorododecanoic acid (PFDoA)	**0.189**	**J**	0.986	0.0986	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorotridecanoic acid (PFTriA)	**0.462**	**J**	0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorotetradecanoic acid (PFTeA)	**1.36**	**I CI**	0.986	0.168	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.986	0.878	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorohexanesulfonic acid (PFHxS)	**0.133**	**J**	0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 14:35	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH
Lab Sample ID: 140-28649-9
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**1.02**	**I**	0.986	0.444	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorooctanesulfonamide (FOSA)	ND		0.986	0.0868	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorononanesulfonic acid (PFNS)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.986	0.0897	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	**7.90**		4.93	3.94	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.93	4.63	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.986	0.0966	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.986	0.197	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.986	0.316	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**0.718**	**J**	0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.758**	**J**	0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		4.93	4.83	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.986	0.158	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.631**	**J**	0.986	0.286	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.986	0.0937	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
10:2 Fluorotelomer carboxylic acid	ND		0.986	0.414	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
6:2 Fluorotelomer carboxylic acid	ND		0.986	0.424	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
7:3 Fluorotelomer carboxylic acid	ND		0.986	0.345	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
6:2 Fluorotelemer unsaturated acid	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
8:2 Fluorotelomer carboxylic acid	ND		0.986	0.345	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
8:2 Fluorotelemer unsaturated acid	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
5:3 Fluorotelomer carboxylic acid	ND		0.986	0.473	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
3-Perfluoropropylpropanoic acid	ND		0.986	0.286	ng/Sample		08/31/22 10:35	09/07/22 14:35	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH
Lab Sample ID: 140-28649-9
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.986	0.197	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFDoA	*75*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFHxA	*76*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFHxDA	*81*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFTeDA	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFUnA	*82*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C3 HFPO-DA	*67*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C3 PFBS	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFBA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFHpA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFOA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFOS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C5 PFNA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C5 PFPeA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C8 FOSA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d3-NMeFOSAA	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d5-NEtFOSAA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d7-N-MeFOSE-M	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d9-N-EtFOSE-M	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d-N-EtFOSA-M	*80*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d-N-MeFOSA-M	*70*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
M2-4:2 FTS	*270*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
M2-6:2 FTS	*384*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
M2-8:2 FTS	*274*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-10:2 FTCA	*63*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-6:2 FTCA	*40*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-6:2 FTUCA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-8:2 FTCA	*78*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-8:2 FTUCA	*162*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 10:2 FTS	*137*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**249**		100	94.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoropentanoic acid (PFPeA)	**644**		10.0	4.50	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorohexanoic acid (PFHxA)	**130**		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoroheptanoic acid (PFHpA)	**167**		30.0	26.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorooctanoic acid (PFOA)	**148**		10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorononanoic acid (PFNA)	**122**		10.0	8.90	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorodecanoic acid (PFDA)	**44.2**		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoroundecanoic acid (PFUnA)	**228**		10.0	2.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorododecanoic acid (PFDoA)	**38.6**		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorotridecanoic acid (PFTriA)	**53.0**		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorotetradecanoic acid (PFTeA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorobutanesulfonic acid (PFBS)	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorohexanesulfonic acid (PFHxS)	ND		10.0	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorooctanesulfonic acid (PFOS)	**2.78**	**J I**	10.0	1.50	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorodecanesulfonic acid (PFDS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorooctanesulfonamide (FOSA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoropentanesulfonic acid (PFPeS)	ND		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorononanesulfonic acid (PFNS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		10.0	1.90	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		10.0	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		100	87.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**188**	**J**	200	110	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	10.0	3.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	10.0	6.40	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		200	198	ng/mL		08/30/22 12:05	09/14/22 13:19	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	10.0	7.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	10.0	2.90	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
10:2 Fluorotelomer carboxylic acid	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
6:2 Fluorotelomer carboxylic acid	ND		10.0	10.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
7:3 Fluorotelomer carboxylic acid	ND		10.0	5.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
6:2 Fluorotelemer unsaturated acid	**3.94**	**J**	10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
8:2 Fluorotelomer carboxylic acid	ND		10.0	3.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
8:2 Fluorotelemer unsaturated acid	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
5:3 Fluorotelomer carboxylic acid	ND	*+	10.0	7.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
3-Perfluoropropylpropanoic acid	**64.6**		10.0	3.10	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	**5.12**	**J**	10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		10.0	1.30	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		10.0	1.40	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		10.0	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*6*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFBA	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C5 PFPeA	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFHxA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFHpA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFOA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C5 PFNA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFDA	*61*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFUnA	*40*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFDoA	*18*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFTeDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C3 PFBS	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
18O2 PFHxS	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFOS	*54*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
d3-NMeFOSAA	*63*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
d5-NEtFOSAA	*58*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
M2-4:2 FTS	*217*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
M2-6:2 FTS	*223*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
M2-8:2 FTS	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C3 HFPO-DA	*83*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFHxDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
d-N-EtFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C2 10:2 FTS	39		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-10:2 FTCA	14	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-6:2 FTCA	55		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-6:2 FTUCA	115		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-8:2 FTCA	33		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-8:2 FTUCA	97		25 - 150	08/30/22 12:05	09/14/22 13:19	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	92		50 - 150	08/30/22 12:05	09/14/22 13:19	10
13C8 PFOS	82		50 - 150	08/30/22 12:05	09/14/22 13:19	10

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**45.6**	**B**	0.590	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoropentanoic acid (PFPeA)	**95.0**		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorohexanoic acid (PFHxA)	**27.1**		0.590	0.224	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoroheptanoic acid (PFHpA)	**5.19**		0.590	0.180	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorooctanoic acid (PFOA)	**0.982**		0.590	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorononanoic acid (PFNA)	**0.128**	**J**	0.590	0.0619	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorodecanoic acid (PFDA)	ND		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoroundecanoic acid (PFUnA)	ND		0.590	0.0885	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorododecanoic acid (PFDoA)	ND		0.590	0.0619	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorotridecanoic acid (PFTriA)	ND		0.590	0.0944	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.590	0.133	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.590	0.0531	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.590	0.0678	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.590	0.136	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.590	0.0973	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorooctanesulfonamide (FOSA)	ND		0.590	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.590	0.0708	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorononanesulfonic acid (PFNS)	ND		0.590	0.0442	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.590	0.121	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.590	0.0885	ng/Sample		09/01/22 08:23	09/13/22 21:38	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.590	0.0678	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.590	0.162	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.590	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**116**	**B**	0.590	0.277	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.590	0.0826	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.590	0.165	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.590	0.127	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.590	0.218	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.590	0.150	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.590	0.121	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.590	0.100	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.590	0.159	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.590	0.168	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.590	0.0944	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.590	0.171	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
10:2 Fluorotelomer carboxylic acid	ND		0.590	0.354	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
6:2 Fluorotelomer carboxylic acid	ND		0.590	0.354	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
7:3 Fluorotelomer carboxylic acid	ND		0.590	0.442	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
6:2 Fluorotelemer unsaturated acid	ND		0.590	0.106	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
8:2 Fluorotelomer carboxylic acid	ND		0.590	0.383	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
8:2 Fluorotelemer unsaturated acid	ND		0.590	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
5:3 Fluorotelomer carboxylic acid	ND		0.590	0.354	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
3-Perfluoropropylpropanoic acid	**0.973**		0.590	0.260	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**2.31**		0.590	0.171	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.590	0.233	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.590	0.189	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.590	0.150	ng/Sample		09/01/22 08:23	09/13/22 21:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*82*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:38*	*1*

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C5 PFPeA	52		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFHxA	85		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C4 PFHpA	102		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C4 PFOA	99		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C5 PFNA	103		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFDA	96		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFUnA	86		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFDoA	64		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFTeDA	56		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C3 PFBS	103		25 - 150	09/01/22 08:23	09/13/22 21:38	1
18O2 PFHxS	90		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C4 PFOS	80		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d3-NMeFOSAA	88		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d5-NEtFOSAA	91		25 - 150	09/01/22 08:23	09/13/22 21:38	1
M2-4:2 FTS	250	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1
M2-6:2 FTS	363	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1
M2-8:2 FTS	220	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C3 HFPO-DA	66		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFHxDA	69		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d-N-MeFOSA-M	55		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d7-N-MeFOSE-M	53		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d9-N-EtFOSE-M	55		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d-N-EtFOSA-M	58		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 10:2 FTS	73		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-10:2 FTCA	69		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-6:2 FTCA	79		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-6:2 FTUCA	116		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-8:2 FTCA	97		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-8:2 FTUCA	154	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.004	S1-	50 - 150	09/01/22 08:23	09/13/22 21:38	1
13C8 PFOS	0	S1-	50 - 150	09/01/22 08:23	09/13/22 21:38	1

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-12

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40.3		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoropentanoic acid (PFPeA)	47.4		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorohexanoic acid (PFHxA)	6.85		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoroheptanoic acid (PFHpA)	5.27		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorooctanoic acid (PFOA)	0.816	J	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:11	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-12
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorooctanesulfonic acid (PFOS)	**0.173**	**J I**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 02:11	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-12
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFBA	*68*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C5 PFPeA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFHxA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFHpA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFOA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C5 PFNA	*110*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFDA	*116*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFUnA	*115*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFDoA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFTeDA	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C3 PFBS	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
18O2 PFHxS	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFOS	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d3-NMeFOSAA	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d5-NEtFOSAA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
M2-4:2 FTS	*178*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
M2-6:2 FTS	*177*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
M2-8:2 FTS	*165*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C3 HFPO-DA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFHxDA	*26*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d-N-MeFOSA-M	*87*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d7-N-MeFOSE-M	*83*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d9-N-EtFOSE-M	*75*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d-N-EtFOSA-M	*82*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 10:2 FTS	*145*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-10:2 FTCA	*71*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-12

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-6:2 FTCA	*73*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-6:2 FTUCA	*179*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-8:2 FTCA	*71*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-8:2 FTUCA	*194*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*94*		*50 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C8 PFOS	*102*		*50 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28649-13

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoropentanoic acid (PFPeA)	**0.542**	**J**	1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorohexanoic acid (PFHxA)	**0.301**	**J**	1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorononanoic acid (PFNA)	**0.245**	**J**	1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorododecanoic acid (PFDoA)	**0.171**	**J**	1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorotridecanoic acid (PFTriA)	**0.294**	**J**	1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorotetradecanoic acid (PFTeA)	**1.35**	**I CI**	1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorooctanesulfonic acid (PFOS)	**0.561**	**J I**	1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	**4.07**	**J**	5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH
Lab Sample ID: 140-28649-13
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**0.731**	**J**	1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.506**	**J**	1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.545**	**J**	1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*108*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFHxA	*86*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFHxDA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFTeDA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFUnA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C3 HFPO-DA	*76*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C3 PFBS	*123*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28649-13

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C4 PFHpA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C4 PFOS	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C5 PFNA	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C5 PFPeA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C8 FOSA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
18O2 PFHxS	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d3-NMeFOSAA	*114*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d7-N-MeFOSE-M	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d9-N-EtFOSE-M	*118*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d-N-EtFOSA-M	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d-N-MeFOSA-M	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
M2-4:2 FTS	*293*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
M2-6:2 FTS	*497*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
M2-8:2 FTS	*262*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-10:2 FTCA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-6:2 FTCA	*41*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-6:2 FTUCA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-8:2 FTCA	*85*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-8:2 FTUCA	*153*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 10:2 FTS	*140*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**288**		100	94.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoropentanoic acid (PFPeA)	**683**		10.0	4.50	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorohexanoic acid (PFHxA)	**166**		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoroheptanoic acid (PFHpA)	**231**		30.0	26.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorooctanoic acid (PFOA)	**178**		10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorononanoic acid (PFNA)	**96.8**		10.0	8.90	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorodecanoic acid (PFDA)	**33.2**		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoroundecanoic acid (PFUnA)	**113**		10.0	2.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorododecanoic acid (PFDoA)	**29.7**		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorotridecanoic acid (PFTriA)	**46.6**		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorotetradecanoic acid (PFTeA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorobutanesulfonic acid (PFBS)	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorohexanesulfonic acid (PFHxS)	ND		10.0	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		10.0	1.50	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorodecanesulfonic acid (PFDS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorooctanesulfonamide (FOSA)	ND		10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoropentanesulfonic acid (PFPeS)	ND		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorononanesulfonic acid (PFNS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	**1.96**	**J**	10.0	1.90	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		10.0	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		100	87.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**167**	**J**	200	110	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	10.0	3.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	10.0	6.40	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		200	198	ng/mL		08/30/22 12:05	09/14/22 13:28	10
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	10.0	7.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	10.0	2.90	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
10:2 Fluorotelomer carboxylic acid	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
6:2 Fluorotelomer carboxylic acid	ND		10.0	10.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
7:3 Fluorotelomer carboxylic acid	ND		10.0	5.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
6:2 Fluorotelemer unsaturated acid	**6.00**	**J**	10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
8:2 Fluorotelomer carboxylic acid	ND		10.0	3.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
8:2 Fluorotelemer unsaturated acid	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
5:3 Fluorotelomer carboxylic acid	**22.9**	***+ CI**	10.0	7.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid	**149**		10.0	3.10	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	**4.81**	**J**	10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		10.0	1.30	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		10.0	1.40	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		10.0	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*12*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFBA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C5 PFPeA	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFHxA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFHpA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFOA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C5 PFNA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFDA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFUnA	*48*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFDoA	*27*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFTeDA	*0.7*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C3 PFBS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
18O2 PFHxS	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFOS	*60*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d3-NMeFOSAA	*70*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d5-NEtFOSAA	*65*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
M2-4:2 FTS	*215*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
M2-6:2 FTS	*244*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
M2-8:2 FTS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C3 HFPO-DA	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFHxDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d-N-MeFOSA-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d7-N-MeFOSE-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d9-N-EtFOSE-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d-N-EtFOSA-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 10:2 FTS	*49*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-10:2 FTCA	*15*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-6:2 FTCA	*56*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-6:2 FTUCA	*134*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-8:2 FTCA	*41*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-8:2 FTUCA	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*50 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C8 PFOS	*87*		*50 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**74.4**	**B**	0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoropentanoic acid (PFPeA)	**131**		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorohexanoic acid (PFHxA)	**35.9**		0.680	0.258	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoroheptanoic acid (PFHpA)	**7.45**		0.680	0.207	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorooctanoic acid (PFOA)	**1.47**		0.680	0.129	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorononanoic acid (PFNA)	**0.350**	**J**	0.680	0.0714	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorodecanoic acid (PFDA)	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoroundecanoic acid (PFUnA)	**0.119**	**J I**	0.680	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorododecanoic acid (PFDoA)	ND		0.680	0.0714	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorotridecanoic acid (PFTriA)	ND		0.680	0.109	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.680	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.680	0.0612	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.680	0.0782	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.680	0.156	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.680	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorooctanesulfonamide (FOSA)	ND		0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.680	0.0816	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorononanesulfonic acid (PFNS)	ND		0.680	0.0510	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.680	0.139	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.680	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.680	0.0782	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.680	0.187	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.680	0.177	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**135**	**B**	0.680	0.320	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.680	0.0952	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.680	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.680	0.146	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.680	0.252	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.680	0.173	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.680	0.139	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.680	0.116	ng/Sample		09/01/22 08:23	09/13/22 21:47	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.680	0.184	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.680	0.194	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.680	0.109	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.680	0.197	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
10:2 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
6:2 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
7:3 Fluorotelomer carboxylic acid	ND		0.680	0.510	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
6:2 Fluorotelemer unsaturated acid	ND		0.680	0.122	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
8:2 Fluorotelomer carboxylic acid	ND		0.680	0.442	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
8:2 Fluorotelemer unsaturated acid	ND		0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
5:3 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
3-Perfluoropropylpropanoic acid	**7.16**		0.680	0.299	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**1.83**		0.680	0.197	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.680	0.269	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.680	0.218	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.680	0.173	ng/Sample		09/01/22 08:23	09/13/22 21:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFBA	*54*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C5 PFPeA	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFHxA	*84*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFHpA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFOA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C5 PFNA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFDA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFUnA	*89*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFDoA	*70*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFTeDA	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C3 PFBS	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
18O2 PFHxS	*92*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFOS	*84*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d3-NMeFOSAA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d5-NEtFOSAA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
M2-4:2 FTS	*266*	*5+	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
M2-6:2 FTS	*396*	*5+	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
M2-8:2 FTS	*261*	*5+	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C3 HFPO-DA	*64*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFHxDA	*74*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d-N-MeFOSA-M	*58*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d7-N-MeFOSE-M	*56*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d9-N-EtFOSE-M	*61*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	64		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C2 10:2 FTS	83		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-10:2 FTCA	84		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-6:2 FTCA	82		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-6:2 FTUCA	111		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-8:2 FTCA	129		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-8:2 FTUCA	152	*5+	25 - 150	09/01/22 08:23	09/13/22 21:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.2	S1-	50 - 150	09/01/22 08:23	09/13/22 21:47	1
13C8 PFOS	0.03	S1-	50 - 150	09/01/22 08:23	09/13/22 21:47	1

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-16

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**70.7**		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoropentanoic acid (PFPeA)	**97.0**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorohexanoic acid (PFHxA)	**12.9**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoroheptanoic acid (PFHpA)	**12.0**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorooctanoic acid (PFOA)	**2.36**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 02:29	1

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-16
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**14.0**	**J**	20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 02:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*118*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C4 PFBA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C5 PFPeA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C2 PFHxA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C4 PFHpA	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28649-16
Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	111		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C5 PFNA	119		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFDA	123		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFUnA	115		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFDoA	106		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFTeDA	86		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C3 PFBS	117		25 - 150	08/30/22 12:05	09/14/22 02:29	1
18O2 PFHxS	109		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C4 PFOS	108		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d3-NMeFOSAA	121		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d5-NEtFOSAA	129		25 - 150	08/30/22 12:05	09/14/22 02:29	1
M2-4:2 FTS	181	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
M2-6:2 FTS	174	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
M2-8:2 FTS	178	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C3 HFPO-DA	95		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFHxDA	36		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d-N-MeFOSA-M	67		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d7-N-MeFOSE-M	89		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d9-N-EtFOSE-M	87		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d-N-EtFOSA-M	61		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 10:2 FTS	148		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-10:2 FTCA	73		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-6:2 FTCA	69		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-6:2 FTUCA	185	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-8:2 FTCA	86		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-8:2 FTUCA	202	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	99		50 - 150	08/30/22 12:05	09/14/22 02:29	1
13C8 PFOS	98		50 - 150	08/30/22 12:05	09/14/22 02:29	1

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
10:2 Fluorotelomer carboxylic acid	1.00	0.520	ng/Sample
10:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
10:2 Fluorotelomer carboxylic acid	1.00	0.420	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.180	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	2.00	0.280	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.200	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.160	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	0.520	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.140	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.170	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	2.00	0.430	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.320	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0640	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	0.230	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0910	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	10.0	8.70	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	0.550	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	5.00	4.00	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.370	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	2.00	0.740	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.120	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/mL
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	2.00	0.410	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	5.00	4.90	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.310	ng/Sample
3-Perfluoropropylpropanoic acid	2.00	0.880	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.290	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.10	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	0.560	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.00	0.140	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.700	ng/Sample
5:3 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.480	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
6:2 Fluorotelemer unsaturated acid	2.00	0.360	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.140	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	1.00	ng/Sample
6:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	0.430	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.560	ng/Sample
7:3 Fluorotelomer carboxylic acid	2.00	1.50	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
8:2 Fluorotelemer unsaturated acid	2.00	0.800	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.220	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.380	ng/Sample
8:2 Fluorotelomer carboxylic acid	2.00	1.30	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.180	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	2.00	0.260	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.0980	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

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

Prep: None

Analyte	RL	MDL	Units
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	11.0	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	0.940	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	5.00	4.70	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.660	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.00	0.540	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.160	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.190	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	0.300	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.140	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.770	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.00	0.340	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.150	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.00	0.120	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	0.410	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.160	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	0.580	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.150	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.100	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	0.510	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.140	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.120	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	0.580	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.150	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.140	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	2.00	0.640	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.220	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.130	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	0.790	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.200	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.520	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	2.00	0.180	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.890	ng/Sample
Perfluorobutanoic acid (PFBA)	10.0	9.40	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	0.800	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	1.30	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.200	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	2.00	0.330	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.110	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.210	ng/Sample
Perfluorodecanoic acid (PFDA)	2.00	0.260	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.250	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.180	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	2.00	0.320	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.0950	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.120	ng/Sample
Perfluorododecanoic acid (PFDoA)	2.00	0.210	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.100	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.200	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

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

Prep: None

Analyte	RL	MDL	Units
Perfluoroheptanesulfonic acid (PFHpS)	2.00	0.460	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.110	ng/Sample
Perfluoroheptanoic acid (PFHpA)	3.00	2.60	ng/Sample
Perfluoroheptanoic acid (PFHpA)	2.00	0.610	ng/Sample
Perfluoroheptanoic acid (PFHpA)	1.00	0.620	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.260	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	2.00	0.230	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.110	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.520	ng/Sample
Perfluorohexanoic acid (PFHxA)	2.00	0.760	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.210	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.00	0.290	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	2.00	0.570	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.640	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	2.00	0.510	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.220	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.160	ng/Sample
Perfluorononanesulfonic acid (PFNS)	2.00	0.150	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.120	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.890	ng/Sample
Perfluorononanoic acid (PFNA)	2.00	0.210	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.0850	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.230	ng/Sample
Perfluorooctanesulfonamide (FOSA)	2.00	0.800	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.0880	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.150	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	2.00	0.260	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.450	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.660	ng/Sample
Perfluorooctanoic acid (PFOA)	2.00	0.380	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.650	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.210	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	2.00	0.240	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.120	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.450	ng/Sample
Perfluoropentanoic acid (PFPeA)	2.00	0.260	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.180	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.230	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	2.00	0.450	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	2.00	0.320	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.140	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.270	ng/Sample
Perfluoroundecanoic acid (PFUnA)	2.00	0.300	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.170	ng/Sample

Surrogate Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	C8PFOA (50-150)	C8PFOS (50-150)
140-28649-6	T-3010,T-3011,T-3013 INLET CI	101	91
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.1 S1-	0.02 S1-
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	88	100
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	92	82
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.004 S1-	0 S1-
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	94	102
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	103	87
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.2 S1-	0.03 S1-
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	99	98

Surrogate Legend

C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	84	85	89	89	105	93	105	109
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	5 *5-	91	103	101	112	105	83	48
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	78	57	74	90	100	104	109	100
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	114	74	95	104	116	122	113	122
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	87	77	77	76	97	92	99	98
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	6 *5-	84	90	93	103	109	88	61
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	82	54	52	85	102	99	103	96
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	114	68	89	104	109	114	110	116
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	93	87	88	86	104	98	110	108
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	12 *5-	88	92	100	100	106	94	69
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	87	54	57	84	98	99	105	97
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	118	69	91	105	111	111	119	123
LCS 140-64806/2-B	Lab Control Sample	91	96	94	90	100	95	94	100
LCS 140-64841/2-B	Lab Control Sample	99	100	94	90	92	97	93	101
LCS 140-64880/2-B	Lab Control Sample	79	106	104	101	109	106	107	104
LCSD 140-64806/3-B	Lab Control Sample Dup	103	105	111	96	116	99	106	111
LCSD 140-64841/3-B	Lab Control Sample Dup	101	95	97	84	92	94	93	99
LCSD 140-64880/3-B	Lab Control Sample Dup	81	102	97	95	97	94	101	100
MB 140-64806/1-B	Method Blank	97	96	95	94	99	93	97	94
MB 140-64841/1-B	Method Blank	103	96	94	84	98	98	96	102
MB 140-64880/1-B	Method Blank	71	102	101	97	102	96	103	101

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	93	82	95	114	103	93	139	112
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	28	12 *5-	0 *5-	139	104	38	44	35
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	90	67	63	116	91	87	76	75
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	112	103	87	119	104	107	122	125
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	82	75	91	110	100	92	110	84
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	40	18 *5-	0 *5-	121	92	54	63	58

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28649-1
Project/Site: St.Gobain CPT - Inlet OTM-45

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

Matrix: Air
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
140-28649-11	T-3019 INLET CPT R3 OTM-45	86	64	56	103	90	80	88	91
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	115	105	81	121	103	107	117	122
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	98	88	100	123	106	101	114	100
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	48	27	0.7 *5-	125	91	60	70	65
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	89	70	63	102	92	84	99	97
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	115	106	86	117	109	108	121	129
LCS 140-64806/2-B	Lab Control Sample	99	90	61	101	100	90	102	98
LCS 140-64841/2-B	Lab Control Sample	103	101	103	93	100	96	110	111
LCS 140-64880/2-B	Lab Control Sample	107	84	67	102	105	99	98	89
LCSD 140-64806/3-B	Lab Control Sample Dup	105	96	59	109	111	98	108	110
LCSD 140-64841/3-B	Lab Control Sample Dup	107	98	99	92	97	92	115	116
LCSD 140-64880/3-B	Lab Control Sample Dup	110	96	81	98	97	97	98	93
MB 140-64806/1-B	Method Blank	95	89	69	97	100	91	103	104
MB 140-64841/1-B	Method Blank	108	99	101	92	101	96	113	122
MB 140-64880/1-B	Method Blank	101	80	69	94	96	96	96	88

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)	PFHxDA (25-150)	dMeFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	299 *5+	455 *5+	318 *5+	74	91	75	103	120
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	240 *5+	231 *5+	143	92	0 *5-	0 *5-	0 *5-	0 *5-
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	287 *5+	402 *5+	292 *5+	72	75	57	57	65
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	189 *5+	204 *5+	189 *5+	91	46	94	84	81
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	270 *5+	384 *5+	274 *5+	67	81	70	96	99
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	217 *5+	223 *5+	122	83	0 *5-	0 *5-	0 *5-	0 *5-
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	250 *5+	363 *5+	220 *5+	66	69	55	53	55
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	178 *5+	177 *5+	165 *5+	89	26	87	83	75
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	293 *5+	497 *5+	262 *5+	76	88	84	106	118
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	215 *5+	244 *5+	125	84	0 *5-	0 *5-	0 *5-	0 *5-
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	266 *5+	396 *5+	261 *5+	64	74	58	56	61
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	181 *5+	174 *5+	178 *5+	95	36	67	89	87

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

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

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)	PFHxDA (25-150)	dMeFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
LCS 140-64806/2-B	Lab Control Sample	125	120	110	84	6 *5-	71	82	82
LCS 140-64841/2-B	Lab Control Sample	91	95	95	92	99	98	114	115
LCS 140-64880/2-B	Lab Control Sample	100	107	109	99	71	68	68	69
LCSD 140-64806/3-B	Lab Control Sample Dup	142	121	110	100	10 *5-	74	86	90
LCSD 140-64841/3-B	Lab Control Sample Dup	88	91	92	89	95	97	114	104
LCSD 140-64880/3-B	Lab Control Sample Dup	99	93	102	96	79	80	74	79
MB 140-64806/1-B	Method Blank	125	117	104	88	18 *5-	52	74	79
MB 140-64841/1-B	Method Blank	90	97	99	70	101	98	109	110
MB 140-64880/1-B	Method Blank	106	106	104	96	75	63	62	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	dEtFOSA (25-150)	M102FTS (25-150)	MFDEA (25-150)	MFHEA (25-150)	MFHUEA (25-150)	MFOEA (25-150)	MFOUEA (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	81	188 *5+	77	39	92	93	179 *5+
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	0 *5-	21 *5-	14 *5-	55	130	28	86
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	65	83	61	82	119	117	157 *5+
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	98	131	81	78	181 *5+	82	199 *5+
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	80	137	63	40	84	78	162 *5+
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	0 *5-	39	14 *5-	55	115	33	97
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	58	73	69	79	116	97	154 *5+
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	82	145	71	73	179 *5+	71	194 *5+
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	95	140	77	41	87	85	153 *5+
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	0 *5-	49	15 *5-	56	134	41	117
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	64	83	84	82	111	129	152 *5+
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	61	148	73	69	185 *5+	86	202 *5+
LCS 140-64806/2-B	Lab Control Sample	68	96	66	66	144	63	145
LCS 140-64841/2-B	Lab Control Sample	101	108	98	82	123	75	133
LCS 140-64880/2-B	Lab Control Sample	73	84	75	87	118	96	123
LCSD 140-64806/3-B	Lab Control Sample Dup	66	111	80	79	162 *5+	73	152 *5+
LCSD 140-64841/3-B	Lab Control Sample Dup	98	111	92	81	121	72	142
LCSD 140-64880/3-B	Lab Control Sample Dup	92	94	93	77	109	97	114
MB 140-64806/1-B	Method Blank	50	99	76	71	141	67	136
MB 140-64841/1-B	Method Blank	97	103	94	82	125	82	146
MB 140-64880/1-B	Method Blank	67	83	87	88	114	88	115

Surrogate Legend

PFOSA = 13C8 FOSA

PFBA = 13C4 PFBA

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28649-1
Project/Site: St.Gobain CPT - Inlet OTM-45

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
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
PFHxDA = 13C2 PFHxDA
dMeFOSA = d-N-MeFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
dEtFOSA = d-N-EtFOSA-M
M102FTS = 13C2 10:2 FTS
MFDEA = 13C-10:2 FTCA
MFHEA = 13C-6:2 FTCA
MFHUEA = 13C-6:2 FTUCA
MFOEA = 13C-8:2 FTCA
MFOUEA = 13C-8:2 FTUCA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFDoA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFUnA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 PFBS	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxDA	*18*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFHpA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFPeA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C8 FOSA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d3-NMeFOSAA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d7-N-MeFOSE-M	*74*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d9-N-EtFOSE-M	*79*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d-N-EtFOSA-M	*50*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d-N-MeFOSA-M	*52*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
M2-6:2 FTS	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C-10:2 FTCA	*76*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	71		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C2 10:2 FTS	99		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-6:2 FTUCA	141		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTUCA	136		25 - 150	08/30/22 12:05	09/14/22 01:01	1

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	20.86		ng/Sample		104	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	19.86		ng/Sample		99	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.29		ng/Sample		101	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	20.12		ng/Sample		101	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	18.77		ng/Sample		94	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	19.09		ng/Sample		95	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	16.31		ng/Sample		82	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	19.40		ng/Sample		97	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	15.99		ng/Sample		90	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.93		ng/Sample		99	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.89		ng/Sample		104	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	18.04		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	16.74		ng/Sample		87	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	20.60		ng/Sample		103	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	17.68		ng/Sample		94	60 - 140
Perfluorononanesulfonic acid (PFNS)	19.2	19.48		ng/Sample		101	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.20		ng/Sample		106	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.62		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	20.38		ng/Sample		109	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	17.67		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	19.04		ng/Sample		99	60 - 140

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	23.22		ng/Sample		116	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	19.32		ng/Sample		104	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	16.27		ng/Sample		86	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	20.82		ng/Sample		111	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	20.77		ng/Sample		108	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	19.28		ng/Sample		96	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	ND	*- R	ng/Sample		0.7	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	22.56		ng/Sample		113	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	21.41		ng/Sample		107	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.33		ng/Sample		102	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.15	R	ng/Sample		96	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	8.815	*-	ng/Sample		46	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	19.65		ng/Sample		98	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	16.80		ng/Sample		84	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	18.79		ng/Sample		94	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	27.51		ng/Sample		138	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.54		ng/Sample		88	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.65		ng/Sample		118	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	16.06		ng/Sample		80	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	26.86		ng/Sample		134	60 - 140
3-Perfluoropropylpropanoic acid	20.0	19.12		ng/Sample		96	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	19.78		ng/Sample		99	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.84		ng/Sample		99	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	18.4	16.97		ng/Sample		92	60 - 140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	17.8	16.35		ng/Sample		92	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*90*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*61*		*25 - 150*
13C2 PFUnA	*99*		*25 - 150*

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*84*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
13C4 PFBA	*96*		*25 - 150*
13C2 PFHxDA	*6*	**5-*	*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*95*		*25 - 150*
13C4 PFOS	*90*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*91*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
d3-NMeFOSAA	*102*		*25 - 150*
d5-NEtFOSAA	*98*		*25 - 150*
d7-N-MeFOSE-M	*82*		*25 - 150*
d9-N-EtFOSE-M	*82*		*25 - 150*
d-N-EtFOSA-M	*68*		*25 - 150*
d-N-MeFOSA-M	*71*		*25 - 150*
M2-4:2 FTS	*125*		*25 - 150*
M2-6:2 FTS	*120*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*66*		*25 - 150*
13C-6:2 FTCA	*66*		*25 - 150*
13C2 10:2 FTS	*96*		*25 - 150*
13C-6:2 FTUCA	*144*		*25 - 150*
13C-8:2 FTCA	*63*		*25 - 150*
13C-8:2 FTUCA	*145*		*25 - 150*

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	21.94		ng/Sample		110	60 - 140	5	30
Perfluoropentanoic acid (PFPeA)			20.0	20.58		ng/Sample		103	60 - 140	4	30
Perfluorohexanoic acid (PFHxA)			20.0	23.71		ng/Sample		119	60 - 140	16	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.06		ng/Sample		105	60 - 140	5	30
Perfluorooctanoic acid (PFOA)			20.0	23.52		ng/Sample		118	60 - 140	11	30
Perfluorononanoic acid (PFNA)			20.0	21.46		ng/Sample		107	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			20.0	20.28		ng/Sample		101	60 - 140	4	30
Perfluoroundecanoic acid (PFUnA)			20.0	19.76		ng/Sample		99	60 - 140	5	30
Perfluorododecanoic acid (PFDoA)			20.0	21.10		ng/Sample		106	60 - 140	10	30
Perfluorotridecanoic acid (PFTriA)			20.0	18.31		ng/Sample		92	60 - 140	12	30
Perfluorotetradecanoic acid (PFTeA)			20.0	21.51		ng/Sample		108	60 - 140	10	30
Perfluorobutanesulfonic acid (PFBS)			17.7	17.23		ng/Sample		97	60 - 140	7	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			18.2	18.78		ng/Sample		103	60 - 140	5	30
Perfluoroheptanesulfonic acid (PFHpS)			19.0	20.73		ng/Sample		109	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)			18.6	19.78		ng/Sample		107	60 - 140	9	30
Perfluorodecanesulfonic acid (PFDS)			19.3	16.80		ng/Sample		87	60 - 140	0	30
Perfluorooctanesulfonamide (FOSA)			20.0	21.27		ng/Sample		106	60 - 140	3	30
Perfluoropentanesulfonic acid (PFPeS)			18.8	18.66		ng/Sample		99	60 - 140	5	30
Perfluorononanesulfonic acid (PFNS)			19.2	19.86		ng/Sample		103	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			20.0	22.11		ng/Sample		111	60 - 140	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			20.0	21.03		ng/Sample		105	60 - 140	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			18.7	21.14		ng/Sample		113	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			19.0	19.78		ng/Sample		104	60 - 140	11	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			19.2	21.52		ng/Sample		112	60 - 140	12	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			20.0	22.35		ng/Sample		112	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			18.6	19.79		ng/Sample		106	60 - 140	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			18.8	16.06		ng/Sample		85	60 - 140	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			18.8	22.30		ng/Sample		118	60 - 140	7	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			19.3	19.95		ng/Sample		103	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			20.0	19.75		ng/Sample		99	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)			20.0	0.7203	J *- *1	ng/Sample		4	60 - 140	137	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			20.0	24.80		ng/Sample		124	60 - 140	9	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			20.0	21.72		ng/Sample		109	60 - 140	1	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	22.57		ng/Sample		113	60 - 140	10	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	21.24		ng/Sample		106	60 - 140	10	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	8.141	*-	ng/Sample		42	60 - 140	8	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	22.43		ng/Sample		112	60 - 140	13	30
10:2 Fluorotelomer carboxylic acid			20.0	15.45		ng/Sample		77	60 - 140	8	30
6:2 Fluorotelomer carboxylic acid			20.0	18.62		ng/Sample		93	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
7:3 Fluorotelomer carboxylic acid			20.0	27.75		ng/Sample		139	60 - 140	1	30
6:2 Fluorotelemer unsaturated acid			20.0	18.51		ng/Sample		93	60 - 140	5	30
8:2 Fluorotelomer carboxylic acid			20.0	22.25		ng/Sample		111	60 - 140	6	30
8:2 Fluorotelemer unsaturated acid			20.0	18.27		ng/Sample		91	60 - 140	13	30
5:3 Fluorotelomer carboxylic acid			20.0	28.93	*+	ng/Sample		145	60 - 140	7	30
3-Perfluoropropylpropanoic acid			20.0	20.94		ng/Sample		105	60 - 140	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	19.94		ng/Sample		100	60 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.88		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	17.64		ng/Sample		96	60 - 140	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.11		ng/Sample		102	60 - 140	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*111*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C2 PFTeDA	*59*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C3 HFPO-DA	*100*		*25 - 150*
13C3 PFBS	*109*		*25 - 150*
13C4 PFBA	*105*		*25 - 150*
13C2 PFHxDA	*10*	*5-	*25 - 150*
13C4 PFHpA	*116*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*
13C4 PFOS	*98*		*25 - 150*
13C5 PFNA	*106*		*25 - 150*
13C5 PFPeA	*111*		*25 - 150*
13C8 FOSA	*103*		*25 - 150*
18O2 PFHxS	*111*		*25 - 150*
d3-NMeFOSAA	*108*		*25 - 150*
d5-NEtFOSAA	*110*		*25 - 150*
d7-N-MeFOSE-M	*86*		*25 - 150*
d9-N-EtFOSE-M	*90*		*25 - 150*
d-N-EtFOSA-M	*66*		*25 - 150*
d-N-MeFOSA-M	*74*		*25 - 150*
M2-4:2 FTS	*142*		*25 - 150*
M2-6:2 FTS	*121*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*80*		*25 - 150*
13C-6:2 FTCA	*79*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*162*	*5+	*25 - 150*
13C-8:2 FTCA	*73*		*25 - 150*
13C-8:2 FTUCA	*152*	*5+	*25 - 150*

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFDoA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFTeDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFUnA	*108*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 HFPO-DA	*70*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 PFBS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFHpA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOS	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFPeA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C8 FOSA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
18O2 PFHxS	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d3-NMeFOSAA	*113*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d5-NEtFOSAA	*122*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d7-N-MeFOSE-M	*109*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d9-N-EtFOSE-M	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d-N-EtFOSA-M	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d-N-MeFOSA-M	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
M2-4:2 FTS	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
M2-8:2 FTS	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C-10:2 FTCA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C2 10:2 FTS	103		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-6:2 FTUCA	125		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTUCA	146		25 - 150	08/31/22 10:35	09/07/22 13:59	1

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	19.27		ng/Sample		96	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	20.89		ng/Sample		104	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.71		ng/Sample		104	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	22.01		ng/Sample		110	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	23.07		ng/Sample		115	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.08		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	20.14		ng/Sample		101	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	21.23		ng/Sample		106	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	22.19		ng/Sample		111	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	21.09		ng/Sample		105	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	18.17		ng/Sample		103	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.74		ng/Sample		97	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.55		ng/Sample		103	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	17.90		ng/Sample		96	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	18.66		ng/Sample		97	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	22.68		ng/Sample		113	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	19.21		ng/Sample		102	60 - 140
Perfluorononanesulfonic acid (PFNS)	19.2	20.89		ng/Sample		109	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.75		ng/Sample		109	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.52		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	19.99		ng/Sample		107	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	19.09		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	18.70		ng/Sample		98	60 - 140

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	20.93		ng/Sample		105	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	20.06		ng/Sample		108	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	19.09		ng/Sample		101	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	19.11		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	21.12		ng/Sample		110	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	18.97		ng/Sample		95	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	23.44		ng/Sample		117	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	20.10		ng/Sample		101	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	19.97		ng/Sample		100	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.04		ng/Sample		100	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.36		ng/Sample		97	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	19.56		ng/Sample		101	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	22.32		ng/Sample		112	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	20.81		ng/Sample		104	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	21.08		ng/Sample		105	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	26.90		ng/Sample		135	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.79		ng/Sample		89	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.81		ng/Sample		119	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	19.64		ng/Sample		98	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	25.36		ng/Sample		127	60 - 140
3-Perfluoropropylpropanoic acid	20.0	22.70		ng/Sample		114	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	20.08		ng/Sample		100	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.76		ng/Sample		99	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	18.4	19.58		ng/Sample		106	60 - 140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	17.8	18.20		ng/Sample		102	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*101*		*25 - 150*
13C2 PFDoA	*101*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*103*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	92		25 - 150
13C3 PFBS	93		25 - 150
13C4 PFBA	100		25 - 150
13C2 PFHxDA	99		25 - 150
13C4 PFHpA	92		25 - 150
13C4 PFOA	97		25 - 150
13C4 PFOS	96		25 - 150
13C5 PFNA	93		25 - 150
13C5 PFPeA	94		25 - 150
13C8 FOSA	99		25 - 150
18O2 PFHxS	100		25 - 150
d3-NMeFOSAA	110		25 - 150
d5-NEtFOSAA	111		25 - 150
d7-N-MeFOSE-M	114		25 - 150
d9-N-EtFOSE-M	115		25 - 150
d-N-EtFOSA-M	101		25 - 150
d-N-MeFOSA-M	98		25 - 150
M2-4:2 FTS	91		25 - 150
M2-6:2 FTS	95		25 - 150
M2-8:2 FTS	95		25 - 150
13C-10:2 FTCA	98		25 - 150
13C-6:2 FTCA	82		25 - 150
13C2 10:2 FTS	108		25 - 150
13C-6:2 FTUCA	123		25 - 150
13C-8:2 FTCA	75		25 - 150
13C-8:2 FTUCA	133		25 - 150

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	18.89		ng/Sample		94	60 - 140	2	30
Perfluoropentanoic acid (PFPeA)			20.0	19.56		ng/Sample		98	60 - 140	7	30
Perfluorohexanoic acid (PFHxA)			20.0	21.91		ng/Sample		110	60 - 140	6	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.44		ng/Sample		107	60 - 140	3	30
Perfluorooctanoic acid (PFOA)			20.0	20.81		ng/Sample		104	60 - 140	10	30
Perfluorononanoic acid (PFNA)			20.0	21.47		ng/Sample		107	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			20.0	21.93		ng/Sample		110	60 - 140	4	30
Perfluoroundecanoic acid (PFUnA)			20.0	18.12		ng/Sample		91	60 - 140	11	30
Perfluorododecanoic acid (PFDoA)			20.0	20.76		ng/Sample		104	60 - 140	2	30
Perfluorotridecanoic acid (PFTriA)			20.0	21.21		ng/Sample		106	60 - 140	5	30
Perfluorotetradecanoic acid (PFTeA)			20.0	20.48		ng/Sample		102	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)			17.7	17.96		ng/Sample		102	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			18.2	18.14		ng/Sample		100	60 - 140	2	30
Perfluoroheptanesulfonic acid (PFHpS)			19.0	18.58		ng/Sample		98	60 - 140	5	30
Perfluorooctanesulfonic acid (PFOS)			18.6	19.27		ng/Sample		104	60 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)			19.3	19.80		ng/Sample		103	60 - 140	6	30
Perfluorooctanesulfonamide (FOSA)			20.0	20.24		ng/Sample		101	60 - 140	11	30
Perfluoropentanesulfonic acid (PFPeS)			18.8	18.86		ng/Sample		101	60 - 140	2	30
Perfluorononanesulfonic acid (PFNS)			19.2	20.24		ng/Sample		105	60 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			20.0	19.95		ng/Sample		100	60 - 140	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			20.0	18.32		ng/Sample		92	60 - 140	11	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			18.7	19.01		ng/Sample		102	60 - 140	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			19.0	19.29		ng/Sample		102	60 - 140	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			19.2	19.97		ng/Sample		104	60 - 140	7	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			20.0	20.05		ng/Sample		100	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			18.6	19.50		ng/Sample		105	60 - 140	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			18.8	20.27		ng/Sample		108	60 - 140	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			18.8	19.03		ng/Sample		101	60 - 140	0	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			19.3	20.25		ng/Sample		105	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			20.0	18.66		ng/Sample		93	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)			20.0	23.25		ng/Sample		116	60 - 140	1	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			20.0	17.79		ng/Sample		89	60 - 140	12	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			20.0	18.88		ng/Sample		94	60 - 140	6	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	19.90		ng/Sample		99	60 - 140	1	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	19.63		ng/Sample		98	60 - 140	1	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	19.46		ng/Sample		100	60 - 140	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	21.81		ng/Sample		109	60 - 140	2	30
10:2 Fluorotelomer carboxylic acid			20.0	17.57		ng/Sample		88	60 - 140	17	30
6:2 Fluorotelomer carboxylic acid			20.0	18.72		ng/Sample		94	60 - 140	12	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
7:3 Fluorotelomer carboxylic acid			20.0	27.31		ng/Sample		137	60 - 140	2	30
6:2 Fluorotelemer unsaturated acid			20.0	17.90		ng/Sample		90	60 - 140	1	30
8:2 Fluorotelomer carboxylic acid			20.0	23.34		ng/Sample		117	60 - 140	2	30
8:2 Fluorotelemer unsaturated acid			20.0	17.13		ng/Sample		86	60 - 140	14	30
5:3 Fluorotelomer carboxylic acid			20.0	24.42		ng/Sample		122	60 - 140	4	30
3-Perfluoropropylpropanoic acid			20.0	21.47		ng/Sample		107	60 - 140	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	18.95		ng/Sample		95	60 - 140	6	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.84		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	18.69		ng/Sample		101	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.49		ng/Sample		104	60 - 140	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*99*		*25 - 150*
13C2 PFDoA	*98*		*25 - 150*
13C2 PFHxA	*84*		*25 - 150*
13C2 PFTeDA	*99*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C3 HFPO-DA	*89*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
13C4 PFBA	*95*		*25 - 150*
13C2 PFHxDA	*95*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*92*		*25 - 150*
13C5 PFNA	*93*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*101*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*115*		*25 - 150*
d5-NEtFOSAA	*116*		*25 - 150*
d7-N-MeFOSE-M	*114*		*25 - 150*
d9-N-EtFOSE-M	*104*		*25 - 150*
d-N-EtFOSA-M	*98*		*25 - 150*
d-N-MeFOSA-M	*97*		*25 - 150*
M2-4:2 FTS	*88*		*25 - 150*
M2-6:2 FTS	*91*		*25 - 150*
M2-8:2 FTS	*92*		*25 - 150*
13C-10:2 FTCA	*92*		*25 - 150*
13C-6:2 FTCA	*81*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*121*		*25 - 150*
13C-8:2 FTCA	*72*		*25 - 150*
13C-8:2 FTUCA	*142*		*25 - 150*

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.3631	J	0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanoic acid (PFPeA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanoic acid (PFHxA)	ND		0.500	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.500	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanoic acid (PFOA)	ND		0.500	0.0950	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanoic acid (PFNA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanoic acid (PFDA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.500	0.113	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.500	0.0450	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.500	0.115	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.500	0.0825	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonamide (FOSA)	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.500	0.0600	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanesulfonic acid (PFNS)	ND		0.500	0.0375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.500	0.138	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.500	0.130	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.4171	J	0.500	0.235	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.500	0.0700	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.500	0.140	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.500	0.108	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.185	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.500	0.0850	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.500	0.135	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.500	0.143	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
10:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
7:3 Fluorotelomer carboxylic acid	ND		0.500	0.375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelemer unsaturated acid	ND		0.500	0.0900	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelomer carboxylic acid	ND		0.500	0.325	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelemer unsaturated acid	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
5:3 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
3-Perfluoropropylpropanoic acid	ND		0.500	0.220	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.500	0.198	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.500	0.160	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFDoA	*80*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFUnA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 PFBS	*94*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFBA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFHpA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFOA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFOS	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C5 PFNA	*103*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C5 PFPeA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C8 FOSA	*71*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
18O2 PFHxS	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d3-NMeFOSAA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d7-N-MeFOSE-M	*62*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d9-N-EtFOSE-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d-N-EtFOSA-M	*67*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d-N-MeFOSA-M	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
M2-4:2 FTS	*106*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
M2-6:2 FTS	*106*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C-10:2 FTCA	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C2 10:2 FTS	83		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-6:2 FTUCA	114		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTUCA	115		25 - 150	09/01/22 08:23	09/13/22 21:03	1

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.461		ng/Sample		95	60 - 140
Perfluoropentanoic acid (PFPeA)	10.0	9.656		ng/Sample		97	60 - 140
Perfluorohexanoic acid (PFHxA)	10.0	9.497		ng/Sample		95	60 - 140
Perfluoroheptanoic acid (PFHpA)	10.0	9.450		ng/Sample		94	60 - 140
Perfluorooctanoic acid (PFOA)	10.0	9.843		ng/Sample		98	60 - 140
Perfluorononanoic acid (PFNA)	10.0	9.685		ng/Sample		97	60 - 140
Perfluorodecanoic acid (PFDA)	10.0	10.36		ng/Sample		104	60 - 140
Perfluoroundecanoic acid (PFUnA)	10.0	8.999		ng/Sample		90	60 - 140
Perfluorododecanoic acid (PFDoA)	10.0	9.680		ng/Sample		97	60 - 140
Perfluorotridecanoic acid (PFTriA)	10.0	8.040		ng/Sample		80	60 - 140
Perfluorotetradecanoic acid (PFTeA)	10.0	10.09		ng/Sample		101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	8.84	8.245		ng/Sample		93	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	9.10	8.738		ng/Sample		96	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	9.52	9.397		ng/Sample		99	60 - 140
Perfluorooctanesulfonic acid (PFOS)	9.28	8.955		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	9.64	7.528		ng/Sample		78	60 - 140
Perfluorooctanesulfonamide (FOSA)	10.0	10.21		ng/Sample		102	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	9.38	8.484		ng/Sample		90	60 - 140
Perfluorononanesulfonic acid (PFNS)	9.60	9.442		ng/Sample		98	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	10.23		ng/Sample		102	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	9.848		ng/Sample		98	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.34	8.707		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.48	9.525		ng/Sample		100	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.58	9.342		ng/Sample		98	60 - 140

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10.0	9.737		ng/Sample		97	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9.32	9.404		ng/Sample		101	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	9.42	6.707		ng/Sample		71	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.42	9.279		ng/Sample		99	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.64	9.016		ng/Sample		94	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	10.0	9.716		ng/Sample		97	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	10.0	10.83		ng/Sample		108	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	10.0	10.39		ng/Sample		104	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	10.60		ng/Sample		106	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	10.12		ng/Sample		101	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	9.847		ng/Sample		98	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	9.68	6.021		ng/Sample		62	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	10.38		ng/Sample		104	60 - 140
10:2 Fluorotelomer carboxylic acid	10.0	7.838		ng/Sample		78	60 - 140
6:2 Fluorotelomer carboxylic acid	10.0	10.11		ng/Sample		101	60 - 140
7:3 Fluorotelomer carboxylic acid	10.0	9.628		ng/Sample		96	60 - 140
6:2 Fluorotelemer unsaturated acid	10.0	8.206		ng/Sample		82	60 - 140
8:2 Fluorotelomer carboxylic acid	10.0	9.672		ng/Sample		97	60 - 140
8:2 Fluorotelemer unsaturated acid	10.0	8.692	I	ng/Sample		87	60 - 140
5:3 Fluorotelomer carboxylic acid	10.0	10.78		ng/Sample		108	60 - 140
3-Perfluoropropylpropanoic acid	10.0	10.05		ng/Sample		101	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	9.429		ng/Sample		94	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	9.992		ng/Sample		100	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	9.22	8.175		ng/Sample		89	60 - 140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.90	8.383		ng/Sample		94	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*104*		*25 - 150*
13C2 PFDoA	*84*		*25 - 150*
13C2 PFHxA	*101*		*25 - 150*
13C2 PFTeDA	*67*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	99		25 - 150
13C3 PFBS	102		25 - 150
13C4 PFBA	106		25 - 150
13C2 PFHxDA	71		25 - 150
13C4 PFHpA	109		25 - 150
13C4 PFOA	106		25 - 150
13C4 PFOS	99		25 - 150
13C5 PFNA	107		25 - 150
13C5 PFPeA	104		25 - 150
13C8 FOSA	79		25 - 150
18O2 PFHxS	105		25 - 150
d3-NMeFOSAA	98		25 - 150
d5-NEtFOSAA	89		25 - 150
d7-N-MeFOSE-M	68		25 - 150
d9-N-EtFOSE-M	69		25 - 150
d-N-EtFOSA-M	73		25 - 150
d-N-MeFOSA-M	68		25 - 150
M2-4:2 FTS	100		25 - 150
M2-6:2 FTS	107		25 - 150
M2-8:2 FTS	109		25 - 150
13C-10:2 FTCA	75		25 - 150
13C-6:2 FTCA	87		25 - 150
13C2 10:2 FTS	84		25 - 150
13C-6:2 FTUCA	118		25 - 150
13C-8:2 FTCA	96		25 - 150
13C-8:2 FTUCA	123		25 - 150

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.49		ng/Sample		105	60 - 140	10	30
Perfluoropentanoic acid (PFPeA)			10.0	9.881		ng/Sample		99	60 - 140	2	30
Perfluorohexanoic acid (PFHxA)			10.0	9.386		ng/Sample		94	60 - 140	1	30
Perfluoroheptanoic acid (PFHpA)			10.0	10.16		ng/Sample		102	60 - 140	7	30
Perfluorooctanoic acid (PFOA)			10.0	10.47		ng/Sample		105	60 - 140	6	30
Perfluorononanoic acid (PFNA)			10.0	9.474		ng/Sample		95	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			10.0	10.39		ng/Sample		104	60 - 140	0	30
Perfluoroundecanoic acid (PFUnA)			10.0	8.841		ng/Sample		88	60 - 140	2	30
Perfluorododecanoic acid (PFDoA)			10.0	9.695		ng/Sample		97	60 - 140	0	30
Perfluorotridecanoic acid (PFTriA)			10.0	8.789		ng/Sample		88	60 - 140	9	30
Perfluorotetradecanoic acid (PFTeA)			10.0	9.487		ng/Sample		95	60 - 140	6	30
Perfluorobutanesulfonic acid (PFBS)			8.84	8.210		ng/Sample		93	60 - 140	0	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			9.10	8.677		ng/Sample		95	60 - 140	1	30
Perfluoroheptanesulfonic acid (PFHpS)			9.52	8.993		ng/Sample		94	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)			9.28	8.865		ng/Sample		96	60 - 140	1	30
Perfluorodecanesulfonic acid (PFDS)			9.64	9.073		ng/Sample		94	60 - 140	19	30
Perfluorooctanesulfonamide (FOSA)			10.0	10.11		ng/Sample		101	60 - 140	1	30
Perfluoropentanesulfonic acid (PFPeS)			9.38	8.585		ng/Sample		92	60 - 140	1	30
Perfluorononanesulfonic acid (PFNS)			9.60	9.654		ng/Sample		101	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			10.0	9.934		ng/Sample		99	60 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			10.0	9.749		ng/Sample		97	60 - 140	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			9.34	9.090		ng/Sample		97	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			9.48	9.764		ng/Sample		103	60 - 140	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			9.58	9.368		ng/Sample		98	60 - 140	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			10.0	11.27		ng/Sample		113	60 - 140	15	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			9.32	9.301		ng/Sample		100	60 - 140	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			9.42	8.187		ng/Sample		87	60 - 140	20	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			9.42	9.439		ng/Sample		100	60 - 140	2	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			9.64	9.515		ng/Sample		99	60 - 140	5	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			10.0	9.276		ng/Sample		93	60 - 140	5	30
Perfluoro-n-octadecanoic acid (PFODA)			10.0	9.809		ng/Sample		98	60 - 140	10	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			10.0	10.32		ng/Sample		103	60 - 140	1	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			10.0	10.63		ng/Sample		106	60 - 140	0	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			10.0	9.371		ng/Sample		94	60 - 140	8	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			10.0	9.872		ng/Sample		99	60 - 140	0	30
Perfluorododecanesulfonic acid (PFDoS)			9.68	7.833		ng/Sample		81	60 - 140	26	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			10.0	8.655		ng/Sample		87	60 - 140	18	30
10:2 Fluorotelomer carboxylic acid			10.0	7.621		ng/Sample		76	60 - 140	3	30
6:2 Fluorotelomer carboxylic acid			10.0	9.988		ng/Sample		100	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
7:3 Fluorotelomer carboxylic acid			10.0	9.154		ng/Sample		92	60 - 140	5	30
6:2 Fluorotelemer unsaturated acid			10.0	9.502		ng/Sample		95	60 - 140	15	30
8:2 Fluorotelomer carboxylic acid			10.0	9.780		ng/Sample		98	60 - 140	1	30
8:2 Fluorotelemer unsaturated acid			10.0	8.757		ng/Sample		88	60 - 140	1	30
5:3 Fluorotelomer carboxylic acid			10.0	12.16		ng/Sample		122	60 - 140	12	30
3-Perfluoropropylpropanoic acid			10.0	10.05		ng/Sample		101	60 - 140	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			10.0	9.656		ng/Sample		97	60 - 140	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			10.0	9.530		ng/Sample		95	60 - 140	5	30
Perfluoro-4-ethylcyclohexanesulfonic acid			9.22	8.613		ng/Sample		93	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			8.90	8.052		ng/Sample		90	60 - 140	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C2 PFUnA	*110*		*25 - 150*
13C3 HFPO-DA	*96*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
13C4 PFBA	*102*		*25 - 150*
13C2 PFHxDA	*79*		*25 - 150*
13C4 PFHpA	*97*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*81*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*93*		*25 - 150*
d7-N-MeFOSE-M	*74*		*25 - 150*
d9-N-EtFOSE-M	*79*		*25 - 150*
d-N-EtFOSA-M	*92*		*25 - 150*
d-N-MeFOSA-M	*80*		*25 - 150*
M2-4:2 FTS	*99*		*25 - 150*
M2-6:2 FTS	*93*		*25 - 150*
M2-8:2 FTS	*102*		*25 - 150*
13C-10:2 FTCA	*93*		*25 - 150*
13C-6:2 FTCA	*77*		*25 - 150*
13C2 10:2 FTS	*94*		*25 - 150*
13C-6:2 FTUCA	*109*		*25 - 150*
13C-8:2 FTCA	*97*		*25 - 150*
13C-8:2 FTUCA	*114*		*25 - 150*

QC Association Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

LCMS

Prep Batch: 64806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 B	Total/NA	Air	None	
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUG	Total/NA	Air	None	
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 B	Total/NA	Air	None	
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUG	Total/NA	Air	None	
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 B	Total/NA	Air	None	
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUG	Total/NA	Air	None	
MB 140-64806/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Total/NA	Air	None	
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Total/NA	Air	None	
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Total/NA	Air	None	
MB 140-64841/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2	Total/NA	Air	None	
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2	Total/NA	Air	None	
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2	Total/NA	Air	None	
MB 140-64880/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 64889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Total/NA	Air	Split	64841
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Total/NA	Air	Split	64841
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Total/NA	Air	Split	64841
MB 140-64841/1-B	Method Blank	Total/NA	Air	Split	64841
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	Split	64841
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64841

Cleanup Batch: 64951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 B	Total/NA	Air	Split	64806
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUG	Total/NA	Air	Split	64806
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 B	Total/NA	Air	Split	64806
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUG	Total/NA	Air	Split	64806
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 B	Total/NA	Air	Split	64806
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUG	Total/NA	Air	Split	64806
MB 140-64806/1-B	Method Blank	Total/NA	Air	Split	64806
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	Split	64806
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64806

LCMS

Analysis Batch: 65050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Total/NA	Air	537 (modified)	64889
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Total/NA	Air	537 (modified)	64889
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Total/NA	Air	537 (modified)	64889
MB 140-64841/1-B	Method Blank	Total/NA	Air	537 (modified)	64889
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64889
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64889

Cleanup Batch: 65113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2	Total/NA	Air	Split	64880
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2	Total/NA	Air	Split	64880
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2	Total/NA	Air	Split	64880
MB 140-64880/1-B	Method Blank	Total/NA	Air	Split	64880
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	Split	64880
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64880

Analysis Batch: 65245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2	Total/NA	Air	537 (modified)	65113
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUG	Total/NA	Air	537 (modified)	64951
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2	Total/NA	Air	537 (modified)	65113
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUG	Total/NA	Air	537 (modified)	64951
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2	Total/NA	Air	537 (modified)	65113
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUG	Total/NA	Air	537 (modified)	64951
MB 140-64806/1-B	Method Blank	Total/NA	Air	537 (modified)	64951
MB 140-64880/1-B	Method Blank	Total/NA	Air	537 (modified)	65113
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64951
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	65113
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64951
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	65113

Analysis Batch: 65265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 B	Total/NA	Air	537 (modified)	64951
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 B	Total/NA	Air	537 (modified)	64951
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 B	Total/NA	Air	537 (modified)	64951

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH
Lab Sample ID: 140-28649-5
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	86 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			43 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:26	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH
Lab Sample ID: 140-28649-6
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	65265	09/14/22 13:10	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28649-7
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.80645 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:29	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-8
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:36	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28649-9

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	71 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			36 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:35	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	65265	09/14/22 13:19	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.84746 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:38	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-12

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 02:11	CAC	EET KNX
	Instrument ID: LCA									

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28649-13

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	130 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			65 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:44	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	65265	09/14/22 13:28	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.73529 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:47	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-16

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 02:29	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64806/1-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:01	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64841/1-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 13:59	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64880/1-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:03	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64806/2-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:09	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64841/2-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:08	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:11	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:18	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:17	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:20	CAC	EET KNX
	Instrument ID: LCA									

Laboratory References:
EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Laboratory: Eurofins Knoxville

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-25
ANAB	Dept. of Energy	L2311.01	02-13-25
ANAB	ISO/IEC 17025	L2311	02-13-25
Arkansas DEQ	State	88-0688	06-16-23
California	State	2423	06-30-22 *
Colorado	State	TN00009	02-28-23
Connecticut	State	PH-0223	09-30-23
Florida	NELAP	E87177	06-30-23
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-22
Kansas	NELAP	E-10349	10-31-22
Kentucky (DW)	State	90101	12-31-22
Louisiana	NELAP	83979	06-30-23
Louisiana (All)	NELAP	83979	09-15-22
Louisiana (DW)	State	LA019	12-31-22
Maryland	State	277	03-31-23
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-23
New Hampshire	NELAP	299919	01-17-23
New Jersey	NELAP	TN001	06-30-23
New York	NELAP	10781	03-31-23
North Carolina (DW)	State	21705	07-31-23
North Carolina (WW/SW)	State	64	12-31-22
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-23
Oregon	NELAP	TNI0189	12-31-22
Pennsylvania	NELAP	68-00576	12-31-22
Tennessee	State	02014	07-27-25
Texas	NELAP	T104704380-22-17	08-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-19-00236	12-31-22
Utah	NELAP	TN00009	07-31-23
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-23
West Virginia (DW)	State	9955C	12-31-22
West Virginia DEP	State	345	04-30-23
Wisconsin	State	998044300	08-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET KNX
None	Leaching Procedure	TAL SOP	EET KNX
None	Leaching Procedure for Condensate	TAL SOP	EET KNX
None	Leaching Procedure for Filter	TAL SOP	EET KNX
Split	Source Air Split	None	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Air	08/24/22 00:00	08/29/22 08:00
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	Air	08/24/22 00:00	08/29/22 08:00
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/24/22 00:00	08/29/22 08:00
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/24/22 00:00	08/29/22 08:00
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/25/22 00:00	08/29/22 08:00
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/25/22 00:00	08/29/22 08:00
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/25/22 00:00	08/29/22 08:00
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/25/22 00:00	08/29/22 08:00

Request for Analysis/Chain-of-Custody – RFA/COC #001
Barr Engineering St. Gobain CPT
EPA Method OTM-45 Train Sampling
PFAS Testing on the Inlet to the Scrubber System

eurofins | Environment Testing TestAmerica

Project Identification:	**St. Gobain CPT**
Client Name:	Barr Engineering
Client Contact:	Tom Kuchinski (763) 548-4954
TestAmerica Project Manager:	Ms. Courtney Adkins Office: (865) 291-3019
TestAmerica Program Manager:	Mr. Billy Anderson Office: (865) 291-3080 Cell: (865) 206-9004

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	28 Days from Lab Receipt

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows: "BT" = Blank Train, "RB" = Reagent Blank, "MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate, "DUP" = Duplicate, "PBT" = Proof Blank Train, "TB" = Trip Blank

Laboratory Destination:	Eurofins TestAmerica 5815 Middlebrook Pike Knoxville, TN 37921
Lab Phone Number:	(865) 291-3000
Courier:	Hand Deliver

Project Deliverables:
Report analytical results on TALS Report form Std_Tal_L4. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	**Holding Time Requirements:**	**Preservation Requirements:**
PFAS Compounds	14 Days to Extraction; 40 Days to Analysis	Cool, 4°C

Field Sample No./Sample Coding ID	**Run No.**	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type**	**Analytical Specifications**
T-3001 INLET CPT R1 OTM-45 Filter (Combine with T-3002)	1	8-24-22	Hold RUN 1	125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3002 INLET CPT R1 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3001)	1	8-24-22	"	125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.

140-28649 Chain of Custody

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3003 INLET CPT R1 OTM-45 XAD-2 Resin Tube	1	8-24-22	Hold Run 1	XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3004 INLET CPT R1 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3003)	1	8-24-22	11	125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3005 INLET CPT R1 OTM-45 Impingers 1,2 & 3 Condensate	1	8-24-22	11	1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3006 INLET CPT R1 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3005)	1	8-24-22	1 L	250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3007 INLET CPT R1 OTM-45 Breakthrough XAD-2 Resin Tube	1	8-24-22	11	XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3008 INLET CPT R2 OTM-45 Filter (Combine with T-3009)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3009 INLET CPT R2 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3008)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3010 INLET CPT R2 OTM-45 XAD-2 Resin Tube	2	8-24-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3011 INLET CPT R2 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3010)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3012 INLET CPT R2 OTM-45 Impingers 1,2 & 3 Condensate	2	8-24-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3013 INLET CPT R2 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3010)	2	8-24-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3014 INLET CPT R2 OTM-45 Breakthrough XAD-2 Resin Tube	2	8-24-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3015 INLET CPT R3 OTM-45 Filter (Combine with T-3016)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3016 INLET CPT R3 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3015)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3017 INLET CPT R3 OTM-45 XAD-2 Resin Tube	3	8-2522		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3018 INLET CPT R3 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3017)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3019 INLET CPT R3 OTM-45 Impingers 1,2 & 3 Condensate	3	8-25-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3020 INLET CPT R3 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3017)	3	8-25-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3021 INLET CPT R3 OTM-45 Breakthrough XAD-2 Resin Tube	3	8-25-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2075 INLET CPT R4 OTM-45 Filter (Combine with T-2076)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-2076 INLET CPT R4 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-2075)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-2077 INLET CPT R4 OTM-45 XAD-2 Resin Tube	4	8-25-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-2078 INLET CPT R4 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-2077)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-2079 INLET CPT R4 OTM-45 Impingers 1,2 & 3 Condensate	4	8-25-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2080 INLET CPT R4 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-2077)	4			250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-2081 INLET CPT R4 OTM-45 Breakthrough XAD-2 Resin Tube	4			XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

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Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NONE
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	RT 1.1, 2.1 / CT 1.2, 2.2
(3) Record any apparent sample loss/breakage.	NONE
(4) Record any unidentified samples transported with this shipment of samples:	NONE
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	HAND DELIVERED, NO CUSTODY SEALS

Custody Transfer:

	Name	Company	Date/Time
Relinquished By:	Tim Russell	BARR	8-25-22
Accepted By:		ETA KNOX	8/25/22
Relinquished By:		ETA KNOX	8/27/22 1915
Accepted By:		ETA KNOX	8/29/22 08:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Loc: 140
28649

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ Containers, Broken
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			✓	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : SC73 Correction factor: +0.1°C	✓			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt
5. Were all of the sample containers received intact?	✓			☐ Containers, Broken
6. Were samples received in appropriate containers?	✓			☐ Containers, Improper; Client Contacted; Proceed/Cancel
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received
8. Were all of the samples listed on the COC received?	✓			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received
9. Is the date/time of sample collection noted?	✓			☐ COC; No Date/Time; Client Contacted
10. Was the sampler identified on the COC?			✓	☐ Sampler Not Listed on COC
11. Is the client and project name/# identified?	✓			☐ COC Incorrect/Incomplete
12. Are tests/parameters listed for each sample?	✓			☐ COC No tests on COC
13. Is the matrix of the samples noted?	✓			☐ COC Incorrect/Incomplete
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ COC Incorrect/Incomplete
15. Were samples received within holding time?	✓			☐ Holding Time - Receipt
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative
17. Were VOA samples received without headspace?			✓	☐ Headspace (VOA only)
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ Residual Chlorine
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 8·29·22

QA026R32.doc, 062719

10/19/2022 (Rev. 2)

OTM-45 Laboratory Results Summary
Test Run 2
RTO Inlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28649-5				140-28649-6				140-28649-7				140-28649-8								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
Perfluorobutanoic acid (PFBA)	0		2.00	1.30	208		100	94.0	41.5	B	0.620	0.248	89.9		10.0	9.40	249.5	36	A	339.4	A ND B z
Perfluoropentanoic acid (PFPeA)	0.533	J	1.00	0.180	402		10.0	4.50	48.3		0.620	0.0806	124		1.00	0.450	450.833	28		574.833	J z
Perfluorohexanoic acid (PFHxA)	0.282	J	1.00	0.210	124		10.0	5.20	23.1		0.620	0.236	21.9		1.00	0.520	147.382	15		169.282	J z
Perfluoroheptanoic acid (PFHpA)	0		1.00	0.620	149		30.0	26.0	4.54		0.620	0.189	18.7		3.00	2.60	153.54	12		172.24	ND
Perfluorooctanoic acid (PFOA)	0		1.00	0.650	142		10.0	6.60	1.39		0.620	0.118	3.00		1.00	0.660	143.39	2		143.39	ND xyz
Perfluorononanoic acid (PFNA)	0.161	J	1.00	0.0850	60.8		10.0	8.90	0.0779	J	0.620	0.0651	1.55		1.00	0.890	61.0389	3		61.0389	J
Perfluorodecanoic acid (PFDA)	0		1.00	0.250	20.8		10.0	2.10	0		0.620	0.0806	0		1.00	0.210	20.8			20.8	ND
Perfluoroundecanoic acid (PFUnA)	0		1.00	0.170	25.6		10.0	2.70	0		0.620	0.0930	0		1.00	0.270	25.6			25.6	ND
Perfluorododecanoic acid (PFDoA)	0.139	J	1.00	0.100	17.4		10.0	1.20	0		0.620	0.0651	0		1.00	0.120	17.539			17.539	ND J
Perfluorotridecanoic acid (PFTriA)	0.195	J	1.00	0.140	6.72	J	10.0	1.70	0		0.620	0.0992	0		1.00	0.170	6.915			6.915	ND J
Perfluorotetradecanoic acid (PFTeA)	0.736	J I	1.00	0.170		R	10.0	2.30	0		0.620	0.140	0		1.00	0.230	0.736			0.736	ND J I R
Perfluorobutanesulfonic acid (PFBS)	0		1.00	0.890	0		10.0	5.20	0		0.620	0.0558	0		1.00	0.520	0			0	ND
Perfluorohexanesulfonic acid (PFHxS)	0		1.00	0.110	0		10.0	2.60	0		0.620	0.0713	0		1.00	0.260	0			0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0		1.00	0.110	0		10.0	2.00	0		0.620	0.143	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonic acid (PFOS)	0.895	J I	1.00	0.450	0		10.0	1.50	0.103	J I	0.620	0.0806	0.178	J	1.00	0.150	0.998	18		1.176	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	0		1.00	0.110	0		10.0	2.00	0		0.620	0.102	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonamide (FOSA)	0		1.00	0.0880		R	10.0	2.30	0		0.620	0.248	0		1.00	0.230	0			0	ND R
Perfluoropentanesulfonic acid (PFPeS)	0		1.00	0.120	0		10.0	2.10	0		0.620	0.0744	0		1.00	0.210	0			0	ND
Perfluorononanesulfonic acid (PFNS)	0		1.00	0.120	0		10.0	1.60	0		0.620	0.0465	0		1.00	0.160	0			0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		1.00	0.120	0		10.0	1.20	0		0.620	0.127	0		1.00	0.120	0			0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		1.00	0.140	0		10.0	1.90	0		0.620	0.0930	0		1.00	0.190	0			0	ND
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		1.00	0.0910	0		10.0	0.640	0		0.620	0.0713	0		1.00	0.0640	0			0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0		5.00	4.00	0		100	87.0	0		0.620	0.171	0		10.0	8.70	0			0	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		1.00	0.140	0		10.0	1.60	0		0.620	0.161	0		1.00	0.160	0			0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		5.00	4.70	0		200	110	35.0	B	0.620	0.291	0		20.0	11.0	35			35	ND B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		1.00	0.0980	0		10.0	1.80	0		0.620	0.0806	0		1.00	0.180	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 2
RTO Inlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28649-5				140-28649-6				140-28649-7				140-28649-8								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		1.00	0.200	0		10.0	1.80	0		0.620	0.0868	0		1.00	0.180	0			0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		1.00	0.140	0		20.0	11.0	0		0.620	0.174	0		2.00	1.10	0			0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		1.00	0.320	0		10.0	1.70	0		0.620	0.133	0		1.00	0.170	0			0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	9.24	CI	1.00	0.120		R	10.0	3.70	0		0.620	0.229	0		1.00	0.370	9.24			9.24	ND CI R
Perfluoro-n-octadecanoic acid (PFODA)	0.397	J	1.00	0.220		*- *1 R	10.0	6.40	0		0.620	0.158	0	*- *1	1.00	0.640	0.397			0.397	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		5.00	4.90		NR	200	198	0		0.620	0.127	0		20.0	19.8	0			0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		1.00	0.150		R	10.0	7.70	0		0.620	0.105	0		1.00	0.770	0			0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0.564	J	1.00	0.160		R	10.0	6.60	0		0.620	0.167	0		1.00	0.660	0.564			0.564	ND J R
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.461	J	1.00	0.290		R	10.0	2.90	0		0.620	0.177	0		1.00	0.290	0.461			0.461	ND J R
Perfluorododecanesulfonic acid (PFDoS)	0		1.00	0.0950	0	*-	10.0	1.80	0		0.620	0.0992	0	*-	1.00	0.180	0			0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		1.00	0.150	0		10.0	1.60	0		0.620	0.180	0		1.00	0.160	0			0	ND
10:2 Fluorotelomer carboxylic acid	0		1.00	0.420	0		10.0	5.20	0		0.620	0.372	0		1.00	0.520	0			0	ND
6:2 Fluorotelomer carboxylic acid	0		1.00	0.430	11.8		10.0	10.0	0		0.620	0.372	0		1.00	1.00	11.8			11.8	ND
7:3 Fluorotelomer carboxylic acid	0		1.00	0.350	0		10.0	5.60	0		0.620	0.465	0		1.00	0.560	0			0	ND
6:2 Fluorotelemer unsaturated acid	0		1.00	0.140	6.87	J	10.0	2.00	0		0.620	0.112	0.204	J	1.00	0.200	6.87	3		6.87	ND J
8:2 Fluorotelomer carboxylic acid	0		1.00	0.350	14.1	I	10.0	3.80	0		0.620	0.403	0		1.00	0.380	14.1			14.1	ND I
8:2 Fluorotelemer unsaturated acid	0		1.00	0.220	0		10.0	2.00	0		0.620	0.248	0		1.00	0.200	0			0	ND
5:3 Fluorotelomer carboxylic acid	0		1.00	0.480	8.29	J I *+	10.0	7.00	0		0.620	0.372	0	*+	1.00	0.700	8.29			8.29	ND J I *+
3-Perfluoropropylpropanoic acid	0		1.00	0.290	106		10.0	3.10	3.66		0.620	0.273	1.01		1.00	0.310	109.66	1		109.66	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		1.00	0.150	19.5	CI	10.0	1.20	1.26		0.620	0.180	0.208	J	1.00	0.120	20.76	1		20.76	ND CI J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		1.00	0.200	0		10.0	1.30	0		0.620	0.245	0		1.00	0.130	0			0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		1.00	0.220	0		10.0	1.40	0		0.620	0.198	0		1.00	0.140	0			0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		1.00	0.140	0		10.0	1.00	0		0.620	0.158	0		1.00	0.100	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 3
RTO Inlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28649-9				140-28649-10				140-28649-11				140-28649-12								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
Perfluorobutanoic acid (PFBA)	0		1.97	1.28	249		100	94.0	45.6	B	0.590	0.236	40.3		10.0	9.40	294.6	14		334.9	ND B z
Perfluoropentanoic acid (PFPeA)	0.540	J	0.986	0.178	644		10.0	4.50	95.0		0.590	0.0767	47.4		1.00	0.450	739.54	6		739.54	J z
Perfluorohexanoic acid (PFHxA)	0.305	J	0.986	0.207	130		10.0	5.20	27.1		0.590	0.224	6.85		1.00	0.520	157.405	4		157.405	J z
Perfluoroheptanoic acid (PFHpA)	0		0.986	0.611	167		30.0	26.0	5.19		0.590	0.180	5.27		3.00	2.60	172.19	3		172.19	ND
Perfluorooctanoic acid (PFOA)	0		0.986	0.641	148		10.0	6.60	0.982		0.590	0.112	0.816	J	1.00	0.660	148.982	1		148.982	ND J xyz
Perfluorononanoic acid (PFNA)	0.275	J	0.986	0.0838	122		10.0	8.90	0.128	J	0.590	0.0619	0		1.00	0.890	122.403			122.403	ND J
Perfluorodecanoic acid (PFDA)	0		0.986	0.247	44.2		10.0	2.10	0		0.590	0.0767	0		1.00	0.210	44.2			44.2	ND
Perfluoroundecanoic acid (PFUnA)	0.253	J	0.986	0.168	228		10.0	2.70	0		0.590	0.0885	0		1.00	0.270	228.253			228.253	ND J
Perfluorododecanoic acid (PFDoA)	0.189	J	0.986	0.0986	38.6		10.0	1.20	0		0.590	0.0619	0		1.00	0.120	38.789			38.789	ND J
Perfluorotridecanoic acid (PFTriA)	0.462	J	0.986	0.138	53.0		10.0	1.70	0		0.590	0.0944	0		1.00	0.170	53.462			53.462	ND J
Perfluorotetradecanoic acid (PFTeA)	1.36	I CI	0.986	0.168		R	10.0	2.30	0		0.590	0.133	0		1.00	0.230	1.36			1.36	ND I CI R
Perfluorobutanesulfonic acid (PFBS)	0		0.986	0.878	0		10.0	5.20	0		0.590	0.0531	0		1.00	0.520	0			0	ND
Perfluorohexanesulfonic acid (PFHxS)	0.133	J	0.986	0.108	0		10.0	2.60	0		0.590	0.0678	0		1.00	0.260	0.133			0.133	ND J
Perfluoroheptanesulfonic acid (PFHpS)	0		0.986	0.108	0		10.0	2.00	0		0.590	0.136	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonic acid (PFOS)	1.02	I	0.986	0.444	2.78	J I	10.0	1.50	0		0.590	0.0767	0.173	J I	1.00	0.150	3.8	5		3.8	ND I J xy
Perfluorodecanesulfonic acid (PFDS)	0		0.986	0.108	0		10.0	2.00	0		0.590	0.0973	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonamide (FOSA)	0		0.986	0.0868		R	10.0	2.30	0		0.590	0.236	0		1.00	0.230	0			0	ND R
Perfluoropentanesulfonic acid (PFPeS)	0		0.986	0.118	0		10.0	2.10	0		0.590	0.0708	0		1.00	0.210	0			0	ND
Perfluorononanesulfonic acid (PFNS)	0		0.986	0.118	0		10.0	1.60	0		0.590	0.0442	0		1.00	0.160	0			0	ND
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0		0.986	0.118	0		10.0	1.20	0		0.590	0.121	0		1.00	0.120	0			0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0		0.986	0.138	0		10.0	1.90	0		0.590	0.0885	0		1.00	0.190	0			0	ND
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0		0.986	0.0897	0		10.0	0.640	0		0.590	0.0678	0		1.00	0.0640	0			0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	7.90		4.93	3.94	0		100	87.0	0		0.590	0.162	0		10.0	8.70	7.9			7.9	ND
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0		0.986	0.138	0		10.0	1.60	0		0.590	0.153	0		1.00	0.160	0			0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0		4.93	4.63	188	J	200	110	116	B	0.590	0.277	0		20.0	11.0	304			304	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	0		0.986	0.0966	0		10.0	1.80	0		0.590	0.0767	0		1.00	0.180	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 3
RTO Inlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28649-9				140-28649-10				140-28649-11				140-28649-12								
Compound	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**Qualifier**	**Reporting Limit**	**MDL**	**Result, ng**	**%**	**Qualifier**	**Total Mass, ng**	**Qualifier**
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	0		0.986	0.197	0		10.0	1.80	0		0.590	0.0826	0		1.00	0.180	0			0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		0.986	0.138	0		20.0	11.0	0		0.590	0.165	0		2.00	1.10	0			0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	0		0.986	0.316	0		10.0	1.70	0		0.590	0.127	0		1.00	0.170	0			0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	0.718	J	0.986	0.118		R	10.0	3.70	0		0.590	0.218	0		1.00	0.370	0.718			0.718	ND J R
Perfluoro-n-octadecanoic acid (PFODA)	0.758	J	0.986	0.217		*- *1 R	10.0	6.40	0		0.590	0.150	0	*- *1	1.00	0.640	0.758			0.758	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	0		4.93	4.83		NR	200	198	0		0.590	0.121	0		20.0	19.8	0			0	ND NR
N-methylperfluorooctane sulfonamide (NMeFOSA)	0		0.986	0.148		R	10.0	7.70	0		0.590	0.100	0		1.00	0.770	0			0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		0.986	0.158		R	10.0	6.60	0		0.590	0.159	0		1.00	0.660	0			0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.631	J	0.986	0.286		R	10.0	2.90	0		0.590	0.168	0		1.00	0.290	0.631			0.631	ND J R
Perfluorododecanesulfonic acid (PFDoS)	0		0.986	0.0937	0	*-	10.0	1.80	0		0.590	0.0944	0	*-	1.00	0.180	0			0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		0.986	0.148	0		10.0	1.60	0		0.590	0.171	0		1.00	0.160	0			0	ND
10:2 Fluorotelomer carboxylic acid	0		0.986	0.414	0		10.0	5.20	0		0.590	0.354	0		1.00	0.520	0			0	ND
6:2 Fluorotelomer carboxylic acid	0		0.986	0.424	0		10.0	10.0	0		0.590	0.354	0		1.00	1.00	0			0	ND
7:3 Fluorotelomer carboxylic acid	0		0.986	0.345	0		10.0	5.60	0		0.590	0.442	0		1.00	0.560	0			0	ND
6:2 Fluorotelemer unsaturated acid	0		0.986	0.138	3.94	J	10.0	2.00	0		0.590	0.106	0		1.00	0.200	3.94			3.94	ND J
8:2 Fluorotelomer carboxylic acid	0		0.986	0.345	0		10.0	3.80	0		0.590	0.383	0		1.00	0.380	0			0	ND
8:2 Fluorotelemer unsaturated acid	0		0.986	0.217	0		10.0	2.00	0		0.590	0.236	0		1.00	0.200	0			0	ND
5:3 Fluorotelomer carboxylic acid	0		0.986	0.473	0	*+	10.0	7.00	0		0.590	0.354	0	*+	1.00	0.700	0			0	ND *+
3-Perfluoropropylpropanoic acid	0		0.986	0.286	64.6		10.0	3.10	0.973		0.590	0.260	0		1.00	0.310	65.573			65.573	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		0.986	0.148	5.12	J	10.0	1.20	2.31		0.590	0.171	0		1.00	0.120	7.43			7.43	ND J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		0.986	0.197	0		10.0	1.30	0		0.590	0.233	0		1.00	0.130	0			0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		0.986	0.217	0		10.0	1.40	0		0.590	0.189	0		1.00	0.140	0			0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0		0.986	0.138	0		10.0	1.00	0		0.590	0.150	0		1.00	0.100	0			0	ND

OTM-45 Laboratory Results Summary
Test Run 4
RTO Inlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28649-13				140-28649-14				140-28649-15				140-28649-16								
Compound	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	%	Qualifier	Total Mass, ng	Qualifier
Perfluorobutanoic acid (PFBA)	0		2.00	1.30	288		100	94.0	74.4	B	0.680	0.272	70.7		10.0	9.40	362.4	20		433.1	ND B z
Perfluoropentanoic acid (PFPeA)	0.542	J	1.00	0.180	683		10.0	4.50	131		0.680	0.0884	97.0		1.00	0.450	814.542	12		911.542	J z
Perfluorohexanoic acid (PFHxA)	0.301	J	1.00	0.210	166		10.0	5.20	35.9		0.680	0.258	12.9		1.00	0.520	202.201	6		202.201	J z
Perfluoroheptanoic acid (PFHpA)	0		1.00	0.620	231		30.0	26.0	7.45		0.680	0.207	12.0		3.00	2.60	238.45	5		238.45	ND
Perfluorooctanoic acid (PFOA)	0		1.00	0.650	178		10.0	6.60	1.47		0.680	0.129	2.36		1.00	0.660	179.47	1		179.47	ND xyz
Perfluorononanoic acid (PFNA)	0.245	J	1.00	0.0850	96.8		10.0	8.90	0.350	J	0.680	0.0714	0		1.00	0.890	97.395			97.395	ND J
Perfluorodecanoic acid (PFDA)	0		1.00	0.250	33.2		10.0	2.10	0		0.680	0.0884	0		1.00	0.210	33.2			33.2	ND
Perfluoroundecanoic acid (PFUnA)	0		1.00	0.170	113		10.0	2.70	0.119	J I	0.680	0.102	0		1.00	0.270	113.119			113.119	ND J I
Perfluorododecanoic acid (PFDoA)	0.171	J	1.00	0.100	29.7		10.0	1.20	0		0.680	0.0714	0		1.00	0.120	29.871			29.871	ND J
Perfluorotridecanoic acid (PFTriA)	0.294	J	1.00	0.140	46.6		10.0	1.70	0		0.680	0.109	0		1.00	0.170	46.894			46.894	ND J
Perfluorotetradecanoic acid (PFTeA)	1.35	I CI	1.00	0.170		R	10.0	2.30	0		0.680	0.153	0		1.00	0.230	1.35			1.35	ND I CI R
Perfluorobutanesulfonic acid (PFBS)	0		1.00	0.890	0		10.0	5.20	0		0.680	0.0612	0		1.00	0.520	0			0	ND
Perfluorohexanesulfonic acid (PFHxS)	0		1.00	0.110	0		10.0	2.60	0		0.680	0.0782	0		1.00	0.260	0			0	ND
Perfluoroheptanesulfonic acid (PFHpS)	0		1.00	0.110	0		10.0	2.00	0		0.680	0.156	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonic acid (PFOS)	0.561	J I	1.00	0.450	0		10.0	1.50	0		0.680	0.0884	0		1.00	0.150	0.561			0.561	ND J I xyz
Perfluorodecanesulfonic acid (PFDS)	0		1.00	0.110	0		10.0	2.00	0		0.680	0.112	0		1.00	0.200	0			0	ND
Perfluorooctanesulfonamide (FOSA)	0		1.00	0.0880	0		10.0	2.30	0		0.680	0.272	0		1.00	0.230	0			0	ND
Perfluoropentanesulfonic acid (PFPeS)	0		1.00	0.120	0		10.0	2.10	0		0.680	0.0816	0		1.00	0.210	0			0	ND
Perfluorononanesulfonic acid (PFNS)	0		1.00	0.120	0		10.0	1.60	0		0.680	0.0510	0		1.00	0.160	0			0	ND
N-methylperfluorooctanesulfonamidoacetic aci	0		1.00	0.120	0		10.0	1.20	0		0.680	0.139	0		1.00	0.120	0			0	ND
N-ethylperfluorooctanesulfonamidoacetic acid (	0		1.00	0.140	1.96	J	10.0	1.90	0		0.680	0.102	0		1.00	0.190	1.96			1.96	ND J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2	0		1.00	0.0910	0		10.0	0.640	0		0.680	0.0782	0		1.00	0.0640	0			0	ND
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2	4.07	J	5.00	4.00	0		100	87.0	0		0.680	0.187	0		10.0	8.70	4.07			4.07	ND J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2	0		1.00	0.140	0		10.0	1.60	0		0.680	0.177	0		1.00	0.160	0			0	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-D	0		5.00	4.70	167	J	200	110	135	B	0.680	0.320	14.0	J	20.0	11.0	302	5		302	ND J B z
9-Chlorohexadecafluoro-3-oxanonane-1-sulfoni	0		1.00	0.0980	0		10.0	1.80	0		0.680	0.0884	0		1.00	0.180	0			0	ND

Saint-Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 21, 2022

OTM-45 Laboratory Results Summary
Test Run 4
RTO Inlet (PCE01)

	Fraction 1 , ng Filter and FH Rinse				Fraction 2, ng BH Rinse and Primary XAD				Fraction 3, ng Cond/Imp water & Rinse				Fraction 4, ng Breakthrough XAD				Fraction 1-3 Train Mass, ng	Frac 4 Break-through	Flag "A" if over 30% Break Through	Total Mass, ng (Add Frac 4 if Applicable)	
Laboratory Sample ID	140-28649-13				140-28649-14				140-28649-15				140-28649-16								
Compound	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	Qualifier	Reporting Limit	MDL	Result, ng	%	Qualifier	Total Mass, ng	Qualifier
11-Chloroeicosafluoro-3-oxaundecane-1-sulfoni	0		1.00	0.200	0		10.0	1.80	0		0.680	0.0952	0		1.00	0.180	0			0	ND
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0		1.00	0.140	0		20.0	11.0	0		0.680	0.190	0		2.00	1.10	0			0	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (	0		1.00	0.320	0		10.0	1.70	0		0.680	0.146	0		1.00	0.170	0			0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) etha	0.731	J	1.00	0.120		R	10.0	3.70	0		0.680	0.252	0		1.00	0.370	0.731			0.731	ND J R
Perfluoro-n-octadecanoic acid (PFODA)	0.506	J	1.00	0.220		*- *1 R	10.0	6.40	0		0.680	0.173	0	*- *1	1.00	0.640	0.506			0.506	ND J *-*1 R
2-(N-methylperfluoro-1-octanesulfonamido) eth	0		5.00	4.90		NR	200	198	0		0.680	0.139	0		20.0	19.8	0			0	ND NR
N-methylperfluorooctane sulfonamide (NMeFO	0		1.00	0.150		R	10.0	7.70	0		0.680	0.116	0		1.00	0.770	0			0	ND R
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0		1.00	0.160		R	10.0	6.60	0		0.680	0.184	0		1.00	0.660	0			0	ND R
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.545	J	1.00	0.290		R	10.0	2.90	0		0.680	0.194	0		1.00	0.290	0.545			0.545	ND J R
Perfluorododecanesulfonic acid (PFDoS)	0		1.00	0.0950	0	*-	10.0	1.80	0		0.680	0.109	0	*-	1.00	0.180	0			0	ND *-
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0		1.00	0.150	0		10.0	1.60	0		0.680	0.197	0		1.00	0.160	0			0	ND
10:2 Fluorotelomer carboxylic acid	0		1.00	0.420	0		10.0	5.20	0		0.680	0.408	0		1.00	0.520	0			0	ND
6:2 Fluorotelomer carboxylic acid	0		1.00	0.430	0		10.0	10.0	0		0.680	0.408	0		1.00	1.00	0			0	ND
7:3 Fluorotelomer carboxylic acid	0		1.00	0.350	0		10.0	5.60	0		0.680	0.510	0		1.00	0.560	0			0	ND
6:2 Fluorotelemer unsaturated acid	0		1.00	0.140	6.00	J	10.0	2.00	0		0.680	0.122	0		1.00	0.200	6			6	ND J
8:2 Fluorotelomer carboxylic acid	0		1.00	0.350	0		10.0	3.80	0		0.680	0.442	0		1.00	0.380	0			0	ND
8:2 Fluorotelemer unsaturated acid	0		1.00	0.220	0		10.0	2.00	0		0.680	0.272	0		1.00	0.200	0			0	ND
5:3 Fluorotelomer carboxylic acid	0		1.00	0.480	22.9	*+ CI	10.0	7.00	0		0.680	0.408	0	*+	1.00	0.700	22.9			22.9	ND *+ CI
3-Perfluoropropylpropanoic acid	0		1.00	0.290	149		10.0	3.10	7.16		0.680	0.299	0		1.00	0.310	156.16			156.16	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	0		1.00	0.150	4.81	J	10.0	1.20	1.83		0.680	0.197	0		1.00	0.120	6.64			6.64	ND J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0		1.00	0.200	0		10.0	1.30	0		0.680	0.269	0		1.00	0.130	0			0	ND
Perfluoro-4-ethylcyclohexanesulfonic acid	0		1.00	0.220	0		10.0	1.40	0		0.680	0.218	0		1.00	0.140	0			0	ND
Perfluoro (2-ethoxyethane) sulfonic acid (PFEES	0		1.00	0.140	0		10.0	1.00	0		0.680	0.173	0		1.00	0.100	0			0	ND

Project Qualifiers
Note = results below MDL, no detected mass. Lab reported ND set to 0
A = >30 breakthrough
X= compound was above MDL in FMSB
Y = Proof Blank results is > 10% of sample mass
Z = Field Blank results is > 10% of sample mass
M = sample mass manually calculated due to chromatographic interference (CI) causing high bias

Lab Qualifiers
*- LCS and/or LCSD is outside acceptance limits, low biased.
*+ LCS and/or LCSD is outside acceptance limits, high biased.
*1 LCS/LCSD RPD exceeds control limits.
*5- Isotope dilution analyte is outside acceptance limits, low biased.
*5+ Isotope dilution analyte is outside acceptance limits, high biased.
B Compound was found in the blank and sample.
CI The peak identified by the data system exhibited chromotographic interference that could not be resolved. There is reason to suspect there may be a high bias
I Value is EMPC (estimated maximum possible concentration).
J Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R Result unuseable
S1- Surrogate recovery exceeds control limits, low bias
ND below analytical detection limit
NR Not reported

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-28649-1
Client Project/Site: St.Gobain CPT - Inlet OTM-45
Revision: 2

For:
Barr Engineering Company
5150 West 76th Street
Edina, Minnesota 55439

Attn: Tom Kuchinski

Authorized for release by:
10/19/2022 3:01:36 PM

Courtney Adkins, Project Manager II
(865)291-3019
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Table of Contents

Definitions/Glossary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
R	Result Unusable
S1-	Surrogate recovery exceeds control limits, low biased.

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: 140-28649-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative
140-28649-1

Revision Notes

This report was revised on 9/21/22 to correct the analyte reporting order in the front half fractions.

This report was revised on 10/19/22 to add “R” qualifiers to target analytes with IDA recoveries less than 10%.

Comments

Target results with “R” flagged results or reported as “NR” are associated with IDAs with recoveries that cannot be quantitated. These results are considered unusable.

Field surrogates are added to both the primary and breakthrough XAD modules. The two surrogates were evaluated in the condensate fraction to assess breakthrough.

Receipt

The samples were received on 8/29/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2º C and 2.2º C.

LCMS

One of more Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: T-3008,T-3009 INLET CPT R2 OTM-45 FH (140-28649-5), T-3015,T-3016 INLET CPT R3 OTM-45 FH (140-28649-9), T-2075,T-2076 INLET CPT R4 OTM-45 FH (140-28649-13), T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28649-7), T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28649-8), T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28649-11), T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28649-12), T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE (140-28649-15), T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE (140-28649-16), (LCSD 140-64806/3-B), T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH (140-28649-6), T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH (140-28649-10) and T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH (140-28649-14). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

One or more Isotope Dilution Analyte (IDA) recoveries associated with the following samples are below the method recommended limit: (LCSD 140-64806/3-B) and (MB 140-64806/1-B). T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH (140-28649-6), T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH (140-28649-10) and T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH (140-28649-14). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

One or more Isotope Dilution Analyte (IDA) recoveries associated with this sample are below the method recommended limit of 10%. Generally, re-extraction of samples should be performed if the signal to noise ratio for any IDA is less than 10:1 or the IDA recoveries fall below 10%. With the low IDA recoveries, the target analytes associated with these IDAs may have a high bias. The entire sample was consumed during the extraction or analysis, therefore the data has been reported. The following samples are impacted: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH (140-28649-6), T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH (140-28649-10) and T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH (140-28649-14)

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside acceptance limits for multiple analytes. There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 140-64806 and 140-64951 and analytical batch 140-65245 recovered outside control limits for multiple analytes.

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH
Lab Sample ID: 140-28649-5
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoropentanoic acid (PFPeA)	**0.533**	**J**	1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorohexanoic acid (PFHxA)	**0.282**	**J**	1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorononanoic acid (PFNA)	**0.161**	**J**	1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorododecanoic acid (PFDoA)	**0.139**	**J**	1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorotridecanoic acid (PFTriA)	**0.195**	**J**	1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorotetradecanoic acid (PFTeA)	**0.736**	**J I**	1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorooctanesulfonic acid (PFOS)	**0.895**	**J I**	1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**9.24**	**CI**	1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.397**	**J**	1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 14:26	1

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH

Lab Sample ID: 140-28649-5

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	**0.564**	**J**	1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.461**	**J**	1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:26	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*109*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFDoA	*82*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFHxA	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFHxDA	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFTeDA	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C2 PFUnA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C3 HFPO-DA	*74*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C3 PFBS	*114*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFBA	*85*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFHpA	*105*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C4 PFOS	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C5 PFNA	*105*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C5 PFPeA	*89*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
13C8 FOSA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
18O2 PFHxS	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d3-NMeFOSAA	*139*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d5-NEtFOSAA	*112*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d7-N-MeFOSE-M	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d9-N-EtFOSE-M	*120*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d-N-EtFOSA-M	*81*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
d-N-MeFOSA-M	*75*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*
M2-4:2 FTS	*299*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:26*	*1*

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH

Lab Sample ID: 140-28649-5

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	455	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1
M2-8:2 FTS	318	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-10:2 FTCA	77		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-6:2 FTCA	39		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-6:2 FTUCA	92		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-8:2 FTCA	93		25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C-8:2 FTUCA	179	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1
13C2 10:2 FTS	188	*5+	25 - 150	08/31/22 10:35	09/07/22 14:26	1

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28649-6

Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**208**		100	94.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoropentanoic acid (PFPeA)	**402**		10.0	4.50	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorohexanoic acid (PFHxA)	**124**		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoroheptanoic acid (PFHpA)	**149**		30.0	26.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorooctanoic acid (PFOA)	**142**		10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorononanoic acid (PFNA)	**60.8**		10.0	8.90	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorodecanoic acid (PFDA)	**20.8**		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoroundecanoic acid (PFUnA)	**25.6**		10.0	2.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorododecanoic acid (PFDoA)	**17.4**		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorotridecanoic acid (PFTriA)	**6.72**	**J**	10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorotetradecanoic acid (PFTeA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorobutanesulfonic acid (PFBS)	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorohexanesulfonic acid (PFHxS)	ND		10.0	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorooctanesulfonic acid (PFOS)	ND		10.0	1.50	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorodecanesulfonic acid (PFDS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorooctanesulfonamide (FOSA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoropentanesulfonic acid (PFPeS)	ND		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorononanesulfonic acid (PFNS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		10.0	1.90	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		10.0	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		100	87.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28649-6

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		200	110	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	10.0	3.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	10.0	6.40	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		200	198	ng/mL		08/30/22 12:05	09/14/22 13:10	10
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	10.0	7.70	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	10.0	2.90	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
10:2 Fluorotelomer carboxylic acid	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
6:2 Fluorotelomer carboxylic acid	**11.8**		10.0	10.0	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
7:3 Fluorotelomer carboxylic acid	ND		10.0	5.60	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
6:2 Fluorotelemer unsaturated acid	**6.87**	**J**	10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
8:2 Fluorotelomer carboxylic acid	**14.1**	**I**	10.0	3.80	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
8:2 Fluorotelemer unsaturated acid	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
5:3 Fluorotelomer carboxylic acid	**8.29**	**J I *+**	10.0	7.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
3-Perfluoropropylpropanoic acid	**106**		10.0	3.10	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	**19.5**	**CI**	10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		10.0	1.30	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		10.0	1.40	ng/Sample		08/30/22 12:05	09/14/22 13:10	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		10.0	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:10	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*5*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C4 PFBA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C5 PFPeA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C2 PFHxA	*101*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C4 PFHpA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*
13C4 PFOA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:10*	*10*

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH

Lab Sample ID: 140-28649-6

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	83		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFDA	48		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFUnA	28		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFDoA	12	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFTeDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C3 PFBS	139		25 - 150	08/30/22 12:05	09/14/22 13:10	10
18O2 PFHxS	104		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C4 PFOS	38		25 - 150	08/30/22 12:05	09/14/22 13:10	10
d3-NMeFOSAA	44		25 - 150	08/30/22 12:05	09/14/22 13:10	10
d5-NEtFOSAA	35		25 - 150	08/30/22 12:05	09/14/22 13:10	10
M2-4:2 FTS	240	*5+	25 - 150	08/30/22 12:05	09/14/22 13:10	10
M2-6:2 FTS	231	*5+	25 - 150	08/30/22 12:05	09/14/22 13:10	10
M2-8:2 FTS	143		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C3 HFPO-DA	92		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 PFHxDA	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
d-N-EtFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C2 10:2 FTS	21	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-10:2 FTCA	14	*5-	25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-6:2 FTCA	55		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-6:2 FTUCA	130		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-8:2 FTCA	28		25 - 150	08/30/22 12:05	09/14/22 13:10	10
13C-8:2 FTUCA	86		25 - 150	08/30/22 12:05	09/14/22 13:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	101		50 - 150	08/30/22 12:05	09/14/22 13:10	10
13C8 PFOS	91		50 - 150	08/30/22 12:05	09/14/22 13:10	10

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**41.5**	**B**	0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoropentanoic acid (PFPeA)	**48.3**		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorohexanoic acid (PFHxA)	**23.1**		0.620	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoroheptanoic acid (PFHpA)	**4.54**		0.620	0.189	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorooctanoic acid (PFOA)	**1.39**		0.620	0.118	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorononanoic acid (PFNA)	**0.0779**	**J**	0.620	0.0651	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorodecanoic acid (PFDA)	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoroundecanoic acid (PFUnA)	ND		0.620	0.0930	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorododecanoic acid (PFDoA)	ND		0.620	0.0651	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorotridecanoic acid (PFTriA)	ND		0.620	0.0992	ng/Sample		09/01/22 08:23	09/13/22 21:29	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		0.620	0.140	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.620	0.0558	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.620	0.0713	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.620	0.143	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorooctanesulfonic acid (PFOS)	**0.103**	**J I**	0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.620	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorooctanesulfonamide (FOSA)	ND		0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.620	0.0744	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorononanesulfonic acid (PFNS)	ND		0.620	0.0465	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.620	0.127	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.620	0.0930	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.620	0.0713	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.620	0.171	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.620	0.161	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**35.0**	**B**	0.620	0.291	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.620	0.0806	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.620	0.0868	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.620	0.174	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.620	0.133	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.620	0.229	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.620	0.158	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.620	0.127	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.620	0.105	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.620	0.167	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.620	0.177	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.620	0.0992	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.620	0.180	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
10:2 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
6:2 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
7:3 Fluorotelomer carboxylic acid	ND		0.620	0.465	ng/Sample		09/01/22 08:23	09/13/22 21:29	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 Fluorotelemer unsaturated acid	ND		0.620	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
8:2 Fluorotelomer carboxylic acid	ND		0.620	0.403	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
8:2 Fluorotelemer unsaturated acid	ND		0.620	0.248	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
5:3 Fluorotelomer carboxylic acid	ND		0.620	0.372	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
3-Perfluoropropylpropanoic acid	**3.66**		0.620	0.273	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**1.26**		0.620	0.180	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.620	0.245	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.620	0.198	ng/Sample		09/01/22 08:23	09/13/22 21:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.620	0.158	ng/Sample		09/01/22 08:23	09/13/22 21:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*78*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFBA	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C5 PFPeA	*74*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFHxA	*90*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFHpA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFOA	*104*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C5 PFNA	*109*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFDA	*100*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFUnA	*90*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFDoA	*67*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFTeDA	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C3 PFBS	*116*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
18O2 PFHxS	*91*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C4 PFOS	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d3-NMeFOSAA	*76*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d5-NEtFOSAA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
M2-4:2 FTS	*287*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
M2-6:2 FTS	*402*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
M2-8:2 FTS	*292*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C3 HFPO-DA	*72*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d-N-MeFOSA-M	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d7-N-MeFOSE-M	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d9-N-EtFOSE-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
d-N-EtFOSA-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C2 10:2 FTS	*83*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-10:2 FTCA	*61*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-6:2 FTCA	*82*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-6:2 FTUCA	*119*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-8:2 FTCA	*117*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*
13C-8:2 FTUCA	*157*	**5+*	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*0.1*	*S1-*	*50 - 150*	*09/01/22 08:23*	*09/13/22 21:29*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-7

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	0.02	S1-	50 - 150	09/01/22 08:23	09/13/22 21:29	1

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-8

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**89.9**		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoropentanoic acid (PFPeA)	**124**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorohexanoic acid (PFHxA)	**21.9**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoroheptanoic acid (PFHpA)	**18.7**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorooctanoic acid (PFOA)	**3.00**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorononanoic acid (PFNA)	**1.55**		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorooctanesulfonic acid (PFOS)	**0.178**	**J**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 01:36	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28649-8
Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
6:2 Fluorotelemer unsaturated acid	**0.204**	**J**	1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
3-Perfluoropropylpropanoic acid	**1.01**		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.208**	**J**	1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 01:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 01:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C4 PFBA	*74*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C5 PFPeA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFHxA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C4 PFHpA	*116*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C4 PFOA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C5 PFNA	*113*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFDA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFUnA	*112*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFDoA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C2 PFTeDA	*87*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
13C3 PFBS	*119*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*
18O2 PFHxS	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:36*	*1*

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-8

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	107		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d3-NMeFOSAA	122		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d5-NEtFOSAA	125		25 - 150	08/30/22 12:05	09/14/22 01:36	1
M2-4:2 FTS	189	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
M2-6:2 FTS	204	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
M2-8:2 FTS	189	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C3 HFPO-DA	91		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C2 PFHxDA	46		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d-N-MeFOSA-M	94		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d7-N-MeFOSE-M	84		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d9-N-EtFOSE-M	81		25 - 150	08/30/22 12:05	09/14/22 01:36	1
d-N-EtFOSA-M	98		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C2 10:2 FTS	131		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-10:2 FTCA	81		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-6:2 FTCA	78		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-6:2 FTUCA	181	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-8:2 FTCA	82		25 - 150	08/30/22 12:05	09/14/22 01:36	1
13C-8:2 FTUCA	199	*5+	25 - 150	08/30/22 12:05	09/14/22 01:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	88		50 - 150	08/30/22 12:05	09/14/22 01:36	1
13C8 PFOS	100		50 - 150	08/30/22 12:05	09/14/22 01:36	1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28649-9

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.97	1.28	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoropentanoic acid (PFPeA)	**0.540**	**J**	0.986	0.178	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorohexanoic acid (PFHxA)	**0.305**	**J**	0.986	0.207	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.986	0.611	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorooctanoic acid (PFOA)	ND		0.986	0.641	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorononanoic acid (PFNA)	**0.275**	**J**	0.986	0.0838	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorodecanoic acid (PFDA)	ND		0.986	0.247	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoroundecanoic acid (PFUnA)	**0.253**	**J**	0.986	0.168	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorododecanoic acid (PFDoA)	**0.189**	**J**	0.986	0.0986	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorotridecanoic acid (PFTriA)	**0.462**	**J**	0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorotetradecanoic acid (PFTeA)	**1.36**	**I CI**	0.986	0.168	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.986	0.878	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorohexanesulfonic acid (PFHxS)	**0.133**	**J**	0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 14:35	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH
Lab Sample ID: 140-28649-9
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**1.02**	**I**	0.986	0.444	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.986	0.108	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorooctanesulfonamide (FOSA)	ND		0.986	0.0868	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorononanesulfonic acid (PFNS)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.986	0.0897	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	**7.90**		4.93	3.94	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.93	4.63	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.986	0.0966	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.986	0.197	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.986	0.316	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**0.718**	**J**	0.986	0.118	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.758**	**J**	0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		4.93	4.83	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.986	0.158	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.631**	**J**	0.986	0.286	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.986	0.0937	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
10:2 Fluorotelomer carboxylic acid	ND		0.986	0.414	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
6:2 Fluorotelomer carboxylic acid	ND		0.986	0.424	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
7:3 Fluorotelomer carboxylic acid	ND		0.986	0.345	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
6:2 Fluorotelemer unsaturated acid	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
8:2 Fluorotelomer carboxylic acid	ND		0.986	0.345	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
8:2 Fluorotelemer unsaturated acid	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
5:3 Fluorotelomer carboxylic acid	ND		0.986	0.473	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
3-Perfluoropropylpropanoic acid	ND		0.986	0.286	ng/Sample		08/31/22 10:35	09/07/22 14:35	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH
Lab Sample ID: 140-28649-9
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.986	0.148	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.986	0.197	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.986	0.217	ng/Sample		08/31/22 10:35	09/07/22 14:35	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.986	0.138	ng/Sample		08/31/22 10:35	09/07/22 14:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFDoA	*75*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFHxA	*76*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFHxDA	*81*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFTeDA	*91*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 PFUnA	*82*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C3 HFPO-DA	*67*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C3 PFBS	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFBA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFHpA	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFOA	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C4 PFOS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C5 PFNA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C5 PFPeA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C8 FOSA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d3-NMeFOSAA	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d5-NEtFOSAA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d7-N-MeFOSE-M	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d9-N-EtFOSE-M	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d-N-EtFOSA-M	*80*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
d-N-MeFOSA-M	*70*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
M2-4:2 FTS	*270*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
M2-6:2 FTS	*384*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
M2-8:2 FTS	*274*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-10:2 FTCA	*63*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-6:2 FTCA	*40*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-6:2 FTUCA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-8:2 FTCA	*78*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C-8:2 FTUCA	*162*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*
13C2 10:2 FTS	*137*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:35*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**249**		100	94.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoropentanoic acid (PFPeA)	**644**		10.0	4.50	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorohexanoic acid (PFHxA)	**130**		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoroheptanoic acid (PFHpA)	**167**		30.0	26.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorooctanoic acid (PFOA)	**148**		10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorononanoic acid (PFNA)	**122**		10.0	8.90	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorodecanoic acid (PFDA)	**44.2**		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoroundecanoic acid (PFUnA)	**228**		10.0	2.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorododecanoic acid (PFDoA)	**38.6**		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorotridecanoic acid (PFTriA)	**53.0**		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorotetradecanoic acid (PFTeA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorobutanesulfonic acid (PFBS)	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorohexanesulfonic acid (PFHxS)	ND		10.0	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorooctanesulfonic acid (PFOS)	**2.78**	**J I**	10.0	1.50	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorodecanesulfonic acid (PFDS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorooctanesulfonamide (FOSA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoropentanesulfonic acid (PFPeS)	ND		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorononanesulfonic acid (PFNS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		10.0	1.90	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		10.0	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		100	87.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**188**	**J**	200	110	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	10.0	3.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	10.0	6.40	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		200	198	ng/mL		08/30/22 12:05	09/14/22 13:19	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	10.0	7.70	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	10.0	2.90	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
10:2 Fluorotelomer carboxylic acid	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
6:2 Fluorotelomer carboxylic acid	ND		10.0	10.0	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
7:3 Fluorotelomer carboxylic acid	ND		10.0	5.60	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
6:2 Fluorotelemer unsaturated acid	**3.94**	**J**	10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
8:2 Fluorotelomer carboxylic acid	ND		10.0	3.80	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
8:2 Fluorotelemer unsaturated acid	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
5:3 Fluorotelomer carboxylic acid	ND	*+	10.0	7.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
3-Perfluoropropylpropanoic acid	**64.6**		10.0	3.10	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	**5.12**	**J**	10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		10.0	1.30	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		10.0	1.40	ng/Sample		08/30/22 12:05	09/14/22 13:19	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		10.0	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:19	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*6*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFBA	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C5 PFPeA	*90*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFHxA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFHpA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFOA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C5 PFNA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFDA	*61*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFUnA	*40*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFDoA	*18*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFTeDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C3 PFBS	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
18O2 PFHxS	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C4 PFOS	*54*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
d3-NMeFOSAA	*63*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
d5-NEtFOSAA	*58*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
M2-4:2 FTS	*217*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
M2-6:2 FTS	*223*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
M2-8:2 FTS	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C3 HFPO-DA	*83*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*
13C2 PFHxDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:19*	*10*

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
d7-N-MeFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
d9-N-EtFOSE-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
d-N-EtFOSA-M	0	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C2 10:2 FTS	39		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-10:2 FTCA	14	*5-	25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-6:2 FTCA	55		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-6:2 FTUCA	115		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-8:2 FTCA	33		25 - 150	08/30/22 12:05	09/14/22 13:19	10
13C-8:2 FTUCA	97		25 - 150	08/30/22 12:05	09/14/22 13:19	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	92		50 - 150	08/30/22 12:05	09/14/22 13:19	10
13C8 PFOS	82		50 - 150	08/30/22 12:05	09/14/22 13:19	10

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**45.6**	**B**	0.590	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoropentanoic acid (PFPeA)	**95.0**		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorohexanoic acid (PFHxA)	**27.1**		0.590	0.224	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoroheptanoic acid (PFHpA)	**5.19**		0.590	0.180	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorooctanoic acid (PFOA)	**0.982**		0.590	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorononanoic acid (PFNA)	**0.128**	**J**	0.590	0.0619	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorodecanoic acid (PFDA)	ND		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoroundecanoic acid (PFUnA)	ND		0.590	0.0885	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorododecanoic acid (PFDoA)	ND		0.590	0.0619	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorotridecanoic acid (PFTriA)	ND		0.590	0.0944	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.590	0.133	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.590	0.0531	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.590	0.0678	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.590	0.136	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.590	0.0973	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorooctanesulfonamide (FOSA)	ND		0.590	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.590	0.0708	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorononanesulfonic acid (PFNS)	ND		0.590	0.0442	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.590	0.121	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.590	0.0885	ng/Sample		09/01/22 08:23	09/13/22 21:38	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.590	0.0678	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.590	0.162	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.590	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**116**	**B**	0.590	0.277	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.590	0.0767	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.590	0.0826	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.590	0.165	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.590	0.127	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.590	0.218	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.590	0.150	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.590	0.121	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.590	0.100	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.590	0.159	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.590	0.168	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.590	0.0944	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.590	0.171	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
10:2 Fluorotelomer carboxylic acid	ND		0.590	0.354	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
6:2 Fluorotelomer carboxylic acid	ND		0.590	0.354	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
7:3 Fluorotelomer carboxylic acid	ND		0.590	0.442	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
6:2 Fluorotelemer unsaturated acid	ND		0.590	0.106	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
8:2 Fluorotelomer carboxylic acid	ND		0.590	0.383	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
8:2 Fluorotelemer unsaturated acid	ND		0.590	0.236	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
5:3 Fluorotelomer carboxylic acid	ND		0.590	0.354	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
3-Perfluoropropylpropanoic acid	**0.973**		0.590	0.260	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**2.31**		0.590	0.171	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.590	0.233	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.590	0.189	ng/Sample		09/01/22 08:23	09/13/22 21:38	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.590	0.150	ng/Sample		09/01/22 08:23	09/13/22 21:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*82*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:38*	*1*

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	54		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C5 PFPeA	52		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFHxA	85		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C4 PFHpA	102		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C4 PFOA	99		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C5 PFNA	103		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFDA	96		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFUnA	86		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFDoA	64		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFTeDA	56		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C3 PFBS	103		25 - 150	09/01/22 08:23	09/13/22 21:38	1
18O2 PFHxS	90		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C4 PFOS	80		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d3-NMeFOSAA	88		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d5-NEtFOSAA	91		25 - 150	09/01/22 08:23	09/13/22 21:38	1
M2-4:2 FTS	250	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1
M2-6:2 FTS	363	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1
M2-8:2 FTS	220	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C3 HFPO-DA	66		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 PFHxDA	69		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d-N-MeFOSA-M	55		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d7-N-MeFOSE-M	53		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d9-N-EtFOSE-M	55		25 - 150	09/01/22 08:23	09/13/22 21:38	1
d-N-EtFOSA-M	58		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C2 10:2 FTS	73		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-10:2 FTCA	69		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-6:2 FTCA	79		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-6:2 FTUCA	116		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-8:2 FTCA	97		25 - 150	09/01/22 08:23	09/13/22 21:38	1
13C-8:2 FTUCA	154	*5+	25 - 150	09/01/22 08:23	09/13/22 21:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.004	S1-	50 - 150	09/01/22 08:23	09/13/22 21:38	1
13C8 PFOS	0	S1-	50 - 150	09/01/22 08:23	09/13/22 21:38	1

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-12

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	40.3		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoropentanoic acid (PFPeA)	47.4		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorohexanoic acid (PFHxA)	6.85		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoroheptanoic acid (PFHpA)	5.27		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorooctanoic acid (PFOA)	0.816	J	1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:11	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-12
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorooctanesulfonic acid (PFOS)	**0.173**	**J I**	1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 02:11	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-12
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 02:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFBA	*68*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C5 PFPeA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFHxA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFHpA	*109*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFOA	*114*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C5 PFNA	*110*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFDA	*116*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFUnA	*115*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFDoA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFTeDA	*81*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C3 PFBS	*121*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
18O2 PFHxS	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C4 PFOS	*107*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d3-NMeFOSAA	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d5-NEtFOSAA	*122*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
M2-4:2 FTS	*178*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
M2-6:2 FTS	*177*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
M2-8:2 FTS	*165*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C3 HFPO-DA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 PFHxDA	*26*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d-N-MeFOSA-M	*87*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d7-N-MeFOSE-M	*83*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d9-N-EtFOSE-M	*75*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
d-N-EtFOSA-M	*82*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C2 10:2 FTS	*145*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-10:2 FTCA	*71*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-12

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-6:2 FTCA	*73*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-6:2 FTUCA	*179*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-8:2 FTCA	*71*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C-8:2 FTUCA	*194*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*94*		*50 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*
13C8 PFOS	*102*		*50 - 150*	*08/30/22 12:05*	*09/14/22 02:11*	*1*

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28649-13

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoropentanoic acid (PFPeA)	**0.542**	**J**	1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorohexanoic acid (PFHxA)	**0.301**	**J**	1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorononanoic acid (PFNA)	**0.245**	**J**	1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorododecanoic acid (PFDoA)	**0.171**	**J**	1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorotridecanoic acid (PFTriA)	**0.294**	**J**	1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorotetradecanoic acid (PFTeA)	**1.35**	**I CI**	1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorooctanesulfonic acid (PFOS)	**0.561**	**J I**	1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	**4.07**	**J**	5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH
Lab Sample ID: 140-28649-13
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	**0.731**	**J**	1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-n-octadecanoic acid (PFODA)	**0.506**	**J**	1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	**0.545**	**J**	1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 14:44	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 14:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*108*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFHxA	*86*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFHxDA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFTeDA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 PFUnA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C3 HFPO-DA	*76*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C3 PFBS	*123*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28649-13

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C4 PFHpA	*104*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C4 PFOS	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C5 PFNA	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C5 PFPeA	*88*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C8 FOSA	*93*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
18O2 PFHxS	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d3-NMeFOSAA	*114*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d7-N-MeFOSE-M	*106*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d9-N-EtFOSE-M	*118*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d-N-EtFOSA-M	*95*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
d-N-MeFOSA-M	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
M2-4:2 FTS	*293*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
M2-6:2 FTS	*497*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
M2-8:2 FTS	*262*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-10:2 FTCA	*77*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-6:2 FTCA	*41*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-6:2 FTUCA	*87*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-8:2 FTCA	*85*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C-8:2 FTUCA	*153*	**5+*	*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*
13C2 10:2 FTS	*140*		*25 - 150*	*08/31/22 10:35*	*09/07/22 14:44*	*1*

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**288**		100	94.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoropentanoic acid (PFPeA)	**683**		10.0	4.50	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorohexanoic acid (PFHxA)	**166**		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoroheptanoic acid (PFHpA)	**231**		30.0	26.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorooctanoic acid (PFOA)	**178**		10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorononanoic acid (PFNA)	**96.8**		10.0	8.90	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorodecanoic acid (PFDA)	**33.2**		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoroundecanoic acid (PFUnA)	**113**		10.0	2.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorododecanoic acid (PFDoA)	**29.7**		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorotridecanoic acid (PFTriA)	**46.6**		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorotetradecanoic acid (PFTeA)	ND	R	10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorobutanesulfonic acid (PFBS)	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorohexanesulfonic acid (PFHxS)	ND		10.0	2.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoroheptanesulfonic acid (PFHpS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		10.0	1.50	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorodecanesulfonic acid (PFDS)	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorooctanesulfonamide (FOSA)	ND		10.0	2.30	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoropentanesulfonic acid (PFPeS)	ND		10.0	2.10	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorononanesulfonic acid (PFNS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	**1.96**	**J**	10.0	1.90	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		10.0	0.640	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		100	87.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**167**	**J**	200	110	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		10.0	1.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND	R	10.0	3.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1 R	10.0	6.40	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	**NR**		200	198	ng/mL		08/30/22 12:05	09/14/22 13:28	10
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	R	10.0	7.70	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	R	10.0	6.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	R	10.0	2.90	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	10.0	1.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		10.0	1.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
10:2 Fluorotelomer carboxylic acid	ND		10.0	5.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
6:2 Fluorotelomer carboxylic acid	ND		10.0	10.0	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
7:3 Fluorotelomer carboxylic acid	ND		10.0	5.60	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
6:2 Fluorotelemer unsaturated acid	**6.00**	**J**	10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
8:2 Fluorotelomer carboxylic acid	ND		10.0	3.80	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
8:2 Fluorotelemer unsaturated acid	ND		10.0	2.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
5:3 Fluorotelomer carboxylic acid	**22.9**	***+ CI**	10.0	7.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid	**149**		10.0	3.10	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	**4.81**	**J**	10.0	1.20	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		10.0	1.30	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		10.0	1.40	ng/Sample		08/30/22 12:05	09/14/22 13:28	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		10.0	1.00	ng/Sample		08/30/22 12:05	09/14/22 13:28	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*12*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFBA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C5 PFPeA	*92*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFHxA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFHpA	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFOA	*106*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C5 PFNA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFDA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFUnA	*48*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFDoA	*27*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFTeDA	*0.7*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C3 PFBS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
18O2 PFHxS	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C4 PFOS	*60*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d3-NMeFOSAA	*70*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d5-NEtFOSAA	*65*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
M2-4:2 FTS	*215*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
M2-6:2 FTS	*244*	*5+	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
M2-8:2 FTS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C3 HFPO-DA	*84*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 PFHxDA	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d-N-MeFOSA-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d7-N-MeFOSE-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d9-N-EtFOSE-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
d-N-EtFOSA-M	*0*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C2 10:2 FTS	*49*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-10:2 FTCA	*15*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-6:2 FTCA	*56*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-6:2 FTUCA	*134*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-8:2 FTCA	*41*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C-8:2 FTUCA	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOA	*103*		*50 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*
13C8 PFOS	*87*		*50 - 150*	*08/30/22 12:05*	*09/14/22 13:28*	*10*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**74.4**	**B**	0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoropentanoic acid (PFPeA)	**131**		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorohexanoic acid (PFHxA)	**35.9**		0.680	0.258	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoroheptanoic acid (PFHpA)	**7.45**		0.680	0.207	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorooctanoic acid (PFOA)	**1.47**		0.680	0.129	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorononanoic acid (PFNA)	**0.350**	**J**	0.680	0.0714	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorodecanoic acid (PFDA)	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoroundecanoic acid (PFUnA)	**0.119**	**J I**	0.680	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorododecanoic acid (PFDoA)	ND		0.680	0.0714	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorotridecanoic acid (PFTriA)	ND		0.680	0.109	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.680	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.680	0.0612	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.680	0.0782	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.680	0.156	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.680	0.112	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorooctanesulfonamide (FOSA)	ND		0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.680	0.0816	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorononanesulfonic acid (PFNS)	ND		0.680	0.0510	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.680	0.139	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.680	0.102	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.680	0.0782	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.680	0.187	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.680	0.177	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**135**	**B**	0.680	0.320	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.680	0.0884	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.680	0.0952	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.680	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.680	0.146	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.680	0.252	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.680	0.173	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.680	0.139	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.680	0.116	ng/Sample		09/01/22 08:23	09/13/22 21:47	1

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.680	0.184	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.680	0.194	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.680	0.109	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.680	0.197	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
10:2 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
6:2 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
7:3 Fluorotelomer carboxylic acid	ND		0.680	0.510	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
6:2 Fluorotelemer unsaturated acid	ND		0.680	0.122	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
8:2 Fluorotelomer carboxylic acid	ND		0.680	0.442	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
8:2 Fluorotelemer unsaturated acid	ND		0.680	0.272	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
5:3 Fluorotelomer carboxylic acid	ND		0.680	0.408	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
3-Perfluoropropylpropanoic acid	**7.16**		0.680	0.299	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**1.83**		0.680	0.197	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.680	0.269	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.680	0.218	ng/Sample		09/01/22 08:23	09/13/22 21:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.680	0.173	ng/Sample		09/01/22 08:23	09/13/22 21:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFBA	*54*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C5 PFPeA	*57*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFHxA	*84*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFHpA	*98*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFOA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C5 PFNA	*105*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFDA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFUnA	*89*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFDoA	*70*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFTeDA	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C3 PFBS	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
18O2 PFHxS	*92*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C4 PFOS	*84*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d3-NMeFOSAA	*99*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d5-NEtFOSAA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
M2-4:2 FTS	*266*	*5+	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
M2-6:2 FTS	*396*	*5+	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
M2-8:2 FTS	*261*	*5+	*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C3 HFPO-DA	*64*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
13C2 PFHxDA	*74*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d-N-MeFOSA-M	*58*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d7-N-MeFOSE-M	*56*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*
d9-N-EtFOSE-M	*61*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:47*	*1*

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	64		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C2 10:2 FTS	83		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-10:2 FTCA	84		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-6:2 FTCA	82		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-6:2 FTUCA	111		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-8:2 FTCA	129		25 - 150	09/01/22 08:23	09/13/22 21:47	1
13C-8:2 FTUCA	152	*5+	25 - 150	09/01/22 08:23	09/13/22 21:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	0.2	S1-	50 - 150	09/01/22 08:23	09/13/22 21:47	1
13C8 PFOS	0.03	S1-	50 - 150	09/01/22 08:23	09/13/22 21:47	1

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-16

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Matrix: Air

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**70.7**		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoropentanoic acid (PFPeA)	**97.0**		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorohexanoic acid (PFHxA)	**12.9**		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoroheptanoic acid (PFHpA)	**12.0**		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorooctanoic acid (PFOA)	**2.36**		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 02:29	1

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-16
Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00
Sample Container: Air Train

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**14.0**	**J**	20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*- *1	1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*-	1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
5:3 Fluorotelomer carboxylic acid	ND	*+	1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 02:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 02:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*118*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C4 PFBA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C5 PFPeA	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C2 PFHxA	*105*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*
13C4 PFHpA	*111*		*25 - 150*	*08/30/22 12:05*	*09/14/22 02:29*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00
Sample Container: Air Train

Lab Sample ID: 140-28649-16
Matrix: Air

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	111		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C5 PFNA	119		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFDA	123		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFUnA	115		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFDoA	106		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFTeDA	86		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C3 PFBS	117		25 - 150	08/30/22 12:05	09/14/22 02:29	1
18O2 PFHxS	109		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C4 PFOS	108		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d3-NMeFOSAA	121		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d5-NEtFOSAA	129		25 - 150	08/30/22 12:05	09/14/22 02:29	1
M2-4:2 FTS	181	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
M2-6:2 FTS	174	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
M2-8:2 FTS	178	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C3 HFPO-DA	95		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 PFHxDA	36		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d-N-MeFOSA-M	67		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d7-N-MeFOSE-M	89		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d9-N-EtFOSE-M	87		25 - 150	08/30/22 12:05	09/14/22 02:29	1
d-N-EtFOSA-M	61		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C2 10:2 FTS	148		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-10:2 FTCA	73		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-6:2 FTCA	69		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-6:2 FTUCA	185	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-8:2 FTCA	86		25 - 150	08/30/22 12:05	09/14/22 02:29	1
13C-8:2 FTUCA	202	*5+	25 - 150	08/30/22 12:05	09/14/22 02:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	99		50 - 150	08/30/22 12:05	09/14/22 02:29	1
13C8 PFOS	98		50 - 150	08/30/22 12:05	09/14/22 02:29	1

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
10:2 Fluorotelomer carboxylic acid	1.00	0.520	ng/Sample
10:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
10:2 Fluorotelomer carboxylic acid	1.00	0.420	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.180	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	2.00	0.280	ng/Sample
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.00	0.200	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.160	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	0.520	ng/Sample
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.00	0.140	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.170	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	2.00	0.430	ng/Sample
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	1.00	0.320	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0640	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	0.230	ng/Sample
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.00	0.0910	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	10.0	8.70	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	0.550	ng/Sample
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	5.00	4.00	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.370	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	2.00	0.740	ng/Sample
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	1.00	0.120	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/mL
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	2.00	0.410	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	19.8	ng/Sample
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	5.00	4.90	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.310	ng/Sample
3-Perfluoropropylpropanoic acid	2.00	0.880	ng/Sample
3-Perfluoropropylpropanoic acid	1.00	0.290	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.10	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	0.560	ng/Sample
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.00	0.140	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.700	ng/Sample
5:3 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
5:3 Fluorotelomer carboxylic acid	1.00	0.480	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
6:2 Fluorotelemer unsaturated acid	2.00	0.360	ng/Sample
6:2 Fluorotelemer unsaturated acid	1.00	0.140	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	1.00	ng/Sample
6:2 Fluorotelomer carboxylic acid	2.00	1.20	ng/Sample
6:2 Fluorotelomer carboxylic acid	1.00	0.430	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.560	ng/Sample
7:3 Fluorotelomer carboxylic acid	2.00	1.50	ng/Sample
7:3 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.200	ng/Sample
8:2 Fluorotelemer unsaturated acid	2.00	0.800	ng/Sample
8:2 Fluorotelemer unsaturated acid	1.00	0.220	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.380	ng/Sample
8:2 Fluorotelomer carboxylic acid	2.00	1.30	ng/Sample
8:2 Fluorotelomer carboxylic acid	1.00	0.350	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.180	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	2.00	0.260	ng/Sample
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.00	0.0980	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

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

Prep: None

Analyte	RL	MDL	Units
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	11.0	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	0.940	ng/Sample
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	5.00	4.70	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.660	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.00	0.540	ng/Sample
N-ethylperfluorooctane sulfonamide (NEtFOSA)	1.00	0.160	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.190	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	0.300	ng/Sample
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	1.00	0.140	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.770	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.00	0.340	ng/Sample
N-methylperfluorooctane sulfonamide (NMeFOSA)	1.00	0.150	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.00	0.120	ng/Sample
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	0.410	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.160	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	0.580	ng/Sample
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.00	0.150	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.100	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	0.510	ng/Sample
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.00	0.140	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.120	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	0.580	ng/Sample
Perfluoro-3-methoxypropanoic acid (PFMPA)	1.00	0.150	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.140	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	2.00	0.640	ng/Sample
Perfluoro-4-ethylcyclohexanesulfonic acid	1.00	0.220	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.130	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	0.790	ng/Sample
Perfluoro-4-methoxybutanoic acid (PFMBA)	1.00	0.200	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.520	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	2.00	0.180	ng/Sample
Perfluorobutanesulfonic acid (PFBS)	1.00	0.890	ng/Sample
Perfluorobutanoic acid (PFBA)	10.0	9.40	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	0.800	ng/Sample
Perfluorobutanoic acid (PFBA)	2.00	1.30	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.200	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	2.00	0.330	ng/Sample
Perfluorodecanesulfonic acid (PFDS)	1.00	0.110	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.210	ng/Sample
Perfluorodecanoic acid (PFDA)	2.00	0.260	ng/Sample
Perfluorodecanoic acid (PFDA)	1.00	0.250	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.180	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	2.00	0.320	ng/Sample
Perfluorododecanesulfonic acid (PFDoS)	1.00	0.0950	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.120	ng/Sample
Perfluorododecanoic acid (PFDoA)	2.00	0.210	ng/Sample
Perfluorododecanoic acid (PFDoA)	1.00	0.100	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.200	ng/Sample

Default Detection Limits

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

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

Prep: None

Analyte	RL	MDL	Units
Perfluoroheptanesulfonic acid (PFHpS)	2.00	0.460	ng/Sample
Perfluoroheptanesulfonic acid (PFHpS)	1.00	0.110	ng/Sample
Perfluoroheptanoic acid (PFHpA)	3.00	2.60	ng/Sample
Perfluoroheptanoic acid (PFHpA)	2.00	0.610	ng/Sample
Perfluoroheptanoic acid (PFHpA)	1.00	0.620	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.260	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	2.00	0.230	ng/Sample
Perfluorohexanesulfonic acid (PFHxS)	1.00	0.110	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.520	ng/Sample
Perfluorohexanoic acid (PFHxA)	2.00	0.760	ng/Sample
Perfluorohexanoic acid (PFHxA)	1.00	0.210	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.00	0.290	ng/Sample
Perfluoro-n-hexadecanoic acid (PFHxDA)	2.00	0.570	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.640	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	2.00	0.510	ng/Sample
Perfluoro-n-octadecanoic acid (PFODA)	1.00	0.220	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.160	ng/Sample
Perfluorononanesulfonic acid (PFNS)	2.00	0.150	ng/Sample
Perfluorononanesulfonic acid (PFNS)	1.00	0.120	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.890	ng/Sample
Perfluorononanoic acid (PFNA)	2.00	0.210	ng/Sample
Perfluorononanoic acid (PFNA)	1.00	0.0850	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.230	ng/Sample
Perfluorooctanesulfonamide (FOSA)	2.00	0.800	ng/Sample
Perfluorooctanesulfonamide (FOSA)	1.00	0.0880	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.150	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	2.00	0.260	ng/Sample
Perfluorooctanesulfonic acid (PFOS)	1.00	0.450	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.660	ng/Sample
Perfluorooctanoic acid (PFOA)	2.00	0.380	ng/Sample
Perfluorooctanoic acid (PFOA)	1.00	0.650	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.210	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	2.00	0.240	ng/Sample
Perfluoropentanesulfonic acid (PFPeS)	1.00	0.120	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.450	ng/Sample
Perfluoropentanoic acid (PFPeA)	2.00	0.260	ng/Sample
Perfluoropentanoic acid (PFPeA)	1.00	0.180	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.230	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	2.00	0.450	ng/Sample
Perfluorotetradecanoic acid (PFTeA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.170	ng/Sample
Perfluorotridecanoic acid (PFTriA)	2.00	0.320	ng/Sample
Perfluorotridecanoic acid (PFTriA)	1.00	0.140	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.270	ng/Sample
Perfluoroundecanoic acid (PFUnA)	2.00	0.300	ng/Sample
Perfluoroundecanoic acid (PFUnA)	1.00	0.170	ng/Sample

Surrogate Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	C8PFOA (50-150)	C8PFOS (50-150)
140-28649-6	T-3010,T-3011,T-3013 INLET CI	101	91
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.1 S1-	0.02 S1-
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	88	100
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	92	82
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.004 S1-	0 S1-
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	94	102
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	103	87
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	0.2 S1-	0.03 S1-
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	99	98

Surrogate Legend

C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	84	85	89	89	105	93	105	109
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	5 *5-	91	103	101	112	105	83	48
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	78	57	74	90	100	104	109	100
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	114	74	95	104	116	122	113	122
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	87	77	77	76	97	92	99	98
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	6 *5-	84	90	93	103	109	88	61
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	82	54	52	85	102	99	103	96
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	114	68	89	104	109	114	110	116
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	93	87	88	86	104	98	110	108
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	12 *5-	88	92	100	100	106	94	69
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	87	54	57	84	98	99	105	97
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	118	69	91	105	111	111	119	123
LCS 140-64806/2-B	Lab Control Sample	91	96	94	90	100	95	94	100
LCS 140-64841/2-B	Lab Control Sample	99	100	94	90	92	97	93	101
LCS 140-64880/2-B	Lab Control Sample	79	106	104	101	109	106	107	104
LCSD 140-64806/3-B	Lab Control Sample Dup	103	105	111	96	116	99	106	111
LCSD 140-64841/3-B	Lab Control Sample Dup	101	95	97	84	92	94	93	99
LCSD 140-64880/3-B	Lab Control Sample Dup	81	102	97	95	97	94	101	100
MB 140-64806/1-B	Method Blank	97	96	95	94	99	93	97	94
MB 140-64841/1-B	Method Blank	103	96	94	84	98	98	96	102
MB 140-64880/1-B	Method Blank	71	102	101	97	102	96	103	101

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	93	82	95	114	103	93	139	112
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	28	12 *5-	0 *5-	139	104	38	44	35
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	90	67	63	116	91	87	76	75
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	112	103	87	119	104	107	122	125
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	82	75	91	110	100	92	110	84
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	40	18 *5-	0 *5-	121	92	54	63	58

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28649-1
Project/Site: St.Gobain CPT - Inlet OTM-45

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

Matrix: Air
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
140-28649-11	T-3019 INLET CPT R3 OTM-45	86	64	56	103	90	80	88	91
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	115	105	81	121	103	107	117	122
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	98	88	100	123	106	101	114	100
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	48	27	0.7 *5-	125	91	60	70	65
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	89	70	63	102	92	84	99	97
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	115	106	86	117	109	108	121	129
LCS 140-64806/2-B	Lab Control Sample	99	90	61	101	100	90	102	98
LCS 140-64841/2-B	Lab Control Sample	103	101	103	93	100	96	110	111
LCS 140-64880/2-B	Lab Control Sample	107	84	67	102	105	99	98	89
LCSD 140-64806/3-B	Lab Control Sample Dup	105	96	59	109	111	98	108	110
LCSD 140-64841/3-B	Lab Control Sample Dup	107	98	99	92	97	92	115	116
LCSD 140-64880/3-B	Lab Control Sample Dup	110	96	81	98	97	97	98	93
MB 140-64806/1-B	Method Blank	95	89	69	97	100	91	103	104
MB 140-64841/1-B	Method Blank	108	99	101	92	101	96	113	122
MB 140-64880/1-B	Method Blank	101	80	69	94	96	96	96	88

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)	PFHxDA (25-150)	dMeFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	299 *5+	455 *5+	318 *5+	74	91	75	103	120
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	240 *5+	231 *5+	143	92	0 *5-	0 *5-	0 *5-	0 *5-
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	287 *5+	402 *5+	292 *5+	72	75	57	57	65
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	189 *5+	204 *5+	189 *5+	91	46	94	84	81
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	270 *5+	384 *5+	274 *5+	67	81	70	96	99
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	217 *5+	223 *5+	122	83	0 *5-	0 *5-	0 *5-	0 *5-
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	250 *5+	363 *5+	220 *5+	66	69	55	53	55
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	178 *5+	177 *5+	165 *5+	89	26	87	83	75
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	293 *5+	497 *5+	262 *5+	76	88	84	106	118
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	215 *5+	244 *5+	125	84	0 *5-	0 *5-	0 *5-	0 *5-
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	266 *5+	396 *5+	261 *5+	64	74	58	56	61
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	181 *5+	174 *5+	178 *5+	95	36	67	89	87

Isotope Dilution Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

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

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)	PFHxDA (25-150)	dMeFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
LCS 140-64806/2-B	Lab Control Sample	125	120	110	84	6 *5-	71	82	82
LCS 140-64841/2-B	Lab Control Sample	91	95	95	92	99	98	114	115
LCS 140-64880/2-B	Lab Control Sample	100	107	109	99	71	68	68	69
LCSD 140-64806/3-B	Lab Control Sample Dup	142	121	110	100	10 *5-	74	86	90
LCSD 140-64841/3-B	Lab Control Sample Dup	88	91	92	89	95	97	114	104
LCSD 140-64880/3-B	Lab Control Sample Dup	99	93	102	96	79	80	74	79
MB 140-64806/1-B	Method Blank	125	117	104	88	18 *5-	52	74	79
MB 140-64841/1-B	Method Blank	90	97	99	70	101	98	109	110
MB 140-64880/1-B	Method Blank	106	106	104	96	75	63	62	65

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	dEtFOSA (25-150)	M102FTS (25-150)	MFDEA (25-150)	MFHEA (25-150)	MFHUEA (25-150)	MFOEA (25-150)	MFOUEA (25-150)
140-28649-5	T-3008,T-3009 INLET CPT R2 C	81	188 *5+	77	39	92	93	179 *5+
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	0 *5-	21 *5-	14 *5-	55	130	28	86
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	65	83	61	82	119	117	157 *5+
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	98	131	81	78	181 *5+	82	199 *5+
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	80	137	63	40	84	78	162 *5+
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	0 *5-	39	14 *5-	55	115	33	97
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	58	73	69	79	116	97	154 *5+
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	82	145	71	73	179 *5+	71	194 *5+
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	95	140	77	41	87	85	153 *5+
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	0 *5-	49	15 *5-	56	134	41	117
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	64	83	84	82	111	129	152 *5+
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESI TUBE	61	148	73	69	185 *5+	86	202 *5+
LCS 140-64806/2-B	Lab Control Sample	68	96	66	66	144	63	145
LCS 140-64841/2-B	Lab Control Sample	101	108	98	82	123	75	133
LCS 140-64880/2-B	Lab Control Sample	73	84	75	87	118	96	123
LCSD 140-64806/3-B	Lab Control Sample Dup	66	111	80	79	162 *5+	73	152 *5+
LCSD 140-64841/3-B	Lab Control Sample Dup	98	111	92	81	121	72	142
LCSD 140-64880/3-B	Lab Control Sample Dup	92	94	93	77	109	97	114
MB 140-64806/1-B	Method Blank	50	99	76	71	141	67	136
MB 140-64841/1-B	Method Blank	97	103	94	82	125	82	146
MB 140-64880/1-B	Method Blank	67	83	87	88	114	88	115

Surrogate Legend

PFOSA = 13C8 FOSA

PFBA = 13C4 PFBA

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28649-1
Project/Site: St.Gobain CPT - Inlet OTM-45

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
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
PFHxDA = 13C2 PFHxDA
dMeFOSA = d-N-MeFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
dEtFOSA = d-N-EtFOSA-M
M102FTS = 13C2 10:2 FTS
MFDEA = 13C-10:2 FTCA
MFHEA = 13C-6:2 FTCA
MFHUEA = 13C-6:2 FTUCA
MFOEA = 13C-8:2 FTCA
MFOUEA = 13C-8:2 FTUCA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		10.0	9.40	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.450	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanoic acid (PFHpA)	ND		3.00	2.60	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.890	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.270	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.260	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.150	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.230	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.210	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.190	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		10.0	8.70	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		20.0	11.0	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	1.10	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.170	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.370	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.640	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		20.0	19.8	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.770	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.660	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.180	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.160	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.520	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	1.00	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.560	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.380	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.200	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.700	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.310	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.120	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.130	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.140	ng/Sample		08/30/22 12:05	09/14/22 01:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.100	ng/Sample		08/30/22 12:05	09/14/22 01:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFDoA	*89*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxA	*94*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFUnA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 HFPO-DA	*88*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C3 PFBS	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C2 PFHxDA	*18*	*5-	*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFHpA	*99*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOA	*93*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C5 PFPeA	*95*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C8 FOSA	*97*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
18O2 PFHxS	*100*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d3-NMeFOSAA	*103*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d7-N-MeFOSE-M	*74*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d9-N-EtFOSE-M	*79*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d-N-EtFOSA-M	*50*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
d-N-MeFOSA-M	*52*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
M2-6:2 FTS	*117*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*
13C-10:2 FTCA	*76*		*25 - 150*	*08/30/22 12:05*	*09/14/22 01:01*	*1*

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

Lab Sample ID: MB 140-64806/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	71		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C2 10:2 FTS	99		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-6:2 FTUCA	141		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTCA	67		25 - 150	08/30/22 12:05	09/14/22 01:01	1
13C-8:2 FTUCA	136		25 - 150	08/30/22 12:05	09/14/22 01:01	1

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	20.86		ng/Sample		104	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	19.86		ng/Sample		99	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.29		ng/Sample		101	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	20.12		ng/Sample		101	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.00		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	18.77		ng/Sample		94	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	19.09		ng/Sample		95	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	16.31		ng/Sample		82	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	19.40		ng/Sample		97	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	15.99		ng/Sample		90	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.93		ng/Sample		99	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.89		ng/Sample		104	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	18.04		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	16.74		ng/Sample		87	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	20.60		ng/Sample		103	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	17.68		ng/Sample		94	60 - 140
Perfluorononanesulfonic acid (PFNS)	19.2	19.48		ng/Sample		101	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.20		ng/Sample		106	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.62		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	20.38		ng/Sample		109	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	17.67		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	19.04		ng/Sample		99	60 - 140

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	23.22		ng/Sample		116	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	19.32		ng/Sample		104	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	16.27		ng/Sample		86	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	20.82		ng/Sample		111	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	20.77		ng/Sample		108	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	19.28		ng/Sample		96	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	ND	*- R	ng/Sample		0.7	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	22.56		ng/Sample		113	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	21.41		ng/Sample		107	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.33		ng/Sample		102	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.15	R	ng/Sample		96	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	8.815	*-	ng/Sample		46	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	19.65		ng/Sample		98	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	16.80		ng/Sample		84	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	18.79		ng/Sample		94	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	27.51		ng/Sample		138	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.54		ng/Sample		88	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.65		ng/Sample		118	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	16.06		ng/Sample		80	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	26.86		ng/Sample		134	60 - 140
3-Perfluoropropylpropanoic acid	20.0	19.12		ng/Sample		96	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	19.78		ng/Sample		99	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.84		ng/Sample		99	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	18.4	16.97		ng/Sample		92	60 - 140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	17.8	16.35		ng/Sample		92	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*90*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*61*		*25 - 150*
13C2 PFUnA	*99*		*25 - 150*

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

Lab Sample ID: LCS 140-64806/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64806

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*84*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
13C4 PFBA	*96*		*25 - 150*
13C2 PFHxDA	*6*	**5-*	*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*95*		*25 - 150*
13C4 PFOS	*90*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*91*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
d3-NMeFOSAA	*102*		*25 - 150*
d5-NEtFOSAA	*98*		*25 - 150*
d7-N-MeFOSE-M	*82*		*25 - 150*
d9-N-EtFOSE-M	*82*		*25 - 150*
d-N-EtFOSA-M	*68*		*25 - 150*
d-N-MeFOSA-M	*71*		*25 - 150*
M2-4:2 FTS	*125*		*25 - 150*
M2-6:2 FTS	*120*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*66*		*25 - 150*
13C-6:2 FTCA	*66*		*25 - 150*
13C2 10:2 FTS	*96*		*25 - 150*
13C-6:2 FTUCA	*144*		*25 - 150*
13C-8:2 FTCA	*63*		*25 - 150*
13C-8:2 FTUCA	*145*		*25 - 150*

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	21.94		ng/Sample		110	60 - 140	5	30
Perfluoropentanoic acid (PFPeA)			20.0	20.58		ng/Sample		103	60 - 140	4	30
Perfluorohexanoic acid (PFHxA)			20.0	23.71		ng/Sample		119	60 - 140	16	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.06		ng/Sample		105	60 - 140	5	30
Perfluorooctanoic acid (PFOA)			20.0	23.52		ng/Sample		118	60 - 140	11	30
Perfluorononanoic acid (PFNA)			20.0	21.46		ng/Sample		107	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			20.0	20.28		ng/Sample		101	60 - 140	4	30
Perfluoroundecanoic acid (PFUnA)			20.0	19.76		ng/Sample		99	60 - 140	5	30
Perfluorododecanoic acid (PFDoA)			20.0	21.10		ng/Sample		106	60 - 140	10	30
Perfluorotridecanoic acid (PFTriA)			20.0	18.31		ng/Sample		92	60 - 140	12	30
Perfluorotetradecanoic acid (PFTeA)			20.0	21.51		ng/Sample		108	60 - 140	10	30
Perfluorobutanesulfonic acid (PFBS)			17.7	17.23		ng/Sample		97	60 - 140	7	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			18.2	18.78		ng/Sample		103	60 - 140	5	30
Perfluoroheptanesulfonic acid (PFHpS)			19.0	20.73		ng/Sample		109	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)			18.6	19.78		ng/Sample		107	60 - 140	9	30
Perfluorodecanesulfonic acid (PFDS)			19.3	16.80		ng/Sample		87	60 - 140	0	30
Perfluorooctanesulfonamide (FOSA)			20.0	21.27		ng/Sample		106	60 - 140	3	30
Perfluoropentanesulfonic acid (PFPeS)			18.8	18.66		ng/Sample		99	60 - 140	5	30
Perfluorononanesulfonic acid (PFNS)			19.2	19.86		ng/Sample		103	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			20.0	22.11		ng/Sample		111	60 - 140	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			20.0	21.03		ng/Sample		105	60 - 140	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			18.7	21.14		ng/Sample		113	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			19.0	19.78		ng/Sample		104	60 - 140	11	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			19.2	21.52		ng/Sample		112	60 - 140	12	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			20.0	22.35		ng/Sample		112	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			18.6	19.79		ng/Sample		106	60 - 140	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			18.8	16.06		ng/Sample		85	60 - 140	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			18.8	22.30		ng/Sample		118	60 - 140	7	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			19.3	19.95		ng/Sample		103	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			20.0	19.75		ng/Sample		99	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)			20.0	0.7203	J *- *1	ng/Sample		4	60 - 140	137	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			20.0	24.80		ng/Sample		124	60 - 140	9	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			20.0	21.72		ng/Sample		109	60 - 140	1	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	22.57		ng/Sample		113	60 - 140	10	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	21.24		ng/Sample		106	60 - 140	10	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	8.141	*-	ng/Sample		42	60 - 140	8	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	22.43		ng/Sample		112	60 - 140	13	30
10:2 Fluorotelomer carboxylic acid			20.0	15.45		ng/Sample		77	60 - 140	8	30
6:2 Fluorotelomer carboxylic acid			20.0	18.62		ng/Sample		93	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
7:3 Fluorotelomer carboxylic acid			20.0	27.75		ng/Sample		139	60 - 140	1	30
6:2 Fluorotelemer unsaturated acid			20.0	18.51		ng/Sample		93	60 - 140	5	30
8:2 Fluorotelomer carboxylic acid			20.0	22.25		ng/Sample		111	60 - 140	6	30
8:2 Fluorotelemer unsaturated acid			20.0	18.27		ng/Sample		91	60 - 140	13	30
5:3 Fluorotelomer carboxylic acid			20.0	28.93	*+	ng/Sample		145	60 - 140	7	30
3-Perfluoropropylpropanoic acid			20.0	20.94		ng/Sample		105	60 - 140	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	19.94		ng/Sample		100	60 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.88		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	17.64		ng/Sample		96	60 - 140	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.11		ng/Sample		102	60 - 140	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*111*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C2 PFTeDA	*59*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C3 HFPO-DA	*100*		*25 - 150*
13C3 PFBS	*109*		*25 - 150*
13C4 PFBA	*105*		*25 - 150*
13C2 PFHxDA	*10*	*5-	*25 - 150*
13C4 PFHpA	*116*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*
13C4 PFOS	*98*		*25 - 150*
13C5 PFNA	*106*		*25 - 150*
13C5 PFPeA	*111*		*25 - 150*
13C8 FOSA	*103*		*25 - 150*
18O2 PFHxS	*111*		*25 - 150*
d3-NMeFOSAA	*108*		*25 - 150*
d5-NEtFOSAA	*110*		*25 - 150*
d7-N-MeFOSE-M	*86*		*25 - 150*
d9-N-EtFOSE-M	*90*		*25 - 150*
d-N-EtFOSA-M	*66*		*25 - 150*
d-N-MeFOSA-M	*74*		*25 - 150*
M2-4:2 FTS	*142*		*25 - 150*
M2-6:2 FTS	*121*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*
13C-10:2 FTCA	*80*		*25 - 150*
13C-6:2 FTCA	*79*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*162*	*5+	*25 - 150*
13C-8:2 FTCA	*73*		*25 - 150*
13C-8:2 FTUCA	*152*	*5+	*25 - 150*

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.00	1.30	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.00	0.180	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanoic acid (PFHxA)	ND		1.00	0.210	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.00	0.620	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanoic acid (PFOA)	ND		1.00	0.650	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanoic acid (PFNA)	ND		1.00	0.0850	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanoic acid (PFDA)	ND		1.00	0.250	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.00	0.100	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.00	0.170	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.00	0.890	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.00	0.450	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.00	0.110	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.00	0.0880	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorononanesulfonic acid (PFNS)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.00	0.0910	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.00	4.00	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		5.00	4.70	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.00	0.0980	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.00	0.320	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		1.00	0.120	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		5.00	4.90	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.00	0.160	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.00	0.0950	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
10:2 Fluorotelomer carboxylic acid	ND		1.00	0.420	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelomer carboxylic acid	ND		1.00	0.430	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
7:3 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
6:2 Fluorotelemer unsaturated acid	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelomer carboxylic acid	ND		1.00	0.350	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
8:2 Fluorotelemer unsaturated acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
5:3 Fluorotelomer carboxylic acid	ND		1.00	0.480	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
3-Perfluoropropylpropanoic acid	ND		1.00	0.290	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.00	0.150	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.00	0.200	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		1.00	0.220	ng/Sample		08/31/22 10:35	09/07/22 13:59	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.00	0.140	ng/Sample		08/31/22 10:35	09/07/22 13:59	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*102*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFDoA	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxA	*84*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFTeDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFUnA	*108*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 HFPO-DA	*70*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C3 PFBS	*92*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFBA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C2 PFHxDA	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFHpA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C4 PFOS	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C5 PFPeA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C8 FOSA	*103*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
18O2 PFHxS	*101*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d3-NMeFOSAA	*113*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d5-NEtFOSAA	*122*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d7-N-MeFOSE-M	*109*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d9-N-EtFOSE-M	*110*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d-N-EtFOSA-M	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
d-N-MeFOSA-M	*98*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
M2-4:2 FTS	*90*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
M2-8:2 FTS	*99*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*
13C-10:2 FTCA	*94*		*25 - 150*	*08/31/22 10:35*	*09/07/22 13:59*	*1*

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

Lab Sample ID: MB 140-64841/1-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C2 10:2 FTS	103		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-6:2 FTUCA	125		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTCA	82		25 - 150	08/31/22 10:35	09/07/22 13:59	1
13C-8:2 FTUCA	146		25 - 150	08/31/22 10:35	09/07/22 13:59	1

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	20.0	19.27		ng/Sample		96	60 - 140
Perfluoropentanoic acid (PFPeA)	20.0	20.89		ng/Sample		104	60 - 140
Perfluorohexanoic acid (PFHxA)	20.0	20.71		ng/Sample		104	60 - 140
Perfluoroheptanoic acid (PFHpA)	20.0	22.01		ng/Sample		110	60 - 140
Perfluorooctanoic acid (PFOA)	20.0	23.07		ng/Sample		115	60 - 140
Perfluorononanoic acid (PFNA)	20.0	21.08		ng/Sample		105	60 - 140
Perfluorodecanoic acid (PFDA)	20.0	21.05		ng/Sample		105	60 - 140
Perfluoroundecanoic acid (PFUnA)	20.0	20.14		ng/Sample		101	60 - 140
Perfluorododecanoic acid (PFDoA)	20.0	21.23		ng/Sample		106	60 - 140
Perfluorotridecanoic acid (PFTriA)	20.0	22.19		ng/Sample		111	60 - 140
Perfluorotetradecanoic acid (PFTeA)	20.0	21.09		ng/Sample		105	60 - 140
Perfluorobutanesulfonic acid (PFBS)	17.7	18.17		ng/Sample		103	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	18.2	17.74		ng/Sample		97	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	19.0	19.55		ng/Sample		103	60 - 140
Perfluorooctanesulfonic acid (PFOS)	18.6	17.90		ng/Sample		96	60 - 140
Perfluorodecanesulfonic acid (PFDS)	19.3	18.66		ng/Sample		97	60 - 140
Perfluorooctanesulfonamide (FOSA)	20.0	22.68		ng/Sample		113	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	18.8	19.21		ng/Sample		102	60 - 140
Perfluorononanesulfonic acid (PFNS)	19.2	20.89		ng/Sample		109	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20.0	21.75		ng/Sample		109	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20.0	20.52		ng/Sample		103	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	18.7	19.99		ng/Sample		107	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	19.0	19.09		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	19.2	18.70		ng/Sample		98	60 - 140

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	20.0	20.93		ng/Sample		105	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	18.6	20.06		ng/Sample		108	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	18.8	19.09		ng/Sample		101	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	18.8	19.11		ng/Sample		101	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	19.3	21.12		ng/Sample		110	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	20.0	18.97		ng/Sample		95	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	20.0	23.44		ng/Sample		117	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	20.0	20.10		ng/Sample		101	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	20.0	19.97		ng/Sample		100	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	20.0	20.04		ng/Sample		100	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	20.0	19.36		ng/Sample		97	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	19.4	19.56		ng/Sample		101	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	20.0	22.32		ng/Sample		112	60 - 140
10:2 Fluorotelomer carboxylic acid	20.0	20.81		ng/Sample		104	60 - 140
6:2 Fluorotelomer carboxylic acid	20.0	21.08		ng/Sample		105	60 - 140
7:3 Fluorotelomer carboxylic acid	20.0	26.90		ng/Sample		135	60 - 140
6:2 Fluorotelemer unsaturated acid	20.0	17.79		ng/Sample		89	60 - 140
8:2 Fluorotelomer carboxylic acid	20.0	23.81		ng/Sample		119	60 - 140
8:2 Fluorotelemer unsaturated acid	20.0	19.64		ng/Sample		98	60 - 140
5:3 Fluorotelomer carboxylic acid	20.0	25.36		ng/Sample		127	60 - 140
3-Perfluoropropylpropanoic acid	20.0	22.70		ng/Sample		114	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	20.0	20.08		ng/Sample		100	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	20.0	19.76		ng/Sample		99	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	18.4	19.58		ng/Sample		106	60 - 140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	17.8	18.20		ng/Sample		102	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*101*		*25 - 150*
13C2 PFDoA	*101*		*25 - 150*
13C2 PFHxA	*90*		*25 - 150*
13C2 PFTeDA	*103*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*

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

Lab Sample ID: LCS 140-64841/2-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64841

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	92		25 - 150
13C3 PFBS	93		25 - 150
13C4 PFBA	100		25 - 150
13C2 PFHxDA	99		25 - 150
13C4 PFHpA	92		25 - 150
13C4 PFOA	97		25 - 150
13C4 PFOS	96		25 - 150
13C5 PFNA	93		25 - 150
13C5 PFPeA	94		25 - 150
13C8 FOSA	99		25 - 150
18O2 PFHxS	100		25 - 150
d3-NMeFOSAA	110		25 - 150
d5-NEtFOSAA	111		25 - 150
d7-N-MeFOSE-M	114		25 - 150
d9-N-EtFOSE-M	115		25 - 150
d-N-EtFOSA-M	101		25 - 150
d-N-MeFOSA-M	98		25 - 150
M2-4:2 FTS	91		25 - 150
M2-6:2 FTS	95		25 - 150
M2-8:2 FTS	95		25 - 150
13C-10:2 FTCA	98		25 - 150
13C-6:2 FTCA	82		25 - 150
13C2 10:2 FTS	108		25 - 150
13C-6:2 FTUCA	123		25 - 150
13C-8:2 FTCA	75		25 - 150
13C-8:2 FTUCA	133		25 - 150

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			20.0	18.89		ng/Sample		94	60 - 140	2	30
Perfluoropentanoic acid (PFPeA)			20.0	19.56		ng/Sample		98	60 - 140	7	30
Perfluorohexanoic acid (PFHxA)			20.0	21.91		ng/Sample		110	60 - 140	6	30
Perfluoroheptanoic acid (PFHpA)			20.0	21.44		ng/Sample		107	60 - 140	3	30
Perfluorooctanoic acid (PFOA)			20.0	20.81		ng/Sample		104	60 - 140	10	30
Perfluorononanoic acid (PFNA)			20.0	21.47		ng/Sample		107	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			20.0	21.93		ng/Sample		110	60 - 140	4	30
Perfluoroundecanoic acid (PFUnA)			20.0	18.12		ng/Sample		91	60 - 140	11	30
Perfluorododecanoic acid (PFDoA)			20.0	20.76		ng/Sample		104	60 - 140	2	30
Perfluorotridecanoic acid (PFTriA)			20.0	21.21		ng/Sample		106	60 - 140	5	30
Perfluorotetradecanoic acid (PFTeA)			20.0	20.48		ng/Sample		102	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)			17.7	17.96		ng/Sample		102	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			18.2	18.14		ng/Sample		100	60 - 140	2	30
Perfluoroheptanesulfonic acid (PFHpS)			19.0	18.58		ng/Sample		98	60 - 140	5	30
Perfluorooctanesulfonic acid (PFOS)			18.6	19.27		ng/Sample		104	60 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)			19.3	19.80		ng/Sample		103	60 - 140	6	30
Perfluorooctanesulfonamide (FOSA)			20.0	20.24		ng/Sample		101	60 - 140	11	30
Perfluoropentanesulfonic acid (PFPeS)			18.8	18.86		ng/Sample		101	60 - 140	2	30
Perfluorononanesulfonic acid (PFNS)			19.2	20.24		ng/Sample		105	60 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			20.0	19.95		ng/Sample		100	60 - 140	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			20.0	18.32		ng/Sample		92	60 - 140	11	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			18.7	19.01		ng/Sample		102	60 - 140	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			19.0	19.29		ng/Sample		102	60 - 140	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			19.2	19.97		ng/Sample		104	60 - 140	7	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			20.0	20.05		ng/Sample		100	60 - 140	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			18.6	19.50		ng/Sample		105	60 - 140	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			18.8	20.27		ng/Sample		108	60 - 140	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			18.8	19.03		ng/Sample		101	60 - 140	0	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			19.3	20.25		ng/Sample		105	60 - 140	4	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			20.0	18.66		ng/Sample		93	60 - 140	2	30
Perfluoro-n-octadecanoic acid (PFODA)			20.0	23.25		ng/Sample		116	60 - 140	1	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			20.0	17.79		ng/Sample		89	60 - 140	12	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			20.0	18.88		ng/Sample		94	60 - 140	6	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			20.0	19.90		ng/Sample		99	60 - 140	1	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			20.0	19.63		ng/Sample		98	60 - 140	1	30
Perfluorododecanesulfonic acid (PFDoS)			19.4	19.46		ng/Sample		100	60 - 140	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			20.0	21.81		ng/Sample		109	60 - 140	2	30
10:2 Fluorotelomer carboxylic acid			20.0	17.57		ng/Sample		88	60 - 140	17	30
6:2 Fluorotelomer carboxylic acid			20.0	18.72		ng/Sample		94	60 - 140	12	30

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

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air
Analysis Batch: 65050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
7:3 Fluorotelomer carboxylic acid			20.0	27.31		ng/Sample		137	60 - 140	2	30
6:2 Fluorotelemer unsaturated acid			20.0	17.90		ng/Sample		90	60 - 140	1	30
8:2 Fluorotelomer carboxylic acid			20.0	23.34		ng/Sample		117	60 - 140	2	30
8:2 Fluorotelemer unsaturated acid			20.0	17.13		ng/Sample		86	60 - 140	14	30
5:3 Fluorotelomer carboxylic acid			20.0	24.42		ng/Sample		122	60 - 140	4	30
3-Perfluoropropylpropanoic acid			20.0	21.47		ng/Sample		107	60 - 140	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			20.0	18.95		ng/Sample		95	60 - 140	6	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			20.0	19.84		ng/Sample		99	60 - 140	0	30
Perfluoro-4-ethylcyclohexanesulfonic acid			18.4	18.69		ng/Sample		101	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			17.8	18.49		ng/Sample		104	60 - 140	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*99*		*25 - 150*
13C2 PFDoA	*98*		*25 - 150*
13C2 PFHxA	*84*		*25 - 150*
13C2 PFTeDA	*99*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C3 HFPO-DA	*89*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
13C4 PFBA	*95*		*25 - 150*
13C2 PFHxDA	*95*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*92*		*25 - 150*
13C5 PFNA	*93*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*101*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*115*		*25 - 150*
d5-NEtFOSAA	*116*		*25 - 150*
d7-N-MeFOSE-M	*114*		*25 - 150*
d9-N-EtFOSE-M	*104*		*25 - 150*
d-N-EtFOSA-M	*98*		*25 - 150*
d-N-MeFOSA-M	*97*		*25 - 150*
M2-4:2 FTS	*88*		*25 - 150*
M2-6:2 FTS	*91*		*25 - 150*
M2-8:2 FTS	*92*		*25 - 150*
13C-10:2 FTCA	*92*		*25 - 150*
13C-6:2 FTCA	*81*		*25 - 150*
13C2 10:2 FTS	*111*		*25 - 150*
13C-6:2 FTUCA	*121*		*25 - 150*
13C-8:2 FTCA	*72*		*25 - 150*
13C-8:2 FTUCA	*142*		*25 - 150*

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.3631	J	0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanoic acid (PFPeA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanoic acid (PFHxA)	ND		0.500	0.190	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.500	0.153	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanoic acid (PFOA)	ND		0.500	0.0950	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanoic acid (PFNA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanoic acid (PFDA)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.500	0.0525	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.500	0.113	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.500	0.0450	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.500	0.115	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.500	0.0825	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorooctanesulfonamide (FOSA)	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.500	0.0600	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorononanesulfonic acid (PFNS)	ND		0.500	0.0375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.500	0.0750	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.500	0.0575	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.500	0.138	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.500	0.130	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.4171	J	0.500	0.235	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.500	0.0650	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.500	0.0700	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.500	0.140	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.500	0.108	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.185	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	ND		0.500	0.103	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.500	0.0850	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.500	0.135	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.500	0.143	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.500	0.0800	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
10:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
7:3 Fluorotelomer carboxylic acid	ND		0.500	0.375	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
6:2 Fluorotelemer unsaturated acid	ND		0.500	0.0900	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelomer carboxylic acid	ND		0.500	0.325	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
8:2 Fluorotelemer unsaturated acid	ND		0.500	0.200	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
5:3 Fluorotelomer carboxylic acid	ND		0.500	0.300	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
3-Perfluoropropylpropanoic acid	ND		0.500	0.220	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.500	0.145	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.500	0.198	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro-4-ethylcyclohexanesulfonic acid	ND		0.500	0.160	ng/Sample		09/01/22 08:23	09/13/22 21:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.500	0.128	ng/Sample		09/01/22 08:23	09/13/22 21:03	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFDoA	*80*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxA	*97*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFUnA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C3 PFBS	*94*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFBA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C2 PFHxDA	*75*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFHpA	*102*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFOA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C4 PFOS	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C5 PFNA	*103*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C5 PFPeA	*101*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C8 FOSA	*71*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
18O2 PFHxS	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d3-NMeFOSAA	*96*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d7-N-MeFOSE-M	*62*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d9-N-EtFOSE-M	*65*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d-N-EtFOSA-M	*67*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
d-N-MeFOSA-M	*63*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
M2-4:2 FTS	*106*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
M2-6:2 FTS	*106*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*
13C-10:2 FTCA	*87*		*25 - 150*	*09/01/22 08:23*	*09/13/22 21:03*	*1*

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

Lab Sample ID: MB 140-64880/1-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C2 10:2 FTS	83		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-6:2 FTUCA	114		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTCA	88		25 - 150	09/01/22 08:23	09/13/22 21:03	1
13C-8:2 FTUCA	115		25 - 150	09/01/22 08:23	09/13/22 21:03	1

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.461		ng/Sample		95	60 - 140
Perfluoropentanoic acid (PFPeA)	10.0	9.656		ng/Sample		97	60 - 140
Perfluorohexanoic acid (PFHxA)	10.0	9.497		ng/Sample		95	60 - 140
Perfluoroheptanoic acid (PFHpA)	10.0	9.450		ng/Sample		94	60 - 140
Perfluorooctanoic acid (PFOA)	10.0	9.843		ng/Sample		98	60 - 140
Perfluorononanoic acid (PFNA)	10.0	9.685		ng/Sample		97	60 - 140
Perfluorodecanoic acid (PFDA)	10.0	10.36		ng/Sample		104	60 - 140
Perfluoroundecanoic acid (PFUnA)	10.0	8.999		ng/Sample		90	60 - 140
Perfluorododecanoic acid (PFDoA)	10.0	9.680		ng/Sample		97	60 - 140
Perfluorotridecanoic acid (PFTriA)	10.0	8.040		ng/Sample		80	60 - 140
Perfluorotetradecanoic acid (PFTeA)	10.0	10.09		ng/Sample		101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	8.84	8.245		ng/Sample		93	60 - 140
Perfluorohexanesulfonic acid (PFHxS)	9.10	8.738		ng/Sample		96	60 - 140
Perfluoroheptanesulfonic acid (PFHpS)	9.52	9.397		ng/Sample		99	60 - 140
Perfluorooctanesulfonic acid (PFOS)	9.28	8.955		ng/Sample		97	60 - 140
Perfluorodecanesulfonic acid (PFDS)	9.64	7.528		ng/Sample		78	60 - 140
Perfluorooctanesulfonamide (FOSA)	10.0	10.21		ng/Sample		102	60 - 140
Perfluoropentanesulfonic acid (PFPeS)	9.38	8.484		ng/Sample		90	60 - 140
Perfluorononanesulfonic acid (PFNS)	9.60	9.442		ng/Sample		98	60 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	10.23		ng/Sample		102	60 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	9.848		ng/Sample		98	60 - 140
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.34	8.707		ng/Sample		93	60 - 140
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.48	9.525		ng/Sample		100	60 - 140
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.58	9.342		ng/Sample		98	60 - 140

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	10.0	9.737		ng/Sample		97	60 - 140
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9.32	9.404		ng/Sample		101	60 - 140
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	9.42	6.707		ng/Sample		71	60 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.42	9.279		ng/Sample		99	60 - 140
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.64	9.016		ng/Sample		94	60 - 140
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol	10.0	9.716		ng/Sample		97	60 - 140
Perfluoro-n-octadecanoic acid (PFODA)	10.0	10.83		ng/Sample		108	60 - 140
2-(N-methylperfluoro-1-octanesulfonamido) ethanol	10.0	10.39		ng/Sample		104	60 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	10.60		ng/Sample		106	60 - 140
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	10.12		ng/Sample		101	60 - 140
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	9.847		ng/Sample		98	60 - 140
Perfluorododecanesulfonic acid (PFDoS)	9.68	6.021		ng/Sample		62	60 - 140
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	10.38		ng/Sample		104	60 - 140
10:2 Fluorotelomer carboxylic acid	10.0	7.838		ng/Sample		78	60 - 140
6:2 Fluorotelomer carboxylic acid	10.0	10.11		ng/Sample		101	60 - 140
7:3 Fluorotelomer carboxylic acid	10.0	9.628		ng/Sample		96	60 - 140
6:2 Fluorotelemer unsaturated acid	10.0	8.206		ng/Sample		82	60 - 140
8:2 Fluorotelomer carboxylic acid	10.0	9.672		ng/Sample		97	60 - 140
8:2 Fluorotelemer unsaturated acid	10.0	8.692	I	ng/Sample		87	60 - 140
5:3 Fluorotelomer carboxylic acid	10.0	10.78		ng/Sample		108	60 - 140
3-Perfluoropropylpropanoic acid	10.0	10.05		ng/Sample		101	60 - 140
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	9.429		ng/Sample		94	60 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	9.992		ng/Sample		100	60 - 140
Perfluoro-4-ethylcyclohexanesulfonic acid	9.22	8.175		ng/Sample		89	60 - 140
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.90	8.383		ng/Sample		94	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*104*		*25 - 150*
13C2 PFDoA	*84*		*25 - 150*
13C2 PFHxA	*101*		*25 - 150*
13C2 PFTeDA	*67*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*

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

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64880

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	99		25 - 150
13C3 PFBS	102		25 - 150
13C4 PFBA	106		25 - 150
13C2 PFHxDA	71		25 - 150
13C4 PFHpA	109		25 - 150
13C4 PFOA	106		25 - 150
13C4 PFOS	99		25 - 150
13C5 PFNA	107		25 - 150
13C5 PFPeA	104		25 - 150
13C8 FOSA	79		25 - 150
18O2 PFHxS	105		25 - 150
d3-NMeFOSAA	98		25 - 150
d5-NEtFOSAA	89		25 - 150
d7-N-MeFOSE-M	68		25 - 150
d9-N-EtFOSE-M	69		25 - 150
d-N-EtFOSA-M	73		25 - 150
d-N-MeFOSA-M	68		25 - 150
M2-4:2 FTS	100		25 - 150
M2-6:2 FTS	107		25 - 150
M2-8:2 FTS	109		25 - 150
13C-10:2 FTCA	75		25 - 150
13C-6:2 FTCA	87		25 - 150
13C2 10:2 FTS	84		25 - 150
13C-6:2 FTUCA	118		25 - 150
13C-8:2 FTCA	96		25 - 150
13C-8:2 FTUCA	123		25 - 150

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.49		ng/Sample		105	60 - 140	10	30
Perfluoropentanoic acid (PFPeA)			10.0	9.881		ng/Sample		99	60 - 140	2	30
Perfluorohexanoic acid (PFHxA)			10.0	9.386		ng/Sample		94	60 - 140	1	30
Perfluoroheptanoic acid (PFHpA)			10.0	10.16		ng/Sample		102	60 - 140	7	30
Perfluorooctanoic acid (PFOA)			10.0	10.47		ng/Sample		105	60 - 140	6	30
Perfluorononanoic acid (PFNA)			10.0	9.474		ng/Sample		95	60 - 140	2	30
Perfluorodecanoic acid (PFDA)			10.0	10.39		ng/Sample		104	60 - 140	0	30
Perfluoroundecanoic acid (PFUnA)			10.0	8.841		ng/Sample		88	60 - 140	2	30
Perfluorododecanoic acid (PFDoA)			10.0	9.695		ng/Sample		97	60 - 140	0	30
Perfluorotridecanoic acid (PFTriA)			10.0	8.789		ng/Sample		88	60 - 140	9	30
Perfluorotetradecanoic acid (PFTeA)			10.0	9.487		ng/Sample		95	60 - 140	6	30
Perfluorobutanesulfonic acid (PFBS)			8.84	8.210		ng/Sample		93	60 - 140	0	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			9.10	8.677		ng/Sample		95	60 - 140	1	30
Perfluoroheptanesulfonic acid (PFHpS)			9.52	8.993		ng/Sample		94	60 - 140	4	30
Perfluorooctanesulfonic acid (PFOS)			9.28	8.865		ng/Sample		96	60 - 140	1	30
Perfluorodecanesulfonic acid (PFDS)			9.64	9.073		ng/Sample		94	60 - 140	19	30
Perfluorooctanesulfonamide (FOSA)			10.0	10.11		ng/Sample		101	60 - 140	1	30
Perfluoropentanesulfonic acid (PFPeS)			9.38	8.585		ng/Sample		92	60 - 140	1	30
Perfluorononanesulfonic acid (PFNS)			9.60	9.654		ng/Sample		101	60 - 140	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			10.0	9.934		ng/Sample		99	60 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			10.0	9.749		ng/Sample		97	60 - 140	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)			9.34	9.090		ng/Sample		97	60 - 140	4	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)			9.48	9.764		ng/Sample		103	60 - 140	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)			9.58	9.368		ng/Sample		98	60 - 140	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			10.0	11.27		ng/Sample		113	60 - 140	15	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			9.32	9.301		ng/Sample		100	60 - 140	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			9.42	8.187		ng/Sample		87	60 - 140	20	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			9.42	9.439		ng/Sample		100	60 - 140	2	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)			9.64	9.515		ng/Sample		99	60 - 140	5	30
2-(N-ethylperfluoro-1-octanesulfonamido) ethanol			10.0	9.276		ng/Sample		93	60 - 140	5	30
Perfluoro-n-octadecanoic acid (PFODA)			10.0	9.809		ng/Sample		98	60 - 140	10	30
2-(N-methylperfluoro-1-octanesulfonamido) ethanol			10.0	10.32		ng/Sample		103	60 - 140	1	30
N-methylperfluorooctane sulfonamide (NMeFOSA)			10.0	10.63		ng/Sample		106	60 - 140	0	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)			10.0	9.371		ng/Sample		94	60 - 140	8	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			10.0	9.872		ng/Sample		99	60 - 140	0	30
Perfluorododecanesulfonic acid (PFDoS)			9.68	7.833		ng/Sample		81	60 - 140	26	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			10.0	8.655		ng/Sample		87	60 - 140	18	30
10:2 Fluorotelomer carboxylic acid			10.0	7.621		ng/Sample		76	60 - 140	3	30
6:2 Fluorotelomer carboxylic acid			10.0	9.988		ng/Sample		100	60 - 140	1	30

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

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air
Analysis Batch: 65245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64880

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
7:3 Fluorotelomer carboxylic acid			10.0	9.154		ng/Sample		92	60 - 140	5	30
6:2 Fluorotelemer unsaturated acid			10.0	9.502		ng/Sample		95	60 - 140	15	30
8:2 Fluorotelomer carboxylic acid			10.0	9.780		ng/Sample		98	60 - 140	1	30
8:2 Fluorotelemer unsaturated acid			10.0	8.757		ng/Sample		88	60 - 140	1	30
5:3 Fluorotelomer carboxylic acid			10.0	12.16		ng/Sample		122	60 - 140	12	30
3-Perfluoropropylpropanoic acid			10.0	10.05		ng/Sample		101	60 - 140	0	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			10.0	9.656		ng/Sample		97	60 - 140	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			10.0	9.530		ng/Sample		95	60 - 140	5	30
Perfluoro-4-ethylcyclohexanesulfonic acid			9.22	8.613		ng/Sample		93	60 - 140	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			8.90	8.052		ng/Sample		90	60 - 140	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*100*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C2 PFUnA	*110*		*25 - 150*
13C3 HFPO-DA	*96*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
13C4 PFBA	*102*		*25 - 150*
13C2 PFHxDA	*79*		*25 - 150*
13C4 PFHpA	*97*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C8 FOSA	*81*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*93*		*25 - 150*
d7-N-MeFOSE-M	*74*		*25 - 150*
d9-N-EtFOSE-M	*79*		*25 - 150*
d-N-EtFOSA-M	*92*		*25 - 150*
d-N-MeFOSA-M	*80*		*25 - 150*
M2-4:2 FTS	*99*		*25 - 150*
M2-6:2 FTS	*93*		*25 - 150*
M2-8:2 FTS	*102*		*25 - 150*
13C-10:2 FTCA	*93*		*25 - 150*
13C-6:2 FTCA	*77*		*25 - 150*
13C2 10:2 FTS	*94*		*25 - 150*
13C-6:2 FTUCA	*109*		*25 - 150*
13C-8:2 FTCA	*97*		*25 - 150*
13C-8:2 FTUCA	*114*		*25 - 150*

QC Association Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

LCMS

Prep Batch: 64806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 B	Total/NA	Air	None	
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUG	Total/NA	Air	None	
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 B	Total/NA	Air	None	
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUG	Total/NA	Air	None	
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 B	Total/NA	Air	None	
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUG	Total/NA	Air	None	
MB 140-64806/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Total/NA	Air	None	
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Total/NA	Air	None	
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Total/NA	Air	None	
MB 140-64841/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 64880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2	Total/NA	Air	None	
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2	Total/NA	Air	None	
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2	Total/NA	Air	None	
MB 140-64880/1-B	Method Blank	Total/NA	Air	None	
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 64889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Total/NA	Air	Split	64841
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Total/NA	Air	Split	64841
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Total/NA	Air	Split	64841
MB 140-64841/1-B	Method Blank	Total/NA	Air	Split	64841
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	Split	64841
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64841

Cleanup Batch: 64951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 B	Total/NA	Air	Split	64806
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUG	Total/NA	Air	Split	64806
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 B	Total/NA	Air	Split	64806
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUG	Total/NA	Air	Split	64806
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 B	Total/NA	Air	Split	64806
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUG	Total/NA	Air	Split	64806
MB 140-64806/1-B	Method Blank	Total/NA	Air	Split	64806
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	Split	64806
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64806

LCMS

Analysis Batch: 65050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Total/NA	Air	537 (modified)	64889
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Total/NA	Air	537 (modified)	64889
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Total/NA	Air	537 (modified)	64889
MB 140-64841/1-B	Method Blank	Total/NA	Air	537 (modified)	64889
LCS 140-64841/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64889
LCSD 140-64841/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64889

Cleanup Batch: 65113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2	Total/NA	Air	Split	64880
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2	Total/NA	Air	Split	64880
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2	Total/NA	Air	Split	64880
MB 140-64880/1-B	Method Blank	Total/NA	Air	Split	64880
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	Split	64880
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	Split	64880

Analysis Batch: 65245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2	Total/NA	Air	537 (modified)	65113
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUG	Total/NA	Air	537 (modified)	64951
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2	Total/NA	Air	537 (modified)	65113
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUG	Total/NA	Air	537 (modified)	64951
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2	Total/NA	Air	537 (modified)	65113
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUG	Total/NA	Air	537 (modified)	64951
MB 140-64806/1-B	Method Blank	Total/NA	Air	537 (modified)	64951
MB 140-64880/1-B	Method Blank	Total/NA	Air	537 (modified)	65113
LCS 140-64806/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	64951
LCS 140-64880/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	65113
LCSD 140-64806/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	64951
LCSD 140-64880/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	65113

Analysis Batch: 65265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 B	Total/NA	Air	537 (modified)	64951
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 B	Total/NA	Air	537 (modified)	64951
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 B	Total/NA	Air	537 (modified)	64951

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3008,T-3009 INLET CPT R2 OTM-45 FH
Lab Sample ID: 140-28649-5
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	86 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			43 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:26	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH
Lab Sample ID: 140-28649-6
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	65265	09/14/22 13:10	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE
Lab Sample ID: 140-28649-7
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.80645 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:29	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-28649-8
Date Collected: 08/24/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:36	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-3015,T-3016 INLET CPT R3 OTM-45 FH

Lab Sample ID: 140-28649-9

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	71 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			36 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:35	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH

Lab Sample ID: 140-28649-10

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	65265	09/14/22 13:19	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-11

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.84746 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:38	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-12

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 02:11	CAC	EET KNX
	Instrument ID: LCA									

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: T-2075,T-2076 INLET CPT R4 OTM-45 FH

Lab Sample ID: 140-28649-13

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	130 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			65 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:44	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH

Lab Sample ID: 140-28649-14

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		10	1 mL	1 mL	65265	09/14/22 13:28	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE

Lab Sample ID: 140-28649-15

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.73529 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:47	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-28649-16

Date Collected: 08/25/22 00:00
Matrix: Air
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 02:29	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64806/1-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:01	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64841/1-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 13:59	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-64880/1-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:03	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64806/2-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:09	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-64841/2-B

Date Collected: N/A
Matrix: Air
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:08	CAC	EET KNX
	Instrument ID: LCA									

Lab Chronicle

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 140-64880/2-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:11	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64806/3-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	360 mL	64806	08/30/22 12:05	CAC	EET KNX
Total/NA	Cleanup	Split			180 mL	10 mL	64951	09/02/22 12:22	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/14/22 01:18	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64841/3-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	64841	08/31/22 10:35	CAC	EET KNX
Total/NA	Cleanup	Split			25 mL	10 mL	64889	09/01/22 09:19	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65050	09/07/22 14:17	CAC	EET KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCSD 140-64880/3-B
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	10 mL	64880	09/01/22 08:23	CAC	EET KNX
Total/NA	Cleanup	Split			10 mL	10 mL	65113	09/09/22 08:41	ACW	EET KNX
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	65245	09/13/22 21:20	CAC	EET KNX
	Instrument ID: LCA									

Laboratory References:
EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Laboratory: Eurofins Knoxville

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-25
ANAB	Dept. of Energy	L2311.01	02-13-25
ANAB	ISO/IEC 17025	L2311	02-13-25
Arkansas DEQ	State	88-0688	06-16-23
California	State	2423	06-30-22 *
Colorado	State	TN00009	02-28-23
Connecticut	State	PH-0223	09-30-23
Florida	NELAP	E87177	06-30-23
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-22
Kansas	NELAP	E-10349	10-31-22
Kentucky (DW)	State	90101	12-31-22
Louisiana	NELAP	83979	06-30-23
Louisiana (All)	NELAP	83979	09-15-22
Louisiana (DW)	State	LA019	12-31-22
Maryland	State	277	03-31-23
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-23
New Hampshire	NELAP	299919	01-17-23
New Jersey	NELAP	TN001	06-30-23
New York	NELAP	10781	03-31-23
North Carolina (DW)	State	21705	07-31-23
North Carolina (WW/SW)	State	64	12-31-22
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-23
Oregon	NELAP	TNI0189	12-31-22
Pennsylvania	NELAP	68-00576	12-31-22
Tennessee	State	02014	07-27-25
Texas	NELAP	T104704380-22-17	08-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-19-00236	12-31-22
Utah	NELAP	TN00009	07-31-23
Virginia	NELAP	460176	09-14-22
Washington	State	C593	01-19-23
West Virginia (DW)	State	9955C	12-31-22
West Virginia DEP	State	345	04-30-23
Wisconsin	State	998044300	08-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET KNX
None	Leaching Procedure	TAL SOP	EET KNX
None	Leaching Procedure for Condensate	TAL SOP	EET KNX
None	Leaching Procedure for Filter	TAL SOP	EET KNX
Split	Source Air Split	None	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Barr Engineering Company
Project/Site: St.Gobain CPT - Inlet OTM-45

Job ID: 140-28649-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-28649-5	T-3008,T-3009 INLET CPT R2 OTM-45 FH	Air	08/24/22 00:00	08/29/22 08:00
140-28649-6	T-3010,T-3011,T-3013 INLET CPT R2 OTM-45 BH	Air	08/24/22 00:00	08/29/22 08:00
140-28649-7	T-3012 INLET CPT R2 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/24/22 00:00	08/29/22 08:00
140-28649-8	T-3014 INLET CPT R2 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/24/22 00:00	08/29/22 08:00
140-28649-9	T-3015,T-3016 INLET CPT R3 OTM-45 FH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-10	T-3017,T-3018,T-3020 INLET CPT R3 OTM-45 BH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-11	T-3019 INLET CPT R3 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/25/22 00:00	08/29/22 08:00
140-28649-12	T-3021 INLET CPT R3 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/25/22 00:00	08/29/22 08:00
140-28649-13	T-2075,T-2076 INLET CPT R4 OTM-45 FH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-14	T-2077,T-2078,T-2080 INLET CPT R4 OTM-45 BH	Air	08/25/22 00:00	08/29/22 08:00
140-28649-15	T-2079 INLET CPT R4 OTM-45 IMPINGERS 1,2&3 CONDENSATE	Air	08/25/22 00:00	08/29/22 08:00
140-28649-16	T-2081 INLET CPT R4 OTM-45 BREAKTHROUGH XAD-2 RESIN TUBE	Air	08/25/22 00:00	08/29/22 08:00

Request for Analysis/Chain-of-Custody – RFA/COC #001
Barr Engineering St. Gobain CPT
EPA Method OTM-45 Train Sampling
PFAS Testing on the Inlet to the Scrubber System

eurofins | Environment Testing TestAmerica

Project Identification:	**St. Gobain CPT**
Client Name:	Barr Engineering
Client Contact:	Tom Kuchinski (763) 548-4954
TestAmerica Project Manager:	Ms. Courtney Adkins Office: (865) 291-3019
TestAmerica Program Manager:	Mr. Billy Anderson Office: (865) 291-3080 Cell: (865) 206-9004

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	28 Days from Lab Receipt

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows: "BT" = Blank Train, "RB" = Reagent Blank, "MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate, "DUP" = Duplicate, "PBT" = Proof Blank Train, "TB" = Trip Blank

Laboratory Destination:	Eurofins TestAmerica 5815 Middlebrook Pike Knoxville, TN 37921
Lab Phone Number:	(865) 291-3000
Courier:	Hand Deliver

Project Deliverables:
Report analytical results on TALS Report form Std_Tal_L4. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	**Holding Time Requirements:**	**Preservation Requirements:**
PFAS Compounds	14 Days to Extraction; 40 Days to Analysis	Cool, 4°C

Field Sample No./Sample Coding ID	**Run No.**	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type**	**Analytical Specifications**
T-3001 INLET CPT R1 OTM-45 Filter (Combine with T-3002)	1	8-24-22	Hold RUN 1	125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3002 INLET CPT R1 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3001)	1	8-24-22	"	125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.

140-28649 Chain of Custody

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3003 INLET CPT R1 OTM-45 XAD-2 Resin Tube	1	8-24-22	Hold Run 1	XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3004 INLET CPT R1 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3003)	1	8-24-22	11	125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3005 INLET CPT R1 OTM-45 Impingers 1,2 & 3 Condensate	1	8-24-22	11	1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3006 INLET CPT R1 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3005)	1	8-24-22	1 L	250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3007 INLET CPT R1 OTM-45 Breakthrough XAD-2 Resin Tube	1	8-24-22	11	XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3008 INLET CPT R2 OTM-45 Filter (Combine with T-3009)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3009 INLET CPT R2 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3008)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3010 INLET CPT R2 OTM-45 XAD-2 Resin Tube	2	8-24-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3011 INLET CPT R2 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3010)	2	8-24-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3012 INLET CPT R2 OTM-45 Impingers 1,2 & 3 Condensate	2	8-24-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3013 INLET CPT R2 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3010)	2	8-24-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3014 INLET CPT R2 OTM-45 Breakthrough XAD-2 Resin Tube	2	8-24-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3015 INLET CPT R3 OTM-45 Filter (Combine with T-3016)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3016 INLET CPT R3 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-3015)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-3017 INLET CPT R3 OTM-45 XAD-2 Resin Tube	3	8-2522		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3018 INLET CPT R3 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-3017)	3	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-3019 INLET CPT R3 OTM-45 Impingers 1,2 & 3 Condensate	3	8-25-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-3020 INLET CPT R3 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-3017)	3	8-25-22		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-3021 INLET CPT R3 OTM-45 Breakthrough XAD-2 Resin Tube	3	8-25-22		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2075 INLET CPT R4 OTM-45 Filter (Combine with T-2076)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-2076 INLET CPT R4 OTM-45 FH of Filter Holder & Probe MeOH Rinse (Combine with T-2075)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
T-2077 INLET CPT R4 OTM-45 XAD-2 Resin Tube	4	8-25-22		XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.
T-2078 INLET CPT R4 OTM-45 BH of Filter Holder & Condenser MeOH Rinse (Combine with T-2077)	4	8-25-22		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction.
T-2079 INLET CPT R4 OTM-45 Impingers 1,2 & 3 Condensate	4	8-25-22		1 Liter HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train PFAS Analyses	**Knoxville**: Measure and record the volume of the Impinger Composite. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2080 INLET CPT R4 OTM-45 Impinger Glassware MeOH Rinse (Combine with T-2077)	4			250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train PFAS Analyses	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
T-2081 INLET CPT R4 OTM-45 Breakthrough XAD-2 Resin Tube	4			XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train PFAS Analyses	**Knoxville**: Perform the regular XAD-2 Resin Extraction. --- Analyze for the Method 537 Targeted Analyte List at the **Knoxville Lab**.

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Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NONE
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	RT 1.1, 2.1 / CT 1.2, 2.2
(3) Record any apparent sample loss/breakage.	NONE
(4) Record any unidentified samples transported with this shipment of samples:	NONE
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	HAND DELIVERED, NO CUSTODY SEALS

Custody Transfer:

	Name	Company	Date/Time
Relinquished By:	Tim Russell	BARR	8-25-22
Accepted By:		ETA KNOX	8/25/22
Relinquished By:		ETA KNOX	8/27/22 1915
Accepted By:		ETA KNOX	8/29/22 08:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Loc: 140
28649

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ Containers, Broken
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			✓	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : SC73 Correction factor: +0.1°C	✓			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt
5. Were all of the sample containers received intact?	✓			☐ Containers, Broken
6. Were samples received in appropriate containers?	✓			☐ Containers, Improper; Client Contacted; Proceed/Cancel
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received
8. Were all of the samples listed on the COC received?	✓			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received
9. Is the date/time of sample collection noted?	✓			☐ COC; No Date/Time; Client Contacted
10. Was the sampler identified on the COC?			✓	☐ Sampler Not Listed on COC
11. Is the client and project name/# identified?	✓			☐ COC Incorrect/Incomplete
12. Are tests/parameters listed for each sample?	✓			☐ COC No tests on COC
13. Is the matrix of the samples noted?	✓			☐ COC Incorrect/Incomplete
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ COC Incorrect/Incomplete
15. Were samples received within holding time?	✓			☐ Holding Time - Receipt
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative
17. Were VOA samples received without headspace?			✓	☐ Headspace (VOA only)
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ Residual Chlorine
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: _____ PM Instructions: _____

Sample Receiving Associate: _____ Date: 8·29·22

QA026R32.doc, 062719

10/19/2022 (Rev. 2)

eurofins | Environment Testing America

October 19, 2022

Mr. Tim Russell
Barr Engineering Company
5150 West 76th St.
Edina, MN 55439

Dear Tim,

I am writing to briefly discuss the analysis and reporting steps taken in the processing of samples that your team submitted for the following;

Eurofins Job # - 140-28652
Job Description – St Gobain OTM-45 – Dispersion samples

These samples were submitted for analysis of PFAS. As you know, the field of PFAS analysis is a rapidly evolving analytical venue owing in part to the many and varied types of matrices that are being evaluated for PFAS. The dispersion matrix is a unique and challenging matrix for which we have developed some extraction and handling protocols to help facilitate the analysis of dispersion samples for PFAS. I would like to summarize that procedure briefly;

Since dispersions are a mix of liquid and particulate material, we take a small subsample and blend the dispersion subsample with a granular desiccant to facilitate the extraction process. In the blending process we add into the dispersion sample a small, but known, amount of isotopically labeled analogs of the PFAS compounds that we are analyzing for. These compounds function as surrogate recovery compounds to match and monitor the extraction efficiency of our target PFAS analytes in a challenging matrix like a dispersion. The blended mixture is then extracted with an organic solvent to remove the PFAS compounds (as well as the isotopic analogs), passed through a clean-up column and then analyzed by LC/MS/MS. We detect and quantify the amount of the detected PFAS from the LC/MS/MS analysis.

As with all analytical procedures there are QA/QC parameters established to monitor and set limits/goals for extraction efficiency, blank cleanliness and the consistent response, for quantification, of the analytical system. When a QA/QC parameter is not met (i.e. recovery for an isotopic analog is outside expectations), then that prompts the lab to do a couple of things;

a. Re-inject or re-analyze the sample extraction to assure that the outside specification performance is duplicated.
b. Re-extract the sample, using a second and different aliquot as a test to see if the outside specification performance was due to effects from the sample matrix or if it was due to a laboratory handling issue.

So oftentimes, with complex, challenging matrices like dispersions there are multiple instrumental analyses and sample extractions per sample, in an effort to produce a result that is the best or the primary analytical result to report. The “best” analytical result to report, from the laboratory’s standpoint, is one that does not have any qualifications, such as detections in the method blank or out of specification labeled isotope recovery or out of specification recoveries in the LCS/LCSD. However, with challenging matrices, we don’t always get there, so “best” is the data that we label as primary that has the least amount of qualification. We would still have and use the other extractions and analyses as secondary data to help us qualify the results of the primary, reported data.

The analysis report is being revised because we erred in the “type” of reporting that we used for this analytical report. We mistakenly used a reporting format that showed all of the trials of the work that we did in processing these dispersion samples. We should have just reported what we consider, using the process I described above, the primary, “best” and final result for each of the dispersions. The revised report reflects this change.

If you have any further questions with regard to this letter or the analytical report, please let me know. We value your business and look forward to additional collaborations in the future.

Regards,

Charles Neslund
Scientific Officer and PFAS Practice Leader
Eurofins Environment Testing Lancaster Laboratories

Cc Courtney Adkins

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ANALYTICAL REPORT

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-28652-1
Client Project/Site: St.Gobain OTM-45 - Dispersion Samples
Revision: 2

For:
Barr Engineering Company
5150 West 76th Street
Edina, Minnesota 55439

Attn: Tom Kuchinski

Authorized for release by:
10/21/2022 11:15:55 AM

Courtney Adkins, Project Manager II
(865)291-3019
Courtney.Adkins@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 140-28652-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative
140-28652-1

Comments and Revision Notes

This report was revised on October 19, 2022 to remove the “H” flags. The samples in this report are formulations, not soils or waters, and the 14 day holding time prescribed by EPA Method 537 is not applicable.

The secondary results were also removed from this report. The original report mistakenly included secondary results, which are additional extractions and analyses used to confirm results of the primary data.

This report was revised on October 21, 2022 to remove references to the "RE" analyses from the Chronicle.

Receipt

The samples were received on 8/29/2022 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.8º C.

LCMS

Method Blanks:

Perfluorooctanesulfonamide and Perfluorooctanesulfonic acid were detected in the method blank associated with the following sample: T-3077 R2 TOWER MR (140-28652-16). Since the result in the sample is >10X the result in the method blank, the data is reported.

Perfluorooctanesulfonamide and Perfluorooctanesulfonic acid were detected in the method blank associated with the following sample: T-3080 R2 TOWER QX (140-28652-19). The following action was taken: These samples were re-extracted within the required holding time and target analytes were again detected in the re-extracted method blank.

Perfluorooctanesulfonic acid was detected in the method blank associated with the following samples: T-2089 R4 TOWER MQ (140-28652-33), T-2090 R4 TOWER QX (140-28652-34), T-2092 R4 TOWER MC (140-28652-36), T-2097 R4 TOWER MA (140-28652-41), T-3078 R2 TOWER MD (140-28652-17), T-3079 R2 TOWER MC (140-28652-18), T-3082 R2 TOWER MS (140-28652-21), T-3073 R2 TOWER 20 (140-28652-12), T-3074 R2 TOWER MA (140-28652-13), T-3075 R2 TOWER MQ (140-28652-14) and T-2095 R4 TOWER MR (140-28652-39).

Perfluorooctanesulfonamide was detected in the method blank associated with the following samples: T-3078 R2 TOWER MD (140-28652-17), T-3079 R2 TOWER MC (140-28652-18), T-3082 R2 TOWER MS (140-28652-21), T-3073 R2 TOWER 20 (140-28652-12), T-3074 R2 TOWER MA (140-28652-13), T-3075 R2 TOWER MQ (140-28652-14) and T-2095 R4 TOWER MR (140-28652-39).

Laboratory Control Samples:

The recovery for target analytes Perfluorooctanesulfonic acid in the laboratory control spike samples associated with the following samples: T-2093 R4 TOWER MS (140-28652-37), T-2094 R4 TOWER MB (140-28652-38), T-2095 R4 TOWER MR (140-28652-39) and T-2096 R4 TOWER 20 (140-28652-40) is outside the QC acceptance limits.

The recovery for a target analyte: Perfluorooctanesulfonamide and Perfluorooctanesulfonic acid in the laboratory control spike samples associated with the following samples: T-2089 R4 TOWER MQ (140-28652-33), T-2090 R4 TOWER QX (140-28652-34), T-2092 R4 TOWER MC (140-28652-36) and T-2097 R4 TOWER MA (140-28652-41) is outside the QC acceptance limits.

The LCS/LCSD labeled isotope: M2-4:2 FTS recovery associated with samples: T-3077 R2 TOWER MR (140-28652-16), T-3079 R2 TOWER MC (140-28652-18), T-3080 R2 TOWER QX (140-28652-19), T-3081 R2 TOWER QX (140-28652-20), T-3083 R2 TOWER MP (140-28652-22), T-3085 R3 TOWER MA (140-28652-23), T-3086 R3 TOWER MQ (140-28652-24), T-3087 R3 TOWER MD (140-28652-25), T-3088 R3 TOWER MC (140-28652-26), T-3091 R3 TOWER MR (140-28652-29), T-3092 R3 TOWER MB (140-28652-30) and T-3093 R3

Job ID: 140-28652-1 (Continued)

Laboratory: Eurofins Knoxville (Continued)

TOWER MS (140-28652-31) is outside the QC acceptance limits. Since the recovery for target analytes is within the limits, the data is reported.

The recoveries for a target analyte(s): HFPODA and Perfluorooctanesulfonic acid in the laboratory control spike sample associated with the following sample: T-3076 R2 TOWER MB (140-28652-15) were outside the QC acceptance limits.

Matrix and Other Items

Reporting limits were raised for the following samples: T-3077 R2 TOWER MR (140-28652-16), T-3080 R2 TOWER QX (140-28652-19), T-3081 R2 TOWER QX (140-28652-20), T-3085 R3 TOWER MA (140-28652-23), T-3086 R3 TOWER MQ (140-28652-24), T-3087 R3 TOWER MD (140-28652-25), T-3088 R3 TOWER MC (140-28652-26), T-3091 R3 TOWER MR (140-28652-29), T-3092 R3 TOWER MB (140-28652-30) and T-3093 R3 TOWER MS (140-28652-31) due to interference from the sample matrix.

The recovery for the injection standard peak area(s) are outside of the QC acceptance limits in both the initial extraction and the re-extraction of the following sample: T-2096 R4 TOWER 20 (140-28652-40). The values here are from the initial extraction of the sample.

The recoveries for labeled isotopes: d3-NMeFOSAA and d5-NEtFOSAA were outside the QC acceptance limits in the opening continuing calibration verification standard. Since the recoveries for the labeled isotope were within QC limits in the following samples: T-2089 R4 TOWER MQ (140-28652-33), T-2090 R4 TOWER QX (140-28652-34) and T-2092 R4 TOWER MC (140-28652-36), the data is reported.

Isotope Dilution

The recovery for the labeled isotope(s) M2-8:2 FTS in the following samples: T-2098 R4 TOWER MP (140-28652-42), T-3081 R2 TOWER QX (140-28652-20), T-3083 R2 TOWER MP (140-28652-22), T-3085 R3 TOWER MA (140-28652-23) and T-3093 R3 TOWER MS (140-28652-31) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

The recovery for the labeled isotope(s) M2-4:2 FTS, M2-6:2 FTS, M2-8:2 FTS, 13C5 PFPeA, d3-NMeFOSAA and d5-NEtFOSAA in the following sample: T-2093 R4 TOWER MS (140-28652-37) is outside the QC acceptance limits.

The recovery for the labeled isotope(s) M2-4:2 FTS, M2-6:2 FTS, M2-8:2 FTS and d3-NMeFOSAA in the following sample: T-2094 R4 TOWER MB (140-28652-38) is outside the QC acceptance limits.

The recovery for the labeled isotope(s): M2-4:2 FTS in the following samples: T-3077 R2 TOWER MR (140-28652-16), T-3080 R2 TOWER QX (140-28652-19), T-3081 R2 TOWER QX (140-28652-20), T-3083 R2 TOWER MP (140-28652-22), T-3085 R3 TOWER MA (140-28652-23), T-3087 R3 TOWER MD (140-28652-25), T-3088 R3 TOWER MC (140-28652-26), T-3092 R3 TOWER MB (140-28652-30), T-3078 R2 TOWER MD (140-28652-17), T-3079 R2 TOWER MC (140-28652-18), T-3075 R2 TOWER MQ (140-28652-14), T-3076 R2 TOWER MB (140-28652-15) and T-3093 R3 TOWER MS (140-28652-31) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

The recovery for the labeled isotope(s): M2-6:2 FTS in the following sample: T-3093 R3 TOWER MS (140-28652-31) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

The recovery for the labeled isotope(s) M2-4:2 FTS, M2-6:2 FTS, M2-8:2 FTS, d5-NEtFOSAA, 13C7 PFUnA and 13C2-PFDoDA in the following sample: T-2096 R4 TOWER 20 (140-28652-40) is outside the QC acceptance limits.

The recovery for the labeled isotope(s) M2-4:2 FTS, M2-6:2 FTS and M2-8:2 FTS in the following sample: T-2091 R4 TOWER MD (140-28652-35), T-3082 R2 TOWER MS (140-28652-21) and T-3090 R3 TOWER 20 (140-28652-28) are outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

The recovery for the labeled isotope(s) d3-NMeFOSAA in the following sample: T-2091 R4 TOWER MD (140-28652-35) is outside the QC acceptance limits.

The recoveries for the labeled isotope(s): M2-4:2 FTS and M2-8:2 FTS in the following sample: T-3083 R2 TOWER MP (140-28652-22) were outside the QC acceptance limits. Since the recoveries are high and the native analyte is not detected in the sample, the data is

Job ID: 140-28652-1 (Continued)

Laboratory: Eurofins Knoxville (Continued)

reported.

Method 537 (modified): The recoveries for the labeled isotope(s): M2-4:2 FTS, M2-6:2 FTS, M2-8:2 FTS and 13C9 PFNA in the following sample: T-2095 R4 TOWER MR (140-28652-39) were outside the QC acceptance limits. Since the recoveries were high and the native analytes were not detected in the sample, the data is reported.

Method 537 (modified): The recovery for the labeled isotope: 13C3 HFPO-DA in the following sample: T-3076 R2 TOWER MB (140-28652-15) is outside the QC acceptance limits.

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3073 R2 TOWER 20
Lab Sample ID: 140-28652-12
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 08:50	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 08:50	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 08:50	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluoroheptanesulfonic acid	**2500**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorohexanesulfonic acid	**7020**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorooctanesulfonamide	**135000**	**B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorooctanesulfonic acid	**156000**	**B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorooctanoic acid	**12400**		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 08:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*559*	**5+*	*47 - 200*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
M2-6:2 FTS	*317*	**5+*	*48 - 195*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
M2-8:2 FTS	*443*	**5+*	*41 - 198*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C2 PFTeDA	*108*		*10 - 171*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C3 HFPO-DA	*79*		*15 - 159*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C3 PFBS	*119*		*55 - 157*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C4 PFBA	*119*		*55 - 147*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C4 PFHpA	*119*		*45 - 160*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C5 PFPeA	*116*		*49 - 156*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C8 PFOA	*112*		*47 - 152*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C8 PFOS	*122*		*50 - 153*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
d3-NMeFOSAA	*119*		*10 - 185*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
d5-NEtFOSAA	*96*		*20 - 191*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C3 PFHxS	*104*		*44 - 159*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C5 PFHxA	*115*		*42 - 165*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C6 PFDA	*112*		*42 - 161*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C7 PFUnA	*110*		*24 - 168*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C8 FOSA	*63*		*10 - 156*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C2-PFDoDA	*108*		*14 - 168*	*09/21/22 12:02*	*09/29/22 08:50*	*1*
13C9 PFNA	*129*		*30 - 175*	*09/21/22 12:02*	*09/29/22 08:50*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3074 R2 TOWER MA

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-13

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 09:01	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 09:01	1
HFPODA	**57400**		15000	5000	ng/L		09/21/22 12:02	09/29/22 09:01	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorooctanesulfonamide	**2860**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorooctanesulfonic acid	**10400**	**B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*190*		*47 - 200*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
M2-6:2 FTS	*156*		*48 - 195*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
M2-8:2 FTS	*166*		*41 - 198*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C2 PFTeDA	*97*		*10 - 171*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C3 HFPO-DA	*69*		*15 - 159*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C3 PFBS	*102*		*55 - 157*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C4 PFBA	*108*		*55 - 147*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C4 PFHpA	*105*		*45 - 160*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C5 PFPeA	*101*		*49 - 156*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C8 PFOA	*101*		*47 - 152*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C8 PFOS	*116*		*50 - 153*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
d3-NMeFOSAA	*56*		*10 - 185*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
d5-NEtFOSAA	*86*		*20 - 191*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C3 PFHxS	*107*		*44 - 159*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C5 PFHxA	*103*		*42 - 165*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C6 PFDA	*99*		*42 - 161*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C7 PFUnA	*98*		*24 - 168*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C8 FOSA	*74*		*10 - 156*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C2-PFDoDA	*115*		*14 - 168*	*09/21/22 12:02*	*09/29/22 09:01*	*1*
13C9 PFNA	*119*		*30 - 175*	*09/21/22 12:02*	*09/29/22 09:01*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3075 R2 TOWER MQ
Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-14
Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 09:12	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 09:12	1
HFPODA	**76200**		15000	5000	ng/L		09/21/22 12:02	09/29/22 09:12	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorooctanesulfonamide	**4420**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorooctanesulfonic acid	**7120**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 09:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*206*	*5+	*47 - 200*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
M2-6:2 FTS	*159*		*48 - 195*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
M2-8:2 FTS	*186*		*41 - 198*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C2 PFTeDA	*111*		*10 - 171*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C3 HFPO-DA	*65*		*15 - 159*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C3 PFBS	*108*		*55 - 157*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C4 PFBA	*113*		*55 - 147*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C4 PFHpA	*108*		*45 - 160*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C5 PFPeA	*113*		*49 - 156*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C8 PFOA	*107*		*47 - 152*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C8 PFOS	*123*		*50 - 153*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
d3-NMeFOSAA	*50*		*10 - 185*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
d5-NEtFOSAA	*83*		*20 - 191*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C3 PFHxS	*110*		*44 - 159*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C5 PFHxA	*106*		*42 - 165*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C6 PFDA	*107*		*42 - 161*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C7 PFUnA	*111*		*24 - 168*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C8 FOSA	*75*		*10 - 156*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C2-PFDoDA	*124*		*14 - 168*	*09/21/22 12:02*	*09/29/22 09:12*	*1*
13C9 PFNA	*125*		*30 - 175*	*09/21/22 12:02*	*09/29/22 09:12*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3076 R2 TOWER MB
Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-15
Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/01/22 14:40	09/19/22 12:56	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/01/22 14:40	09/19/22 12:56	1
HFPODA	ND	*- *1	15000	5000	ng/L		09/01/22 14:40	09/19/22 12:56	1
NEtFOSAA	ND		15000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
NMeFOSAA	ND		10000	3000	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorodecanoic acid	**2930**	**J**	10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorooctanesulfonamide	**7550**	**J**	10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorooctanesulfonic acid	**8130**	**J *+ *1**	10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorooctanoic acid	**2990**	**J**	10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/01/22 14:40	09/19/22 12:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*210*	*5+	*47 - 200*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
M2-6:2 FTS	*168*		*48 - 195*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
M2-8:2 FTS	*138*		*41 - 198*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C2 PFTeDA	*99*		*10 - 171*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C3 HFPO-DA	*0.1*	*5-	*15 - 159*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C3 PFBS	*110*		*55 - 157*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C4 PFBA	*105*		*55 - 147*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C4 PFHpA	*102*		*45 - 160*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C5 PFPeA	*102*		*49 - 156*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C8 PFOA	*99*		*47 - 152*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C8 PFOS	*116*		*50 - 153*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
d3-NMeFOSAA	*68*		*10 - 185*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
d5-NEtFOSAA	*80*		*20 - 191*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C3 PFHxS	*99*		*44 - 159*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C5 PFHxA	*99*		*42 - 165*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C6 PFDA	*100*		*42 - 161*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C7 PFUnA	*101*		*24 - 168*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C8 FOSA	*73*		*10 - 156*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C2-PFDoDA	*125*		*14 - 168*	*09/01/22 14:40*	*09/19/22 12:56*	*1*
13C9 PFNA	*118*		*30 - 175*	*09/01/22 14:40*	*09/19/22 12:56*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3077 R2 TOWER MR
Lab Sample ID: 140-28652-16
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/28/22 23:14	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:14	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:14	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorooctanesulfonamide	**3740**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorooctanesulfonic acid	**7130**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*218*	*5+	*47 - 200*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
M2-6:2 FTS	*160*		*48 - 195*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
M2-8:2 FTS	*180*		*41 - 198*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C2 PFTeDA	*99*		*10 - 171*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C3 HFPO-DA	*82*		*15 - 159*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C3 PFBS	*109*		*55 - 157*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C4 PFBA	*111*		*55 - 147*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C4 PFHpA	*112*		*45 - 160*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C5 PFPeA	*108*		*49 - 156*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C8 PFOA	*110*		*47 - 152*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C8 PFOS	*120*		*50 - 153*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
d3-NMeFOSAA	*88*		*10 - 185*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
d5-NEtFOSAA	*76*		*20 - 191*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C3 PFHxS	*108*		*44 - 159*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C5 PFHxA	*112*		*42 - 165*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C6 PFDA	*102*		*42 - 161*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C7 PFUnA	*104*		*24 - 168*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C8 FOSA	*69*		*10 - 156*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C2-PFDoDA	*95*		*14 - 168*	*09/21/22 12:02*	*09/28/22 23:14*	*1*
13C9 PFNA	*124*		*30 - 175*	*09/21/22 12:02*	*09/28/22 23:14*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3078 R2 TOWER MD

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-17

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/28/22 23:25	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:25	1
HFPODA	**120000**		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:25	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorooctanesulfonamide	**3140**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorooctanesulfonic acid	**3320**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*206*	*5+	*47 - 200*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
M2-6:2 FTS	*161*		*48 - 195*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
M2-8:2 FTS	*170*		*41 - 198*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C2 PFTeDA	*104*		*10 - 171*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C3 HFPO-DA	*69*		*15 - 159*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C3 PFBS	*106*		*55 - 157*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C4 PFBA	*112*		*55 - 147*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C4 PFHpA	*111*		*45 - 160*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C5 PFPeA	*118*		*49 - 156*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C8 PFOA	*109*		*47 - 152*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C8 PFOS	*123*		*50 - 153*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
d3-NMeFOSAA	*58*		*10 - 185*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
d5-NEtFOSAA	*72*		*20 - 191*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C3 PFHxS	*109*		*44 - 159*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C5 PFHxA	*113*		*42 - 165*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C6 PFDA	*106*		*42 - 161*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C7 PFUnA	*99*		*24 - 168*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C8 FOSA	*66*		*10 - 156*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C2-PFDoDA	*105*		*14 - 168*	*09/21/22 12:02*	*09/28/22 23:25*	*1*
13C9 PFNA	*128*		*30 - 175*	*09/21/22 12:02*	*09/28/22 23:25*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3079 R2 TOWER MC
Lab Sample ID: 140-28652-18
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/28/22 23:36	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:36	1
HFPODA	**853000**		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:36	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorooctanesulfonamide	**4090**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorooctanesulfonic acid	**4420**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*204*	*5+	*47 - 200*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
M2-6:2 FTS	*163*		*48 - 195*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
M2-8:2 FTS	*166*		*41 - 198*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C2 PFTeDA	*107*		*10 - 171*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C3 HFPO-DA	*60*		*15 - 159*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C3 PFBS	*101*		*55 - 157*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C4 PFBA	*108*		*55 - 147*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C4 PFHpA	*102*		*45 - 160*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C5 PFPeA	*100*		*49 - 156*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C8 PFOA	*103*		*47 - 152*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C8 PFOS	*114*		*50 - 153*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
d3-NMeFOSAA	*44*		*10 - 185*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
d5-NEtFOSAA	*78*		*20 - 191*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C3 PFHxS	*103*		*44 - 159*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C5 PFHxA	*108*		*42 - 165*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C6 PFDA	*102*		*42 - 161*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C7 PFUnA	*104*		*24 - 168*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C8 FOSA	*68*		*10 - 156*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C2-PFDoDA	*110*		*14 - 168*	*09/21/22 12:02*	*09/28/22 23:36*	*1*
13C9 PFNA	*124*		*30 - 175*	*09/21/22 12:02*	*09/28/22 23:36*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3080 R2 TOWER QX
Lab Sample ID: 140-28652-19
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/28/22 23:47	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:47	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:47	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorooctanesulfonamide	**2640**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorooctanesulfonic acid	**4500**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluorotridecanoic acid	**4740**	**J**	10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*217*	*5+	*47 - 200*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
M2-6:2 FTS	*157*		*48 - 195*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
M2-8:2 FTS	*172*		*41 - 198*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C2 PFTeDA	*105*		*10 - 171*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C3 HFPO-DA	*66*		*15 - 159*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C3 PFBS	*112*		*55 - 157*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C4 PFBA	*116*		*55 - 147*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C4 PFHpA	*106*		*45 - 160*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C5 PFPeA	*106*		*49 - 156*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C8 PFOA	*108*		*47 - 152*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C8 PFOS	*121*		*50 - 153*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
d3-NMeFOSAA	*32*		*10 - 185*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
d5-NEtFOSAA	*74*		*20 - 191*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C3 PFHxS	*107*		*44 - 159*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C5 PFHxA	*110*		*42 - 165*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C6 PFDA	*110*		*42 - 161*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C7 PFUnA	*101*		*24 - 168*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C8 FOSA	*64*		*10 - 156*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C2-PFDoDA	*113*		*14 - 168*	*09/21/22 12:02*	*09/28/22 23:47*	*1*
13C9 PFNA	*127*		*30 - 175*	*09/21/22 12:02*	*09/28/22 23:47*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3081 R2 TOWER QX

Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-20

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/28/22 23:58	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:58	1
HFPODA	**34600**		15000	5000	ng/L		09/21/22 12:02	09/28/22 23:58	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/28/22 23:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*184*		*47 - 200*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
M2-6:2 FTS	*180*		*48 - 195*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
M2-8:2 FTS	*417*	*5+	*41 - 198*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C2 PFTeDA	*84*		*10 - 171*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C3 HFPO-DA	*68*		*15 - 159*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C3 PFBS	*100*		*55 - 157*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C4 PFBA	*104*		*55 - 147*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C4 PFHpA	*96*		*45 - 160*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C5 PFPeA	*95*		*49 - 156*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C8 PFOA	*98*		*47 - 152*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C8 PFOS	*111*		*50 - 153*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
d3-NMeFOSAA	*61*		*10 - 185*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
d5-NEtFOSAA	*63*		*20 - 191*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C3 PFHxS	*95*		*44 - 159*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C5 PFHxA	*95*		*42 - 165*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C6 PFDA	*102*		*42 - 161*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C7 PFUnA	*91*		*24 - 168*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C8 FOSA	*49*		*10 - 156*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C2-PFDoDA	*91*		*14 - 168*	*09/21/22 12:02*	*09/28/22 23:58*	*1*
13C9 PFNA	*118*		*30 - 175*	*09/21/22 12:02*	*09/28/22 23:58*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3082 R2 TOWER MS
Date Collected: 08/24/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-21
Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 00:09	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:09	1
HFPODA	**9850**	**J**	15000	5000	ng/L		09/21/22 12:02	09/29/22 00:09	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorooctanesulfonamide	**3270**	**J B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorooctanesulfonic acid	**2680**	**J I B**	10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*492*	**5+*	*47 - 200*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
M2-6:2 FTS	*439*	**5+*	*48 - 195*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
M2-8:2 FTS	*258*	**5+*	*41 - 198*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C2 PFTeDA	*95*		*10 - 171*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C3 HFPO-DA	*70*		*15 - 159*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C3 PFBS	*109*		*55 - 157*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C4 PFBA	*110*		*55 - 147*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C4 PFHpA	*112*		*45 - 160*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C5 PFPeA	*102*		*49 - 156*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C8 PFOA	*109*		*47 - 152*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C8 PFOS	*104*		*50 - 153*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
d3-NMeFOSAA	*73*		*10 - 185*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
d5-NEtFOSAA	*94*		*20 - 191*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C3 PFHxS	*95*		*44 - 159*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C5 PFHxA	*103*		*42 - 165*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C6 PFDA	*98*		*42 - 161*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C7 PFUnA	*95*		*24 - 168*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C8 FOSA	*68*		*10 - 156*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C2-PFDoDA	*100*		*14 - 168*	*09/21/22 12:02*	*09/29/22 00:09*	*1*
13C9 PFNA	*124*		*30 - 175*	*09/21/22 12:02*	*09/29/22 00:09*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3083 R2 TOWER MP
Lab Sample ID: 140-28652-22
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 00:31	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:31	1
HFPODA	**252000**		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:31	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*211*	*5+	*47 - 200*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
M2-6:2 FTS	*178*		*48 - 195*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
M2-8:2 FTS	*207*	*5+	*41 - 198*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C2 PFTeDA	*112*		*10 - 171*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C3 HFPO-DA	*76*		*15 - 159*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C3 PFBS	*112*		*55 - 157*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C4 PFBA	*114*		*55 - 147*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C4 PFHpA	*108*		*45 - 160*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C5 PFPeA	*113*		*49 - 156*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C8 PFOA	*105*		*47 - 152*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C8 PFOS	*125*		*50 - 153*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
d3-NMeFOSAA	*76*		*10 - 185*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
d5-NEtFOSAA	*84*		*20 - 191*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C3 PFHxS	*116*		*44 - 159*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C5 PFHxA	*108*		*42 - 165*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C6 PFDA	*111*		*42 - 161*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C7 PFUnA	*100*		*24 - 168*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C8 FOSA	*79*		*10 - 156*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C2-PFDoDA	*108*		*14 - 168*	*09/21/22 12:02*	*09/29/22 00:31*	*1*
13C9 PFNA	*123*		*30 - 175*	*09/21/22 12:02*	*09/29/22 00:31*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3085 R3 TOWER MA

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-23

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 00:42	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:42	1
HFPODA	**45100**		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:42	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*224*	*5+	*47 - 200*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
M2-6:2 FTS	*175*		*48 - 195*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
M2-8:2 FTS	*199*	*5+	*41 - 198*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C2 PFTeDA	*108*		*10 - 171*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C3 HFPO-DA	*83*		*15 - 159*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C3 PFBS	*117*		*55 - 157*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C4 PFBA	*118*		*55 - 147*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C4 PFHpA	*109*		*45 - 160*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C5 PFPeA	*107*		*49 - 156*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C8 PFOA	*113*		*47 - 152*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C8 PFOS	*119*		*50 - 153*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
d3-NMeFOSAA	*60*		*10 - 185*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
d5-NEtFOSAA	*105*		*20 - 191*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C3 PFHxS	*113*		*44 - 159*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C5 PFHxA	*114*		*42 - 165*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C6 PFDA	*109*		*42 - 161*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C7 PFUnA	*111*		*24 - 168*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C8 FOSA	*81*		*10 - 156*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C2-PFDoDA	*116*		*14 - 168*	*09/21/22 12:02*	*09/29/22 00:42*	*1*
13C9 PFNA	*122*		*30 - 175*	*09/21/22 12:02*	*09/29/22 00:42*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3086 R3 TOWER MQ

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-24

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 00:53	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:53	1
HFPODA	**63200**		15000	5000	ng/L		09/21/22 12:02	09/29/22 00:53	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 00:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*200*		*47 - 200*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
M2-6:2 FTS	*158*		*48 - 195*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
M2-8:2 FTS	*175*		*41 - 198*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C2 PFTeDA	*112*		*10 - 171*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C3 HFPO-DA	*72*		*15 - 159*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C3 PFBS	*110*		*55 - 157*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C4 PFBA	*107*		*55 - 147*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C4 PFHpA	*103*		*45 - 160*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C5 PFPeA	*99*		*49 - 156*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C8 PFOA	*105*		*47 - 152*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C8 PFOS	*116*		*50 - 153*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
d3-NMeFOSAA	*56*		*10 - 185*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
d5-NEtFOSAA	*78*		*20 - 191*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C3 PFHxS	*112*		*44 - 159*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C5 PFHxA	*107*		*42 - 165*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C6 PFDA	*106*		*42 - 161*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C7 PFUnA	*101*		*24 - 168*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C8 FOSA	*74*		*10 - 156*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C2-PFDoDA	*110*		*14 - 168*	*09/21/22 12:02*	*09/29/22 00:53*	*1*
13C9 PFNA	*118*		*30 - 175*	*09/21/22 12:02*	*09/29/22 00:53*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3087 R3 TOWER MD

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-25

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 01:04	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:04	1
HFPODA	**176000**		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:04	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*212*	*5+	*47 - 200*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
M2-6:2 FTS	*168*		*48 - 195*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
M2-8:2 FTS	*165*		*41 - 198*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C2 PFTeDA	*109*		*10 - 171*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C3 HFPO-DA	*76*		*15 - 159*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C3 PFBS	*119*		*55 - 157*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C4 PFBA	*114*		*55 - 147*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C4 PFHpA	*111*		*45 - 160*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C5 PFPeA	*106*		*49 - 156*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C8 PFOA	*110*		*47 - 152*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C8 PFOS	*118*		*50 - 153*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
d3-NMeFOSAA	*53*		*10 - 185*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
d5-NEtFOSAA	*79*		*20 - 191*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C3 PFHxS	*113*		*44 - 159*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C5 PFHxA	*111*		*42 - 165*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C6 PFDA	*107*		*42 - 161*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C7 PFUnA	*103*		*24 - 168*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C8 FOSA	*71*		*10 - 156*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C2-PFDoDA	*110*		*14 - 168*	*09/21/22 12:02*	*09/29/22 01:04*	*1*
13C9 PFNA	*124*		*30 - 175*	*09/21/22 12:02*	*09/29/22 01:04*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3088 R3 TOWER MC
Lab Sample ID: 140-28652-26
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 01:15	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:15	1
HFPODA	**30400**		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:15	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*211*	*5+	*47 - 200*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
M2-6:2 FTS	*160*		*48 - 195*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
M2-8:2 FTS	*178*		*41 - 198*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C2 PFTeDA	*110*		*10 - 171*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C3 HFPO-DA	*72*		*15 - 159*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C3 PFBS	*115*		*55 - 157*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C4 PFBA	*118*		*55 - 147*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C4 PFHpA	*108*		*45 - 160*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C5 PFPeA	*107*		*49 - 156*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C8 PFOA	*108*		*47 - 152*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C8 PFOS	*121*		*50 - 153*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
d3-NMeFOSAA	*50*		*10 - 185*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
d5-NEtFOSAA	*89*		*20 - 191*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C3 PFHxS	*108*		*44 - 159*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C5 PFHxA	*105*		*42 - 165*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C6 PFDA	*109*		*42 - 161*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C7 PFUnA	*107*		*24 - 168*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C8 FOSA	*73*		*10 - 156*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C2-PFDoDA	*118*		*14 - 168*	*09/21/22 12:02*	*09/29/22 01:15*	*1*
13C9 PFNA	*123*		*30 - 175*	*09/21/22 12:02*	*09/29/22 01:15*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3089 R3 TOWER QX
Lab Sample ID: 140-28652-27
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 01:27	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:27	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:27	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluorotridecanoic acid	**6160**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*197*		*47 - 200*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
M2-6:2 FTS	*165*		*48 - 195*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
M2-8:2 FTS	*166*		*41 - 198*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C2 PFTeDA	*103*		*10 - 171*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C3 HFPO-DA	*73*		*15 - 159*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C3 PFBS	*110*		*55 - 157*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C4 PFBA	*116*		*55 - 147*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C4 PFHpA	*111*		*45 - 160*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C5 PFPeA	*111*		*49 - 156*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C8 PFOA	*104*		*47 - 152*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C8 PFOS	*122*		*50 - 153*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
d3-NMeFOSAA	*37*		*10 - 185*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
d5-NEtFOSAA	*74*		*20 - 191*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C3 PFHxS	*108*		*44 - 159*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C5 PFHxA	*108*		*42 - 165*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C6 PFDA	*111*		*42 - 161*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C7 PFUnA	*106*		*24 - 168*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C8 FOSA	*65*		*10 - 156*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C2-PFDoDA	*113*		*14 - 168*	*09/21/22 12:02*	*09/29/22 01:27*	*1*
13C9 PFNA	*122*		*30 - 175*	*09/21/22 12:02*	*09/29/22 01:27*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3090 R3 TOWER 20
Lab Sample ID: 140-28652-28
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 01:38	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:38	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:38	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*487*	**5+*	*47 - 200*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
M2-6:2 FTS	*287*	**5+*	*48 - 195*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
M2-8:2 FTS	*356*	**5+*	*41 - 198*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C2 PFTeDA	*91*		*10 - 171*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C3 HFPO-DA	*70*		*15 - 159*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C3 PFBS	*110*		*55 - 157*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C4 PFBA	*111*		*55 - 147*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C4 PFHpA	*107*		*45 - 160*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C5 PFPeA	*100*		*49 - 156*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C8 PFOA	*104*		*47 - 152*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C8 PFOS	*115*		*50 - 153*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
d3-NMeFOSAA	*100*		*10 - 185*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
d5-NEtFOSAA	*89*		*20 - 191*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C3 PFHxS	*97*		*44 - 159*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C5 PFHxA	*106*		*42 - 165*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C6 PFDA	*94*		*42 - 161*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C7 PFUnA	*96*		*24 - 168*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C8 FOSA	*51*		*10 - 156*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C2-PFDoDA	*91*		*14 - 168*	*09/21/22 12:02*	*09/29/22 01:38*	*1*
13C9 PFNA	*126*		*30 - 175*	*09/21/22 12:02*	*09/29/22 01:38*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3091 R3 TOWER MR
Lab Sample ID: 140-28652-29

Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 01:49	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:49	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 01:49	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 01:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*197*		*47 - 200*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
M2-6:2 FTS	*156*		*48 - 195*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
M2-8:2 FTS	*156*		*41 - 198*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C2 PFTeDA	*102*		*10 - 171*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C3 HFPO-DA	*77*		*15 - 159*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C3 PFBS	*102*		*55 - 157*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C4 PFBA	*108*		*55 - 147*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C4 PFHpA	*108*		*45 - 160*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C5 PFPeA	*107*		*49 - 156*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C8 PFOA	*111*		*47 - 152*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C8 PFOS	*118*		*50 - 153*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
d3-NMeFOSAA	*68*		*10 - 185*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
d5-NEtFOSAA	*72*		*20 - 191*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C3 PFHxS	*109*		*44 - 159*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C5 PFHxA	*105*		*42 - 165*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C6 PFDA	*106*		*42 - 161*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C7 PFUnA	*110*		*24 - 168*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C8 FOSA	*73*		*10 - 156*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C2-PFDoDA	*110*		*14 - 168*	*09/21/22 12:02*	*09/29/22 01:49*	*1*
13C9 PFNA	*132*		*30 - 175*	*09/21/22 12:02*	*09/29/22 01:49*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3092 R3 TOWER MB

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-30

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 02:00	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 02:00	1
HFPODA	**39700**		15000	5000	ng/L		09/21/22 12:02	09/29/22 02:00	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorohexanoic acid	**4370**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*206*	*5+	*47 - 200*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
M2-6:2 FTS	*160*		*48 - 195*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
M2-8:2 FTS	*148*		*41 - 198*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C2 PFTeDA	*98*		*10 - 171*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C3 HFPO-DA	*83*		*15 - 159*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C3 PFBS	*103*		*55 - 157*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C4 PFBA	*109*		*55 - 147*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C4 PFHpA	*107*		*45 - 160*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C5 PFPeA	*101*		*49 - 156*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C8 PFOA	*106*		*47 - 152*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C8 PFOS	*117*		*50 - 153*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
d3-NMeFOSAA	*72*		*10 - 185*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
d5-NEtFOSAA	*77*		*20 - 191*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C3 PFHxS	*107*		*44 - 159*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C5 PFHxA	*109*		*42 - 165*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C6 PFDA	*103*		*42 - 161*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C7 PFUnA	*107*		*24 - 168*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C8 FOSA	*71*		*10 - 156*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C2-PFDoDA	*111*		*14 - 168*	*09/21/22 12:02*	*09/29/22 02:00*	*1*
13C9 PFNA	*126*		*30 - 175*	*09/21/22 12:02*	*09/29/22 02:00*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-3093 R3 TOWER MS

Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-31

Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/21/22 12:02	09/29/22 02:11	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 02:11	1
HFPODA	ND		15000	5000	ng/L		09/21/22 12:02	09/29/22 02:11	1
NEtFOSAA	ND		15000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
NMeFOSAA	ND		10000	3000	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorodecanoic acid	**4740**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorododecanoic acid	**3320**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluoroheptanoic acid	**6590**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorononanoic acid	**22100**		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorooctanoic acid	**3880**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluoropentanoic acid	**18900**		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorotetradecanoic acid	**3160**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluorotridecanoic acid	**8140**	**J**	10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1
Perfluoroundecanoic acid	**19900**		10000	2500	ng/L		09/21/22 12:02	09/29/22 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*425*	**5+*	*47 - 200*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
M2-6:2 FTS	*431*	**5+*	*48 - 195*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
M2-8:2 FTS	*246*	**5+*	*41 - 198*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C2 PFTeDA	*92*		*10 - 171*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C3 HFPO-DA	*77*		*15 - 159*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C3 PFBS	*105*		*55 - 157*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C4 PFBA	*112*		*55 - 147*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C4 PFHpA	*109*		*45 - 160*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C5 PFPeA	*92*		*49 - 156*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C8 PFOA	*102*		*47 - 152*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C8 PFOS	*93*		*50 - 153*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
d3-NMeFOSAA	*122*		*10 - 185*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
d5-NEtFOSAA	*102*		*20 - 191*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C3 PFHxS	*87*		*44 - 159*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C5 PFHxA	*95*		*42 - 165*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C6 PFDA	*86*		*42 - 161*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C7 PFUnA	*98*		*24 - 168*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C8 FOSA	*78*		*10 - 156*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C2-PFDoDA	*90*		*14 - 168*	*09/21/22 12:02*	*09/29/22 02:11*	*1*
13C9 PFNA	*110*		*30 - 175*	*09/21/22 12:02*	*09/29/22 02:11*	*1*

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3094 R3 TOWER MP
Lab Sample ID: 140-28652-32
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
6:2 Fluorotelomer sulfonic acid	ND		25000	21000	ng/L		09/30/22 18:58	10/04/22 11:22	1
8:2 Fluorotelomer sulfonic acid	ND		15000	5000	ng/L		09/30/22 18:58	10/04/22 11:22	1
HFPODA	**577000**		15000	5000	ng/L		09/30/22 18:58	10/04/22 11:22	1
NEtFOSAA	ND		15000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
NMeFOSAA	ND		10000	3000	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorobutanesulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorobutanoic acid	ND		25000	10000	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorodecanesulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorodecanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorododecanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluoroheptanesulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluoroheptanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorohexanesulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorohexanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorononanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorooctanesulfonamide	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorooctanesulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorooctanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluoropentanesulfonic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluoropentanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorotetradecanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluorotridecanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1
Perfluoroundecanoic acid	ND		10000	2500	ng/L		09/30/22 18:58	10/04/22 11:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*184*		*47 - 200*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
M2-6:2 FTS	*114*		*48 - 195*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
M2-8:2 FTS	*106*		*41 - 198*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C2 PFTeDA	*110*		*10 - 171*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C3 HFPO-DA	*74*		*15 - 159*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C3 PFBS	*96*		*55 - 157*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C4 PFBA	*104*		*55 - 147*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C4 PFHpA	*109*		*45 - 160*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C5 PFPeA	*112*		*49 - 156*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C8 PFOA	*100*		*47 - 152*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C8 PFOS	*107*		*50 - 153*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
d3-NMeFOSAA	*57*		*10 - 185*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
d5-NEtFOSAA	*83*		*20 - 191*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C3 PFHxS	*94*		*44 - 159*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C5 PFHxA	*104*		*42 - 165*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C6 PFDA	*100*		*42 - 161*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C7 PFUnA	*95*		*24 - 168*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C8 FOSA	*67*		*10 - 156*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C2-PFDoDA	*98*		*14 - 168*	*09/30/22 18:58*	*10/04/22 11:22*	*1*
13C9 PFNA	*128*		*30 - 175*	*09/30/22 18:58*	*10/04/22 11:22*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-2089 R4 TOWER MQ
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-33
Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/16/22 21:35	09/28/22 20:05	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 20:05	1
HFPODA	**38400**		1500	500	ng/L		09/16/22 21:35	09/28/22 20:05	1
NEtFOSAA	ND		1500	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
NMeFOSAA	ND		1000	300	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorohexanesulfonic acid	ND	*1	1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorooctanesulfonamide	**287**	**J B**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorooctanesulfonic acid	**2030**	***+ B *1**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorooctanoic acid	**302**	**J**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*335*	**5+*	*47 - 200*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
M2-6:2 FTS	*259*	**5+*	*48 - 195*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
M2-8:2 FTS	*318*	**5+*	*41 - 198*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C2 PFTeDA	*75*		*10 - 171*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C3 HFPO-DA	*73*		*15 - 159*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C3 PFBS	*121*		*55 - 157*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C4 PFBA	*134*		*55 - 147*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C4 PFHpA	*135*		*45 - 160*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C5 PFPeA	*133*		*49 - 156*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C8 PFOA	*137*		*47 - 152*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C8 PFOS	*140*		*50 - 153*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
d3-NMeFOSAA	*14*		*10 - 185*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
d5-NEtFOSAA	*124*		*20 - 191*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C3 PFHxS	*132*		*44 - 159*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C5 PFHxA	*130*		*42 - 165*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C6 PFDA	*128*		*42 - 161*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C7 PFUnA	*110*		*24 - 168*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C8 FOSA	*45*		*10 - 156*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C2-PFDoDA	*120*		*14 - 168*	*09/16/22 21:35*	*09/28/22 20:05*	*1*
13C9 PFNA	*161*		*30 - 175*	*09/16/22 21:35*	*09/28/22 20:05*	*1*

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Client Sample ID: T-2090 R4 TOWER QX
Date Collected: 08/25/22 00:00
Date Received: 08/29/22 08:00

Lab Sample ID: 140-28652-34
Matrix: Water

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/16/22 21:35	09/28/22 20:16	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 20:16	1
HFPODA	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 20:16	1
NEtFOSAA	ND		1500	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
NMeFOSAA	ND		1000	300	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluoroheptanoic acid	**465**	**J**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorohexanesulfonic acid	ND	*1	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorononanoic acid	**1170**		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorooctanesulfonamide	**1010**	**B**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorooctanesulfonic acid	**960**	**J *+ B *1**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorooctanoic acid	**383**	**J**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluoropentanoic acid	**403**	**J**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorotetradecanoic acid	**510**	**J**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluorotridecanoic acid	**742**	**J**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1
Perfluoroundecanoic acid	**1580**		1000	250	ng/L		09/16/22 21:35	09/28/22 20:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*352*	**5+*	*47 - 200*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
M2-6:2 FTS	*254*	**5+*	*48 - 195*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
M2-8:2 FTS	*335*	**5+*	*41 - 198*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C2 PFTeDA	*95*		*10 - 171*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C3 HFPO-DA	*97*		*15 - 159*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C3 PFBS	*133*		*55 - 157*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C4 PFBA	*142*		*55 - 147*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C4 PFHpA	*139*		*45 - 160*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C5 PFPeA	*135*		*49 - 156*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C8 PFOA	*132*		*47 - 152*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C8 PFOS	*149*		*50 - 153*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
d3-NMeFOSAA	*6*	**5-*	*10 - 185*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
d5-NEtFOSAA	*121*		*20 - 191*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C3 PFHxS	*135*		*44 - 159*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C5 PFHxA	*143*		*42 - 165*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C6 PFDA	*123*		*42 - 161*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C7 PFUnA	*111*		*24 - 168*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C8 FOSA	*18*		*10 - 156*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C2-PFDoDA	*124*		*14 - 168*	*09/16/22 21:35*	*09/28/22 20:16*	*1*
13C9 PFNA	*160*		*30 - 175*	*09/16/22 21:35*	*09/28/22 20:16*	*1*

Client Sample ID: T-2091 R4 TOWER MD
Lab Sample ID: 140-28652-35

Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/06/22 16:40	09/13/22 16:36	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/06/22 16:40	09/13/22 16:36	1
NEtFOSAA	ND		1500	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
NMeFOSAA	ND		1000	300	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorooctanesulfonamide	ND	*1	1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorooctanesulfonic acid	ND	*+ *1	1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorooctanoic acid	**276**	**J**	1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 16:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*215*	*5+	*47 - 200*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
M2-6:2 FTS	*203*	*5+	*48 - 195*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
M2-8:2 FTS	*268*	*5+	*41 - 198*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C2 PFTeDA	*47*		*10 - 171*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C3 HFPO-DA	*49*		*15 - 159*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C3 PFBS	*108*		*55 - 157*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C4 PFBA	*108*		*55 - 147*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C4 PFHpA	*106*		*45 - 160*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C5 PFPeA	*115*		*49 - 156*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C8 PFOA	*106*		*47 - 152*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C8 PFOS	*121*		*50 - 153*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
d3-NMeFOSAA	*7*	*5-	*10 - 185*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
d5-NEtFOSAA	*134*		*20 - 191*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C3 PFHxS	*103*		*44 - 159*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C5 PFHxA	*101*		*42 - 165*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C6 PFDA	*110*		*42 - 161*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C7 PFUnA	*122*		*24 - 168*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C8 FOSA	*26*		*10 - 156*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C2-PFDoDA	*99*		*14 - 168*	*09/06/22 16:40*	*09/13/22 16:36*	*1*
13C9 PFNA	*135*		*30 - 175*	*09/06/22 16:40*	*09/13/22 16:36*	*1*

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPODA	**197000**		15000	5000	ng/L		09/06/22 16:40	09/13/22 16:47	10

Client Sample ID: T-2091 R4 TOWER MD
Lab Sample ID: 140-28652-35
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	56		15 - 159	09/06/22 16:40	09/13/22 16:47	10

Client Sample ID: T-2092 R4 TOWER MC
Lab Sample ID: 140-28652-36
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/16/22 21:35	09/28/22 20:38	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 20:38	1
HFPODA	**18600**		1500	500	ng/L		09/16/22 21:35	09/28/22 20:38	1
NEtFOSAA	ND		1500	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
NMeFOSAA	ND		1000	300	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorohexanesulfonic acid	ND	*1	1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorooctanesulfonamide	**276**	**J B**	1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorooctanesulfonic acid	ND	*+ *1	1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 20:38	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	285	*5+	47 - 200	09/16/22 21:35	09/28/22 20:38	1
M2-6:2 FTS	233	*5+	48 - 195	09/16/22 21:35	09/28/22 20:38	1
M2-8:2 FTS	300	*5+	41 - 198	09/16/22 21:35	09/28/22 20:38	1
13C2 PFTeDA	70		10 - 171	09/16/22 21:35	09/28/22 20:38	1
13C3 HFPO-DA	57		15 - 159	09/16/22 21:35	09/28/22 20:38	1
13C3 PFBS	119		55 - 157	09/16/22 21:35	09/28/22 20:38	1
13C4 PFBA	135		55 - 147	09/16/22 21:35	09/28/22 20:38	1
13C4 PFHpA	126		45 - 160	09/16/22 21:35	09/28/22 20:38	1
13C5 PFPeA	124		49 - 156	09/16/22 21:35	09/28/22 20:38	1
13C8 PFOA	124		47 - 152	09/16/22 21:35	09/28/22 20:38	1
13C8 PFOS	138		50 - 153	09/16/22 21:35	09/28/22 20:38	1
d3-NMeFOSAA	13		10 - 185	09/16/22 21:35	09/28/22 20:38	1
d5-NEtFOSAA	115		20 - 191	09/16/22 21:35	09/28/22 20:38	1
13C3 PFHxS	120		44 - 159	09/16/22 21:35	09/28/22 20:38	1
13C5 PFHxA	120		42 - 165	09/16/22 21:35	09/28/22 20:38	1
13C6 PFDA	119		42 - 161	09/16/22 21:35	09/28/22 20:38	1
13C7 PFUnA	112		24 - 168	09/16/22 21:35	09/28/22 20:38	1
13C8 FOSA	43		10 - 156	09/16/22 21:35	09/28/22 20:38	1

Client Sample ID: T-2092 R4 TOWER MC
Lab Sample ID: 140-28652-36
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-PFDoDA	118		14 - 168	09/16/22 21:35	09/28/22 20:38	1
13C9 PFNA	151		30 - 175	09/16/22 21:35	09/28/22 20:38	1

Client Sample ID: T-2093 R4 TOWER MS
Lab Sample ID: 140-28652-37
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/06/22 16:40	09/13/22 17:09	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/06/22 16:40	09/13/22 17:09	1
HFPODA	**6250**		1500	500	ng/L		09/06/22 16:40	09/13/22 17:09	1
NEtFOSAA	ND		1500	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
NMeFOSAA	ND		1000	300	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorobutanoic acid	**6380**		2500	1000	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorodecanoic acid	**2800**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorododecanoic acid	**818**	**J**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluoroheptanoic acid	**6770**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorohexanoic acid	**1960**	**I**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorononanoic acid	**30300**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorooctanesulfonamide	**1920**	***1**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorooctanesulfonic acid	**439**	**J *+ *1**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorooctanoic acid	**3200**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluoropentanoic acid	**15200**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorotetradecanoic acid	**765**	**J**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluorotridecanoic acid	**3140**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1
Perfluoroundecanoic acid	**20300**		1000	250	ng/L		09/06/22 16:40	09/13/22 17:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	343	*5+	47 - 200	09/06/22 16:40	09/13/22 17:09	1
M2-6:2 FTS	388	*5+	48 - 195	09/06/22 16:40	09/13/22 17:09	1
M2-8:2 FTS	338	*5+	41 - 198	09/06/22 16:40	09/13/22 17:09	1
13C2 PFTeDA	98		10 - 171	09/06/22 16:40	09/13/22 17:09	1
13C3 HFPO-DA	39		15 - 159	09/06/22 16:40	09/13/22 17:09	1
13C3 PFBS	61		55 - 157	09/06/22 16:40	09/13/22 17:09	1
13C4 PFBA	111		55 - 147	09/06/22 16:40	09/13/22 17:09	1
13C4 PFHpA	115		45 - 160	09/06/22 16:40	09/13/22 17:09	1
13C5 PFPeA	33	*5-	49 - 156	09/06/22 16:40	09/13/22 17:09	1
13C8 PFOA	106		47 - 152	09/06/22 16:40	09/13/22 17:09	1
13C8 PFOS	119		50 - 153	09/06/22 16:40	09/13/22 17:09	1
d3-NMeFOSAA	201	*5+	10 - 185	09/06/22 16:40	09/13/22 17:09	1
d5-NEtFOSAA	235	*5+	20 - 191	09/06/22 16:40	09/13/22 17:09	1
13C3 PFHxS	114		44 - 159	09/06/22 16:40	09/13/22 17:09	1
13C5 PFHxA	90		42 - 165	09/06/22 16:40	09/13/22 17:09	1
13C6 PFDA	145		42 - 161	09/06/22 16:40	09/13/22 17:09	1

Client Sample ID: T-2093 R4 TOWER MS
Lab Sample ID: 140-28652-37
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C7 PFUnA	*159*		*24 - 168*	*09/06/22 16:40*	*09/13/22 17:09*	*1*
13C8 FOSA	*89*		*10 - 156*	*09/06/22 16:40*	*09/13/22 17:09*	*1*
13C2-PFDoDA	*95*		*14 - 168*	*09/06/22 16:40*	*09/13/22 17:09*	*1*
13C9 PFNA	*115*		*30 - 175*	*09/06/22 16:40*	*09/13/22 17:09*	*1*

Client Sample ID: T-2094 R4 TOWER MB
Lab Sample ID: 140-28652-38
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/06/22 16:40	09/13/22 17:21	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/06/22 16:40	09/13/22 17:21	1
NEtFOSAA	ND		1500	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
NMeFOSAA	ND		1000	300	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorohexanesulfonic acid	**309**	**J**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorooctanesulfonamide	**2110**	***1**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorooctanesulfonic acid	**4300**	***+ *1**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorooctanoic acid	**507**	**J**	1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 17:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*248*	**5+*	*47 - 200*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
M2-6:2 FTS	*229*	**5+*	*48 - 195*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
M2-8:2 FTS	*269*	**5+*	*41 - 198*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C2 PFTeDA	*40*		*10 - 171*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C3 HFPO-DA	*37*		*15 - 159*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C3 PFBS	*106*		*55 - 157*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C4 PFBA	*114*		*55 - 147*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C4 PFHpA	*105*		*45 - 160*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C5 PFPeA	*122*		*49 - 156*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C8 PFOA	*114*		*47 - 152*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C8 PFOS	*116*		*50 - 153*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
d3-NMeFOSAA	*5*	**5-*	*10 - 185*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
d5-NEtFOSAA	*115*		*20 - 191*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C3 PFHxS	*102*		*44 - 159*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C5 PFHxA	*103*		*42 - 165*	*09/06/22 16:40*	*09/13/22 17:21*	*1*

Client Sample ID: T-2094 R4 TOWER MB
Lab Sample ID: 140-28652-38
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C6 PFDA	*106*		*42 - 161*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C7 PFUnA	*106*		*24 - 168*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C8 FOSA	*15*		*10 - 156*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C2-PFDoDA	*67*		*14 - 168*	*09/06/22 16:40*	*09/13/22 17:21*	*1*
13C9 PFNA	*142*		*30 - 175*	*09/06/22 16:40*	*09/13/22 17:21*	*1*

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPODA	**631000**		15000	5000	ng/L		09/06/22 16:40	09/13/22 17:32	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*48*		*15 - 159*	*09/06/22 16:40*	*09/13/22 17:32*	*10*

Client Sample ID: T-2095 R4 TOWER MR
Lab Sample ID: 140-28652-39
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/16/22 21:35	09/29/22 09:35	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/16/22 21:35	09/29/22 09:35	1
HFPODA	**6630**		1500	500	ng/L		09/16/22 21:35	09/29/22 09:35	1
NEtFOSAA	ND		1500	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
NMeFOSAA	ND		1000	300	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorohexanesulfonic acid	ND	*1	1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorooctanesulfonamide	**309**	**J B**	1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorooctanesulfonic acid	**406**	**J *+ B *1**	1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/29/22 09:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*385*	*5+*	*47 - 200*	*09/16/22 21:35*	*09/29/22 09:35*	*1*
M2-6:2 FTS	*328*	*5+*	*48 - 195*	*09/16/22 21:35*	*09/29/22 09:35*	*1*
M2-8:2 FTS	*394*	*5+*	*41 - 198*	*09/16/22 21:35*	*09/29/22 09:35*	*1*
13C2 PFTeDA	*96*		*10 - 171*	*09/16/22 21:35*	*09/29/22 09:35*	*1*
13C3 HFPO-DA	*87*		*15 - 159*	*09/16/22 21:35*	*09/29/22 09:35*	*1*
13C3 PFBS	*132*		*55 - 157*	*09/16/22 21:35*	*09/29/22 09:35*	*1*
13C4 PFBA	*139*		*55 - 147*	*09/16/22 21:35*	*09/29/22 09:35*	*1*

Client Sample ID: T-2095 R4 TOWER MR
Lab Sample ID: 140-28652-39
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	136		45 - 160	09/16/22 21:35	09/29/22 09:35	1
13C5 PFPeA	135		49 - 156	09/16/22 21:35	09/29/22 09:35	1
13C8 PFOA	140		47 - 152	09/16/22 21:35	09/29/22 09:35	1
13C8 PFOS	150		50 - 153	09/16/22 21:35	09/29/22 09:35	1
d3-NMeFOSAA	39		10 - 185	09/16/22 21:35	09/29/22 09:35	1
d5-NEtFOSAA	158		20 - 191	09/16/22 21:35	09/29/22 09:35	1
13C3 PFHxS	142		44 - 159	09/16/22 21:35	09/29/22 09:35	1
13C5 PFHxA	134		42 - 165	09/16/22 21:35	09/29/22 09:35	1
13C6 PFDA	129		42 - 161	09/16/22 21:35	09/29/22 09:35	1
13C7 PFUnA	136		24 - 168	09/16/22 21:35	09/29/22 09:35	1
13C8 FOSA	73		10 - 156	09/16/22 21:35	09/29/22 09:35	1
13C2-PFDoDA	141		14 - 168	09/16/22 21:35	09/29/22 09:35	1
13C9 PFNA	186	*5+	30 - 175	09/16/22 21:35	09/29/22 09:35	1

Client Sample ID: T-2096 R4 TOWER 20
Lab Sample ID: 140-28652-40
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
6:2 Fluorotelomer sulfonic acid	**3270**		2500	2100	ng/L		09/06/22 16:40	09/13/22 18:05	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/06/22 16:40	09/13/22 18:05	1
HFPODA	ND		1500	500	ng/L		09/06/22 16:40	09/13/22 18:05	1
NEtFOSAA	ND		1500	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
NMeFOSAA	ND		1000	300	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorooctanesulfonamide	**1250**	***1**	1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorooctanesulfonic acid	**1270**	***+ *1**	1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:05	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	310	*5+	47 - 200	09/06/22 16:40	09/13/22 18:05	1
M2-6:2 FTS	437	*5+	48 - 195	09/06/22 16:40	09/13/22 18:05	1
M2-8:2 FTS	472	*5+	41 - 198	09/06/22 16:40	09/13/22 18:05	1
13C2 PFTeDA	148		10 - 171	09/06/22 16:40	09/13/22 18:05	1
13C3 HFPO-DA	34		15 - 159	09/06/22 16:40	09/13/22 18:05	1

Client Sample ID: T-2096 R4 TOWER 20
Lab Sample ID: 140-28652-40
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	85		55 - 157	09/06/22 16:40	09/13/22 18:05	1
13C4 PFBA	114		55 - 147	09/06/22 16:40	09/13/22 18:05	1
13C4 PFHpA	106		45 - 160	09/06/22 16:40	09/13/22 18:05	1
13C5 PFPeA	73		49 - 156	09/06/22 16:40	09/13/22 18:05	1
13C8 PFOA	115		47 - 152	09/06/22 16:40	09/13/22 18:05	1
13C8 PFOS	121		50 - 153	09/06/22 16:40	09/13/22 18:05	1
d3-NMeFOSAA	65		10 - 185	09/06/22 16:40	09/13/22 18:05	1
d5-NEtFOSAA	461	*5+	20 - 191	09/06/22 16:40	09/13/22 18:05	1
13C3 PFHxS	89		44 - 159	09/06/22 16:40	09/13/22 18:05	1
13C5 PFHxA	77		42 - 165	09/06/22 16:40	09/13/22 18:05	1
13C6 PFDA	119		42 - 161	09/06/22 16:40	09/13/22 18:05	1
13C7 PFUnA	292	*5+	24 - 168	09/06/22 16:40	09/13/22 18:05	1
13C8 FOSA	40		10 - 156	09/06/22 16:40	09/13/22 18:05	1
13C2-PFDoDA	290	*5+	14 - 168	09/06/22 16:40	09/13/22 18:05	1
13C9 PFNA	147		30 - 175	09/06/22 16:40	09/13/22 18:05	1

Client Sample ID: T-2097 R4 TOWER MA
Lab Sample ID: 140-28652-41
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/16/22 21:35	09/28/22 21:45	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 21:45	1
HFPODA	**29500**		1500	500	ng/L		09/16/22 21:35	09/28/22 21:45	1
NEtFOSAA	ND		1500	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
NMeFOSAA	ND		1000	300	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorohexanesulfonic acid	ND	*1	1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorooctanesulfonamide	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorooctanesulfonic acid	ND	*+ *1	1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 21:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	346	*5+	47 - 200	09/16/22 21:35	09/28/22 21:45	1
M2-6:2 FTS	253	*5+	48 - 195	09/16/22 21:35	09/28/22 21:45	1
M2-8:2 FTS	348	*5+	41 - 198	09/16/22 21:35	09/28/22 21:45	1

Client Sample ID: T-2097 R4 TOWER MA
Lab Sample ID: 140-28652-41
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	83		10 - 171	09/16/22 21:35	09/28/22 21:45	1
13C3 HFPO-DA	90		15 - 159	09/16/22 21:35	09/28/22 21:45	1
13C3 PFBS	130		55 - 157	09/16/22 21:35	09/28/22 21:45	1
13C4 PFBA	147		55 - 147	09/16/22 21:35	09/28/22 21:45	1
13C4 PFHpA	138		45 - 160	09/16/22 21:35	09/28/22 21:45	1
13C5 PFPeA	137		49 - 156	09/16/22 21:35	09/28/22 21:45	1
13C8 PFOA	144		47 - 152	09/16/22 21:35	09/28/22 21:45	1
13C8 PFOS	148		50 - 153	09/16/22 21:35	09/28/22 21:45	1
d3-NMeFOSAA	18		10 - 185	09/16/22 21:35	09/28/22 21:45	1
d5-NEtFOSAA	131		20 - 191	09/16/22 21:35	09/28/22 21:45	1
13C3 PFHxS	138		44 - 159	09/16/22 21:35	09/28/22 21:45	1
13C5 PFHxA	140		42 - 165	09/16/22 21:35	09/28/22 21:45	1
13C6 PFDA	142		42 - 161	09/16/22 21:35	09/28/22 21:45	1
13C7 PFUnA	121		24 - 168	09/16/22 21:35	09/28/22 21:45	1
13C8 FOSA	55		10 - 156	09/16/22 21:35	09/28/22 21:45	1
13C2-PFDoDA	127		14 - 168	09/16/22 21:35	09/28/22 21:45	1
13C9 PFNA	170		30 - 175	09/16/22 21:35	09/28/22 21:45	1

Client Sample ID: T-2098 R4 TOWER MP
Lab Sample ID: 140-28652-42
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/06/22 16:40	09/13/22 18:27	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/06/22 16:40	09/13/22 18:27	1
NEtFOSAA	ND		1500	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
NMeFOSAA	ND		1000	300	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorooctanesulfonamide	ND	*1	1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorooctanesulfonic acid	ND	*+ *1	1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorooctanoic acid	**334**	**J**	1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/13/22 18:27	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	196		47 - 200	09/06/22 16:40	09/13/22 18:27	1
M2-6:2 FTS	184		48 - 195	09/06/22 16:40	09/13/22 18:27	1

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-2098 R4 TOWER MP
Lab Sample ID: 140-28652-42
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*280*	**5+*	*41 - 198*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C2 PFTeDA	*57*		*10 - 171*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C3 HFPO-DA	*40*		*15 - 159*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C3 PFBS	*110*		*55 - 157*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C4 PFBA	*113*		*55 - 147*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C4 PFHpA	*90*		*45 - 160*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C5 PFPeA	*125*		*49 - 156*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C8 PFOA	*103*		*47 - 152*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C8 PFOS	*120*		*50 - 153*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
d3-NMeFOSAA	*11*		*10 - 185*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
d5-NEtFOSAA	*131*		*20 - 191*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C3 PFHxS	*91*		*44 - 159*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C5 PFHxA	*100*		*42 - 165*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C6 PFDA	*102*		*42 - 161*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C7 PFUnA	*110*		*24 - 168*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C8 FOSA	*57*		*10 - 156*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C2-PFDoDA	*96*		*14 - 168*	*09/06/22 16:40*	*09/13/22 18:27*	*1*
13C9 PFNA	*144*		*30 - 175*	*09/06/22 16:40*	*09/13/22 18:27*	*1*

Method: ELLE - Lancaster 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPODA	380000		15000	5000	ng/L		09/06/22 16:40	09/13/22 18:38	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*63*		*15 - 159*	*09/06/22 16:40*	*09/13/22 18:38*	*10*

Default Detection Limits

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: EPA 537 (Mod)

Analyte	RL	MDL	Units
4:2 Fluorotelomer sulfonic acid	2.00	0.500	ng/L
6:2 Fluorotelomer sulfonic acid	5.00	4.20	ng/L
8:2 Fluorotelomer sulfonic acid	3.00	1.00	ng/L
HFPODA	3.00	1.00	ng/L
NEtFOSAA	3.00	0.500	ng/L
NMeFOSAA	2.00	0.600	ng/L
Perfluorobutanesulfonic acid	2.00	0.500	ng/L
Perfluorobutanoic acid	5.00	2.00	ng/L
Perfluorodecanesulfonic acid	2.00	0.500	ng/L
Perfluorodecanoic acid	2.00	0.500	ng/L
Perfluorododecanoic acid	2.00	0.500	ng/L
Perfluoroheptanesulfonic acid	2.00	0.500	ng/L
Perfluoroheptanoic acid	2.00	0.500	ng/L
Perfluorohexanesulfonic acid	2.00	0.500	ng/L
Perfluorohexanoic acid	2.00	0.500	ng/L
Perfluorononanoic acid	2.00	0.500	ng/L
Perfluorooctanesulfonamide	2.00	0.500	ng/L
Perfluorooctanesulfonic acid	2.00	0.500	ng/L
Perfluorooctanoic acid	2.00	0.500	ng/L
Perfluoropentanesulfonic acid	2.00	0.500	ng/L
Perfluoropentanoic acid	2.00	0.500	ng/L
Perfluorotetradecanoic acid	2.00	0.500	ng/L
Perfluorotridecanoic acid	2.00	0.500	ng/L
Perfluoroundecanoic acid	2.00	0.500	ng/L

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (47-200)	M262FTS (48-195)	M282FTS (41-198)	PFTDA (10-171)	HFPODA (15-159)	C3PFBS (55-157)	PFBA (55-147)	C4PFHA (45-160)
140-28652-12	T-3073 R2 TOWER 20	559 *5+	317 *5+	443 *5+	108	79	119	119	119
140-28652-13	T-3074 R2 TOWER MA	190	156	166	97	69	102	108	105
140-28652-14	T-3075 R2 TOWER MQ	206 *5+	159	186	111	65	108	113	108
140-28652-15	T-3076 R2 TOWER MB	210 *5+	168	138	99	0.1 *5-	110	105	102
140-28652-16	T-3077 R2 TOWER MR	218 *5+	160	180	99	82	109	111	112
140-28652-17	T-3078 R2 TOWER MD	206 *5+	161	170	104	69	106	112	111
140-28652-18	T-3079 R2 TOWER MC	204 *5+	163	166	107	60	101	108	102
140-28652-19	T-3080 R2 TOWER QX	217 *5+	157	172	105	66	112	116	106
140-28652-20	T-3081 R2 TOWER QX	184	180	417 *5+	84	68	100	104	96
140-28652-21	T-3082 R2 TOWER MS	492 *5+	439 *5+	258 *5+	95	70	109	110	112
140-28652-22	T-3083 R2 TOWER MP	211 *5+	178	207 *5+	112	76	112	114	108
140-28652-23	T-3085 R3 TOWER MA	224 *5+	175	199 *5+	108	83	117	118	109
140-28652-24	T-3086 R3 TOWER MQ	200	158	175	112	72	110	107	103
140-28652-25	T-3087 R3 TOWER MD	212 *5+	168	165	109	76	119	114	111
140-28652-26	T-3088 R3 TOWER MC	211 *5+	160	178	110	72	115	118	108
140-28652-27	T-3089 R3 TOWER QX	197	165	166	103	73	110	116	111
140-28652-28	T-3090 R3 TOWER 20	487 *5+	287 *5+	356 *5+	91	70	110	111	107
140-28652-29	T-3091 R3 TOWER MR	197	156	156	102	77	102	108	108
140-28652-30	T-3092 R3 TOWER MB	206 *5+	160	148	98	83	103	109	107
140-28652-31	T-3093 R3 TOWER MS	425 *5+	431 *5+	246 *5+	92	77	105	112	109
140-28652-32	T-3094 R3 TOWER MP	184	114	106	110	74	96	104	109
140-28652-33	T-2089 R4 TOWER MQ	335 *5+	259 *5+	318 *5+	75	73	121	134	135
140-28652-34	T-2090 R4 TOWER QX	352 *5+	254 *5+	335 *5+	95	97	133	142	139
140-28652-35	T-2091 R4 TOWER MD	215 *5+	203 *5+	268 *5+	47	49	108	108	106
140-28652-35 - DL	T-2091 R4 TOWER MD					56			
140-28652-36	T-2092 R4 TOWER MC	285 *5+	233 *5+	300 *5+	70	57	119	135	126
140-28652-37	T-2093 R4 TOWER MS	343 *5+	388 *5+	338 *5+	98	39	61	111	115
140-28652-38	T-2094 R4 TOWER MB	248 *5+	229 *5+	269 *5+	40	37	106	114	105
140-28652-38 - DL	T-2094 R4 TOWER MB					48			
140-28652-39	T-2095 R4 TOWER MR	385 *5+	328 *5+	394 *5+	96	87	132	139	136
140-28652-40	T-2096 R4 TOWER 20	310 *5+	437 *5+	472 *5+	148	34	85	114	106
140-28652-41	T-2097 R4 TOWER MA	346 *5+	253 *5+	348 *5+	83	90	130	147	138
140-28652-42	T-2098 R4 TOWER MP	196	184	280 *5+	57	40	110	113	90
140-28652-42 - DL	T-2098 R4 TOWER MP					63			
LCS 410-292076/2-B	Lab Control Sample	200	166	147	110	38	110	120	110
LCS 410-293210/2-B	Lab Control Sample	149	137	116	92	80	113	112	109
LCS 410-296939/2-B	Lab Control Sample	221 *5+	215 *5+	306 *5+	74	95	128	132	122
LCS 410-298262/2-B	Lab Control Sample	212 *5+	170	153	103	95	110	117	108
LCS 410-301996/2-B	Lab Control Sample	179	131	104	75	83	103	107	114
LCSD 410-292076/3-B	Lab Control Sample Dup	201 *5+	157	151	94	0.2 *5-	109	109	100
LCSD 410-293210/3-B	Lab Control Sample Dup	155	142	126	99	78	108	107	109
LCSD 410-296939/3-B	Lab Control Sample Dup	235 *5+	212 *5+	262 *5+	81	111	139	142	132
LCSD 410-298262/3-B	Lab Control Sample Dup	177	132	122	82	76	104	104	97
LCSD 410-301996/3-B	Lab Control Sample Dup	172	120	106	77	89	103	106	113
MB 410-292076/1-B	Method Blank	165	145	140	97	25	107	95	90
MB 410-293210/1-B	Method Blank	148	124	121	73	74	110	108	100
MB 410-296939/1-B	Method Blank	254 *5+	259 *5+	343 *5+	71	94	129	126	125
MB 410-298262/1-B	Method Blank	204 *5+	151	137	90	78	103	109	116
MB 410-301996/1-B	Method Blank	158	112	99	62	80	96	101	110

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

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	PFPeA (49-156)	C8PFOA (47-152)	C8PFOS (50-153)	d3NMFOS (10-185)	d5NEFOS (20-191)	C3PFHS (44-159)	13C5PHA (42-165)	C6PFDA (42-161)
140-28652-12	T-3073 R2 TOWER 20	116	112	122	119	96	104	115	112
140-28652-13	T-3074 R2 TOWER MA	101	101	116	56	86	107	103	99
140-28652-14	T-3075 R2 TOWER MQ	113	107	123	50	83	110	106	107
140-28652-15	T-3076 R2 TOWER MB	102	99	116	68	80	99	99	100
140-28652-16	T-3077 R2 TOWER MR	108	110	120	88	76	108	112	102
140-28652-17	T-3078 R2 TOWER MD	118	109	123	58	72	109	113	106
140-28652-18	T-3079 R2 TOWER MC	100	103	114	44	78	103	108	102
140-28652-19	T-3080 R2 TOWER QX	106	108	121	32	74	107	110	110
140-28652-20	T-3081 R2 TOWER QX	95	98	111	61	63	95	95	102
140-28652-21	T-3082 R2 TOWER MS	102	109	104	73	94	95	103	98
140-28652-22	T-3083 R2 TOWER MP	113	105	125	76	84	116	108	111
140-28652-23	T-3085 R3 TOWER MA	107	113	119	60	105	113	114	109
140-28652-24	T-3086 R3 TOWER MQ	99	105	116	56	78	112	107	106
140-28652-25	T-3087 R3 TOWER MD	106	110	118	53	79	113	111	107
140-28652-26	T-3088 R3 TOWER MC	107	108	121	50	89	108	105	109
140-28652-27	T-3089 R3 TOWER QX	111	104	122	37	74	108	108	111
140-28652-28	T-3090 R3 TOWER 20	100	104	115	100	89	97	106	94
140-28652-29	T-3091 R3 TOWER MR	107	111	118	68	72	109	105	106
140-28652-30	T-3092 R3 TOWER MB	101	106	117	72	77	107	109	103
140-28652-31	T-3093 R3 TOWER MS	92	102	93	122	102	87	95	86
140-28652-32	T-3094 R3 TOWER MP	112	100	107	57	83	94	104	100
140-28652-33	T-2089 R4 TOWER MQ	133	137	140	14	124	132	130	128
140-28652-34	T-2090 R4 TOWER QX	135	132	149	6 *5-	121	135	143	123
140-28652-35	T-2091 R4 TOWER MD	115	106	121	7 *5-	134	103	101	110
140-28652-35 - DL	T-2091 R4 TOWER MD								
140-28652-36	T-2092 R4 TOWER MC	124	124	138	13	115	120	120	119
140-28652-37	T-2093 R4 TOWER MS	33 *5-	106	119	201 *5+	235 *5+	114	90	145
140-28652-38	T-2094 R4 TOWER MB	122	114	116	5 *5-	115	102	103	106
140-28652-38 - DL	T-2094 R4 TOWER MB								
140-28652-39	T-2095 R4 TOWER MR	135	140	150	39	158	142	134	129
140-28652-40	T-2096 R4 TOWER 20	73	115	121	65	461 *5+	89	77	119
140-28652-41	T-2097 R4 TOWER MA	137	144	148	18	131	138	140	142
140-28652-42	T-2098 R4 TOWER MP	125	103	120	11	131	91	100	102
140-28652-42 - DL	T-2098 R4 TOWER MP								
LCS 410-292076/2-B	Lab Control Sample	115	114	132	85	82	112	111	114
LCS 410-293210/2-B	Lab Control Sample	114	109	122	77	61	111	108	99
LCS 410-296939/2-B	Lab Control Sample	120	123	134	148	138	123	126	119
LCS 410-298262/2-B	Lab Control Sample	116	117	119	95	89	112	115	110
LCS 410-301996/2-B	Lab Control Sample	110	106	112	92	88	105	115	102
LCSD 410-292076/3-B	Lab Control Sample Dup	108	97	120	74	69	102	99	100
LCSD 410-293210/3-B	Lab Control Sample Dup	108	105	115	95	92	109	105	101
LCSD 410-296939/3-B	Lab Control Sample Dup	134	135	154 *5+	143	137	133	136	130
LCSD 410-298262/3-B	Lab Control Sample Dup	95	96	111	85	72	106	102	96
LCSD 410-301996/3-B	Lab Control Sample Dup	113	102	112	95	87	104	111	102
MB 410-292076/1-B	Method Blank	95	94	116	69	68	101	88	97
MB 410-293210/1-B	Method Blank	110	101	109	80	74	104	102	100
MB 410-296939/1-B	Method Blank	116	122	134	150	137	126	125	117
MB 410-298262/1-B	Method Blank	100	110	113	76	69	110	113	100
MB 410-301996/1-B	Method Blank	106	96	106	85	80	99	106	98

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

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	13C7PUA (24-168)	PFOSA (10-156)	PFDoDA (14-168)	C9PFNA (30-175)
140-28652-12	T-3073 R2 TOWER 20	110	63	108	129
140-28652-13	T-3074 R2 TOWER MA	98	74	115	119
140-28652-14	T-3075 R2 TOWER MQ	111	75	124	125
140-28652-15	T-3076 R2 TOWER MB	101	73	125	118
140-28652-16	T-3077 R2 TOWER MR	104	69	95	124
140-28652-17	T-3078 R2 TOWER MD	99	66	105	128
140-28652-18	T-3079 R2 TOWER MC	104	68	110	124
140-28652-19	T-3080 R2 TOWER QX	101	64	113	127
140-28652-20	T-3081 R2 TOWER QX	91	49	91	118
140-28652-21	T-3082 R2 TOWER MS	95	68	100	124
140-28652-22	T-3083 R2 TOWER MP	100	79	108	123
140-28652-23	T-3085 R3 TOWER MA	111	81	116	122
140-28652-24	T-3086 R3 TOWER MQ	101	74	110	118
140-28652-25	T-3087 R3 TOWER MD	103	71	110	124
140-28652-26	T-3088 R3 TOWER MC	107	73	118	123
140-28652-27	T-3089 R3 TOWER QX	106	65	113	122
140-28652-28	T-3090 R3 TOWER 20	96	51	91	126
140-28652-29	T-3091 R3 TOWER MR	110	73	110	132
140-28652-30	T-3092 R3 TOWER MB	107	71	111	126
140-28652-31	T-3093 R3 TOWER MS	98	78	90	110
140-28652-32	T-3094 R3 TOWER MP	95	67	98	128
140-28652-33	T-2089 R4 TOWER MQ	110	45	120	161
140-28652-34	T-2090 R4 TOWER QX	111	18	124	160
140-28652-35	T-2091 R4 TOWER MD	122	26	99	135
140-28652-35 - DL	T-2091 R4 TOWER MD				
140-28652-36	T-2092 R4 TOWER MC	112	43	118	151
140-28652-37	T-2093 R4 TOWER MS	159	89	95	115
140-28652-38	T-2094 R4 TOWER MB	106	15	67	142
140-28652-38 - DL	T-2094 R4 TOWER MB				
140-28652-39	T-2095 R4 TOWER MR	136	73	141	186 *5+
140-28652-40	T-2096 R4 TOWER 20	292 *5+	40	290 *5+	147
140-28652-41	T-2097 R4 TOWER MA	121	55	127	170
140-28652-42	T-2098 R4 TOWER MP	110	57	96	144
140-28652-42 - DL	T-2098 R4 TOWER MP				
LCS 410-292076/2-B	Lab Control Sample	114	69	118	129
LCS 410-293210/2-B	Lab Control Sample	101	55	91	116
LCS 410-296939/2-B	Lab Control Sample	112	87	91	147
LCS 410-298262/2-B	Lab Control Sample	114	60	110	117
LCS 410-301996/2-B	Lab Control Sample	102	85	96	119
LCSD 410-292076/3-B	Lab Control Sample Dup	105	70	111	113
LCSD 410-293210/3-B	Lab Control Sample Dup	111	75	97	109
LCSD 410-296939/3-B	Lab Control Sample Dup	125	94	113	147
LCSD 410-298262/3-B	Lab Control Sample Dup	108	54	93	107
LCSD 410-301996/3-B	Lab Control Sample Dup	105	83	96	121
MB 410-292076/1-B	Method Blank	104	61	101	112
MB 410-293210/1-B	Method Blank	96	29	83	105
MB 410-296939/1-B	Method Blank	112	81	100	146
MB 410-298262/1-B	Method Blank	110	58	92	120
MB 410-301996/1-B	Method Blank	97	78	90	114

Isotope Dilution Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Surrogate Legend

M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
PFTDA = 13C2 PFTeDA
HFPODA = 13C3 HFPO-DA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
C8PFOA = 13C8 PFOA
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
C3PFHS = 13C3 PFHxS
13C5PHA = 13C5 PFHxA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFOSA = 13C8 FOSA
PFDoDA = 13C2-PFDoDA
C9PFNA = 13C9 PFNA

Client: Barr Engineering Company
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Job ID: 140-28652-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 410-292076/1-B
Matrix: Water
Analysis Batch: 294657

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 292076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/01/22 14:40	09/12/22 21:35	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/01/22 14:40	09/12/22 21:35	1
HFPODA	ND		1500	500	ng/L		09/01/22 14:40	09/12/22 21:35	1
NEtFOSAA	ND		1500	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
NMeFOSAA	ND		1000	300	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorooctanesulfonamide	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorooctanesulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/01/22 14:40	09/12/22 21:35	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*165*		*47 - 200*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
M2-6:2 FTS	*145*		*48 - 195*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
M2-8:2 FTS	*140*		*41 - 198*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C2 PFTeDA	*97*		*10 - 171*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C3 HFPO-DA	*25*		*15 - 159*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C3 PFBS	*107*		*55 - 157*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C4 PFBA	*95*		*55 - 147*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C4 PFHpA	*90*		*45 - 160*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C5 PFPeA	*95*		*49 - 156*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C8 PFOA	*94*		*47 - 152*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C8 PFOS	*116*		*50 - 153*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
d3-NMeFOSAA	*69*		*10 - 185*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
d5-NEtFOSAA	*68*		*20 - 191*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C3 PFHxS	*101*		*44 - 159*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C5 PFHxA	*88*		*42 - 165*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C6 PFDA	*97*		*42 - 161*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C7 PFUnA	*104*		*24 - 168*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C8 FOSA	*61*		*10 - 156*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C2-PFDoDA	*101*		*14 - 168*	*09/01/22 14:40*	*09/12/22 21:35*	*1*
13C9 PFNA	*112*		*30 - 175*	*09/01/22 14:40*	*09/12/22 21:35*	*1*

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

Lab Sample ID: LCS 410-292076/2-B
Matrix: Water
Analysis Batch: 294657

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 292076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4:2 Fluorotelomer sulfonic acid	5980	4645		ng/L		78	55 - 139
6:2 Fluorotelomer sulfonic acid	6070	4963		ng/L		82	28 - 173
8:2 Fluorotelomer sulfonic acid	6130	4845		ng/L		79	55 - 138
HFPODA	6400	4577		ng/L		72	50 - 135
NEtFOSAA	6400	5052		ng/L		79	55 - 134
NMeFOSAA	6400	4919		ng/L		77	59 - 140
Perfluorobutanesulfonic acid	5660	4471		ng/L		79	53 - 138
Perfluorobutanoic acid	6400	5048		ng/L		79	59 - 136
Perfluorodecanesulfonic acid	6170	4280		ng/L		69	55 - 137
Perfluorodecanoic acid	6400	5535		ng/L		86	56 - 138
Perfluorododecanoic acid	6400	4900		ng/L		77	59 - 143
Perfluoroheptanesulfonic acid	6090	4675		ng/L		77	56 - 140
Perfluoroheptanoic acid	6400	5275		ng/L		82	59 - 145
Perfluorohexanesulfonic acid	5840	4382		ng/L		75	58 - 134
Perfluorohexanoic acid	6400	5108		ng/L		80	58 - 139
Perfluorononanoic acid	6400	5128		ng/L		80	61 - 139
Perfluorooctanesulfonamide	6400	6276		ng/L		98	43 - 167
Perfluorooctanesulfonic acid	5920	6232		ng/L		105	45 - 150
Perfluorooctanoic acid	6400	5230		ng/L		82	51 - 145
Perfluoropentanesulfonic acid	6000	5174		ng/L		86	55 - 140
Perfluoropentanoic acid	6400	5076		ng/L		79	57 - 141
Perfluorotetradecanoic acid	6400	4756		ng/L		74	62 - 139
Perfluorotridecanoic acid	6400	4260		ng/L		67	58 - 146
Perfluoroundecanoic acid	6400	5061		ng/L		79	60 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*200*		*47 - 200*
M2-6:2 FTS	*166*		*48 - 195*
M2-8:2 FTS	*147*		*41 - 198*
13C2 PFTeDA	*110*		*10 - 171*
13C3 HFPO-DA	*38*		*15 - 159*
13C3 PFBS	*110*		*55 - 157*
13C4 PFBA	*120*		*55 - 147*
13C4 PFHpA	*110*		*45 - 160*
13C5 PFPeA	*115*		*49 - 156*
13C8 PFOA	*114*		*47 - 152*
13C8 PFOS	*132*		*50 - 153*
d3-NMeFOSAA	*85*		*10 - 185*
d5-NEtFOSAA	*82*		*20 - 191*
13C3 PFHxS	*112*		*44 - 159*
13C5 PFHxA	*111*		*42 - 165*
13C6 PFDA	*114*		*42 - 161*
13C7 PFUnA	*114*		*24 - 168*
13C8 FOSA	*69*		*10 - 156*
13C2-PFDoDA	*118*		*14 - 168*
13C9 PFNA	*129*		*30 - 175*

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

Lab Sample ID: LCSD 410-292076/3-B
Matrix: Water
Analysis Batch: 294657

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 292076

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4:2 Fluorotelomer sulfonic acid			5980	4405		ng/L		74	55 - 139	5	30
6:2 Fluorotelomer sulfonic acid			6070	5231		ng/L		86	28 - 173	5	30
8:2 Fluorotelomer sulfonic acid			6130	4643		ng/L		76	55 - 138	4	30
HFPODA			6400	ND	*- *1	ng/L		0	50 - 135	200	30
NEtFOSAA			6400	5286		ng/L		83	55 - 134	5	30
NMeFOSAA			6400	4927		ng/L		77	59 - 140	0	30
Perfluorobutanesulfonic acid			5660	4583		ng/L		81	53 - 138	2	30
Perfluorobutanoic acid			6400	5130		ng/L		80	59 - 136	2	30
Perfluorodecanesulfonic acid			6170	4568		ng/L		74	55 - 137	7	30
Perfluorodecanoic acid			6400	5562		ng/L		87	56 - 138	0	30
Perfluorododecanoic acid			6400	4854		ng/L		76	59 - 143	1	30
Perfluoroheptanesulfonic acid			6090	4852		ng/L		80	56 - 140	4	30
Perfluoroheptanoic acid			6400	5280		ng/L		82	59 - 145	0	30
Perfluorohexanesulfonic acid			5840	5141		ng/L		88	58 - 134	16	30
Perfluorohexanoic acid			6400	5033		ng/L		79	58 - 139	1	30
Perfluorononanoic acid			6400	5236		ng/L		82	61 - 139	2	30
Perfluorooctanesulfonamide			6400	7451		ng/L		116	43 - 167	17	30
Perfluorooctanesulfonic acid			5920	9055	*+ *1	ng/L		153	45 - 150	37	30
Perfluorooctanoic acid			6400	5814		ng/L		91	51 - 145	11	30
Perfluoropentanesulfonic acid			6000	5124		ng/L		85	55 - 140	1	30
Perfluoropentanoic acid			6400	5037		ng/L		79	57 - 141	1	30
Perfluorotetradecanoic acid			6400	5410		ng/L		85	62 - 139	13	30
Perfluorotridecanoic acid			6400	4645		ng/L		73	58 - 146	9	30
Perfluoroundecanoic acid			6400	4588		ng/L		72	60 - 141	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*201*	*5+	*47 - 200*
M2-6:2 FTS	*157*		*48 - 195*
M2-8:2 FTS	*151*		*41 - 198*
13C2 PFTeDA	*94*		*10 - 171*
13C3 HFPO-DA	*0.2*	*5-	*15 - 159*
13C3 PFBS	*109*		*55 - 157*
13C4 PFBA	*109*		*55 - 147*
13C4 PFHpA	*100*		*45 - 160*
13C5 PFPeA	*108*		*49 - 156*
13C8 PFOA	*97*		*47 - 152*
13C8 PFOS	*120*		*50 - 153*
d3-NMeFOSAA	*74*		*10 - 185*
d5-NEtFOSAA	*69*		*20 - 191*
13C3 PFHxS	*102*		*44 - 159*
13C5 PFHxA	*99*		*42 - 165*
13C6 PFDA	*100*		*42 - 161*
13C7 PFUnA	*105*		*24 - 168*
13C8 FOSA	*70*		*10 - 156*
13C2-PFDoDA	*111*		*14 - 168*
13C9 PFNA	*113*		*30 - 175*

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

Lab Sample ID: MB 410-293210/1-B
Matrix: Water
Analysis Batch: 294577

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293210

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/06/22 16:40	09/10/22 19:09	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/06/22 16:40	09/10/22 19:09	1
HFPODA	ND		1500	500	ng/L		09/06/22 16:40	09/10/22 19:09	1
NEtFOSAA	ND		1500	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
NMeFOSAA	ND		1000	300	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorooctanesulfonamide	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorooctanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/06/22 16:40	09/10/22 19:09	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*148*		*47 - 200*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
M2-6:2 FTS	*124*		*48 - 195*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
M2-8:2 FTS	*121*		*41 - 198*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C2 PFTeDA	*73*		*10 - 171*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C3 HFPO-DA	*74*		*15 - 159*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C3 PFBS	*110*		*55 - 157*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C4 PFBA	*108*		*55 - 147*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C4 PFHpA	*100*		*45 - 160*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C5 PFPeA	*110*		*49 - 156*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C8 PFOA	*101*		*47 - 152*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C8 PFOS	*109*		*50 - 153*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
d3-NMeFOSAA	*80*		*10 - 185*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
d5-NEtFOSAA	*74*		*20 - 191*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C3 PFHxS	*104*		*44 - 159*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C5 PFHxA	*102*		*42 - 165*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C6 PFDA	*100*		*42 - 161*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C7 PFUnA	*96*		*24 - 168*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C8 FOSA	*29*		*10 - 156*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C2-PFDoDA	*83*		*14 - 168*	*09/06/22 16:40*	*09/10/22 19:09*	*1*
13C9 PFNA	*105*		*30 - 175*	*09/06/22 16:40*	*09/10/22 19:09*	*1*

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

Lab Sample ID: LCS 410-293210/2-B
Matrix: Water
Analysis Batch: 294577

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293210

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4:2 Fluorotelomer sulfonic acid	5980	5562		ng/L		93	55 - 139
6:2 Fluorotelomer sulfonic acid	6070	5660		ng/L		93	28 - 173
8:2 Fluorotelomer sulfonic acid	6130	6617		ng/L		108	55 - 138
HFPODA	6400	5313		ng/L		83	50 - 135
NEtFOSAA	6400	6860		ng/L		107	55 - 134
NMeFOSAA	6400	6350		ng/L		99	59 - 140
Perfluorobutanesulfonic acid	5660	5749		ng/L		102	53 - 138
Perfluorobutanoic acid	6400	6352		ng/L		99	59 - 136
Perfluorodecanesulfonic acid	6170	5203		ng/L		84	55 - 137
Perfluorodecanoic acid	6400	6418		ng/L		100	56 - 138
Perfluorododecanoic acid	6400	6430		ng/L		100	59 - 143
Perfluoroheptanesulfonic acid	6090	5802		ng/L		95	56 - 140
Perfluoroheptanoic acid	6400	5640		ng/L		88	59 - 145
Perfluorohexanesulfonic acid	5840	5485		ng/L		94	58 - 134
Perfluorohexanoic acid	6400	5724		ng/L		89	58 - 139
Perfluorononanoic acid	6400	6279		ng/L		98	61 - 139
Perfluorooctanesulfonamide	6400	6989		ng/L		109	43 - 167
Perfluorooctanesulfonic acid	5920	5976		ng/L		101	45 - 150
Perfluorooctanoic acid	6400	6394		ng/L		100	51 - 145
Perfluoropentanesulfonic acid	6000	6148		ng/L		102	55 - 140
Perfluoropentanoic acid	6400	5829		ng/L		91	57 - 141
Perfluorotetradecanoic acid	6400	5885		ng/L		92	62 - 139
Perfluorotridecanoic acid	6400	6686		ng/L		104	58 - 146
Perfluoroundecanoic acid	6400	6240		ng/L		98	60 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*149*		*47 - 200*
M2-6:2 FTS	*137*		*48 - 195*
M2-8:2 FTS	*116*		*41 - 198*
13C2 PFTeDA	*92*		*10 - 171*
13C3 HFPO-DA	*80*		*15 - 159*
13C3 PFBS	*113*		*55 - 157*
13C4 PFBA	*112*		*55 - 147*
13C4 PFHpA	*109*		*45 - 160*
13C5 PFPeA	*114*		*49 - 156*
13C8 PFOA	*109*		*47 - 152*
13C8 PFOS	*122*		*50 - 153*
d3-NMeFOSAA	*77*		*10 - 185*
d5-NEtFOSAA	*61*		*20 - 191*
13C3 PFHxS	*111*		*44 - 159*
13C5 PFHxA	*108*		*42 - 165*
13C6 PFDA	*99*		*42 - 161*
13C7 PFUnA	*101*		*24 - 168*
13C8 FOSA	*55*		*10 - 156*
13C2-PFDoDA	*91*		*14 - 168*
13C9 PFNA	*116*		*30 - 175*

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

Lab Sample ID: LCSD 410-293210/3-B
Matrix: Water
Analysis Batch: 294577

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293210

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4:2 Fluorotelomer sulfonic acid			5980	6213		ng/L		104	55 - 139	11	30
6:2 Fluorotelomer sulfonic acid			6070	5932		ng/L		98	28 - 173	5	30
8:2 Fluorotelomer sulfonic acid			6130	6199		ng/L		101	55 - 138	7	30
HFPODA			6400	5435		ng/L		85	50 - 135	2	30
NEtFOSAA			6400	6529		ng/L		102	55 - 134	5	30
NMeFOSAA			6400	6312		ng/L		99	59 - 140	1	30
Perfluorobutanesulfonic acid			5660	5709		ng/L		101	53 - 138	1	30
Perfluorobutanoic acid			6400	6649		ng/L		104	59 - 136	5	30
Perfluorodecanesulfonic acid			6170	5462		ng/L		89	55 - 137	5	30
Perfluorodecanoic acid			6400	6625		ng/L		104	56 - 138	3	30
Perfluorododecanoic acid			6400	6674		ng/L		104	59 - 143	4	30
Perfluoroheptanesulfonic acid			6090	5906		ng/L		97	56 - 140	2	30
Perfluoroheptanoic acid			6400	5781		ng/L		90	59 - 145	2	30
Perfluorohexanesulfonic acid			5840	5602		ng/L		96	58 - 134	2	30
Perfluorohexanoic acid			6400	6494		ng/L		101	58 - 139	13	30
Perfluorononanoic acid			6400	6182		ng/L		97	61 - 139	2	30
Perfluorooctanesulfonamide			6400	10550	*1	ng/L		165	43 - 167	41	30
Perfluorooctanesulfonic acid			5920	9195	*+ *1	ng/L		155	45 - 150	42	30
Perfluorooctanoic acid			6400	6507		ng/L		102	51 - 145	2	30
Perfluoropentanesulfonic acid			6000	6325		ng/L		105	55 - 140	3	30
Perfluoropentanoic acid			6400	5831		ng/L		91	57 - 141	0	30
Perfluorotetradecanoic acid			6400	6345		ng/L		99	62 - 139	8	30
Perfluorotridecanoic acid			6400	6348		ng/L		99	58 - 146	5	30
Perfluoroundecanoic acid			6400	6746		ng/L		105	60 - 141	8	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*155*		*47 - 200*
M2-6:2 FTS	*142*		*48 - 195*
M2-8:2 FTS	*126*		*41 - 198*
13C2 PFTeDA	*99*		*10 - 171*
13C3 HFPO-DA	*78*		*15 - 159*
13C3 PFBS	*108*		*55 - 157*
13C4 PFBA	*107*		*55 - 147*
13C4 PFHpA	*109*		*45 - 160*
13C5 PFPeA	*108*		*49 - 156*
13C8 PFOA	*105*		*47 - 152*
13C8 PFOS	*115*		*50 - 153*
d3-NMeFOSAA	*95*		*10 - 185*
d5-NEtFOSAA	*92*		*20 - 191*
13C3 PFHxS	*109*		*44 - 159*
13C5 PFHxA	*105*		*42 - 165*
13C6 PFDA	*101*		*42 - 161*
13C7 PFUnA	*111*		*24 - 168*
13C8 FOSA	*75*		*10 - 156*
13C2-PFDoDA	*97*		*14 - 168*
13C9 PFNA	*109*		*30 - 175*

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

Lab Sample ID: MB 410-296939/1-B
Matrix: Water
Analysis Batch: 300665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296939

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/16/22 21:35	09/28/22 19:10	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 19:10	1
HFPODA	ND		1500	500	ng/L		09/16/22 21:35	09/28/22 19:10	1
NEtFOSAA	ND		1500	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
NMeFOSAA	ND		1000	300	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorooctanesulfonamide	286.2	J	1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorooctanesulfonic acid	494.3	J	1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/16/22 21:35	09/28/22 19:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*254*	**5+*	*47 - 200*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
M2-6:2 FTS	*259*	**5+*	*48 - 195*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
M2-8:2 FTS	*343*	**5+*	*41 - 198*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C2 PFTeDA	*71*		*10 - 171*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C3 HFPO-DA	*94*		*15 - 159*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C3 PFBS	*129*		*55 - 157*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C4 PFBA	*126*		*55 - 147*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C4 PFHpA	*125*		*45 - 160*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C5 PFPeA	*116*		*49 - 156*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C8 PFOA	*122*		*47 - 152*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C8 PFOS	*134*		*50 - 153*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
d3-NMeFOSAA	*150*		*10 - 185*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
d5-NEtFOSAA	*137*		*20 - 191*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C3 PFHxS	*126*		*44 - 159*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C5 PFHxA	*125*		*42 - 165*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C6 PFDA	*117*		*42 - 161*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C7 PFUnA	*112*		*24 - 168*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C8 FOSA	*81*		*10 - 156*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C2-PFDoDA	*100*		*14 - 168*	*09/16/22 21:35*	*09/28/22 19:10*	*1*
13C9 PFNA	*146*		*30 - 175*	*09/16/22 21:35*	*09/28/22 19:10*	*1*

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

Lab Sample ID: LCS 410-296939/2-B
Matrix: Water
Analysis Batch: 300665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4:2 Fluorotelomer sulfonic acid	5980	4940		ng/L		83	55 - 139
6:2 Fluorotelomer sulfonic acid	6070	5483		ng/L		90	28 - 173
8:2 Fluorotelomer sulfonic acid	6130	5777		ng/L		94	55 - 138
HFPODA	6400	4272		ng/L		67	50 - 135
NEtFOSAA	6400	5951		ng/L		93	55 - 134
NMeFOSAA	6400	5758		ng/L		90	59 - 140
Perfluorobutanesulfonic acid	5660	4567		ng/L		81	53 - 138
Perfluorobutanoic acid	6400	4885		ng/L		76	59 - 136
Perfluorodecanesulfonic acid	6170	4191		ng/L		68	55 - 137
Perfluorodecanoic acid	6400	5447		ng/L		85	56 - 138
Perfluorododecanoic acid	6400	5550		ng/L		87	59 - 143
Perfluoroheptanesulfonic acid	6090	5051		ng/L		83	56 - 140
Perfluoroheptanoic acid	6400	5409		ng/L		85	59 - 145
Perfluorohexanesulfonic acid	5840	4665		ng/L		80	58 - 134
Perfluorohexanoic acid	6400	5248		ng/L		82	58 - 139
Perfluorononanoic acid	6400	5078		ng/L		79	61 - 139
Perfluorooctanesulfonamide	6400	6376		ng/L		100	43 - 167
Perfluorooctanesulfonic acid	5920	11980	*+	ng/L		202	45 - 150
Perfluorooctanoic acid	6400	5678		ng/L		89	51 - 145
Perfluoropentanesulfonic acid	6000	5169		ng/L		86	55 - 140
Perfluoropentanoic acid	6400	5325		ng/L		83	57 - 141
Perfluorotetradecanoic acid	6400	5197		ng/L		81	62 - 139
Perfluorotridecanoic acid	6400	4600		ng/L		72	58 - 146
Perfluoroundecanoic acid	6400	4993		ng/L		78	60 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*221*	**5+*	*47 - 200*
M2-6:2 FTS	*215*	**5+*	*48 - 195*
M2-8:2 FTS	*306*	**5+*	*41 - 198*
13C2 PFTeDA	*74*		*10 - 171*
13C3 HFPO-DA	*95*		*15 - 159*
13C3 PFBS	*128*		*55 - 157*
13C4 PFBA	*132*		*55 - 147*
13C4 PFHpA	*122*		*45 - 160*
13C5 PFPeA	*120*		*49 - 156*
13C8 PFOA	*123*		*47 - 152*
13C8 PFOS	*134*		*50 - 153*
d3-NMeFOSAA	*148*		*10 - 185*
d5-NEtFOSAA	*138*		*20 - 191*
13C3 PFHxS	*123*		*44 - 159*
13C5 PFHxA	*126*		*42 - 165*
13C6 PFDA	*119*		*42 - 161*
13C7 PFUnA	*112*		*24 - 168*
13C8 FOSA	*87*		*10 - 156*
13C2-PFDoDA	*91*		*14 - 168*
13C9 PFNA	*147*		*30 - 175*

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

Lab Sample ID: LCSD 410-296939/3-B
Matrix: Water
Analysis Batch: 300665

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296939

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4:2 Fluorotelomer sulfonic acid			5980	4959		ng/L		83	55 - 139	0	30
6:2 Fluorotelomer sulfonic acid			6070	5847		ng/L		96	28 - 173	6	30
8:2 Fluorotelomer sulfonic acid			6130	6166		ng/L		101	55 - 138	7	30
HFPODA			6400	4450		ng/L		70	50 - 135	4	30
NEtFOSAA			6400	5912		ng/L		92	55 - 134	1	30
NMeFOSAA			6400	5755		ng/L		90	59 - 140	0	30
Perfluorobutanesulfonic acid			5660	5231		ng/L		92	53 - 138	14	30
Perfluorobutanoic acid			6400	5196		ng/L		81	59 - 136	6	30
Perfluorodecanesulfonic acid			6170	4563		ng/L		74	55 - 137	8	30
Perfluorodecanoic acid			6400	5737		ng/L		90	56 - 138	5	30
Perfluorododecanoic acid			6400	4761		ng/L		74	59 - 143	15	30
Perfluoroheptanesulfonic acid			6090	5416		ng/L		89	56 - 140	7	30
Perfluoroheptanoic acid			6400	5840		ng/L		91	59 - 145	8	30
Perfluorohexanesulfonic acid			5840	6419	*1	ng/L		110	58 - 134	32	30
Perfluorohexanoic acid			6400	5411		ng/L		85	58 - 139	3	30
Perfluorononanoic acid			6400	5510		ng/L		86	61 - 139	8	30
Perfluorooctanesulfonamide			6400	6819		ng/L		107	43 - 167	7	30
Perfluorooctanesulfonic acid			5920	21510	*+ *1	ng/L		363	45 - 150	57	30
Perfluorooctanoic acid			6400	6676		ng/L		104	51 - 145	16	30
Perfluoropentanesulfonic acid			6000	5756		ng/L		96	55 - 140	11	30
Perfluoropentanoic acid			6400	5709		ng/L		89	57 - 141	7	30
Perfluorotetradecanoic acid			6400	5293		ng/L		83	62 - 139	2	30
Perfluorotridecanoic acid			6400	4420		ng/L		69	58 - 146	4	30
Perfluoroundecanoic acid			6400	5830		ng/L		91	60 - 141	15	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*235*	**5+*	*47 - 200*
M2-6:2 FTS	*212*	**5+*	*48 - 195*
M2-8:2 FTS	*262*	**5+*	*41 - 198*
13C2 PFTeDA	*81*		*10 - 171*
13C3 HFPO-DA	*111*		*15 - 159*
13C3 PFBS	*139*		*55 - 157*
13C4 PFBA	*142*		*55 - 147*
13C4 PFHpA	*132*		*45 - 160*
13C5 PFPeA	*134*		*49 - 156*
13C8 PFOA	*135*		*47 - 152*
13C8 PFOS	*154*	**5+*	*50 - 153*
d3-NMeFOSAA	*143*		*10 - 185*
d5-NEtFOSAA	*137*		*20 - 191*
13C3 PFHxS	*133*		*44 - 159*
13C5 PFHxA	*136*		*42 - 165*
13C6 PFDA	*130*		*42 - 161*
13C7 PFUnA	*125*		*24 - 168*
13C8 FOSA	*94*		*10 - 156*
13C2-PFDoDA	*113*		*14 - 168*
13C9 PFNA	*147*		*30 - 175*

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

Lab Sample ID: MB 410-298262/1-B
Matrix: Water
Analysis Batch: 300665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298262

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/21/22 12:02	09/28/22 22:07	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/21/22 12:02	09/28/22 22:07	1
HFPODA	ND		1500	500	ng/L		09/21/22 12:02	09/28/22 22:07	1
NEtFOSAA	ND		1500	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
NMeFOSAA	ND		1000	300	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorooctanesulfonamide	312.7	J	1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorooctanesulfonic acid	1304		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorotetradecanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/21/22 12:02	09/28/22 22:07	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*204*	*5+	*47 - 200*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
M2-6:2 FTS	*151*		*48 - 195*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
M2-8:2 FTS	*137*		*41 - 198*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C2 PFTeDA	*90*		*10 - 171*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C3 HFPO-DA	*78*		*15 - 159*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C3 PFBS	*103*		*55 - 157*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C4 PFBA	*109*		*55 - 147*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C4 PFHpA	*116*		*45 - 160*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C5 PFPeA	*100*		*49 - 156*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C8 PFOA	*110*		*47 - 152*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C8 PFOS	*113*		*50 - 153*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
d3-NMeFOSAA	*76*		*10 - 185*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
d5-NEtFOSAA	*69*		*20 - 191*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C3 PFHxS	*110*		*44 - 159*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C5 PFHxA	*113*		*42 - 165*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C6 PFDA	*100*		*42 - 161*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C7 PFUnA	*110*		*24 - 168*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C8 FOSA	*58*		*10 - 156*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C2-PFDoDA	*92*		*14 - 168*	*09/21/22 12:02*	*09/28/22 22:07*	*1*
13C9 PFNA	*120*		*30 - 175*	*09/21/22 12:02*	*09/28/22 22:07*	*1*

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

Lab Sample ID: LCS 410-298262/2-B
Matrix: Water
Analysis Batch: 300665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298262

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4:2 Fluorotelomer sulfonic acid	5980	5256		ng/L		88	55 - 139
6:2 Fluorotelomer sulfonic acid	6070	5376		ng/L		89	28 - 173
8:2 Fluorotelomer sulfonic acid	6130	6406		ng/L		104	55 - 138
HFPODA	6400	4566		ng/L		71	50 - 135
NEtFOSAA	6400	5994		ng/L		94	55 - 134
NMeFOSAA	6400	6027		ng/L		94	59 - 140
Perfluorobutanesulfonic acid	5660	5664		ng/L		100	53 - 138
Perfluorobutanoic acid	6400	5402		ng/L		84	59 - 136
Perfluorodecanesulfonic acid	6170	5190		ng/L		84	55 - 137
Perfluorodecanoic acid	6400	6199		ng/L		97	56 - 138
Perfluorododecanoic acid	6400	5991		ng/L		94	59 - 143
Perfluoroheptanesulfonic acid	6090	5523		ng/L		91	56 - 140
Perfluoroheptanoic acid	6400	6356		ng/L		99	59 - 145
Perfluorohexanesulfonic acid	5840	5279		ng/L		90	58 - 134
Perfluorohexanoic acid	6400	5597		ng/L		87	58 - 139
Perfluorononanoic acid	6400	5930		ng/L		93	61 - 139
Perfluorooctanesulfonamide	6400	7020		ng/L		110	43 - 167
Perfluorooctanesulfonic acid	5920	8069		ng/L		136	45 - 150
Perfluorooctanoic acid	6400	5742		ng/L		90	51 - 145
Perfluoropentanesulfonic acid	6000	5802		ng/L		97	55 - 140
Perfluoropentanoic acid	6400	5784		ng/L		90	57 - 141
Perfluorotetradecanoic acid	6400	5320		ng/L		83	62 - 139
Perfluorotridecanoic acid	6400	5503		ng/L		86	58 - 146
Perfluoroundecanoic acid	6400	6094		ng/L		95	60 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*212*	*5+	*47 - 200*
M2-6:2 FTS	*170*		*48 - 195*
M2-8:2 FTS	*153*		*41 - 198*
13C2 PFTeDA	*103*		*10 - 171*
13C3 HFPO-DA	*95*		*15 - 159*
13C3 PFBS	*110*		*55 - 157*
13C4 PFBA	*117*		*55 - 147*
13C4 PFHpA	*108*		*45 - 160*
13C5 PFPeA	*116*		*49 - 156*
13C8 PFOA	*117*		*47 - 152*
13C8 PFOS	*119*		*50 - 153*
d3-NMeFOSAA	*95*		*10 - 185*
d5-NEtFOSAA	*89*		*20 - 191*
13C3 PFHxS	*112*		*44 - 159*
13C5 PFHxA	*115*		*42 - 165*
13C6 PFDA	*110*		*42 - 161*
13C7 PFUnA	*114*		*24 - 168*
13C8 FOSA	*60*		*10 - 156*
13C2-PFDoDA	*110*		*14 - 168*
13C9 PFNA	*117*		*30 - 175*

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

Lab Sample ID: LCSD 410-298262/3-B
Matrix: Water
Analysis Batch: 301167

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298262

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4:2 Fluorotelomer sulfonic acid			5980	5057		ng/L		85	55 - 139	4	30
6:2 Fluorotelomer sulfonic acid			6070	6069		ng/L		100	28 - 173	12	30
8:2 Fluorotelomer sulfonic acid			6130	5831		ng/L		95	55 - 138	9	30
HFPODA			6400	4764		ng/L		74	50 - 135	4	30
NEtFOSAA			6400	6264		ng/L		98	55 - 134	4	30
NMeFOSAA			6400	6105		ng/L		95	59 - 140	1	30
Perfluorobutanesulfonic acid			5660	5409		ng/L		95	53 - 138	5	30
Perfluorobutanoic acid			6400	5513		ng/L		86	59 - 136	2	30
Perfluorodecanesulfonic acid			6170	5146		ng/L		83	55 - 137	1	30
Perfluorodecanoic acid			6400	6313		ng/L		99	56 - 138	2	30
Perfluorododecanoic acid			6400	5906		ng/L		92	59 - 143	1	30
Perfluoroheptanesulfonic acid			6090	5186		ng/L		85	56 - 140	6	30
Perfluoroheptanoic acid			6400	5935		ng/L		93	59 - 145	7	30
Perfluorohexanesulfonic acid			5840	5054		ng/L		87	58 - 134	4	30
Perfluorohexanoic acid			6400	5888		ng/L		92	58 - 139	5	30
Perfluorononanoic acid			6400	5652		ng/L		88	61 - 139	5	30
Perfluorooctanesulfonamide			6400	7559		ng/L		118	43 - 167	7	30
Perfluorooctanesulfonic acid			5920	7218		ng/L		122	45 - 150	11	30
Perfluorooctanoic acid			6400	6315		ng/L		99	51 - 145	10	30
Perfluoropentanesulfonic acid			6000	5549		ng/L		92	55 - 140	4	30
Perfluoropentanoic acid			6400	6358		ng/L		99	57 - 141	9	30
Perfluorotetradecanoic acid			6400	6331		ng/L		99	62 - 139	17	30
Perfluorotridecanoic acid			6400	5500		ng/L		86	58 - 146	0	30
Perfluoroundecanoic acid			6400	5433		ng/L		85	60 - 141	11	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*177*		*47 - 200*
M2-6:2 FTS	*132*		*48 - 195*
M2-8:2 FTS	*122*		*41 - 198*
13C2 PFTeDA	*82*		*10 - 171*
13C3 HFPO-DA	*76*		*15 - 159*
13C3 PFBS	*104*		*55 - 157*
13C4 PFBA	*104*		*55 - 147*
13C4 PFHpA	*97*		*45 - 160*
13C5 PFPeA	*95*		*49 - 156*
13C8 PFOA	*96*		*47 - 152*
13C8 PFOS	*111*		*50 - 153*
d3-NMeFOSAA	*85*		*10 - 185*
d5-NEtFOSAA	*72*		*20 - 191*
13C3 PFHxS	*106*		*44 - 159*
13C5 PFHxA	*102*		*42 - 165*
13C6 PFDA	*96*		*42 - 161*
13C7 PFUnA	*108*		*24 - 168*
13C8 FOSA	*54*		*10 - 156*
13C2-PFDoDA	*93*		*14 - 168*
13C9 PFNA	*107*		*30 - 175*

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

Lab Sample ID: MB 410-301996/1-B
Matrix: Water
Analysis Batch: 302569

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301996

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4:2 Fluorotelomer sulfonic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
6:2 Fluorotelomer sulfonic acid	ND		2500	2100	ng/L		09/30/22 18:58	10/04/22 08:47	1
8:2 Fluorotelomer sulfonic acid	ND		1500	500	ng/L		09/30/22 18:58	10/04/22 08:47	1
HFPODA	ND		1500	500	ng/L		09/30/22 18:58	10/04/22 08:47	1
NEtFOSAA	ND		1500	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
NMeFOSAA	ND		1000	300	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorobutanesulfonic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorobutanoic acid	ND		2500	1000	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorodecanesulfonic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorodecanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorododecanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluoroheptanesulfonic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluoroheptanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorohexanesulfonic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorohexanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorononanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorooctanesulfonamide	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorooctanesulfonic acid	1534		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorooctanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluoropentanesulfonic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluoropentanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorotetradecanoic acid	403.1	J	1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluorotridecanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1
Perfluoroundecanoic acid	ND		1000	250	ng/L		09/30/22 18:58	10/04/22 08:47	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*158*		*47 - 200*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
M2-6:2 FTS	*112*		*48 - 195*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
M2-8:2 FTS	*99*		*41 - 198*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C2 PFTeDA	*62*		*10 - 171*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C3 HFPO-DA	*80*		*15 - 159*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C3 PFBS	*96*		*55 - 157*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C4 PFBA	*101*		*55 - 147*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C4 PFHpA	*110*		*45 - 160*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C5 PFPeA	*106*		*49 - 156*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C8 PFOA	*96*		*47 - 152*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C8 PFOS	*106*		*50 - 153*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
d3-NMeFOSAA	*85*		*10 - 185*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
d5-NEtFOSAA	*80*		*20 - 191*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C3 PFHxS	*99*		*44 - 159*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C5 PFHxA	*106*		*42 - 165*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C6 PFDA	*98*		*42 - 161*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C7 PFUnA	*97*		*24 - 168*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C8 FOSA	*78*		*10 - 156*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C2-PFDoDA	*90*		*14 - 168*	*09/30/22 18:58*	*10/04/22 08:47*	*1*
13C9 PFNA	*114*		*30 - 175*	*09/30/22 18:58*	*10/04/22 08:47*	*1*

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

Lab Sample ID: LCS 410-301996/2-B
Matrix: Water
Analysis Batch: 302569

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301996

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4:2 Fluorotelomer sulfonic acid	5980	5719		ng/L		96	55 - 139
6:2 Fluorotelomer sulfonic acid	6070	5763		ng/L		95	28 - 173
8:2 Fluorotelomer sulfonic acid	6130	6593		ng/L		108	55 - 138
HFPODA	6400	6975		ng/L		109	50 - 135
NEtFOSAA	6400	7205		ng/L		113	55 - 134
NMeFOSAA	6400	6315		ng/L		99	59 - 140
Perfluorobutanesulfonic acid	5660	5768		ng/L		102	53 - 138
Perfluorobutanoic acid	6400	6535		ng/L		102	59 - 136
Perfluorodecanesulfonic acid	6170	5529		ng/L		90	55 - 137
Perfluorodecanoic acid	6400	6702		ng/L		105	56 - 138
Perfluorododecanoic acid	6400	6489		ng/L		101	59 - 143
Perfluoroheptanesulfonic acid	6090	5743		ng/L		94	56 - 140
Perfluoroheptanoic acid	6400	6623		ng/L		103	59 - 145
Perfluorohexanesulfonic acid	5840	5916		ng/L		101	58 - 134
Perfluorohexanoic acid	6400	6324		ng/L		99	58 - 139
Perfluorononanoic acid	6400	6402		ng/L		100	61 - 139
Perfluorooctanesulfonamide	6400	6898		ng/L		108	43 - 167
Perfluorooctanesulfonic acid	5920	6340		ng/L		107	45 - 150
Perfluorooctanoic acid	6400	6250		ng/L		98	51 - 145
Perfluoropentanesulfonic acid	6000	6329		ng/L		105	55 - 140
Perfluoropentanoic acid	6400	6258		ng/L		98	57 - 141
Perfluorotetradecanoic acid	6400	6736		ng/L		105	62 - 139
Perfluorotridecanoic acid	6400	6553		ng/L		102	58 - 146
Perfluoroundecanoic acid	6400	6605		ng/L		103	60 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*179*		*47 - 200*
M2-6:2 FTS	*131*		*48 - 195*
M2-8:2 FTS	*104*		*41 - 198*
13C2 PFTeDA	*75*		*10 - 171*
13C3 HFPO-DA	*83*		*15 - 159*
13C3 PFBS	*103*		*55 - 157*
13C4 PFBA	*107*		*55 - 147*
13C4 PFHpA	*114*		*45 - 160*
13C5 PFPeA	*110*		*49 - 156*
13C8 PFOA	*106*		*47 - 152*
13C8 PFOS	*112*		*50 - 153*
d3-NMeFOSAA	*92*		*10 - 185*
d5-NEtFOSAA	*88*		*20 - 191*
13C3 PFHxS	*105*		*44 - 159*
13C5 PFHxA	*115*		*42 - 165*
13C6 PFDA	*102*		*42 - 161*
13C7 PFUnA	*102*		*24 - 168*
13C8 FOSA	*85*		*10 - 156*
13C2-PFDoDA	*96*		*14 - 168*
13C9 PFNA	*119*		*30 - 175*

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

Lab Sample ID: LCSD 410-301996/3-B
Matrix: Water
Analysis Batch: 302569

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301996

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4:2 Fluorotelomer sulfonic acid			5980	6071		ng/L		102	55 - 139	6	30
6:2 Fluorotelomer sulfonic acid			6070	6158		ng/L		101	28 - 173	7	30
8:2 Fluorotelomer sulfonic acid			6130	6435		ng/L		105	55 - 138	2	30
HFPODA			6400	6722		ng/L		105	50 - 135	4	30
NEtFOSAA			6400	7102		ng/L		111	55 - 134	1	30
NMeFOSAA			6400	6375		ng/L		100	59 - 140	1	30
Perfluorobutanesulfonic acid			5660	6034		ng/L		107	53 - 138	5	30
Perfluorobutanoic acid			6400	6606		ng/L		103	59 - 136	1	30
Perfluorodecanesulfonic acid			6170	5801		ng/L		94	55 - 137	5	30
Perfluorodecanoic acid			6400	6778		ng/L		106	56 - 138	1	30
Perfluorododecanoic acid			6400	6910		ng/L		108	59 - 143	6	30
Perfluoroheptanesulfonic acid			6090	5885		ng/L		97	56 - 140	2	30
Perfluoroheptanoic acid			6400	6678		ng/L		104	59 - 145	1	30
Perfluorohexanesulfonic acid			5840	5804		ng/L		99	58 - 134	2	30
Perfluorohexanoic acid			6400	6446		ng/L		101	58 - 139	2	30
Perfluorononanoic acid			6400	6723		ng/L		105	61 - 139	5	30
Perfluorooctanesulfonamide			6400	7467		ng/L		117	43 - 167	8	30
Perfluorooctanesulfonic acid			5920	6340		ng/L		107	45 - 150	0	30
Perfluorooctanoic acid			6400	6547		ng/L		102	51 - 145	5	30
Perfluoropentanesulfonic acid			6000	6233		ng/L		104	55 - 140	2	30
Perfluoropentanoic acid			6400	6121		ng/L		96	57 - 141	2	30
Perfluorotetradecanoic acid			6400	6974		ng/L		109	62 - 139	3	30
Perfluorotridecanoic acid			6400	6561		ng/L		103	58 - 146	0	30
Perfluoroundecanoic acid			6400	6495		ng/L		101	60 - 141	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*172*		*47 - 200*
M2-6:2 FTS	*120*		*48 - 195*
M2-8:2 FTS	*106*		*41 - 198*
13C2 PFTeDA	*77*		*10 - 171*
13C3 HFPO-DA	*89*		*15 - 159*
13C3 PFBS	*103*		*55 - 157*
13C4 PFBA	*106*		*55 - 147*
13C4 PFHpA	*113*		*45 - 160*
13C5 PFPeA	*113*		*49 - 156*
13C8 PFOA	*102*		*47 - 152*
13C8 PFOS	*112*		*50 - 153*
d3-NMeFOSAA	*95*		*10 - 185*
d5-NEtFOSAA	*87*		*20 - 191*
13C3 PFHxS	*104*		*44 - 159*
13C5 PFHxA	*111*		*42 - 165*
13C6 PFDA	*102*		*42 - 161*
13C7 PFUnA	*105*		*24 - 168*
13C8 FOSA	*83*		*10 - 156*
13C2-PFDoDA	*96*		*14 - 168*
13C9 PFNA	*121*		*30 - 175*

LCMS

Prep Batch: 292076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-15	T-3076 R2 TOWER MB	Total/NA	Water	EPA 537 (Mod)	
MB 410-292076/1-B	Method Blank	Total/NA	Water	EPA 537 (Mod)	
LCS 410-292076/2-B	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	
LCSD 410-292076/3-B	Lab Control Sample Dup	Total/NA	Water	EPA 537 (Mod)	

Prep Batch: 293210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-35 - DL	T-2091 R4 TOWER MD	Total/NA	Water	EPA 537 (Mod)	
140-28652-35	T-2091 R4 TOWER MD	Total/NA	Water	EPA 537 (Mod)	
140-28652-37	T-2093 R4 TOWER MS	Total/NA	Water	EPA 537 (Mod)	
140-28652-38	T-2094 R4 TOWER MB	Total/NA	Water	EPA 537 (Mod)	
140-28652-38 - DL	T-2094 R4 TOWER MB	Total/NA	Water	EPA 537 (Mod)	
140-28652-40	T-2096 R4 TOWER 20	Total/NA	Water	EPA 537 (Mod)	
140-28652-42	T-2098 R4 TOWER MP	Total/NA	Water	EPA 537 (Mod)	
140-28652-42 - DL	T-2098 R4 TOWER MP	Total/NA	Water	EPA 537 (Mod)	
MB 410-293210/1-B	Method Blank	Total/NA	Water	EPA 537 (Mod)	
LCS 410-293210/2-B	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	
LCSD 410-293210/3-B	Lab Control Sample Dup	Total/NA	Water	EPA 537 (Mod)	

Cleanup Batch: 294114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-35	T-2091 R4 TOWER MD	Total/NA	Water	Extract Aliquot	293210
140-28652-35 - DL	T-2091 R4 TOWER MD	Total/NA	Water	Extract Aliquot	293210
140-28652-37	T-2093 R4 TOWER MS	Total/NA	Water	Extract Aliquot	293210
140-28652-38 - DL	T-2094 R4 TOWER MB	Total/NA	Water	Extract Aliquot	293210
140-28652-38	T-2094 R4 TOWER MB	Total/NA	Water	Extract Aliquot	293210
140-28652-40	T-2096 R4 TOWER 20	Total/NA	Water	Extract Aliquot	293210
140-28652-42	T-2098 R4 TOWER MP	Total/NA	Water	Extract Aliquot	293210
140-28652-42 - DL	T-2098 R4 TOWER MP	Total/NA	Water	Extract Aliquot	293210
MB 410-293210/1-B	Method Blank	Total/NA	Water	Extract Aliquot	293210
LCS 410-293210/2-B	Lab Control Sample	Total/NA	Water	Extract Aliquot	293210
LCSD 410-293210/3-B	Lab Control Sample Dup	Total/NA	Water	Extract Aliquot	293210

Analysis Batch: 294577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-293210/1-B	Method Blank	Total/NA	Water	537 (modified)	294114
LCS 410-293210/2-B	Lab Control Sample	Total/NA	Water	537 (modified)	294114
LCSD 410-293210/3-B	Lab Control Sample Dup	Total/NA	Water	537 (modified)	294114

Cleanup Batch: 294629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-15	T-3076 R2 TOWER MB	Total/NA	Water	Extract Aliquot	292076
MB 410-292076/1-B	Method Blank	Total/NA	Water	Extract Aliquot	292076
LCS 410-292076/2-B	Lab Control Sample	Total/NA	Water	Extract Aliquot	292076
LCSD 410-292076/3-B	Lab Control Sample Dup	Total/NA	Water	Extract Aliquot	292076

Analysis Batch: 294657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-292076/1-B	Method Blank	Total/NA	Water	537 (modified)	294629
LCS 410-292076/2-B	Lab Control Sample	Total/NA	Water	537 (modified)	294629
LCSD 410-292076/3-B	Lab Control Sample Dup	Total/NA	Water	537 (modified)	294629

LCMS

Analysis Batch: 295249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-35	T-2091 R4 TOWER MD	Total/NA	Water	537 (modified)	294114
140-28652-35 - DL	T-2091 R4 TOWER MD	Total/NA	Water	537 (modified)	294114
140-28652-37	T-2093 R4 TOWER MS	Total/NA	Water	537 (modified)	294114
140-28652-38	T-2094 R4 TOWER MB	Total/NA	Water	537 (modified)	294114
140-28652-38 - DL	T-2094 R4 TOWER MB	Total/NA	Water	537 (modified)	294114
140-28652-40	T-2096 R4 TOWER 20	Total/NA	Water	537 (modified)	294114
140-28652-42	T-2098 R4 TOWER MP	Total/NA	Water	537 (modified)	294114
140-28652-42 - DL	T-2098 R4 TOWER MP	Total/NA	Water	537 (modified)	294114

Prep Batch: 296939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-33	T-2089 R4 TOWER MQ	Total/NA	Water	EPA 537 (Mod)	
140-28652-34	T-2090 R4 TOWER QX	Total/NA	Water	EPA 537 (Mod)	
140-28652-36	T-2092 R4 TOWER MC	Total/NA	Water	EPA 537 (Mod)	
140-28652-39	T-2095 R4 TOWER MR	Total/NA	Water	EPA 537 (Mod)	
140-28652-41	T-2097 R4 TOWER MA	Total/NA	Water	EPA 537 (Mod)	
MB 410-296939/1-B	Method Blank	Total/NA	Water	EPA 537 (Mod)	
LCS 410-296939/2-B	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	
LCSD 410-296939/3-B	Lab Control Sample Dup	Total/NA	Water	EPA 537 (Mod)	

Analysis Batch: 297312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-15	T-3076 R2 TOWER MB	Total/NA	Water	537 (modified)	294629

Cleanup Batch: 297698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-33	T-2089 R4 TOWER MQ	Total/NA	Water	Extract Aliquot	296939
140-28652-34	T-2090 R4 TOWER QX	Total/NA	Water	Extract Aliquot	296939
140-28652-36	T-2092 R4 TOWER MC	Total/NA	Water	Extract Aliquot	296939
140-28652-39	T-2095 R4 TOWER MR	Total/NA	Water	Extract Aliquot	296939
140-28652-41	T-2097 R4 TOWER MA	Total/NA	Water	Extract Aliquot	296939
MB 410-296939/1-B	Method Blank	Total/NA	Water	Extract Aliquot	296939
LCS 410-296939/2-B	Lab Control Sample	Total/NA	Water	Extract Aliquot	296939
LCSD 410-296939/3-B	Lab Control Sample Dup	Total/NA	Water	Extract Aliquot	296939

Prep Batch: 298262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-12	T-3073 R2 TOWER 20	Total/NA	Water	EPA 537 (Mod)	
140-28652-13	T-3074 R2 TOWER MA	Total/NA	Water	EPA 537 (Mod)	
140-28652-14	T-3075 R2 TOWER MQ	Total/NA	Water	EPA 537 (Mod)	
140-28652-16	T-3077 R2 TOWER MR	Total/NA	Water	EPA 537 (Mod)	
140-28652-17	T-3078 R2 TOWER MD	Total/NA	Water	EPA 537 (Mod)	
140-28652-18	T-3079 R2 TOWER MC	Total/NA	Water	EPA 537 (Mod)	
140-28652-19	T-3080 R2 TOWER QX	Total/NA	Water	EPA 537 (Mod)	
140-28652-20	T-3081 R2 TOWER QX	Total/NA	Water	EPA 537 (Mod)	
140-28652-21	T-3082 R2 TOWER MS	Total/NA	Water	EPA 537 (Mod)	
140-28652-22	T-3083 R2 TOWER MP	Total/NA	Water	EPA 537 (Mod)	
140-28652-23	T-3085 R3 TOWER MA	Total/NA	Water	EPA 537 (Mod)	
140-28652-24	T-3086 R3 TOWER MQ	Total/NA	Water	EPA 537 (Mod)	
140-28652-25	T-3087 R3 TOWER MD	Total/NA	Water	EPA 537 (Mod)	
140-28652-26	T-3088 R3 TOWER MC	Total/NA	Water	EPA 537 (Mod)	

LCMS (Continued)

Prep Batch: 298262 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-27	T-3089 R3 TOWER QX	Total/NA	Water	EPA 537 (Mod)	
140-28652-28	T-3090 R3 TOWER 20	Total/NA	Water	EPA 537 (Mod)	
140-28652-29	T-3091 R3 TOWER MR	Total/NA	Water	EPA 537 (Mod)	
140-28652-30	T-3092 R3 TOWER MB	Total/NA	Water	EPA 537 (Mod)	
140-28652-31	T-3093 R3 TOWER MS	Total/NA	Water	EPA 537 (Mod)	
MB 410-298262/1-B	Method Blank	Total/NA	Water	EPA 537 (Mod)	
LCS 410-298262/2-B	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	
LCSD 410-298262/3-B	Lab Control Sample Dup	Total/NA	Water	EPA 537 (Mod)	

Cleanup Batch: 299612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-12	T-3073 R2 TOWER 20	Total/NA	Water	Extract Aliquot	298262
140-28652-13	T-3074 R2 TOWER MA	Total/NA	Water	Extract Aliquot	298262
140-28652-14	T-3075 R2 TOWER MQ	Total/NA	Water	Extract Aliquot	298262
140-28652-16	T-3077 R2 TOWER MR	Total/NA	Water	Extract Aliquot	298262
140-28652-17	T-3078 R2 TOWER MD	Total/NA	Water	Extract Aliquot	298262
140-28652-18	T-3079 R2 TOWER MC	Total/NA	Water	Extract Aliquot	298262
140-28652-19	T-3080 R2 TOWER QX	Total/NA	Water	Extract Aliquot	298262
140-28652-20	T-3081 R2 TOWER QX	Total/NA	Water	Extract Aliquot	298262
140-28652-21	T-3082 R2 TOWER MS	Total/NA	Water	Extract Aliquot	298262
140-28652-22	T-3083 R2 TOWER MP	Total/NA	Water	Extract Aliquot	298262
140-28652-23	T-3085 R3 TOWER MA	Total/NA	Water	Extract Aliquot	298262
140-28652-24	T-3086 R3 TOWER MQ	Total/NA	Water	Extract Aliquot	298262
140-28652-25	T-3087 R3 TOWER MD	Total/NA	Water	Extract Aliquot	298262
140-28652-26	T-3088 R3 TOWER MC	Total/NA	Water	Extract Aliquot	298262
140-28652-27	T-3089 R3 TOWER QX	Total/NA	Water	Extract Aliquot	298262
140-28652-28	T-3090 R3 TOWER 20	Total/NA	Water	Extract Aliquot	298262
140-28652-29	T-3091 R3 TOWER MR	Total/NA	Water	Extract Aliquot	298262
140-28652-30	T-3092 R3 TOWER MB	Total/NA	Water	Extract Aliquot	298262
140-28652-31	T-3093 R3 TOWER MS	Total/NA	Water	Extract Aliquot	298262
MB 410-298262/1-B	Method Blank	Total/NA	Water	Extract Aliquot	298262
LCS 410-298262/2-B	Lab Control Sample	Total/NA	Water	Extract Aliquot	298262
LCSD 410-298262/3-B	Lab Control Sample Dup	Total/NA	Water	Extract Aliquot	298262

Analysis Batch: 300665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-16	T-3077 R2 TOWER MR	Total/NA	Water	537 (modified)	299612
140-28652-17	T-3078 R2 TOWER MD	Total/NA	Water	537 (modified)	299612
140-28652-18	T-3079 R2 TOWER MC	Total/NA	Water	537 (modified)	299612
140-28652-19	T-3080 R2 TOWER QX	Total/NA	Water	537 (modified)	299612
140-28652-20	T-3081 R2 TOWER QX	Total/NA	Water	537 (modified)	299612
140-28652-21	T-3082 R2 TOWER MS	Total/NA	Water	537 (modified)	299612
140-28652-22	T-3083 R2 TOWER MP	Total/NA	Water	537 (modified)	299612
140-28652-23	T-3085 R3 TOWER MA	Total/NA	Water	537 (modified)	299612
140-28652-24	T-3086 R3 TOWER MQ	Total/NA	Water	537 (modified)	299612
140-28652-25	T-3087 R3 TOWER MD	Total/NA	Water	537 (modified)	299612
140-28652-26	T-3088 R3 TOWER MC	Total/NA	Water	537 (modified)	299612
140-28652-27	T-3089 R3 TOWER QX	Total/NA	Water	537 (modified)	299612
140-28652-28	T-3090 R3 TOWER 20	Total/NA	Water	537 (modified)	299612
140-28652-29	T-3091 R3 TOWER MR	Total/NA	Water	537 (modified)	299612
140-28652-30	T-3092 R3 TOWER MB	Total/NA	Water	537 (modified)	299612

LCMS (Continued)

Analysis Batch: 300665 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-31	T-3093 R3 TOWER MS	Total/NA	Water	537 (modified)	299612
140-28652-33	T-2089 R4 TOWER MQ	Total/NA	Water	537 (modified)	297698
140-28652-34	T-2090 R4 TOWER QX	Total/NA	Water	537 (modified)	297698
140-28652-36	T-2092 R4 TOWER MC	Total/NA	Water	537 (modified)	297698
140-28652-41	T-2097 R4 TOWER MA	Total/NA	Water	537 (modified)	297698
MB 410-296939/1-B	Method Blank	Total/NA	Water	537 (modified)	297698
MB 410-298262/1-B	Method Blank	Total/NA	Water	537 (modified)	299612
LCS 410-296939/2-B	Lab Control Sample	Total/NA	Water	537 (modified)	297698
LCS 410-298262/2-B	Lab Control Sample	Total/NA	Water	537 (modified)	299612
LCSD 410-296939/3-B	Lab Control Sample Dup	Total/NA	Water	537 (modified)	297698

Analysis Batch: 301167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-12	T-3073 R2 TOWER 20	Total/NA	Water	537 (modified)	299612
140-28652-13	T-3074 R2 TOWER MA	Total/NA	Water	537 (modified)	299612
140-28652-14	T-3075 R2 TOWER MQ	Total/NA	Water	537 (modified)	299612
140-28652-39	T-2095 R4 TOWER MR	Total/NA	Water	537 (modified)	297698
LCSD 410-298262/3-B	Lab Control Sample Dup	Total/NA	Water	537 (modified)	299612

Prep Batch: 301996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-32	T-3094 R3 TOWER MP	Total/NA	Water	EPA 537 (Mod)	
MB 410-301996/1-B	Method Blank	Total/NA	Water	EPA 537 (Mod)	
LCS 410-301996/2-B	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	
LCSD 410-301996/3-B	Lab Control Sample Dup	Total/NA	Water	EPA 537 (Mod)	

Cleanup Batch: 302245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-32	T-3094 R3 TOWER MP	Total/NA	Water	Extract Aliquot	301996
MB 410-301996/1-B	Method Blank	Total/NA	Water	Extract Aliquot	301996
LCS 410-301996/2-B	Lab Control Sample	Total/NA	Water	Extract Aliquot	301996
LCSD 410-301996/3-B	Lab Control Sample Dup	Total/NA	Water	Extract Aliquot	301996

Analysis Batch: 302569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-28652-32	T-3094 R3 TOWER MP	Total/NA	Water	537 (modified)	302245
MB 410-301996/1-B	Method Blank	Total/NA	Water	537 (modified)	302245
LCS 410-301996/2-B	Lab Control Sample	Total/NA	Water	537 (modified)	302245
LCSD 410-301996/3-B	Lab Control Sample Dup	Total/NA	Water	537 (modified)	302245

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3073 R2 TOWER 20
Lab Sample ID: 140-28652-12
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			301167	09/29/22 08:50	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3074 R2 TOWER MA
Lab Sample ID: 140-28652-13
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			301167	09/29/22 09:01	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3075 R2 TOWER MQ
Lab Sample ID: 140-28652-14
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			301167	09/29/22 09:12	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3076 R2 TOWER MB
Lab Sample ID: 140-28652-15
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	292076	09/01/22 14:40	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294629	09/11/22 13:11	D5VP	ELLE
Total/NA	Analysis	537 (modified)		1			297312	09/19/22 12:56	DQV6	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3077 R2 TOWER MR
Lab Sample ID: 140-28652-16
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 23:14	ZG8V	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3078 R2 TOWER MD
Lab Sample ID: 140-28652-17
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 23:25	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3079 R2 TOWER MC
Lab Sample ID: 140-28652-18
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 23:36	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3080 R2 TOWER QX
Lab Sample ID: 140-28652-19
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 23:47	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3081 R2 TOWER QX
Lab Sample ID: 140-28652-20
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 23:58	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3082 R2 TOWER MS
Lab Sample ID: 140-28652-21
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 00:09	ZG8V	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3083 R2 TOWER MP
Lab Sample ID: 140-28652-22
Date Collected: 08/24/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 00:31	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3085 R3 TOWER MA
Lab Sample ID: 140-28652-23
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 00:42	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3086 R3 TOWER MQ
Lab Sample ID: 140-28652-24
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 00:53	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3087 R3 TOWER MD
Lab Sample ID: 140-28652-25
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 01:04	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3088 R3 TOWER MC
Lab Sample ID: 140-28652-26
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 01:15	ZG8V	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3089 R3 TOWER QX
Lab Sample ID: 140-28652-27
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 01:27	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3090 R3 TOWER 20
Lab Sample ID: 140-28652-28
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 01:38	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3091 R3 TOWER MR
Lab Sample ID: 140-28652-29
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 01:49	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3092 R3 TOWER MB
Lab Sample ID: 140-28652-30
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 02:00	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-3093 R3 TOWER MS
Lab Sample ID: 140-28652-31
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/29/22 02:11	ZG8V	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-3094 R3 TOWER MP
Lab Sample ID: 140-28652-32
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			0.1 mL	20 mL	301996	09/30/22 18:58	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	302245	10/02/22 21:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			302569	10/04/22 11:22	MT26	ELLE
	Instrument ID: 30730									

Client Sample ID: T-2089 R4 TOWER MQ
Lab Sample ID: 140-28652-33
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 20:05	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-2090 R4 TOWER QX
Lab Sample ID: 140-28652-34
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 20:16	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-2091 R4 TOWER MD
Lab Sample ID: 140-28652-35
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			295249	09/13/22 16:36	QD9Y	ELLE
	Instrument ID: 30733									
Total/NA	Prep	EPA 537 (Mod)	DL		1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)	DL	10			295249	09/13/22 16:47	QD9Y	ELLE
	Instrument ID: 30733									

Client Sample ID: T-2092 R4 TOWER MC
Lab Sample ID: 140-28652-36
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 20:38	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-2093 R4 TOWER MS
Lab Sample ID: 140-28652-37
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			295249	09/13/22 17:09	QD9Y	ELLE
	Instrument ID: 30733									

Client Sample ID: T-2094 R4 TOWER MB
Lab Sample ID: 140-28652-38
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			295249	09/13/22 17:21	QD9Y	ELLE
	Instrument ID: 30733									
Total/NA	Prep	EPA 537 (Mod)	DL		1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)	DL	10			295249	09/13/22 17:32	QD9Y	ELLE
	Instrument ID: 30733									

Client Sample ID: T-2095 R4 TOWER MR
Lab Sample ID: 140-28652-39
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			301167	09/29/22 09:35	ZG8V	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: T-2096 R4 TOWER 20
Lab Sample ID: 140-28652-40
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			295249	09/13/22 18:05	QD9Y	ELLE
	Instrument ID: 30733									

Client Sample ID: T-2097 R4 TOWER MA
Lab Sample ID: 140-28652-41
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 21:45	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: T-2098 R4 TOWER MP
Lab Sample ID: 140-28652-42
Date Collected: 08/25/22 00:00
Matrix: Water
Date Received: 08/29/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			295249	09/13/22 18:27	QD9Y	ELLE
	Instrument ID: 30733									
Total/NA	Prep	EPA 537 (Mod)	DL		1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)	DL	10			295249	09/13/22 18:38	QD9Y	ELLE
	Instrument ID: 30733									

Client Sample ID: Method Blank
Lab Sample ID: MB 410-292076/1-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	292076	09/01/22 14:40	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294629	09/11/22 13:11	D5VP	ELLE
Total/NA	Analysis	537 (modified)		1			294657	09/12/22 21:35	JVK6	ELLE
	Instrument ID: 30727									

Client Sample ID: Method Blank
Lab Sample ID: MB 410-293210/1-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			294577	09/10/22 19:09	JVK6	ELLE
	Instrument ID: 30733									

Client Sample ID: Method Blank
Lab Sample ID: MB 410-296939/1-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 19:10	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: Method Blank
Lab Sample ID: MB 410-298262/1-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 22:07	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: Method Blank
Lab Sample ID: MB 410-301996/1-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	301996	09/30/22 18:58	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	302245	10/02/22 21:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			302569	10/04/22 08:47	MT26	ELLE
	Instrument ID: 30730									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 410-292076/2-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	292076	09/01/22 14:40	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294629	09/11/22 13:11	D5VP	ELLE
Total/NA	Analysis	537 (modified)		1			294657	09/12/22 21:46	JVK6	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 410-293210/2-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			294577	09/10/22 19:20	JVK6	ELLE
	Instrument ID: 30733									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 410-296939/2-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 19:21	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 410-298262/2-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 22:18	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 410-301996/2-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	301996	09/30/22 18:58	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	302245	10/02/22 21:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			302569	10/04/22 08:58	MT26	ELLE
	Instrument ID: 30730									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 410-292076/3-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	292076	09/01/22 14:40	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294629	09/11/22 13:11	D5VP	ELLE
Total/NA	Analysis	537 (modified)		1			294657	09/12/22 21:58	JVK6	ELLE
	Instrument ID: 30727									

Lab Chronicle

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 410-293210/3-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	293210	09/06/22 16:40	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	294114	09/08/22 22:09	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			294577	09/10/22 19:31	JVK6	ELLE
	Instrument ID: 30733									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 410-296939/3-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	296939	09/16/22 21:35	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	297698	09/20/22 09:29	Q5YX	ELLE
Total/NA	Analysis	537 (modified)		1			300665	09/28/22 19:32	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 410-298262/3-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	298262	09/21/22 12:02	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	299612	09/25/22 23:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			301167	09/29/22 08:39	ZG8V	ELLE
	Instrument ID: 30727									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 410-301996/3-B
Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			1 mL	20 mL	301996	09/30/22 18:58	X5YV	ELLE
Total/NA	Cleanup	Extract Aliquot			10 mL	1 mL	302245	10/02/22 21:37	X5YV	ELLE
Total/NA	Analysis	537 (modified)		1			302569	10/04/22 09:09	MT26	ELLE
	Instrument ID: 30730									

Laboratory References:
ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	10-06-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	10-09-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-22-43	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-27-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22

Accreditation/Certification Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
West Virginia DEP	State	055	10-19-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

Method Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Method	Method Description	Protocol	Laboratory
T-WI14355 r12	SOP T-PFAS-WI14355 Rev.12	ELLE - Lancaster	ELLE
EPA 537 (Mod)	EPA 537 Isotope Dilution	EPA	ELLE
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

ELLE - Lancaster = Eurofins Lancaster, Facility Standard Operating Procedure.
EPA = US Environmental Protection Agency
None = None

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Barr Engineering Company
Job ID: 140-28652-1
Project/Site: St.Gobain OTM-45 - Dispersion Samples

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-28652-12	T-3073 R2 TOWER 20	Water	08/24/22 00:00	08/29/22 08:00
140-28652-13	T-3074 R2 TOWER MA	Water	08/24/22 00:00	08/29/22 08:00
140-28652-14	T-3075 R2 TOWER MQ	Water	08/24/22 00:00	08/29/22 08:00
140-28652-15	T-3076 R2 TOWER MB	Water	08/24/22 00:00	08/29/22 08:00
140-28652-16	T-3077 R2 TOWER MR	Water	08/24/22 00:00	08/29/22 08:00
140-28652-17	T-3078 R2 TOWER MD	Water	08/24/22 00:00	08/29/22 08:00
140-28652-18	T-3079 R2 TOWER MC	Water	08/24/22 00:00	08/29/22 08:00
140-28652-19	T-3080 R2 TOWER QX	Water	08/24/22 00:00	08/29/22 08:00
140-28652-20	T-3081 R2 TOWER QX	Water	08/24/22 00:00	08/29/22 08:00
140-28652-21	T-3082 R2 TOWER MS	Water	08/24/22 00:00	08/29/22 08:00
140-28652-22	T-3083 R2 TOWER MP	Water	08/24/22 00:00	08/29/22 08:00
140-28652-23	T-3085 R3 TOWER MA	Water	08/25/22 00:00	08/29/22 08:00
140-28652-24	T-3086 R3 TOWER MQ	Water	08/25/22 00:00	08/29/22 08:00
140-28652-25	T-3087 R3 TOWER MD	Water	08/25/22 00:00	08/29/22 08:00
140-28652-26	T-3088 R3 TOWER MC	Water	08/25/22 00:00	08/29/22 08:00
140-28652-27	T-3089 R3 TOWER QX	Water	08/25/22 00:00	08/29/22 08:00
140-28652-28	T-3090 R3 TOWER 20	Water	08/25/22 00:00	08/29/22 08:00
140-28652-29	T-3091 R3 TOWER MR	Water	08/25/22 00:00	08/29/22 08:00
140-28652-30	T-3092 R3 TOWER MB	Water	08/25/22 00:00	08/29/22 08:00
140-28652-31	T-3093 R3 TOWER MS	Water	08/25/22 00:00	08/29/22 08:00
140-28652-32	T-3094 R3 TOWER MP	Water	08/25/22 00:00	08/29/22 08:00
140-28652-33	T-2089 R4 TOWER MQ	Water	08/25/22 00:00	08/29/22 08:00
140-28652-34	T-2090 R4 TOWER QX	Water	08/25/22 00:00	08/29/22 08:00
140-28652-35	T-2091 R4 TOWER MD	Water	08/25/22 00:00	08/29/22 08:00
140-28652-36	T-2092 R4 TOWER MC	Water	08/25/22 00:00	08/29/22 08:00
140-28652-37	T-2093 R4 TOWER MS	Water	08/25/22 00:00	08/29/22 08:00
140-28652-38	T-2094 R4 TOWER MB	Water	08/25/22 00:00	08/29/22 08:00
140-28652-39	T-2095 R4 TOWER MR	Water	08/25/22 00:00	08/29/22 08:00
140-28652-40	T-2096 R4 TOWER 20	Water	08/25/22 00:00	08/29/22 08:00
140-28652-41	T-2097 R4 TOWER MA	Water	08/25/22 00:00	08/29/22 08:00
140-28652-42	T-2098 R4 TOWER MP	Water	08/25/22 00:00	08/29/22 08:00

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

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Project Identification:	St. Gobain Performance Plastics
Client Name:	Barr Engineering
Client Contact:	Tom Kuchinski (763) 548-4954
TestAmerica Project Manager:	Ms. Courtney Adkins Office: (865) 291-3019
TestAmerica Program Manager:	Mr. Billy Anderson Office: (865) 291-3080 Cell: (865) 206-9004

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows: "BT" = Blank Train, "RB" = Reagent Blank, "MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate, "DUP" = Duplicate, "PBT" = Proof Blank Train, "TB" = Trip Blank

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	28 Days from Lab Receipt
Laboratory Destination:	Eurofins TestAmerica 5815 Middlebrook Pike Knoxville, TN 37921
Lab Phone Number:	(865) 291-3000
Courier:	Hand Deliver

Project Deliverables:
Report analytical results on TALS Report form Std_Tal_L4. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	Holding Time Requirements:	Preservation Requirements:
PFAS Compounds	14 Days to Extraction; 40 Days to Analysis	Cool, 4°C

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3061 R1 Tower 20" Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	PFAS Dispersion Material	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3062 R1 Tower MA Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	PFAS Dispersion Material	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3063 R1 Tower MQ Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	PFAS Dispersion Material	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

140-28652 Chain of Custody

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

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Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Requirements	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3064 R1 Tower Qx Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3065 R1 Tower MΔ Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3066 R1 Tower MR Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3067 R1 Tower _____ Form _____	1			60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3068 R1 Tower Qx Form [redacted]	1			60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3069 R1 Tower MB Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

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Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3070 R1 Tower MP Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3071 R1 Tower MC Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3072 R1 Tower MS Form [redacted]	1	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3073 R2 Tower 20' Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3074 R2 Tower MA Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3075 R2 Tower MQ Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

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Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3076 R2 Tower MB Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3077 R2 Tower MR Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3078 R2 Tower MD Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3079 R2 Tower MC Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3080 R2 Tower QX Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3081 R2 Tower QX Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

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Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Requirements	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3082 R2 Tower MS Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3083 R2 Tower MP Form [redacted]	2	8/24/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3084 R2 Tower MA Fo [redacted]	2	8/		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3085 R3 Tower MA Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3086 R3 Tower MQ Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3087 R3 Tower MD Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

eurofins | Environment Testing TestAmerica

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3088 R3 Tower MC Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3089 R3 Tower QA Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3090 R3 Tower 20° Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3091 R3 Tower NR Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3092 R3 Tower MB Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3093 R3 Tower MS Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

eurofins | Environment Testing TestAmerica

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-3094 R3 Tower MP Form [redacted]	3	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3095 R3 Tower _____ Form _____	3			60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-3096 R3 Tower _____ Form _____	3			60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2089 R4 Tower MQ Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2090 R4 Tower Qx Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2091 R4 Tower MD For [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2092 R4 Tower MC Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2093 R4 Tower MS Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2094 R4 Tower MB Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Request for Analysis/Chain-of-Custody – RFA/COC #004
St. Gobain
EPA Method OTM-45 Train Sampling
PFAS Testing on Dispersion Materials

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Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type	Analytical Specifications
T-2095 R4 Tower MR Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2096 R4 Tower 20" Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2097 R4 Tower MA Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2098 R4 Tower MP Form [redacted]	4	8/25/22		60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2099 R4 Tower _____ Form _____	4			60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.
T-2100 R4 Tower _____ Form _____	4			60 mL HDPE Wide-Mouth Bottle	**PFAS Dispersion Material**	**Knoxville:** Analyze for the Method 537 Targeted Analyte List.

Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	NONE
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	RT 0.7/CT 0.8°C
(3) Record any apparent sample loss/breakage.	NONE
(4) Record any unidentified samples transported with this shipment of samples:	NONE
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	HAND DELIVERED, NO CUSTODY SEALS

Custody Transfer:

	Name	Company	Date/Time
Relinquished By:	Ashley Larson	Barr Engineering	8/25/22 1600
Accepted By:	Doug Cahill	ETA KNOX	8/25/22 1600
Relinquished By:	Doug Cahill	ETA KNOX	8/27/22 1915
Accepted By:	[signature]	ETA KNOX	8:29.22 08:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Loc: 140
28652

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	✓			☐ Containers, Broken
2. Were ambient air containers received intact?			✓	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			✓	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : S73 Correction factor: +0.1°C	✓			☐ Cooler Out of Temp, Client Contacted, Proceed/Cancel ☐ Cooler Out of Temp, Same Day Receipt
5. Were all of the sample containers received intact?	✓			☐ Containers, Broken
6. Were samples received in appropriate containers?	✓			☐ Containers, Improper; Client Contacted; Proceed/Cancel
7. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ COC & Samples Do Not Match ☐ COC Incorrect/Incomplete ☐ COC Not Received
8. Were all of the samples listed on the COC received?	✓			☐ Sample Received, Not on COC ☐ Sample on COC, Not Received
9. Is the date/time of sample collection noted?	✓			☐ COC; No Date/Time; Client Contacted
10. Was the sampler identified on the COC?			✓	☐ Sampler Not Listed on COC
11. Is the client and project name/# identified?	✓			☐ COC Incorrect/Incomplete
12. Are tests/parameters listed for each sample?	✓			☐ COC No tests on COC
13. Is the matrix of the samples noted?	✓			☐ COC Incorrect/Incomplete
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ COC Incorrect/Incomplete
15. Were samples received within holding time?	✓			☐ Holding Time - Receipt
16. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ pH Adjusted, pH Included (See box 16A) ☐ Incorrect Preservative
17. Were VOA samples received without headspace?			✓	☐ Headspace (VOA only)
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			✓	☐ Residual Chlorine
19. For 1613B water samples is pH<9?			✓	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			✓	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: Date:

pH test strip lot number:

	Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:		
Lot Number:		
Exp Date:		
Analyst:		
Date:		
Time:		

Project #: PM Instructions:

Sample Receiving Associate: Date: 8·29·22

QA026R32.doc, 062719

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Adkins, Courtney M	Carrier Tracking No(s):	COC No: 140-11750 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Courtney Adkins@et eurofinsus com	State of Origin: New Hampshire	Page: Page 1 of 5
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note):		Job #: 140-28652-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 9/19/2022			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: St Gobain OTM-45 - Dispersion Samples	Project #: 14006472			
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, Y - Trizma, Z - other (specify), Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/PFC_Disp_Prep 24 PFAS Cmpds	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
T-3061 R1 TOWER 20" FORM PTFE 22887M (140-28652-1)	8/24/22	Eastern		Water			X	1	
T-3062 R1 TOWER MA FORM PTFE 22916M (140-28652-2)	8/24/22	Eastern		Water			X	1	
T-3063 R1 TOWER MQ FORM PTFE 22916M (140-28652-3)	8/24/22	Eastern		Water			X	1	
T-3064 R1 TOWER QX FORM PTFE 22943M (140-28652-4)	8/24/22	Eastern		Water			X	1	
T-3065 R1 TOWER MD FORM PTFE 22916M FEP 22839M (140-	8/24/22	Eastern		Water			X	1	
T-3066 R1 TOWER MR FORM PTFE 22916M (140-28652-6)	8/24/22	Eastern		Water			X	1	
T-3068 R1 TOWER QX STAGE 2-5 FORM PTFE 22917M (140-2	8/24/22	Eastern		Water			X	1	
T-3069 R1 TOWER MB FORM PTFE 22916M FEP 22839M (140-	8/24/22	Eastern		Water			X	1	
T-3070 R1 TOWER MP FORM PTFE 22916M FEP 22839M (140-	8/24/22	Eastern		Water			X	1	

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	8.29.22 13:40	ETA-FWX	[signature]		
2				[signature]		
3				[signature]	8/30/22 11:41	ELLET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks: 0.6

Ver: 06/08/2021

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Adkins, Courtney M	Carrier Tracking No(s):	COC No: 140-11750 2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Courtney Adkins@et eurofinsus.com	State of Origin: New Hampshire	Page: Page 2 of 5
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note):		Job #: 140-28652-1
Address: 2425 New Holland Pike,	Due Date Requested: 9/19/2022			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: St Gobain OTM-45 - Dispersion Samples	Project #: 14006472			
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, Y - Trizma, Z - other (specify), Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/PFC_Disp_Prep 24 PFAS Cmpds	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
T-3071 R1 TOWER MC FORM PTFE 22916M (140-28652-10)	8/24/22	Eastern		Water			X	1	
T-3072 R1 TOWER MS FORM FEP 22839M (140-28652-11)	8/24/22	Eastern		Water			X	1	
T-3073 R2 TOWER 20" FORM PTFE 22887M (140-28652-12)	8/24/22	Eastern		Water			X	1	
T-3074 R2 TOWER MA FORM PTFE 22916M (140-28652-13)	8/24/22	Eastern		Water			X	1	
T-3075 R2 TOWER MQ FORM PTFE 22916M (140-28652-14)	8/24/22	Eastern		Water			X	1	
T-3076 R2 TOWER MB FORM PTFE 22916M FED 22839M (140-	8/24/22	Eastern		Water			X	1	
T-3077 R2 TOWER MR FORM PTFE 22916M (140-28652-16)	8/24/22	Eastern		Water			X	1	
T-3078 R2 TOWER MD FORM PTFE 22916M (140-28652-17)	8/24/22	Eastern		Water			X	1	
T-3079 R2 TOWER MC FORM PTFE 22916M (140-28652-18)	8/24/22	Eastern		Water			X	1	

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	8.26.22 13:40	ETA KNX			
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by [signature]	Date/Time 8/30/22 11:11	Company ECLET

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.6

Ver: 06/08/2021

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Adkins, Courtney M	Carrier Tracking No(s):	COC No: 140-11750 3
Client Contact: Shipping/Receiving	Phone	E-Mail: Courtney.Adkins@et.eurofinsus.com	State of Origin: New Hampshire	Page: Page 3 of 5
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note)		Job #: 140-28652-1
Address: 2425 New Holland Pike,	Due Date Requested: 9/19/2022			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #			
Email:	WO #			
Project Name: St Gobain OTM-45 - Dispersion Samples	Project #: 14006472			
Site:	SSOW#:			

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, Y - Trizma, Z - other (specify), Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/PFC_Disp_Prep 24 PFAS Cmpds	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
T-3080 R2 TOWER QX STAGE 1 FORM PTFE 22943M (140-286	8/24/22	Eastern		Water			X	1	
T-3081 R2 TOWER QX STAGE 2-5 FORM PTFE 22917M (140-2	8/24/22	Eastern		Water			X	1	
T-3082 R2 TOWER MS FORM PTFE 22916M (140-28652-21)	8/24/22	Eastern		Water			X	1	
T-3083 R2 TOWER MP FORM PTFE 22916M FEP 22839M (140-	8/24/22	Eastern		Water			X	1	
T-3085 R3 TOWER MA FORM PTFE 22916M (140-28652-23)	8/25/22	Eastern		Water			X	1	
T-3086 R3 TOWER MQ FORM PTFE 22916M (140-28652-24)	8/25/22	Eastern		Water			X	1	
T-3087 R3 TOWER MD FORM PTFE 22916M FEP 22839M (140-	8/25/22	Eastern		Water			X	1	
T-3088 R3 TOWER MC FORM PTFE 22916M (140-28652-26)	8/25/22	Eastern		Water			X	1	
T-3089 R3 TOWER QX FORM PTFE 22916M (140-28652-27)	8/25/22	Eastern		Water			X	1	

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	[signature]	8-29-22 13:40	ESA KC X			
	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	Relinquished by	Date/Time	Company	Received by [signature]	8/30/22 11:11	ELLET

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.1°

Ver: 06/08/2021

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Adkins, Courtney M	Carrier Tracking No(s):	COC No: 140-11750 4
Client Contact: Shipping/Receiving	Phone:	E-Mail: Courtney.Adkins@et.eurofinsus.com	State of Origin: New Hampshire	Page: Page 4 of 5
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note):		Job #: 140-28652-1
Address: 2425 New Holland Pike,	Due Date Requested: 9/19/2022			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: St.Gobain OTM-45 - Dispersion Samples	Project #: 14006472			
Site:	SSOW#:			

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, Y - Trizma, Z - other (specify)
Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Wewater, Sewater, Dewater/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/PFC_Disp_Prep 24 PFAS Cmpds	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
T-3090 R3 TOWER 20" FORM PTFE 22887M (140-28652-28)	8/25/22	Eastern		Water			X	1	
T-3091 R3 TOWER MR FORM PTFE 22916M (140-28652-29)	8/25/22	Eastern		Water			X	1	
T-3092 R3 TOWER MB FORM PTFE 22916M FEP 22839M (140-	8/25/22	Eastern		Water			X	1	
T-3093 R3 TOWER MS FORM PFA 22907M (140-28652-31)	8/25/22	Eastern		Water			X	1	
T-3094 R3 TOWER MP FORM PTFE 22916M FEP 22839M (140-	8/25/22	Eastern		Water			X	1	
T-2089 R4 TOWER MQ FORM PTFE 22916M (140-28652-33)	8/25/22	Eastern		Water			X	1	
T-2090 R4 TOWER QX FORM PTFE 22917M (140-28652-34)	8/25/22	Eastern		Water			X	1	
T-2091 R4 TOWER MD FORM PTFE 22916M FEP 22839M (140-	8/25/22	Eastern		Water			X	1	
T-2092 R4 TOWER MC FORM PTFE 22916M (140-28652-36)	8/25/22	Eastern		Water			X	1	

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	8.26.22 13:40	ETA Kn X			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	8/30/22 11:11	ELLET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.1e

Ver: 06/08/2021

Eurofins Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Phone: 865-291-3000 Fax: 865-584-4315

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Adkins, Courtney M	Carrier Tracking No(s):	COC No: 140-11750 5
Client Contact: Shipping/Receiving	Phone:	E-Mail: Courtney Adkins@et eurofinsus com	State of Origin: New Hampshire	Page: Page 5 of 5
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note)		Job #: 140-28652-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 9/19/2022			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601	PO #:			
Phone: 717-656-2300(Tel)	WO #:			
Email:	Project #: 14006472			
Project Name: St Gobain OTM-45 - Dispersion Samples	SSOW#:			
Site:				

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, Y - Trizma, Z - other (specify)
Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/PFC_Disp_Prep 24 PFAS Cmpds	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
T-2093 R4 TOWER MS FORM PFA 22907M (140-28652-37)	8/25/22	Eastern		Water			X	1	
T-2094 R4 TOWER MB FORM PTFE 22916M (140-28652-38)	8/25/22	Eastern		Water			X	1	
T-2095 R4 TOWER MR FORM PTFE 22916M (140-28652-39)	8/25/22	Eastern		Water			X	1	
T-2096 R4 TOWER 20" FORM PTFE 22887M (140-28652-40)	8/25/22	Eastern		Water			X	1	
T-2097 R4 TOWER MA FORM PTFE 22916M (140-28652-41)	8/25/22	Eastern		Water			X	1	
T-2098 R4 TOWER MP FORM PTFE 22916M FEP 22839M (140	8/25/22	Eastern		Water			X	1	

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 4	Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		8-25-22 13:40	ETA-YW X			
2	Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	8/30/22 11:11	ELET

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.1c

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Barr Engineering Company

Job Number: 140-28652-1

Login Number: 28652
List Number: 2
Creator: McBeth, Jessica

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 08/30/22 03:50 PM

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Appendix D

PFAS Laboratory Data Evaluation

Data Evaluation Report

This Data Evaluation Report was prepared to document the Level II review of per- and polyfluorinated alkyl substances (PFAS) data associated with the Inlet and Outlet sampling trains and dispersion samples collected in August 2022. The analytical data within report #140-28649-1, Revision 2 (Inlet), report #140-28650-1, Revision 5 (Outlet), and report #140-28652-1, Revision 2 (dispersions) were reviewed based on laboratory's acceptance criteria. Information on the revisions can be found within the case narrative of each laboratory report.

The data quality evaluation assessed the overall analytical process and determined that the results were useable for this project as reported and qualified with the exceptions as noted below. Specific to PFOA, PFOS, PFHxS, PFNA, and HFPO-DA (Gen X) in the Inlet and Outlet samples, the QC data were within laboratory acceptance criteria. Inlet and Outlet sample results were evaluated and/or qualified based on blank results as per method OTM-45 and presented in the Inlet and Outlet OTM-45 Laboratory Results Summaries (Appendix C) and were not addressed below.

Areas covered by the review process (where applicable) included:

- Preservation / Holding time
- Method blanks
- Laboratory control sample/laboratory control sample duplicates (LCS/LCSD)
- Isotope dilution analyte (IDA)
- Pre-sampling standards (field surrogates)
- Additional items noted by the laboratory
- Data package completeness

Data Qualifier Definitions

Qualifiers in the laboratory report were retained in the Inlet and Outlet OTM-45 Laboratory Results Summaries (Appendix C) and in Table 3 for the dispersion samples. Information for each of the laboratory qualifiers assigned is provided within the sections below.

Introduction

The Inlet and Outlet samples were extracted and analyzed by Eurofins in Knoxville, Tennessee (Eurofins Knoxville) using their current version of standard operating procedures (SOP) KNOX-OP-0026 and KNOX-LC-0007. The samples were analyzed for the 50 PFAS target analytes listed in Table 45-1 of OTM-45 except for sodium perfluoro-1-dodecanesulfonate, the sodium salt form of the Table 45-1 target PFAS, perfluorododecane sulfonate (PFDoS) which was not included in the data set. Also of note, the OTM-45 target analyte PFecHs (CAS #67584-42-3) was reported as the isomer perfluoro-4-ethylcyclohexanesulfonic acid (CAS #133201-07-7). The dispersion samples were analyzed by Eurofins in Lancaster, Pennsylvania (ELLE) for 24 PFAS using a modified EPA 537 method. Data were reported to the minimum detection limit

(MDL) to achieve the lowest possible level. The results between the MDL and RL were qualified (J) indicating estimated concentrations. Inlet and Outlet samples shared the same laboratory QC batch, therefore, any reference noted below is applicable to both Eurofins reports.

Preservation / Holding Time

The project samples were collected on August 24-25, 2022, relinquished to a Eurofins Knoxville courier on August 25, 2022, and delivered to the laboratory on August 29, 2022, with accompanying chains-of-custody. The samples were received intact with temperatures for the Inlet coolers reported at 1.2 °C and 2.2 °C, Outlet coolers reported at 3.9 °C and 3.5 °C, and dispersion cooler at 0.8 °C indicating proper preservation (≤ 6 °C but not frozen) was maintained for the samples during transportation to the laboratory. The dispersion samples were delivered to ELLE on August 30, 2022, at < 6 °C. The recommended holding time of 28-days from sample collection to extraction was used by Eurofins Knoxville as listed in their SOP and OTM-45 and samples were extracted within this time. The dispersion samples are formulations, not soils or waters, and the holding time is not applicable.

Method Blanks

Method blanks were analyzed to determine the extent of potential contamination introduced by laboratory sources. Some target analytes were detected above the MDL. The sample results were not corrected for the blank detections. The laboratory qualified (B) the associated target analyte detections indicating that the 'compound was found in the blank and sample'. Sample results greater than five times the blank detection would not be affected by the blank detection; however, sample results less than or equal to five times the method blank detection could indicate a potential high bias. PFBA and HFPO-DA were detected in Fraction 3; however, the associated sample results were greater than five times the blank detections and would not be significantly impacted. PFOS, PFOSA, and PFTeDA were detected in some of the dispersion method blanks. These method blanks and associated samples are shown in the table below. No other target analytes were detected above the MDL.

Target Analyte	Method Blank Concentration (ng/L)	Sample ID	Sample Result (ng/L)	Impact
Perfluorooctanesulfonic acid (PFOS)	1,304	T-3073 R2 Tower 20	156,000	NA
		T-3074 R2 Tower MA	10,400	Potential high bias
		T-3075 R2 Tower MQ	7,120 J	Potential high bias
		T-3077 R2 Tower MR	7,130 J	Potential high bias
		T-3078 R2 Tower MD	3,320 J	Potential high bias
		T-3079 R2 Tower MC	4,420 J	Potential high bias
		T-3080 R2 Tower QX	4,500 J	Potential high bias
		T-3082 R2 Tower MS	2,680 J	Potential high bias
	1,534	T-3094 R3 Tower MP	< 2,500	NA
	494.3 J	T-2089 R4 Tower MQ	2,030	Potential high bias
		T-2095 R4 Tower MR	406 J	Potential high bias
		T-2090 R4 Tower QX	960 J	Potential high bias

Target Analyte	Method Blank Concentration (ng/L)	Sample ID	Sample Result (ng/L)	Impact
Perfluorooctanesulfonamide (FOSA)	3,127 J	T-3073 R2 Tower 20	135,000	Potential high bias
		T-3074 R2 Tower MA	2,860 J	Potential high bias
		T-3075 R2 Tower MQ	4,420 J	Potential high bias
		T-3077 R2 Tower MR	3,740 J	Potential high bias
		T-3078 R2 Tower MD	3,140 J	Potential high bias
		T-3079 R2 Tower MC	4,090 J	Potential high bias
		T-3080 R2 Tower QX	2,640 J	Potential high bias
		T-3082 R2 Tower MS	3,270 J	Potential high bias
	286.2 J	T-2089 R4 Tower MQ	287 J	Potential high bias
		T-2095 R4 Tower MR	309 J	Potential high bias
		T-2092 R4 Tower MC	276 J	Potential high bias
		T-2090 R4 Tower QX	1,010	Potential high bias
Perfluorotetradecanoic acid (PFTeDA)	403.1 J	T-3094 R3 Tower MP	< 2,500	NA

NA - result ND (< MDL) or >5x blank detection
Method blanks and R4 samples were analyzed using 1 mL. R2 and R3 samples were analyzed at 0.1 mL. Blank detections were adjusted when evaluating R2 and R3 samples.

Laboratory Control Samples / Laboratory Control Sample Duplicates (LCS/LCSD)

An LCS is a sample of analyte-free media spiked with known concentrations of target analytes that is carried through the same sample preparation and analytical procedures as the project samples. LCS recoveries were used to estimate overall analytical method accuracy. Both LCS and LCSD (LCS duplicate) were analyzed. High recoveries were qualified (*+) indicating 'LCS and/or LCSD is outside acceptance limits, high biased'. Where target analytes were not detected in the associated samples, there was no data impact. Low recoveries were qualified (*-) indicating 'LCS and/or LCSD is outside acceptance limits, low biased'. High relative percent differences (RPD) were qualified (*1) indicating 'LCS/LCSD RPD exceeds control limits'. The qualifiers were applied to both the QC data and to the associated target analyte in the laboratory reports. Qualifiers were applied to target analytes in the Inlet and Outlet OTM-45 Laboratory Results Summaries (Appendix C) to indicate laboratory bias. Overall, there were both high and low biases found in a limited number of target analytes as shown in the following table. The LCS/LCSD recoveries and RPDs for PFOA, PFOS, PFHxS, PFNA, and HFPO-DA in the Inlet and Outlet samples were within laboratory acceptance criteria. Target analytes with an LCS and/or LCSD outside criteria are listed below.

Fraction/Sample ID	Target Analyte	% Recoveries	Sample Result	
			Detected	Not Detected
2 and 4	Perfluoro-n-octadecanoic acid (PFODA)	0.7% / 4%	NA	Potential low bias
	Perfluorododecanesulfonic acid (PFDoS)	46% / 42%	NA	Potential low bias
	5:3 Fluorotelomer carboxylic acid	134% / 145%	Potential high bias	No bias
T-3076 R2 Tower MB	HFPO-DA	72% / 0%	NA	Potential low bias
	Perfluorooctanesulfonic acid (PFOS)	105% / 153%	Potential high bias	NA
T-3091 R3 Tower MR	Perfluorooctanesulfonic acid (PFOS)	101% / 155%	NA	No bias

Fraction/Sample ID	Target Analyte	% Recoveries	Sample Result	
			Detected	Not Detected
T-2089 R4 Tower MQ	Perfluorooctanesulfonic acid (PFOS)	202% / 363%	Potential high bias	NA
T-2090 R4 Tower QX			Potential high bias	NA
T-2092 R4 Tower MC			NA	No bias
T-2095 R4 Tower MR			Potential high bias	NA
T-2097 R4 Tower MA			NA	No bias
NA – not applicable				

Isotope Dilution Analytes (IDA)

Samples were analyzed using IDA specific to each of the PFAS compounds, where available. Since PFAS were calculated using IDA responses, no qualification of sample results was applied to the target analyte when the IDA was outside laboratory acceptance criteria. For high IDA recoveries, the laboratory applied qualifier (*5+) to the IDA but narrated that quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. For low IDA recoveries, the laboratory applied qualifier (*5-) to the IDA but narrated that data quality is not considered affected if the IDA signal to noise ratio is greater than 10:1 or if the IDA recovery is ≥10%. For Inlet and Outlet sample IDA recoveries below 10%, re-extraction of samples could not be performed so the laboratory applied qualifier (R) to the associated target analyte(s) indicating the 'result unusable'. The IDA recoveries specific to PFOA, PFOS, PFHxS, PFNA, and HFPO-DA in the Inlet and Outlet samples were within laboratory acceptance criteria with one PFOS IDA for sample Outlet CPT R3 BH that had a slightly lower recovery at 11%. The same IDA was used to calculate the 13C8-PFOS field surrogate which had an acceptable recovery in the sample indicating that the IDA quantitation was working for compounds referencing this IDA.

Pre-sampling Standards (Field Surrogates)

Two pre-sampling standards (13C8-PFOA and 13C8-PFOS) were added to the XAD-2 resins associated with Fraction 2 (BH) and Fraction 4 (Breakthrough) prior to sampling to monitor sample collection and capture efficiency. Pre-sampling standards are not required for Fraction 4, but the laboratory had included based on previous EPA work. These fractions along with Fraction 3 were analyzed and reported as surrogate recoveries by the laboratory. The recoveries were acceptable for both Fractions 2 and 4 and Fraction 3 samples did not show measurable amounts of surrogate standard indicating carryover was not present from Fraction 2. The recoveries in Fraction 3 were qualified (S1-) by the laboratory indicating that the 'surrogate recovery exceeds control limits, low biased'.

Additional items noted by the laboratory

- Ion ratios that did not meet laboratory acceptance criteria were qualified (I) indicating 'Value is EMPC (estimated maximum possible concentration).
- Qualifier (CI) was applied to results where the peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.

- PFBA results for Outlet Fraction 4 and QC samples containing an XAD were recalculated manually by the laboratory and included as a table within the laboratory reports.

Data Package Completeness

Data completeness was evaluated by comparing the analyses requested with the data packages as received. The samples were reported as specified on the chains of custody.

Appendix E

Instrument Output

RTO (PCE01)
Test Date: 8/24/2022
Average Raw Analyzer Results

Run	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO_2, %	Run Times
2	20.6	0.3	20.1	0.7	1323-1631

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	
8/24/2022 7:15:00	0.0	0.1	0.0	0.0	Zero Nitrogen
8/24/2022 7:16:00	0.0	0.1	0.0	0.0	
8/24/2022 7:17:00	3.1	0.1	10.9	2.7	
8/24/2022 7:18:00	21.7	2.5	21.9	4.9	
8/24/2022 7:19:00	22.4	4.9	22.5	4.9	
8/24/2022 7:20:00	22.6	5.0	22.5	4.9	
8/24/2022 7:21:00	16.0	5.0	10.9	9.2	
8/24/2022 7:22:00	9.6	8.8	9.5	9.4	
8/24/2022 7:23:00	9.5	9.5	9.5	9.5	
8/24/2022 7:24:00	12.7	9.5	19.6	5.7	
8/24/2022 7:25:00	22.5	6.6	22.5	5.0	
8/24/2022 7:26:00	22.7	5.1	22.5	5.0	
8/24/2022 7:27:00	22.5	5.0	18.0	1.1	
8/24/2022 7:28:00	10.8	2.2	13.3	0.1	
8/24/2022 7:29:00	0.1	0.1	2.5	0.0	
8/24/2022 7:30:00	0.0	0.1	0.3	0.0	System Bias Check
8/24/2022 7:31:00	0.0	0.1	0.0	0.0	Zero Nitrogen
8/24/2022 7:32:00	1.8	0.1	0.1	0.1	
8/24/2022 7:33:00	20.6	2.0	13.1	3.1	
8/24/2022 7:34:00	22.7	4.9	21.7	4.8	
8/24/2022 7:35:00	22.7	5.0	22.4	4.9	
8/24/2022 7:36:00	22.6	5.0	22.4	4.9	
8/24/2022 7:37:00	21.4	4.2	21.9	2.9	
8/24/2022 7:38:00	21.0	0.3	21.1	0.6	Standby Sample Train Setup
8/24/2022 8:51:00	20.3	0.3	20.0	0.8	
8/24/2022 8:52:00	20.3	0.2	20.1	0.7	Run 1 not included
8/24/2022 8:53:00	20.3	0.2	20.2	0.7	Post test OTM-45 train leak check fail
8/24/2022 12:08:00	16.5	0.2	19.6	0.7	
8/24/2022 12:09:00	0.9	0.2	8.4	0.5	
8/24/2022 12:10:00	0.0	0.1	1.4	0.1	
8/24/2022 12:11:00	0.0	0.1	0.2	0.0	System Bias Check
8/24/2022 12:12:00	0.0	0.1	0.0	0.0	Zero Nitrogen
8/24/2022 12:13:00	6.8	0.1	1.5	0.5	
8/24/2022 12:14:00	22.4	3.3	16.2	3.7	
8/24/2022 12:15:00	22.9	5.0	22.0	4.8	
8/24/2022 12:16:00	23.0	5.1	22.8	5.0	
8/24/2022 12:17:00	22.8	5.0	22.8	4.8	
8/24/2022 12:18:00	21.0	3.7	21.3	2.3	
8/24/2022 12:19:00	20.8	0.4	20.5	0.9	
8/24/2022 12:20:00	20.8	0.2	20.2	0.7	
8/24/2022 12:21:00	20.8	0.2	20.1	0.7	
8/24/2022 12:22:00	20.8	0.2	20.2	0.6	
8/24/2022 12:23:00	20.8	0.2	20.3	0.6	
8/24/2022 12:24:00	20.8	0.2	20.3	0.6	
8/24/2022 12:25:00	20.8	0.2	20.2	0.7	
8/24/2022 12:26:00	20.8	0.2	20.1	0.7	
8/24/2022 12:27:00	20.8	0.2	20.2	0.7	

RTO (PCE01)
Test Date: 8/24/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %
8/24/2022 12:28:00	20.8	0.2	20.3	0.6
8/24/2022 12:29:00	20.8	0.2	20.3	0.6
8/24/2022 12:30:00	20.8	0.2	20.2	0.6
8/24/2022 12:31:00	20.8	0.2	20.1	0.7
8/24/2022 12:32:00	20.8	0.2	20.2	0.6
8/24/2022 12:33:00	20.8	0.2	20.3	0.6
8/24/2022 12:34:00	20.8	0.2	20.3	0.6
8/24/2022 12:35:00	20.8	0.2	20.2	0.6
8/24/2022 12:36:00	20.8	0.2	20.1	0.7
8/24/2022 12:37:00	20.8	0.2	20.2	0.6
8/24/2022 12:38:00	20.8	0.2	20.3	0.6
8/24/2022 12:39:00	20.8	0.2	20.3	0.6
8/24/2022 12:40:00	20.8	0.2	20.2	0.6
8/24/2022 12:41:00	20.8	0.2	20.1	0.7
8/24/2022 12:42:00	20.8	0.2	20.2	0.6
8/24/2022 12:43:00	20.8	0.2	20.3	0.6
8/24/2022 12:44:00	20.8	0.2	20.3	0.6
8/24/2022 12:45:00	20.8	0.2	20.2	0.6
8/24/2022 12:46:00	20.8	0.2	20.1	0.7
8/24/2022 12:47:00	20.8	0.2	20.2	0.6
8/24/2022 12:48:00	20.8	0.2	20.3	0.6
8/24/2022 12:49:00	20.8	0.2	20.3	0.6
8/24/2022 12:50:00	20.8	0.2	20.2	0.6
8/24/2022 12:51:00	20.8	0.2	20.1	0.7
8/24/2022 12:52:00	20.7	0.2	20.1	0.7
8/24/2022 12:53:00	20.6	0.2	20.1	0.7
8/24/2022 12:54:00	20.6	0.3	20.1	0.7
8/24/2022 12:55:00	20.6	0.3	20.0	0.7
8/24/2022 12:56:00	20.6	0.3	19.9	0.8
8/24/2022 12:57:00	20.6	0.3	20.0	0.7
8/24/2022 12:58:00	20.5	0.3	20.0	0.7
8/24/2022 12:59:00	20.4	0.4	20.0	0.7
8/24/2022 13:00:00	20.4	0.4	19.9	0.8
8/24/2022 13:01:00	20.3	0.4	19.8	0.8
8/24/2022 13:02:00	20.3	0.4	19.9	0.8
8/24/2022 13:03:00	20.3	0.5	20.0	0.8
8/24/2022 13:04:00	20.3	0.4	20.0	0.7
8/24/2022 13:05:00	20.3	0.4	19.9	0.8
8/24/2022 13:06:00	20.3	0.4	19.8	0.8
8/24/2022 13:07:00	20.4	0.4	19.9	0.8
8/24/2022 13:08:00	20.4	0.4	20.0	0.7
8/24/2022 13:09:00	20.5	0.4	20.0	0.7
8/24/2022 13:10:00	20.5	0.3	19.9	0.8
8/24/2022 13:11:00	20.5	0.3	19.9	0.8
8/24/2022 13:12:00	20.5	0.3	20.0	0.7
8/24/2022 13:13:00	20.5	0.3	20.1	0.7
8/24/2022 13:14:00	20.5	0.3	20.1	0.7
8/24/2022 13:15:00	20.5	0.3	20.0	0.7
8/24/2022 13:16:00	20.5	0.3	19.9	0.8
8/24/2022 13:17:00	20.5	0.3	20.0	0.7
8/24/2022 13:18:00	20.5	0.3	20.1	0.7
8/24/2022 13:19:00	20.5	0.3	20.1	0.7
8/24/2022 13:20:00	20.5	0.3	20.0	0.7
8/24/2022 13:21:00	20.5	0.3	19.9	0.8

RTO (PCE01)
Test Date: 8/24/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	
8/24/2022 13:22:00	20.5	0.3	20.0	0.7	
8/24/2022 13:23:00	20.5	0.3	20.1	0.7	
8/24/2022 13:24:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:25:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:26:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:27:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:28:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:29:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:30:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:31:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:32:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:33:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:34:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:35:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:36:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:37:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:38:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:39:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:40:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:41:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:42:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 13:43:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 13:44:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:45:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:46:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:47:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 13:48:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:49:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:50:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:51:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:52:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:53:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:54:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:55:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 13:56:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 13:57:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 13:58:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 13:59:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:00:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:01:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 14:02:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:03:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:04:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:05:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:06:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 14:07:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:08:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:09:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:10:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 14:11:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 14:12:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:13:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:14:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:15:00	20.5	0.3	20.0	0.7	Run 2

RTO (PCE01)
Test Date: 8/24/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	
8/24/2022 14:16:00	20.6	0.3	19.9	0.8	Run 2
8/24/2022 14:17:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:18:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:19:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:20:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 14:21:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 14:22:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:23:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:24:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:25:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 14:26:00	20.5	0.3	19.9	0.8	Run 2
8/24/2022 14:27:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 14:28:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:29:00	20.5	0.3	20.1	0.7	Run 2
8/24/2022 14:30:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 14:31:00	20.5	0.3	19.8	0.8	Run 2
8/24/2022 14:32:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 14:33:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:34:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 14:35:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:36:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:37:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:38:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 14:39:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 14:40:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:41:00	20.6	0.3	19.9	0.8	Run 2
8/24/2022 14:42:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:43:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:44:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:45:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 14:46:00	20.5	0.3	19.8	0.8	Run 2
8/24/2022 14:47:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:48:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:49:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:50:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:51:00	20.6	0.3	19.8	0.7	Run 2
8/24/2022 14:52:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:53:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:54:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:55:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:56:00	20.6	0.3	19.8	0.7	Run 2
8/24/2022 14:57:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 14:58:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 14:59:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 15:00:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 15:01:00	20.6	0.3	19.8	0.7	Run 2
8/24/2022 15:02:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 15:03:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 15:04:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 15:05:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 15:06:00	20.5	0.3	19.8	0.8	Run 2
8/24/2022 15:07:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 15:08:00	20.6	0.3	20.0	0.7	Run 2
8/24/2022 15:09:00	20.5	0.3	20.0	0.7	Run 2

RTO (PCE01)
Test Date: 8/24/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	
8/24/2022 15:10:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 15:11:00	20.5	0.3	19.8	0.8	Run 2
8/24/2022 15:12:00	20.5	0.3	19.9	0.7	Run 2
8/24/2022 15:13:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 15:14:00	20.5	0.3	20.0	0.7	Run 2
8/24/2022 15:15:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 15:16:00	20.6	0.3	19.9	0.7	Run 2
8/24/2022 15:17:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 15:18:00	20.6	0.3	20.2	0.6	Run 2
8/24/2022 15:19:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:20:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:21:00	20.6	0.2	20.0	0.7	Run 2
8/24/2022 15:22:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:23:00	20.6	0.3	20.2	0.6	Run 2
8/24/2022 15:24:00	20.6	0.3	20.2	0.6	Run 2
8/24/2022 15:25:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:26:00	20.6	0.2	20.0	0.7	Run 2
8/24/2022 15:27:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 15:28:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:29:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:30:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 15:31:00	20.6	0.2	20.0	0.7	Run 2
8/24/2022 15:32:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:33:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:34:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:35:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:36:00	20.6	0.2	20.0	0.7	Run 2
8/24/2022 15:37:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:38:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:39:00	20.6	0.3	20.2	0.6	Run 2
8/24/2022 15:40:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:41:00	20.7	0.2	20.0	0.7	Run 2
8/24/2022 15:42:00	20.7	0.2	20.1	0.7	Run 2
8/24/2022 15:43:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:44:00	20.6	0.3	20.2	0.6	Run 2
8/24/2022 15:45:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 15:46:00	20.6	0.3	20.1	0.7	Run 2
8/24/2022 15:47:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:48:00	20.6	0.2	20.2	0.6	Run 2
8/24/2022 15:49:00	20.6	0.2	20.3	0.6	Run 2
8/24/2022 15:50:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:51:00	20.6	0.2	20.1	0.7	Run 2
8/24/2022 15:52:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 15:53:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 15:54:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 15:55:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 15:56:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 15:57:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 15:58:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 15:59:00	20.7	0.2	20.4	0.6	Run 2
8/24/2022 16:00:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:01:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:02:00	20.8	0.2	20.2	0.6	Run 2
8/24/2022 16:03:00	20.7	0.2	20.4	0.6	Run 2

RTO (PCE01)
Test Date: 8/24/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	
8/24/2022 16:04:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:05:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:06:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:07:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:08:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:09:00	20.7	0.2	20.4	0.5	Run 2
8/24/2022 16:10:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:11:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:12:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:13:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:14:00	20.7	0.2	20.4	0.6	Run 2
8/24/2022 16:15:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:16:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:17:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:18:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:19:00	20.7	0.2	20.4	0.5	Run 2
8/24/2022 16:20:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:21:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:22:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:23:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:24:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:25:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:26:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:27:00	20.7	0.2	20.2	0.6	Run 2
8/24/2022 16:28:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:29:00	20.7	0.2	20.3	0.6	Run 2
8/24/2022 16:30:00	20.7	0.2	20.1	0.7	Run 2
8/24/2022 16:31:00	20.7	0.2	20.0	0.7	Run 2
8/24/2022 16:32:00	14.7	0.2	19.1	0.7	
8/24/2022 16:33:00	0.5	0.2	7.4	0.4	
8/24/2022 16:34:00	0.0	0.1	1.2	0.1	
8/24/2022 16:35:00	0.0	0.1	0.1	0.0	
8/24/2022 16:36:00	0.0	0.1	0.0	0.0	System Bias Drift Check
8/24/2022 16:37:00	0.0	0.1	1.9	0.6	
8/24/2022 16:38:00	0.0	0.1	16.7	3.8	
8/24/2022 16:39:00	14.3	0.5	22.1	4.8	
8/24/2022 16:40:00	22.8	4.5	22.7	4.9	
8/24/2022 16:41:00	22.9	5.0	22.8	5.0	End of 8/24/2022 testing

RTO (PCE01)
Test Date: 8/25/2022

Average Raw Analyzer Results

Run	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO_2, %	Run Times
3	20.1	0.3	19.5	0.7	0808-1115
4	20.2	0.2	19.5	0.7	1241-1547

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 7:19:00	0.2	0.3	0.0	0.0	Analyzer Cal
8/25/2022 7:20:00	0.0	0.1	0.0	0.0	Zero Nitrogen
8/25/2022 7:21:00	0.0	0.1	12.9	3.1	
8/25/2022 7:22:00	8.0	0.1	23.1	5.0	
8/25/2022 7:23:00	22.9	3.7	22.6	5.0	
8/25/2022 7:24:00	22.6	5.0	22.5	5.0	
8/25/2022 7:25:00	16.1	5.1	12.2	8.9	
8/25/2022 7:26:00	9.5	8.8	9.5	9.6	
8/25/2022 7:27:00	9.5	9.6	9.5	9.5	
8/25/2022 7:28:00	9.5	9.5	9.5	9.5	
8/25/2022 7:29:00	9.5	9.5	13.7	7.8	
8/25/2022 7:30:00	21.5	8.0	22.5	5.0	
8/25/2022 7:31:00	22.6	5.1	22.6	5.0	
8/25/2022 7:32:00	22.6	4.9	22.6	5.0	
8/25/2022 7:33:00	21.7	5.0	21.3	1.1	
8/25/2022 7:34:00	8.6	1.8	15.7	0.6	
8/25/2022 7:35:00	0.1	0.1	3.3	0.2	
8/25/2022 7:36:00	0.0	0.1	0.4	0.1	System Bias Check
8/25/2022 7:37:00	0.0	0.1	0.0	0.0	Zero Nitrogen
8/25/2022 7:38:00	2.6	0.1	0.6	0.2	
8/25/2022 7:39:00	20.7	2.2	15.5	3.7	
8/25/2022 7:40:00	22.1	4.9	21.5	4.8	
8/25/2022 7:41:00	22.1	5.0	21.8	4.3	
8/25/2022 7:42:00	22.1	5.0	22.0	4.9	
8/25/2022 7:43:00	22.1	5.0	22.0	4.9	
8/25/2022 7:44:00	21.2	4.9	21.9	4.5	
8/25/2022 7:45:00	19.9	1.7	20.9	1.4	
8/25/2022 7:46:00	19.9	0.3	20.5	0.3	
8/25/2022 7:47:00	19.9	0.3	20.5	0.1	
8/25/2022 7:48:00	19.9	0.3	20.5	0.1	
8/25/2022 7:49:00	20.0	0.3	20.4	0.1	
8/25/2022 7:50:00	20.1	0.3	19.7	0.5	
8/25/2022 7:51:00	20.2	0.3	19.4	0.7	
8/25/2022 7:52:00	20.2	0.3	19.4	0.6	
8/25/2022 7:53:00	20.2	0.3	19.5	0.6	
8/25/2022 7:54:00	20.2	0.3	19.5	0.6	
8/25/2022 7:55:00	20.2	0.3	19.3	0.7	
8/25/2022 7:56:00	20.1	0.3	19.3	0.7	
8/25/2022 7:57:00	20.1	0.3	19.3	0.7	
8/25/2022 7:58:00	20.0	0.3	19.3	0.7	
8/25/2022 7:59:00	20.0	0.4	19.3	0.7	
8/25/2022 8:00:00	20.0	0.4	19.1	0.8	
8/25/2022 8:01:00	20.0	0.4	19.2	0.8	
8/25/2022 8:02:00	20.0	0.4	19.4	0.7	
8/25/2022 8:03:00	20.0	0.4	19.5	0.7	
8/25/2022 8:04:00	20.0	0.4	19.5	0.7	
8/25/2022 8:05:00	20.0	0.4	19.3	0.8	

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 8:06:00	20.0	0.4	19.3	0.8	
8/25/2022 8:07:00	20.0	0.4	19.5	0.7	
8/25/2022 8:08:00	20.0	0.4	19.5	0.7	
8/25/2022 8:09:00	20.0	0.4	19.5	0.7	Run 3
8/25/2022 8:10:00	20.0	0.4	19.4	0.8	Run 3
8/25/2022 8:11:00	20.0	0.4	19.3	0.8	Run 3
8/25/2022 8:12:00	20.0	0.3	19.5	0.7	Run 3
8/25/2022 8:13:00	20.0	0.3	19.5	0.7	Run 3
8/25/2022 8:14:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:15:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 8:16:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:17:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:18:00	20.2	0.3	19.6	0.7	Run 3
8/25/2022 8:19:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 8:20:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 8:21:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 8:22:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:23:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:24:00	20.2	0.3	19.6	0.7	Run 3
8/25/2022 8:25:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:26:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 8:27:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:28:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:29:00	20.2	0.3	19.6	0.7	Run 3
8/25/2022 8:30:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:31:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:32:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:33:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:34:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 8:35:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:36:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 8:37:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:38:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:39:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:40:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:41:00	20.2	0.3	19.3	0.8	Run 3
8/25/2022 8:42:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:43:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:44:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:45:00	20.2	0.3	19.4	0.8	Run 3
8/25/2022 8:46:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 8:47:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:48:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:49:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:50:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 8:51:00	20.2	0.3	19.3	0.8	Run 3
8/25/2022 8:52:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 8:53:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:54:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:55:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 8:56:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 8:57:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 8:58:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 8:59:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 9:00:00	20.1	0.3	19.3	0.8	Run 3

Data Logger Output and Average Concentrations

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 9:01:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 9:02:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:03:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:04:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:05:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 9:06:00	20.1	0.3	19.3	0.8	Run 3
8/25/2022 9:07:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:08:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:09:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:10:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:11:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:12:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:13:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:14:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:15:00	20.1	0.3	19.5	0.8	Run 3
8/25/2022 9:16:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:17:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:18:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:19:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:20:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:21:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:22:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:23:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:24:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:25:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:26:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:27:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:28:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:29:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:30:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:31:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:32:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:33:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:34:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:35:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:36:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:37:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:38:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:39:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:40:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:41:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:42:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:43:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:44:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:45:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 9:46:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:47:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:48:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:49:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:50:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 9:51:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:52:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:53:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:54:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:55:00	20.1	0.3	19.5	0.7	Run 3

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 9:56:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 9:57:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:58:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 9:59:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:00:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:01:00	20.1	0.3	19.7	0.6	Run 3
8/25/2022 10:02:00	20.1	0.3	19.9	0.6	Run 3
8/25/2022 10:03:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 10:04:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:05:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:06:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:07:00	20.1	0.2	19.6	0.7	Run 3
8/25/2022 10:08:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:09:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:10:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 10:11:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:12:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:13:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:14:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:15:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:16:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:17:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:18:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:19:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:20:00	20.1	0.2	19.4	0.8	Run 3
8/25/2022 10:21:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:22:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:23:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:24:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:25:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:26:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:27:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:28:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:29:00	20.1	0.2	19.6	0.7	Run 3
8/25/2022 10:30:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:31:00	20.2	0.3	19.4	0.7	Run 3
8/25/2022 10:32:00	20.2	0.2	19.6	0.7	Run 3
8/25/2022 10:33:00	20.1	0.2	19.6	0.7	Run 3
8/25/2022 10:34:00	20.2	0.3	19.6	0.7	Run 3
8/25/2022 10:35:00	20.2	0.2	19.4	0.7	Run 3
8/25/2022 10:36:00	20.1	0.2	19.4	0.8	Run 3
8/25/2022 10:37:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:38:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:39:00	20.1	0.3	19.6	0.7	Run 3
8/25/2022 10:40:00	20.1	0.3	19.4	0.7	Run 3
8/25/2022 10:41:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:42:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:43:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:44:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:45:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:46:00	20.1	0.3	19.4	0.8	Run 3
8/25/2022 10:47:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:48:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:49:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 10:50:00	20.1	0.2	19.4	0.8	Run 3

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 10:51:00	20.1	0.2	19.4	0.8	Run 3
8/25/2022 10:52:00	20.2	0.3	19.6	0.7	Run 3
8/25/2022 10:53:00	20.1	0.2	19.7	0.7	Run 3
8/25/2022 10:54:00	20.1	0.3	19.7	0.7	Run 3
8/25/2022 10:55:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 10:56:00	20.2	0.2	19.5	0.8	Run 3
8/25/2022 10:57:00	20.1	0.3	19.7	0.7	Run 3
8/25/2022 10:58:00	20.1	0.3	19.7	0.7	Run 3
8/25/2022 10:59:00	20.2	0.3	19.7	0.7	Run 3
8/25/2022 11:00:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 11:01:00	20.1	0.3	19.5	0.8	Run 3
8/25/2022 11:02:00	20.2	0.3	19.7	0.7	Run 3
8/25/2022 11:03:00	20.2	0.3	19.7	0.7	Run 3
8/25/2022 11:04:00	20.1	0.2	19.7	0.7	Run 3
8/25/2022 11:05:00	20.2	0.2	19.5	0.7	Run 3
8/25/2022 11:06:00	20.1	0.3	19.5	0.8	Run 3
8/25/2022 11:07:00	20.2	0.2	19.7	0.7	Run 3
8/25/2022 11:08:00	20.2	0.3	19.7	0.7	Run 3
8/25/2022 11:09:00	20.2	0.2	19.7	0.7	Run 3
8/25/2022 11:10:00	20.1	0.3	19.5	0.7	Run 3
8/25/2022 11:11:00	20.2	0.2	19.5	0.8	Run 3
8/25/2022 11:12:00	20.2	0.2	19.7	0.7	Run 3
8/25/2022 11:13:00	20.2	0.3	19.7	0.7	Run 3
8/25/2022 11:14:00	20.1	0.2	19.7	0.7	Run 3
8/25/2022 11:15:00	20.2	0.3	19.5	0.7	Run 3
8/25/2022 11:16:00	20.1	0.3	19.5	0.8	
8/25/2022 11:17:00	20.2	0.2	19.4	0.8	
8/25/2022 11:18:00	9.4	0.3	8.2	0.6	
8/25/2022 11:19:00	0.1	0.2	1.0	0.1	
8/25/2022 11:20:00	0.0	0.1	0.1	0.0	System Bias Drift Check
8/25/2022 11:21:00	0.4	0.1	0.6	0.2	
8/25/2022 11:22:00	18.3	1.3	14.9	3.5	
8/25/2022 11:23:00	22.4	4.7	21.6	4.8	
8/25/2022 11:24:00	22.4	5.0	22.3	4.9	
8/25/2022 11:25:00	21.8	5.0	21.9	4.2	
8/25/2022 11:26:00	20.2	2.4	20.0	1.5	
8/25/2022 11:27:00	20.2	0.4	19.7	0.7	Standby - Process
8/25/2022 12:39:00	20.1	0.3	19.6	0.7	
8/25/2022 12:40:00	20.1	0.3	19.5	0.7	
8/25/2022 12:41:00	20.1	0.3	19.4	0.8	
8/25/2022 12:42:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 12:43:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 12:44:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 12:45:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 12:46:00	20.1	0.3	19.4	0.8	Run 4
8/25/2022 12:47:00	20.2	0.3	19.6	0.7	Run 4
8/25/2022 12:48:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 12:49:00	20.1	0.2	19.7	0.7	Run 4
8/25/2022 12:50:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 12:51:00	20.1	0.3	19.5	0.8	Run 4
8/25/2022 12:52:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 12:53:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 12:54:00	20.1	0.3	19.7	0.7	Run 4
8/25/2022 12:55:00	20.2	0.3	19.5	0.7	Run 4

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 12:56:00	20.1	0.2	19.5	0.8	Run 4
8/25/2022 12:57:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 12:58:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 12:59:00	20.1	0.2	19.7	0.7	Run 4
8/25/2022 13:00:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 13:01:00	20.1	0.2	19.5	0.8	Run 4
8/25/2022 13:02:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:03:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:04:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:05:00	20.1	0.2	19.5	0.7	Run 4
8/25/2022 13:06:00	20.1	0.3	19.4	0.8	Run 4
8/25/2022 13:07:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:08:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:09:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:10:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 13:11:00	20.1	0.2	19.4	0.8	Run 4
8/25/2022 13:12:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:13:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:14:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 13:15:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 13:16:00	20.1	0.2	19.4	0.7	Run 4
8/25/2022 13:17:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 13:18:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 13:19:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 13:20:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 13:21:00	20.1	0.2	19.4	0.8	Run 4
8/25/2022 13:22:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:23:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 13:24:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 13:25:00	20.1	0.3	19.4	0.7	Run 4
8/25/2022 13:26:00	20.1	0.3	19.4	0.8	Run 4
8/25/2022 13:27:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:28:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:29:00	20.1	0.2	19.6	0.7	Run 4
8/25/2022 13:30:00	20.1	0.2	19.4	0.7	Run 4
8/25/2022 13:31:00	20.2	0.2	19.4	0.7	Run 4
8/25/2022 13:32:00	20.2	0.2	19.6	0.6	Run 4
8/25/2022 13:33:00	20.2	0.2	19.6	0.6	Run 4
8/25/2022 13:34:00	20.2	0.2	19.7	0.6	Run 4
8/25/2022 13:35:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:36:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:37:00	20.2	0.2	19.6	0.6	Run 4
8/25/2022 13:38:00	20.2	0.2	19.6	0.6	Run 4
8/25/2022 13:39:00	20.2	0.2	19.7	0.6	Run 4
8/25/2022 13:40:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:41:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:42:00	20.2	0.2	19.6	0.6	Run 4
8/25/2022 13:43:00	20.2	0.2	19.6	0.6	Run 4
8/25/2022 13:44:00	20.2	0.2	19.7	0.6	Run 4
8/25/2022 13:45:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:46:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:47:00	20.2	0.2	19.7	0.6	Run 4
8/25/2022 13:48:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 13:49:00	20.3	0.2	19.7	0.6	Run 4
8/25/2022 13:50:00	20.3	0.2	19.5	0.7	Run 4

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 13:51:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 13:52:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 13:53:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 13:54:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 13:55:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 13:56:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 13:57:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 13:58:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 13:59:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:00:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:01:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:02:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:03:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:04:00	20.3	0.2	19.7	0.6	Run 4
8/25/2022 14:05:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:06:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:07:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:08:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:09:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:10:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:11:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 14:12:00	20.2	0.2	19.5	0.6	Run 4
8/25/2022 14:13:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 14:14:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 14:15:00	20.1	0.3	19.3	0.8	Run 4
8/25/2022 14:16:00	20.1	0.3	19.3	0.8	Run 4
8/25/2022 14:17:00	20.1	0.3	19.4	0.7	Run 4
8/25/2022 14:18:00	20.1	0.3	19.4	0.7	Run 4
8/25/2022 14:19:00	20.1	0.3	19.5	0.7	Run 4
8/25/2022 14:20:00	20.1	0.2	19.4	0.7	Run 4
8/25/2022 14:21:00	20.2	0.3	19.4	0.8	Run 4
8/25/2022 14:22:00	20.2	0.3	19.5	0.7	Run 4
8/25/2022 14:23:00	20.1	0.3	19.6	0.7	Run 4
8/25/2022 14:24:00	20.2	0.3	19.6	0.7	Run 4
8/25/2022 14:25:00	20.2	0.3	19.4	0.7	Run 4
8/25/2022 14:26:00	20.2	0.3	19.4	0.8	Run 4
8/25/2022 14:27:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:28:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:29:00	20.2	0.3	19.6	0.7	Run 4
8/25/2022 14:30:00	20.2	0.3	19.5	0.7	Run 4
8/25/2022 14:31:00	20.2	0.2	19.4	0.8	Run 4
8/25/2022 14:32:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:33:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:34:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:35:00	20.2	0.3	19.5	0.7	Run 4
8/25/2022 14:36:00	20.2	0.2	19.4	0.8	Run 4
8/25/2022 14:37:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:38:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:39:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:40:00	20.2	0.2	19.4	0.7	Run 4
8/25/2022 14:41:00	20.2	0.2	19.4	0.7	Run 4
8/25/2022 14:42:00	20.2	0.3	19.5	0.7	Run 4
8/25/2022 14:43:00	20.2	0.2	19.5	0.7	Run 4
8/25/2022 14:44:00	20.2	0.2	19.6	0.7	Run 4
8/25/2022 14:45:00	20.2	0.3	19.4	0.7	Run 4

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 14:46:00	20.2	0.3	19.4	0.7	Run 4
8/25/2022 14:47:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:48:00	20.3	0.2	19.6	0.7	Run 4
8/25/2022 14:49:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:50:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:51:00	20.2	0.2	19.4	0.7	Run 4
8/25/2022 14:52:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:53:00	20.3	0.2	19.6	0.7	Run 4
8/25/2022 14:54:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:55:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 14:56:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 14:57:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:58:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 14:59:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:00:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 15:01:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:02:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:03:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:04:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:05:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 15:06:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:07:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:08:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:09:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:10:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 15:11:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:12:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:13:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:14:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:15:00	20.3	0.2	19.5	0.7	Run 4
8/25/2022 15:16:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:17:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:18:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:19:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:20:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:21:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:22:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:23:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:24:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:25:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:26:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:27:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:28:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:29:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:30:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:31:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:32:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:33:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:34:00	20.3	0.1	19.5	0.6	Run 4
8/25/2022 15:35:00	20.3	0.2	19.4	0.7	Run 4
8/25/2022 15:36:00	20.3	0.2	19.3	0.7	Run 4
8/25/2022 15:37:00	20.3	0.2	19.5	0.6	Run 4
8/25/2022 15:38:00	20.3	0.2	19.6	0.6	Run 4
8/25/2022 15:39:00	20.4	0.1	19.7	0.6	Run 4
8/25/2022 15:40:00	20.4	0.1	19.6	0.6	Run 4

Data Logger Output and Average Concentrations

RTO (PCE01)
Test Date: 8/25/2022

TIME STAMP	Inlet O_2, %	Inlet CO_2, %	Outlet O_2, %	Outlet CO2, %	Notes
8/25/2022 15:41:00	20.4	0.1	19.6	0.7	Run 4
8/25/2022 15:42:00	20.4	0.1	19.7	0.6	Run 4
8/25/2022 15:43:00	20.4	0.1	19.7	0.6	Run 4
8/25/2022 15:44:00	20.4	0.1	19.8	0.6	Run 4
8/25/2022 15:45:00	20.4	0.1	19.6	0.6	Run 4
8/25/2022 15:46:00	20.4	0.1	19.6	0.7	Run 4
8/25/2022 15:47:00	20.4	0.1	19.7	0.6	Run 4
8/25/2022 15:48:00	20.4	0.1	19.7	0.6	
8/25/2022 15:49:00	11.3	0.1	14.6	0.6	
8/25/2022 15:50:00	0.2	0.2	2.7	0.2	
8/25/2022 15:51:00	0.0	0.1	0.2	0.1	
8/25/2022 15:52:00	0.0	0.1	0.0	0.0	System Bias Drift Check
8/25/2022 15:53:00	4.8	0.1	1.7	0.5	
8/25/2022 15:54:00	19.7	0.1	16.5	3.9	
8/25/2022 15:55:00	20.3	0.1	21.7	4.8	
8/25/2022 15:56:00	19.8	0.1	22.2	4.9	
8/25/2022 15:57:00	22.1	2.4	22.2	4.9	
8/25/2022 15:58:00	22.4	4.9	21.8	4.1	

Appendix F

EPA Method 204 Supporting Data

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-1

Tower Coater MA (EU01) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Oven Enclosure Web Entrance Slot (1):	3.0	72.0	1.50	0.48	[1]	[1]
Oven Enclosure Web Exit Slot (2):	2.25	79.0	1.23	0.36	[1]	[1]
Total Area (Sq. Ft.) :			**2.73**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	935.6	SA=2*(W*L+L*H+H*W)	13.75	7.50	17.16
Web Exit Extension (Top)	70.2	SA=2*(L*H+W*H)	6.58	3.79	3.42
Total Surface Area (Sq. Ft.):	1,005.7				
NDO Area (Sq. Ft.)	2.73	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.27%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Oven Webslot In	-0.013
Oven Webslot Out	-0.043
Overall Oven Average	**-0.028**

This overall average corresponds to a face velocity of approximately 400 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-2

Tower Coater MB (EU02) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Stage 1 Oven Enclosure Web Entrance Slot (1):	4.5	192.0	6.00	0.73	[1]	[1]
Stage 1 Oven Enclosure Web Exit Slot (2):	2.0	188.0	2.61	0.33	[1]	[1]
Total Area (Sq. Ft.) :			**8.61**			
Stage 2 Oven Enclosure Web Entrance Slot (3)	2.5	188.0	3.26	0.41	[1]	[1]
Stage 2 Oven Enclosure Web Exit Slot (4)	4.0	188.0	5.22	0.65	[1]	[1]
Total Area (Sq. Ft.) :			**8.49**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Stage 1

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	2,202.0	SA=2*(W*L+L*H+H*W)	24.00	19.00	15.00
Web Entrance Extension (1)	96.9	SA=2*(L*H+W*H)	19.75	2.68	2.16
Web Exit Extension (2)	157.9	SA=2*(L*H+W*H)	16.16	8.83	3.16
Total Surface Area (Sq. Ft.):	2,456.8				
NDO Area (Sq. Ft.)	8.61	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.35%**				

Stage 2

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	2,202.0	SA=2*(W*L+L*H+H*W)	24.00	19.00	15.00
Web Entrance Extension (3)	96.9	SA=2*(L*H+W*H)	19.75	2.68	2.16
Web Exit Extension (4)	157.9	SA=2*(L*H+W*H)	16.16	8.83	3.16
Total Surface Area (Sq. Ft.):	2,456.8				
NDO Area (Sq. Ft.)	8.49	A=L(3)*W(3)+L(4)*W(4)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.35%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Stage 1 Webslot In (1)	-0.026
Stage 1 Webslot Out (2)	-0.035
Oven Average	**-0.030**

This overall average corresponds to a face velocity of approximately 415 feet per minute.

Stage 2 Webslot In (3)	-0.025
Stage 2 Webslot Out (4)	-0.013
Oven Average	**-0.019**

This overall average corresponds to a face velocity of approximately 330 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-3

Tower Coater MC (EU03) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Oven Enclosure Web Entrance Slot (1):	3.0	96.0	2.00	0.48	[1]	[1]
Oven Enclosure Web Exit Slot (2):	3.25	95.5	2.16	0.52	[1]	[1]
Total Area (Sq. Ft.) :			**4.16**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	1,058.3	SA=2*(W*L+L*H+H*W)	15.66	7.75	17.42
Web Entrance Extension (1)	64.2	SA=2*(L*H+W*H)	12.16	2.71	2.16
Web Exit Extension (2)	82.8	SA=2*(L*H+W*H)	8.00	3.83	3.50
Total Surface Area (Sq. Ft.):	1,205.3				
NDO Area (Sq. Ft.)	4.16	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.34%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Oven Webslot In	-0.027
Oven Webslot Out	-0.068
Overall Oven Average	**-0.047**

This overall average corresponds to a face velocity of approximately 520 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-4

Tower Coater MR (EU04) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Oven Enclosure Web Entrance Slot (1):	2.75	96.0	1.833	0.45	[1]	[1]
Oven Enclosure Web Exit Slot (2):	2.75	95.5	1.824	0.45	[1]	[1]
Total Area (Sq. Ft.) :			**3.66**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	1,057.9	SA=2*(W*L+L*H+H*W)	15.66	7.75	17.41
Web Entrance Extension (1)	64.2	SA=2*(L*H+W*H)	12.16	2.70	2.16
Web Exit Extension (2)	82.8	SA=2*(L*H+W*H)	8.00	3.83	3.50
Total Surface Area (Sq. Ft.):	1,204.9				
NDO Area (Sq. Ft.)	3.66	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.30%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Oven Webslot In	-0.029
Oven Webslot Out	-0.030
Overall Oven Average	**-0.029**

This overall average corresponds to a face velocity of approximately 410 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-5

Tower Coater MD (EU05) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Stage 1 Oven Enclosure Web Entrance Slot (1):	2.8	96.0	1.83	0.45	[1]	[1]
Stage 1 Oven Enclosure Web Exit Slot (2):	2.25	96.0	1.50	0.37	[1]	[1]
Total Area (Sq. Ft.) :			**3.33**			
Stage 2 Oven Enclosure Web Entrance Slot (3)	2.0	96.0	1.33	0.33	[1]	[1]
Stage 2 Oven Enclosure Web Exit Slot (4)	0.8	96.0	0.53	0.13	[1]	[1]
Total Area (Sq. Ft.) :			**1.87**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Stage 1

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	856.6	SA=2*(W*L+L*H+H*W)	12.16	8.00	16.42
Web Entrance Extension (1)	64.1	SA=2*(L*H+W*H)	12.16	2.67	2.16
Web Exit Extension (2)	82.8	SA=2*(L*H+W*H)	8.00	3.83	3.50
Total Surface Area (Sq. Ft.):	1,003.5				
NDO Area (Sq. Ft.)	3.33	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.33%**				

Stage 2

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	856.6	SA=2*(W*L+L*H+H*W)	12.16	8.00	16.42
Web Entrance Extension (3)	64.1	SA=2*(L*H+W*H)	12.16	2.67	2.16
Web Exit Extension (4)	82.8	SA=2*(L*H+W*H)	8.00	3.83	3.50
Total Surface Area (Sq. Ft.):	1,003.5				
NDO Area (Sq. Ft.)	1.87	A=L(3)*W(3)+L(4)*W(4)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.19%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Stage 1 Webslot In (1)	-0.027
Stage 1 Webslot Out (2)	-0.038
Oven Average	**-0.033**

This overall average corresponds to a face velocity of approximately 435 feet per minute.

Stage 2 Webslot In (3)	-0.016
Stage 2 Webslot Out (4)	-0.015
Oven Average	**-0.016**

This overall average corresponds to a face velocity of approximately 390 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-6

Tower Coater QX (EU06) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Stage 1 Oven Enclosure Web Entrance Slot (1)	1.5	70.0	0.729	0.24	[1]	[1]
Stage 1 Oven Enclosure Web Exit Slot (2)	1.0	60.0	0.417	0.16	[1]	[1]
Total Area (Sq. Ft.) :			**1.15**			
Stage 2 Oven Enclosure Web Entrance Slot (3)	1.5	70.0	0.73	0.24	[1]	[1]
Stage 2 Oven Enclosure Web Exit Slot (4)	1.0	60.0	0.417	0.16	[1]	[1]
Total Area (Sq. Ft.) :			**1.15**			
Stage 3 Oven Enclosure Web Entrance Slot (5)	2.0	70.0	0.972	0.32	[1]	[1]
Stage 3 Oven Enclosure Web Exit Slot (6)	1.0	60.0	0.417	0.16	[1]	[1]
Total Area (Sq. Ft.) :			**1.39**			
Stage 4 Oven Enclosure Web Entrance Slot (7)	2.0	70.0	0.972	0.32	[1]	[1]
Stage 4 Oven Enclosure Web Exit Slot (8)	1.0	60.0	0.417	0.16	[1]	[1]
Total Area (Sq. Ft.) :			**1.39**			
Stage 5 Oven Enclosure Web Entrance Slot (9)	2.5	70.0	1.215	0.40	[1]	[1]
Stage 5 Oven Enclosure Web Exit Slot (10)	1.0	60.0	0.417	0.16	[1]	[1]
Total Area (Sq. Ft.) :			**1.63**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Stage 1	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	208.5	SA=2*(W*L+L*H+H*W)	6.50	2.33	10.08
Segment Above Oven	48.6	SA=2*(L*H+W*H)	6.50	1.83	2.91
Smoke Box	29.4	SA=2*(L*H+W*H)	6.50	2.33	1.66
Horiz. Surfaces Below Smoke Box [1]	6.5	SA=4*(L*W)	6.50	0.25	
Total Surface Area (Sq. Ft.):	293.0				
Stage 1 NDO Area (Sq. Ft.)	1.15	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.39%**				

Stage 2	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	208.5	SA=2*(W*L+L*H+H*W)	6.50	2.33	10.08
Segment Above Oven	48.6	SA=2*(L*H+W*H)	6.50	1.83	2.91
Smoke Box	29.4	SA=2*(L*H+W*H)	6.50	2.33	1.66
Horiz. Surfaces Below Smoke Box [1]	6.5	SA=4*(L*W)	6.50	0.25	
Total Surface Area (Sq. Ft.):	293.0				
Stage 2 NDO Area (Sq. Ft.)	1.15	A=L(3)*W(3)+L(4)*W(4)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.39%**				

Stage 3	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	208.5	SA=2*(W*L+L*H+H*W)	6.50	2.33	10.08
Segment Above Oven	48.6	SA=2*(L*H+W*H)	6.50	1.83	2.91
Smoke Box	29.4	SA=2*(L*H+W*H)	6.50	2.33	1.66
Horiz. Surfaces Below Smoke Box [1]	6.5	SA=4*(L*W)	6.50	0.25	
Total Surface Area (Sq. Ft.):	293.0				
Stage 3 NDO Area (Sq. Ft.)	1.39	A=L(5)*W(5)+L(6)*W(6)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.47%**				

Stage 4	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	208.5	SA=2*(W*L+L*H+H*W)	6.50	2.33	10.08
Segment Above Oven	48.6	SA=2*(L*H+W*H)	6.50	1.83	2.91
Smoke Box	29.4	SA=2*(L*H+W*H)	6.50	2.33	1.66
Horiz. Surfaces Below Smoke Box [1]	6.5	SA=4*(L*W)	6.50	0.25	
Total Surface Area (Sq. Ft.):	293.0				
Stage 4 NDO Area (Sq. Ft.)	1.39	A=L(7)*W(7)+L(8)*W(8)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.47%**				

Stage 5	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	208.5	SA=2*(W*L+L*H+H*W)	6.50	2.33	10.08
Segment Above Oven	48.6	SA=2*(L*H+W*H)	6.50	1.83	2.91
Smoke Box	29.4	SA=2*(L*H+W*H)	6.50	2.33	1.66
Horiz. Surfaces Below Smoke Box [1]	6.5	SA=4*(L*W)	6.50	0.25	
Total Surface Area (Sq. Ft.):	293.0				
Stage 5 NDO Area (Sq. Ft.)	1.63	A=L(9)*W(9)+L(10)*W(10)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.56%**				

[1] Additional surface area of four, 3" x 78" horizontal sections created by the indentation of the segment above the oven.

Criteria #3

The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Stage 1 Webslot In (1)	-0.041
Stage 1 Webslot Out (2)	-0.019
Oven Average	**-0.030**

This average corresponds to a face velocity of approximately 415 feet per minute.

Stage 2 Webslot In (3)	-0.040
Stage 2 Webslot Out (4)	-0.020
Oven Average	**-0.030**

This average corresponds to a face velocity of approximately 415 feet per minute.

Stage 3 Webslot In (5)	-0.042
Stage 3 Webslot Out (6)	-0.015
Oven Average	**-0.028**

This average corresponds to a face velocity of approximately 400 feet per minute.

Stage 4 Webslot In (7)	-0.048
Stage 4 Webslot Out (8)	-0.021
Oven Average	**-0.035**

This average corresponds to a face velocity of approximately 445 feet per minute.

Stage 5 Webslot In (9)	-0.050
Stage 5 Webslot Out (10)	-0.012
Oven Average	**-0.031**

This average corresponds to a face velocity of approximately 420 feet per minute.

Criteria #4

The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5

All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-7

20" Coater and Caster Room (EU08) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Enclosure Entrance Doorway with flaps[1]	72.0	84.0	10.5	3.66	[2]	[2]
Total Area (Sq. Ft.) :			**10.5**			

[1] Conservatively assume 75% coverage of doorway
[2] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Room Enclosure Total Surface Area (Sq. Ft.):	3,424.1	SA=2*(W*L+L*H+H*W)	33.33	26.00	14.25
NDO Area (Sq. Ft.)	10.50	A=L*W*0.25	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.31%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:
Enclosure Entrance Doorway: **-0.008**
This overall average corresponds to a face velocity of approximately 215 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the room is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-8

Tower Coater MP (EU13) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Stage 1 Oven Enclosure Web Entrance Slot (1):	4.0	186.0	5.17	0.65	[1]	[1]
Stage 1 Oven Enclosure Web Exit Slot (2):	2.5	182.0	3.16	0.41	[1]	[1]
Total Area (Sq. Ft.) :			**8.33**			
Stage 2 Oven Enclosure Web Entrance Slot (3)	2.75	182.0	3.48	0.45	[1]	[1]
Stage 2 Oven Enclosure Web Exit Slot (4)	3.25	186.0	4.20	0.53	[1]	[1]
Total Area (Sq. Ft.) :			**7.67**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Stage 1

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	1,991.0	SA=2*(W*L+L*H+H*W)	19.50	22.83	13.00
Web Entrance Extension (1)	70.0	SA=2*(L*H+W*H)	15.75	4.33	1.80
Web Exit Extension (2)	135.4	SA=2*(L*H+W*H)	16.00	4.33	3.33
Total Surface Area (Sq. Ft.):	2,196.3				
NDO Area (Sq. Ft.)	8.33	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.38%**				

Stage 2

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	1,991.0	SA=2*(W*L+L*H+H*W)	19.50	22.83	13.00
Web Exit Extension (4)	135.4	SA=2*(L*H+W*H)	16.00	4.33	3.33
Total Surface Area (Sq. Ft.):	2,126.3				
NDO Area (Sq. Ft.)	7.67	A=L(3)*W(3)+L(4)*W(4)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.35%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Stage 1 Webslot In (1)	-0.017
Stage 1 Webslot Out (2)	-0.016
Oven Average	**-0.017**

This overall average corresponds to a face velocity of approximately 310 feet per minute.

Stage 2 Webslot In (3)	-0.024
Stage 2 Webslot Out (4)	-0.017
Oven Average	**-0.020**

This overall average corresponds to a face velocity of approximately 340 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-9

Tower Coater MQ (EU15) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Oven Enclosure Web Entrance Slot (1):	2.25	49.0	0.77	0.36	[1]	[1]
Oven Enclosure Web Exit Slot (2):	1.75	51.0	0.62	0.28	[1]	[1]
Total Area (Sq. Ft.) :			**1.39**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	741.0	SA=2*(W*L+L*H+H*W)	11.00	6.66	16.83
Web Entrance Extension (1)	44.6	SA=2*(L*H+W*H)	7.66	2.66	2.16
Web Exit Extension (2)	66.6	SA=2*(L*H+W*H)	4.75	4.33	3.66
Total Surface Area (Sq. Ft.):	852.1				
NDO Area (Sq. Ft.)	1.39	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.16%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Oven Webslot In	-0.014
Oven Webslot Out	-0.014
Overall Oven Average	**-0.014**

This overall average corresponds to a face velocity of approximately 285 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
October 05, 2022

Table F-10

Tower Coater MS (EU16) Permanent Total Enclosure Verification Summary

Criteria #1
Any Natural Draft Opening (NDO) shall be at least four equivalent opening diameters from each VOC emitting point unless otherwise specified by the Administrator.

NDO's	Length, in.	Width, in.	Total Area, Sq. Ft.	Eq. Diameter, Ft.	Distance to VOC Source, Ft.	Number of Eq. Diameters
Oven Enclosure Web Entrance Slot (1):	2.5	96.0	1.67	0.41	[1]	[1]
Oven Enclosure Web Exit Slot (2):	2.75	96.0	1.83	0.45	[1]	[1]
Total Area (Sq. Ft.) :			**3.50**			

[1] This criteria is not applicable as there is no specific VOC source

Criteria #2
The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's walls, floor and ceiling.

Enclosure Portion	Surface Area, Sq. Ft.	Surface Area Calculation	Length, Ft.	Width, Ft.	Height, Ft.
Oven Body	1,072.0	SA=2*(W*L+L*H+H*W)	8.00	16.00	17.00
Web Entrance Extension (1)	66.7	SA=2*(L*H+W*H)	12.16	2.67	2.25
Web Exit Extension (2)	83.4	SA=2*(L*H+W*H)	8.00	3.91	3.50
Total Surface Area (Sq. Ft.):	1,222.2				
NDO Area (Sq. Ft.)	3.50	A=L(1)*W(1)+L(2)*W(2)	See Criteria #1		
NDO to Enclosure Surface Area (%):	**0.29%**				

Criteria #3
The average facial velocity of air through all NDO's shall be at least 200 feet per minute. The direction of air flow through all NDO's shall be into the enclosure.

Average Measured Pressure Differentials, in. H2O:	
Oven Webslot In	-0.016
Oven Webslot Out	-0.017
Overall Oven Average	**-0.016**

This overall average corresponds to a face velocity of approximately 300 feet per minute.

Criteria #4
The access doors and windows whose areas were not included as NDO's were closed during routine operation of the process.

All access points not included as NDO's were normally closed during testing.

Criteria #5
All VOC emissions must be captured and contained for discharge through a control device.

All exhaust flow from the oven is routed to the RTO.

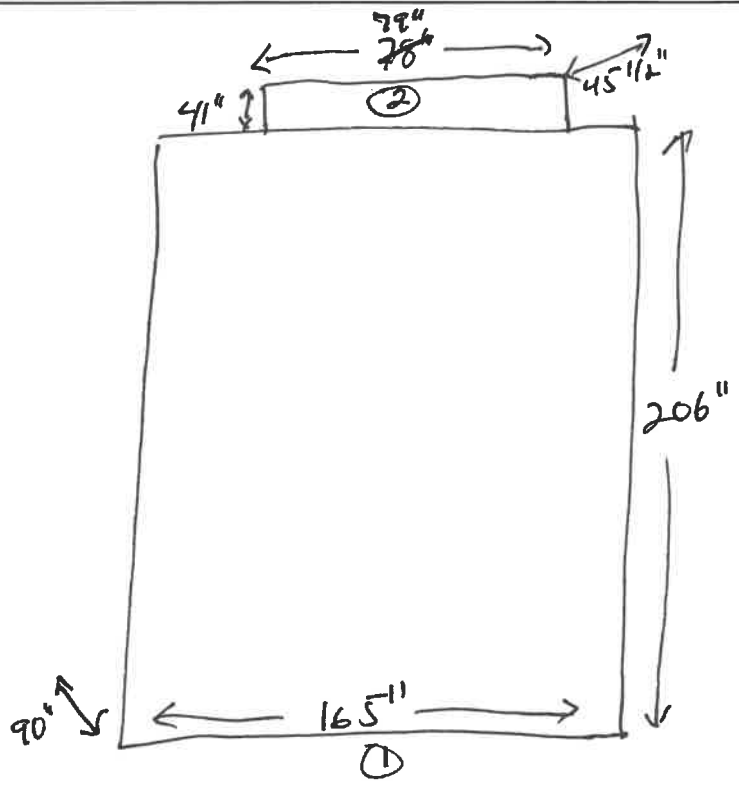
EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AVL
Unit Tested:	MA	Process Type:	Tower Coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.



webslot in ① 3" x 6'

webslot out ② 2 1/4" x 6' 7"

EPA METHOD 204
DATA SHEET

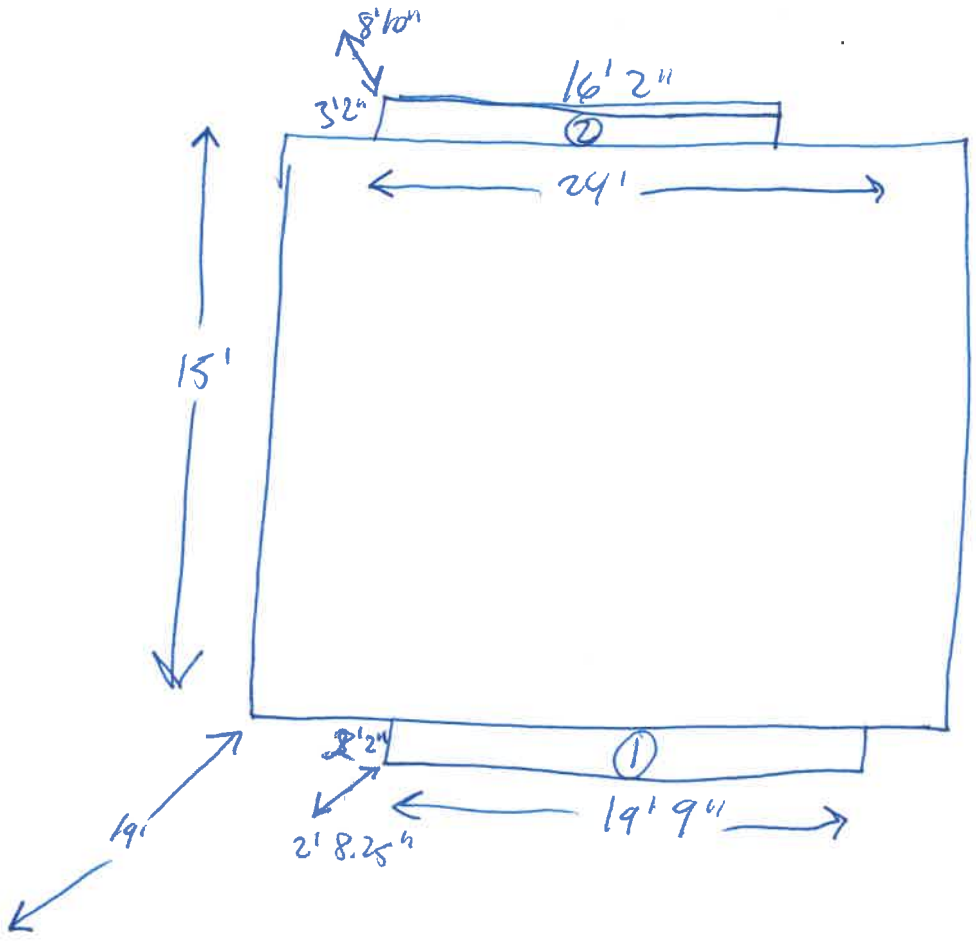
Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AJA
Unit Tested:	MTS	Process Type:	Powder Coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.

Side Profile



Two identical oven bodies with web slot dimensions noted below

Web Slots

① Bottom (west) 4.5" x 16'
Bottom (East) 2.5" x 15' 8"

② (Top) West 2" x 15' 8"
(East) 4" x 15' 8"

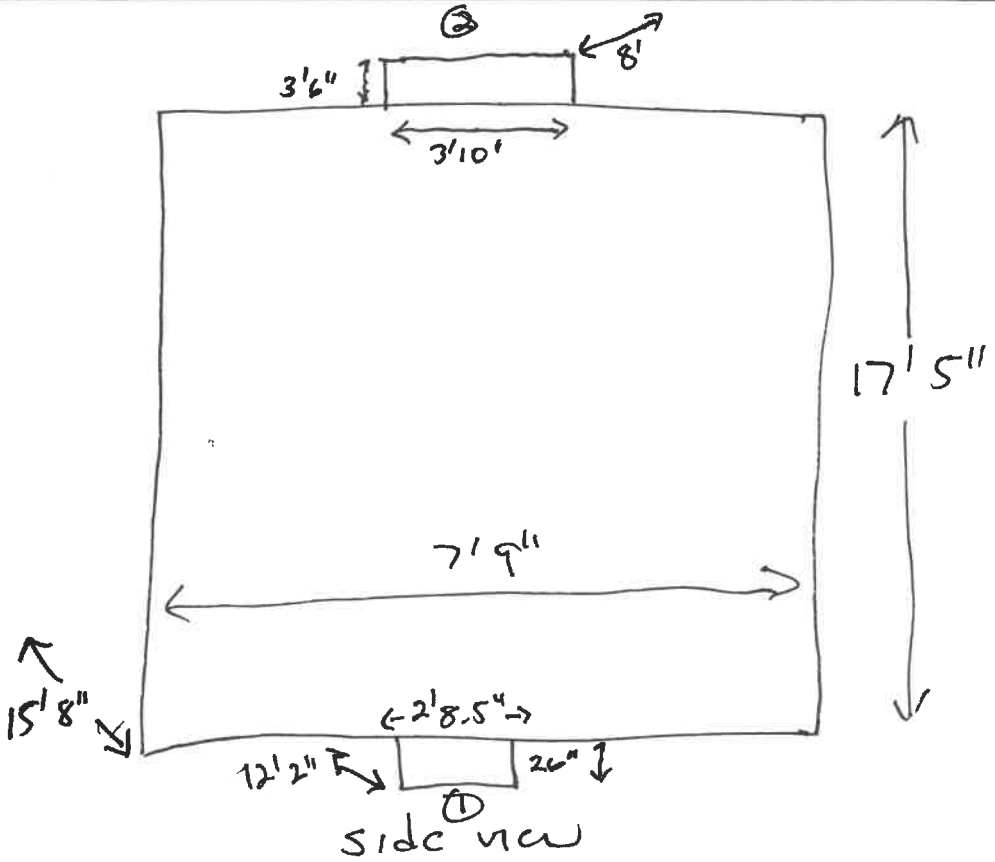
EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AVL
Unit Tested:	MC	Process Type:	Tower coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.



website in ① 3" x 8'

website out ② 3¼" x 7' 11½"

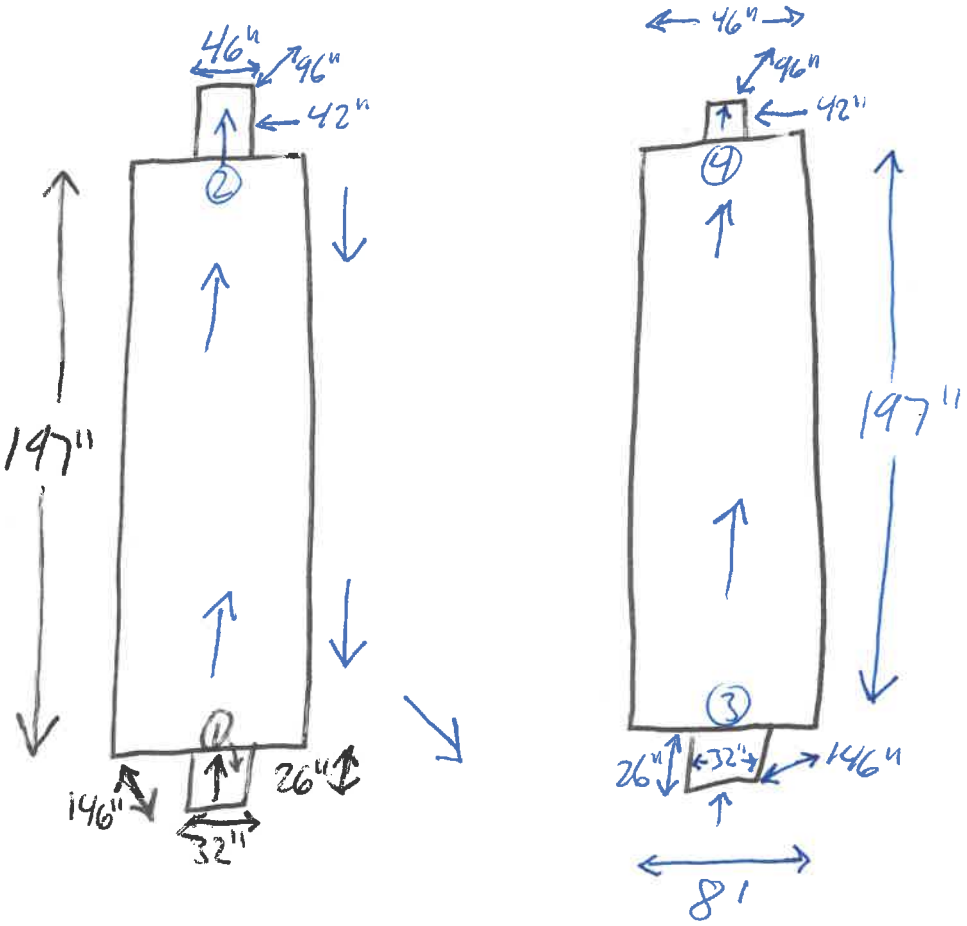
EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AJA
Unit Tested:	MD	Process Type:	Powder Coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.



Facing North

Web Slots

① 2.75" x 8'

② 2.75" x 8'

③ 2" x 8'

④ 0-8" x 8'

EPA METHOD 204
DATA SHEET

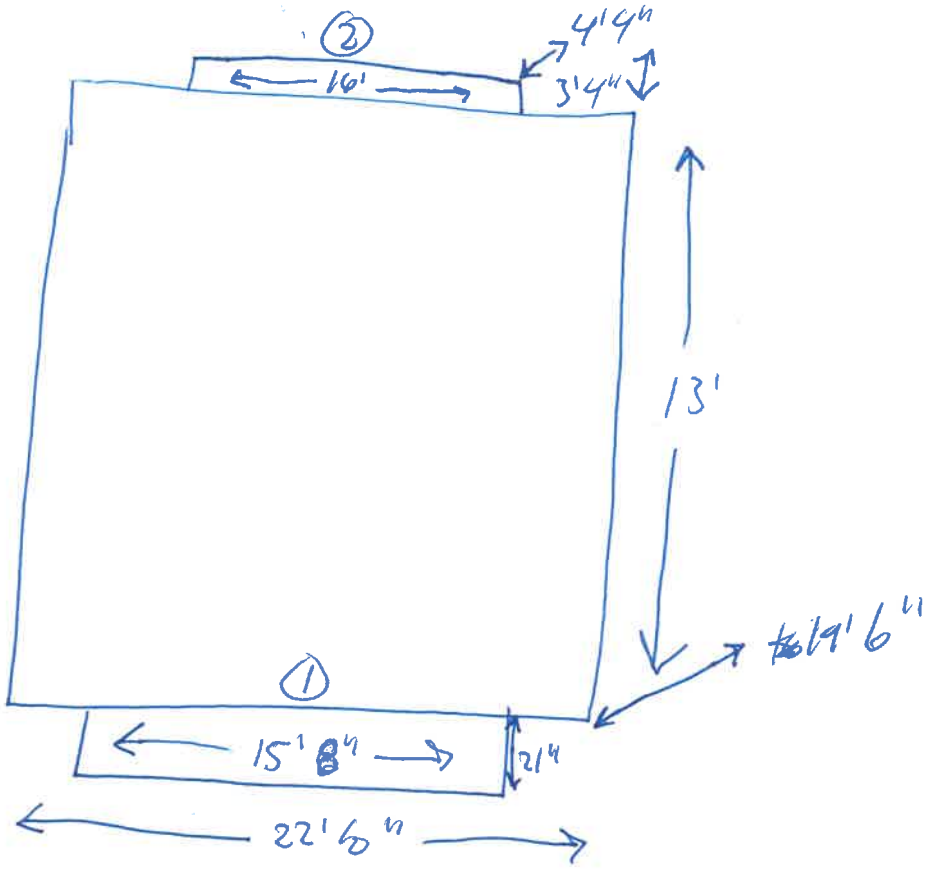
Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AJA
Unit Tested:	MP	Process Type:	Powder coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.

Stage 1



Facing N

Wet Shots
① 4" x 15'6"
② 2.5" x 15'2"

EPA METHOD 204
DATA SHEET

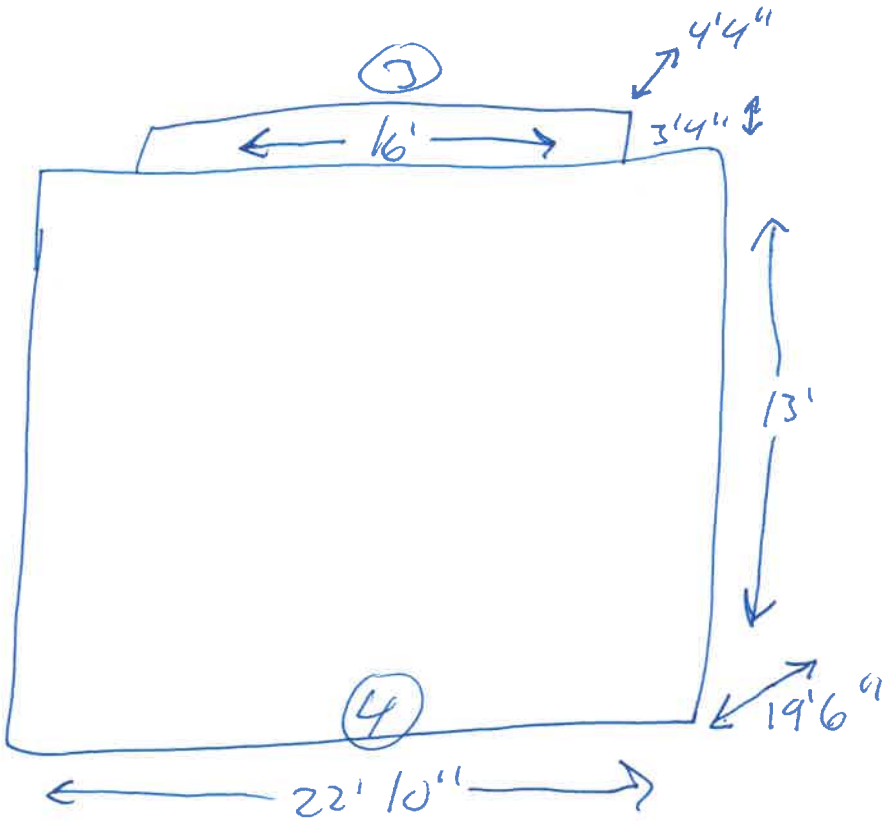
Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AJA
Unit Tested:	MP	Process Type:	Tower water

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.

Stage 2



Web Slots

~~3~~ 3) 2.75 x 15' 2"

4) 3.25 x 15' 6"

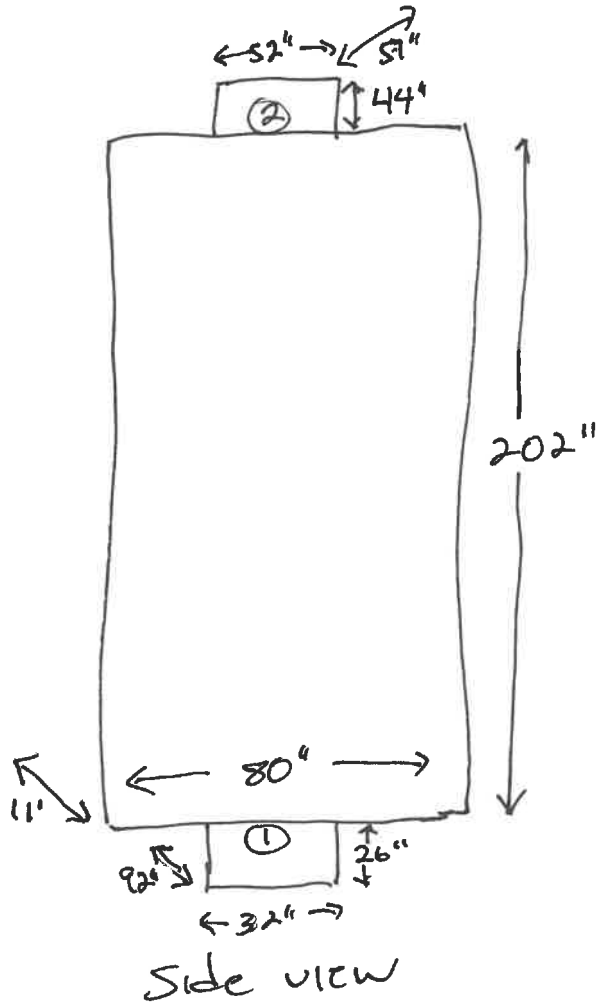
EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AVL
Unit Tested:	MQ	Process Type:	Tower Coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.



Side view

Webslots

in (1) 2¼" x 49"

out (2) 13¼" x 51"

1"- 2½

EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AJA
Unit Tested:	MR	Process Type:	Tower Etcher

Type of Enclosure (Criteria):

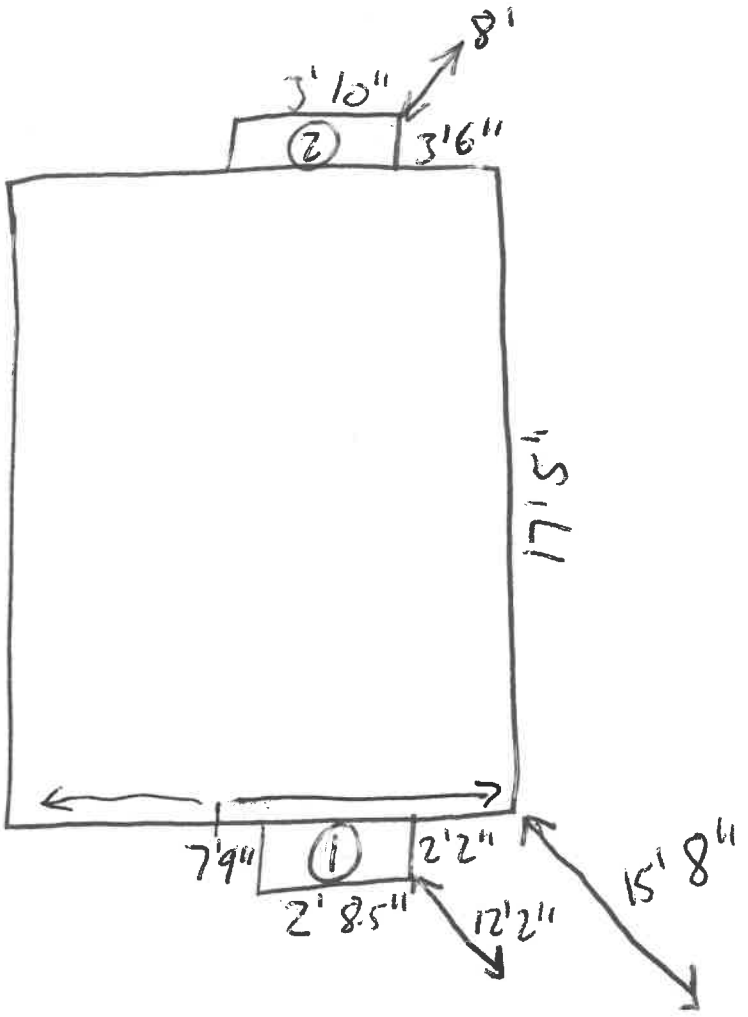
Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.

Web Slot

① 2.75" x 8'

② 2.75" x 7'11.5"



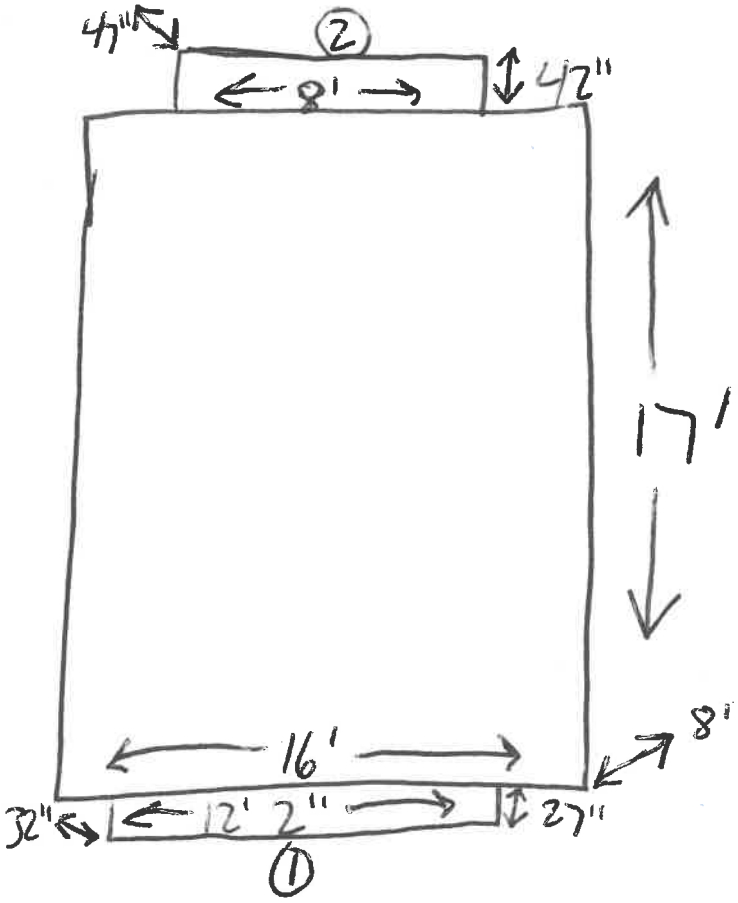
EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	ASA
Unit Tested:	MS	Process Type:	Tower Cooler

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.



Facing N

Web Slots

1) 2.5" x 8'

2) 2.75" x 8'

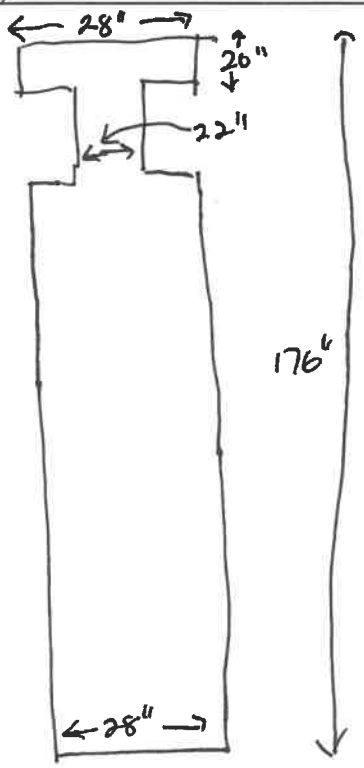
EPA METHOD 204
DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AVL
Unit Tested:	QX	Process Type:	Tower Coater

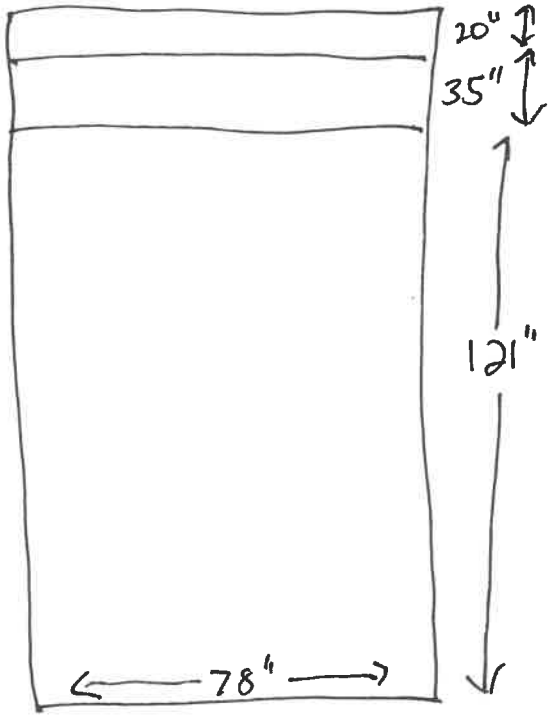
Type of ~~Enclosure (Criteria)~~:

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.



side view



x5 stage 1 - stage 5

end view

stage 1

1 in ~~2 1/2~~ 1 1/2" x 70"

2 out 1" x 60"

stage 2

3 in ~~2 1/2~~ 1 1/2" x 70"

4 out 1" x 60"

stage 3

5 in ~~2 1/2~~ 2" x 70"

6 out 1" x 60"

stage 4

7 in ~~2 1/2~~ 2" x 70"

8 out 1" x 60"

stage 5

9 in 2 1/2" x 70"

10 out 1" x 60"

EPA METHOD 204
DATA SHEET

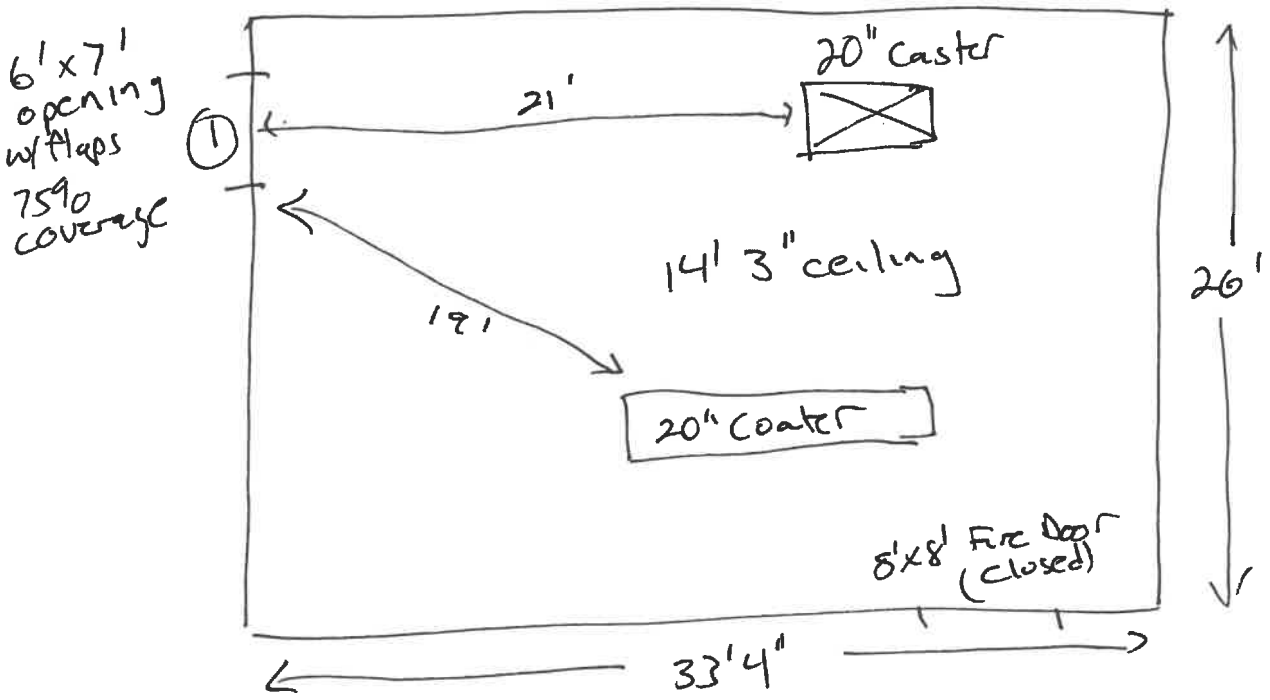
Client:	Saint-Gobain Performance Plastics	Date:	8/23/22
Facility:	Merrimack, NH	Initials:	AVL
Unit Tested:	20" Coater + 20" Caster Room	Process Type:	Tower coater

Type of Enclosure (Criteria):

Permanent Total Enclosure (#1, #3-#6) Temporary Total Enclosure (#1-#5) Building Enclosure (#1-#5)

#3) The total area of all NDO's shall not exceed 5% of the surface area of the enclosure's four walls, floor and ceiling.

N



1 6'x7' w/75% coverage

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Date: 8/24/22
Facility: Merrimack, NH
Operator: AVL
Manometer ID: M-23
Test Run No: 1

Reading No.	Location: Elapsed Time	Qx stage 1 in ΔP, in H_2O	Qx stage 2 in ΔP, in H_2O	Qx stage 3 in ΔP, in H_2O	Qx stage 4 in ΔP, in H_2O	Qx stage 5 in ΔP, in H_2O
1	0	-0.039 in	-0.039 in	-0.040 in	-0.046 in	-0.049 in
2	10	-0.041 in	-0.041 in	-0.043 in	-0.049 in	-0.048 in
3	20	-0.041 in	-0.039 in	-0.040 in	-0.046 in	-0.049 in
4	30	-0.042 in	-0.042 in	-0.042 in	-0.048 in	-0.049 in
5	40	-0.041 in	-0.041 in	-0.043 in	-0.049 in	-0.052 in
6	50	-0.041 in	-0.039 in	-0.042 in	-0.050 in	-0.052 in
7	60	-0.040 in	-0.042 in	-0.043 in	-0.047 in	-0.051 in

Comments
Start 953
Stop 1057

Reading No.	Location: Elapsed Time	Qx stage 1 out ΔP, in H_2O	Qx stage 2 out ΔP, in H_2O	Qx stage 3 out ΔP, in H_2O	Qx stage 4 out ΔP, in H_2O	Qx stage 5 out ΔP, in H_2O
1	0	-0.019 in	-0.019 in	-0.015 in	-0.022 in	-0.013 in
2	10	-0.017 in	-0.023 in	-0.014 in	-0.018 in	-0.012 in
3	20	-0.020 in	-0.018 in	-0.014 in	-0.020 in	-0.012 in
4	30	-0.016 in	-0.022 in	-0.014 in	-0.024 in	-0.013 in
5	40	-0.021 in	-0.023 in	-0.016 in	-0.022 in	-0.014 in
6	50	-0.017 in	-0.019 in	-0.014 in	-0.022 in	-0.011 in
7	60	-0.020 in	-0.019 in	-0.017 in	-0.021 in	-0.012 in

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M-29
Date: 8/24/22
Operator: AJA
Test Run No: 1

		1	4	3	2	
Reading No.	Location:	MB Stage 1 In	MB Stage 2 In	MB Stage1 Out	MB Stage 2 Out	
	Elapsed Time	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1	0	-0.027 in	-0.018 in	-0.035 in	-0.014 in	
2	10	~~-0.034~~ -0.024 in	-0.036 in	-0.034 in	-0.015 in	
3	20	-0.025 in	-0.023 in	-0.035 in	-0.015 in	
4	30	-0.024 in	-0.023 in	-0.040 in	-0.013 in	
5	40	-0.028 in	-0.024 in	-0.033 in	-0.014 in	
6	50	-0.022 in	-0.026 in	-0.036 in	-0.012 in	
7	60	-0.024 in	-0.024 in	-0.032 in	-0.011 in	

Comments
9:50

Reading No.	Location:	MR In	MR Out			
	Elapsed Time	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1	0	-0.034 in	-0.031 in			
2	10	-0.024 in	-0.035 in			
3	20	-0.031 in	-0.034 in			
4	30	-0.029 in	-0.023 in			
5	40	-0.032 in	-0.033 in			
6	50	-0.020 in	-0.034 in			
7	60	-0.030 in	-0.020 in			

Comments
9:55

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/24/22
Facility:	Merrimack, NH	Operator:	AVL
Manometer ID:	M-23	Test Run No:	2

Reading No.	Location: Elapsed Time	20" Coater and 20" Casters Room ΔP, in H_2O	MA webslot in ΔP, in H_2O	MA webslot at ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1	0	-0.009 in	-0.017 in	-0.040 in		
2	10	-0.009 in	-0.014 in	-0.040 in		
3	20	-0.007 in	-0.014 in	-0.044 in		
4	30	-0.007 in	-0.015 in	-0.043 in		
5	40	-0.008 in	-0.012 in	-0.045 in		
6	50	-0.009 in	-0.013 in	-0.045 in		
7	60	-0.010 in	-0.012 in	-0.041 in		

Comments

Start 1423
End 1520

Add'l measurement made on MA out at 20 -0.039 on South side of slot

Reading No.	Location: Elapsed Time	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1						
2						
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M29
Date: 8/24/22
Operator: AJA
Test Run No: 2

Reading No.	Location: Elapsed Time	MC Stage 1 in ΔP, in H_2O	MC Stage 1 out ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1	0	-0.029 in	-0.075 in			
2	10	-0.020 in	-0.079 in			
3	20	-0.024 in	-0.057 in			
4	30	-0.025 in	-0.087 in			
5	40	-0.021 in	-0.065 in			
6	50	-0.030 in	-0.069 in			
7	60	-0.033 in	-0.045 in			

Comments
~~2330~~ Start 1430
End 1540

Reading No.	Location: Elapsed Time	MD Stage 1 in ΔP, in H_2O	MD Stage 2 in ΔP, in H_2O	MD Stage 1 out ΔP, in H_2O	MD Stage 2 out ΔP, in H_2O	ΔP, in H_2O
1	0	-0.038 in	-0.014 in	-0.044 in	-0.019 in	
2	10	-0.027 in	-0.009 in	-0.042 in	-0.017 in	
3	20	-0.027 in	-0.018 in	-0.037 in	-0.012 in	
4	30	-0.027 in	-0.017 in	-0.035 in	-0.013 in	
5	40	-0.023 in	-0.020 in	-0.038 in	-0.012 in	
6	50	-0.022 in	-0.018 in	-0.037 in	-0.016 in	
7	60	-0.030 in	-0.014 in	-0.036 in	-0.014 in	

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client:	Saint-Gobain Performance Plastics	Date:	8/25/22
Facility:	Merrimack, NH	Operator:	AVL
Manometer ID:	M-23	Test Run No:	3

Reading No.	Location: Elapsed Time	MA webslot in ΔP, in H_2O	MS webslot in ΔP, in H_2O	MA stage1 webslot in ΔP, in H_2O	MA webslot stage2 out ΔP, in H_2O	ΔP, in H_2O
1	0	-0.015 in	-0.016 in	-0.019 in	-0.017 in	
2	10	-0.013 in	-0.014 in	-0.015 in	-0.014 in	
3	20	-0.013 in	-0.014 in	-0.015 in	-0.014 in	
4	30	-0.014 in	-0.016 in	-0.015 in	-0.021 in	
5	40	-0.016 in	-0.016 in	-0.015 in	-0.017 in	
6	50	-0.015 in	-0.017 in	-0.019 in	-0.016 in	
7	60	-0.015 in	-0.017 in	-0.019 in	-0.019 in	

Comments
start - 0908
stop - 1010

Reading No.	Location: Elapsed Time	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1						
2						
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M-29
Date: 8/25/22
Operator: AJA
Test Run No: 3

Reading No.	Location: / Elapsed Time	MQ wesslot out ΔP, in H_2O	MS wesslot out ΔP, in H_2O	MP Stage 1 wesslot out ΔP, in H_2O	MP Stage 2 wesslot in ΔP, in H_2O	ΔP, in H_2O
1	0	-0.011 in	-0.016 in	-0.016 in	-0.021 in	
2	10	-0.011 in	-0.015 in	-0.021 in	-0.027 in	
3	20	-0.010 in	-0.016 in	-0.016 in	-0.024 in	
4	30	-0.013 in	-0.013 in	-0.015 in	-0.022 in	
5	40	-0.012 in	-0.021 in	-0.012 in	-0.025 in	
6	50	-0.012 in	-0.016 in	-0.017 in	-0.023 in	
7	60	-0.028 in	-0.014 in	-0.018 in	-0.025 in	

Comments
Start 0908
End 1011

Reading No.	Location: / Elapsed Time	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1						
2						
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M-23
Date: 8/25/22
Operator: AVL
Test Run No: 4

Reading No.	Location: / Elapsed Time	20" Coater and 20" Caster Room ΔP, in H_2O	MA webslot in ΔP, in H_2O	MA webslot out ΔP, in H_2O	MQ webslot in ΔP, in H_2O	MS webslot in ΔP, in H_2O
1		-0.007 in	-0.011 in	-0.040 in	-0.014 in	-0.015 in
2						
3						
4						
5						
6						
7						

Comments
start - 1335
end 1350

Reading No.	Location: / Elapsed Time	MP Stage 1 webslot in ΔP, in H_2O	MP Stage 2 webslot out ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1		-0.016 in	-0.013 in			
2						
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Date: 8/25/22
Facility: Merrimack, NH
Operator: AVL
Manometer ID: M-23
Test Run No: 4

Reading No.	Location: Elapsed Time	Qx stage 1 webslot in ΔP, in H_2O	Qx stage 2 webslot in ΔP, in H_2O	Qx stage 3 webslot in ΔP, in H_2O	Qx stage 4 webslot in ΔP, in H_2O	Qx stage 5 webslot in ΔP, in H_2O
1		-0.040 in	-0.033 in	-0.040 in	-0.046 in	-0.034 in
2						
3						
4						
5						
6						
7						

Comments
start 1455

Reading No.	Location: Elapsed Time	Qx stage 1 webslot at ΔP, in H_2O	Qx stage 2 webslot at ΔP, in H_2O	Qx stage 3 webslot at ΔP, in H_2O	Qx stage 4 webslot at ΔP, in H_2O	Qx stage 5 webslot at ΔP, in H_2O
1		-0.018 in	-0.012 in	-0.014 in	-0.009 in	-0.050 in
2						↑ oven off
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M-29
Date: 8/25/22
Operator: AJA
Test Run No: 4

Reading No.	Location: / Elapsed Time	MD Stage 1 in ΔP, in H_2O	MD Stage 2 in ΔP, in H_2O	MD Stage 1 out ΔP, in H_2O	MD Stage 2 out ΔP, in H_2O	~~MD Stage~~ 1 in ΔP, in H_2O
1	~~0940~~	-0.031	-0.027	-0.044	-0.023	
2	1340					
3						
4						
5						
6						
7						

Comments

Reading No.	Location: / Elapsed Time	MC Stage 1 in ΔP, in H_2O	MC Stage 1 out ΔP, in H_2O	~~MC Stage 2~~ out ΔP, in H_2O	~~MC Stage 1~~ ΔP, in H_2O	 ΔP, in H_2O
1		-0.029	-0.053			
2						
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M-29
Date: 8/25/22
Operator: AJA
Test Run No: 4

Reading No.	Location: / Elapsed Time	MB Stage 1 in ΔP, in H_2O	MB Stage 2 out ΔP, in H_2O	MB Stage 1 out ΔP, in H_2O	MB Stage 2 in ΔP, in H_2O	ΔP, in H_2O
1	13:50	-0.023	-0.015	-0.038	-0.035	
2						
3						
4						
5						
6						
7						

Comments

Reading No.	Location: / Elapsed Time	MR in ΔP, in H_2O	MR out ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1		-0.037	-0.070			
2						
3						
4						
5						
6						
7						

Comments

BARR

PRESSURE DIFFERENTIAL DATA SHEET

Client: Saint-Gobain Performance Plastics
Facility: Merrimack, NH
Manometer ID: M-29
Date: 8/25/22
Operator: AJA
Test Run No: 4

Reading No.	Location: / Elapsed Time	MQ wesslot out ΔP, in H_2O	MS wesslot Out ΔP, in H_2O	MP Stage 1 wesslot out ΔP, in H_2O	MP Stage 2 wesslot in ΔP, in H_2O	ΔP, in H_2O
1	1400	-0.011	-0.021	-0.014	-0.025	
2						
3						
4						
5						
6						
7						

Comments

Reading No.	Location: / Elapsed Time	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O	ΔP, in H_2O
1						
2						
3						
4						
5						
6						
7						

Comments

Appendix G

Calibration Data

BARR

EPA METHOD 3A

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Inlet Oxygen)

Project: Saint Gobain
Sample Loc.: RTO (PCE01)
Date: 8/24/2022
Operators: RMP

Analyzer Model / SN: O2-11 API (SN 182)
Analyzer span: 0- 22.5 %

	Cylinder	
	Serial No.	Certified Value, % O_2
Zero Gas	95505028	0.0
Mid-Level Gas	EB0098604	9.5
High-Level Gas	EB0098395	22.5

ANALYZER CALIBRATION DATA

Bias and Drift Calibration Gas Concentration, % O2: 22.5

Note: Difference must be less than +/- 2 percent of span

TEST RUN 2	Cylinder Value, % O_2	Analyzer Calibration Response, % O_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.0	0.0	0.14%
Mid-Level Gas	9.5	9.5	0.0	0.11%
High-Level Gas	22.5	22.6	0.1	0.30%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 2	Analyzer Cal Response, % O_2	System Cal Response, % O_2	System Cal Cal. Bias % of Span	System Cal Response, % O_2	System Cal Cal. Bias % of Span	Drift % of span	Measured Run Average, Raw % O_2	Bias Corrected Average, % O_2
Zero Gas	0.0	0.0	-0.20%	0.0	-0.21%	-0.01%		
Upscale Gas	22.6	23.0	1.74%	22.9	1.62%	-0.12%	20.6	20.2

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

O2

BARR

EPA METHOD 3A

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Inlet Carbon Dioxide)

Project: Saint Gobain
Sample Loc.: RTO (PCE01)
Date: 8/24/2022
Operators: RMP

Analyzer Model / SN: O2-11 API (SN 182)
Analyzer span: 0- 9.5 %

	Cylinder	
	Serial No.	Certified Value, % CO_2
Zero Gas	95505028	0.0
Mid-Level Gas	EB0098395	4.9
High-Level Gas	EB0098604	9.5

Bias and Drift Calibration Gas Concentration, % CO_2: 4.9

ANALYZER CALIBRATION DATA

Note: Difference must be less than +/- 2 percent of span

TEST RUN 2	Cylinder Value % CO_2	Analyzer Calibration Response, % CO_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.1	0.1	0.64%
Mid-Level Gas	4.9	5.0	0.1	1.46%
High-Level Gas	9.5	9.5	0.0	0.50%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 2	Analyzer Cal Response, % CO_2	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	Drift, % of span	Measured Run Average, Raw % CO_2	Bias Corrected Average, % CO_2
Zero Gas	0.1	0.1	0.03%	0.1	0.03%	0.00%		
Upscale Gas	5.0	5.1	0.16%	5.0	0.00%	-0.16%	0.3	0.2

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

CO2

EPA METHOD 6C

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Outlet Oxygen)

Project: Saint Gobain
Sample Loc.: RTO (PCE01)
Date: 8/24/2022
Operators: RMP

Analyzer Model / SN: O2-6 Servomex 1440 (SN 4977)
Analyzer span: 0- 22.5 ppm

	Cylinder	
	Serial No.	Certified Value, % O_2
Zero Gas	95505028	0.0
Mid-Level Gas	EB0098604	9.5
High-Level Gas	EB0098395	22.5

ANALYZER CALIBRATION DATA

Bias and Drift Calibration Gas Concentration, % O2: 22.5

Note: Difference must be less than +/- 2 percent of span

TEST RUN 2	Cylinder Value, % O_2	Analyzer Calibration Response, % O_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.0	0.0	0.03%
Mid-Level Gas	9.5	9.5	0.0	0.09%
High-Level Gas	22.5	22.5	0.0	0.05%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 2	Analyzer Cal Response, % O_2	System Cal Response, % O_2	System Cal Cal. Bias % of Span	System Cal Response, % O_2	System Cal Cal. Bias % of Span	Drift, Percent of span	Measured Run Average, Raw % O_2	Bias Corrected Average, % O_2
Zero Gas	0.0	0.0	0.07%	0.0	0.00%	-0.07%		
Upscale Gas	22.5	22.8	1.19%	22.8	1.33%	0.14%	20.1	19.8

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100
Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

O_2

BARR

EPA METHOD 7E

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Outlet Carbon Dioxide)

Project: Saint Gobain
Sample Loc.: RTO (PCE01)
Date: 8/24/2022
Operators: RMP

Analyzer Model / SI: O2-6 Servomex 1440 (SN 4977)
Analyzer span: 0- 9.5 ppm

	Cylinder	
	Serial No.	Certified Value, % CO_2
Zero Gas	95505028	0.0
Nox Mid-Level Gas	EB0098395	4.9
Nox High-Level Gas	EB0098604	9.5

ANALYZER CALIBRATION DATA

Note: Difference must be less than +/- 2 percent of span

Bias and Drift Calibration Gas Concentration, % CO_2: 4.9

TEST RUN 2	Cylinder Value % CO_2	Analyzer Calibration Response, % CO_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.0	0.0	0.24%
Mid-Level Gas	4.9	5.0	0.1	0.61%
High-Level Gas	9.5	9.5	0.0	0.36%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 2	Analyzer Cal Response, % CO_2	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	Drift, Percent of span	Measured Run Average, Raw % CO_2	Bias Corrected Average, % CO_2
Zero Gas	0.0	0.0	0.09%	0.0	0.02%	-0.07%		
Upscale Gas	5.0	5.0	-0.04%	5.0	0.10%	0.14%	0.7	0.6

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100
Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

CO_2

BARR

EPA METHOD 3A

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Inlet Oxygen)

Project	Saint Gobain
Sample Loc.	RTO (PCE01)
Date	8/25/2022
Operators	RMP
Analyzer Model / SN	O2-11 API (SN 182)
Analyzer span	0- 22.5 %

	Cylinder	
	Serial No.	Certified Value, % O_2
Zero Gas	95505028	0.0
Mid-Level Gas	EB0098604	9.5
High-Level Gas	EB0098395	22.5

ANALYZER CALIBRATION DATA

Bias and Drift Calibration Gas Concentration, % O2: 22.5

Note: Difference must be less than +/- 2 percent of span

TEST RUNS 3-4	Cylinder Value, % O_2	Analyzer Calibration Response, % O_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.0	0.0	0.12%
Mid-Level Gas	9.5	9.5	0.0	0.04%
High-Level Gas	22.5	22.6	0.1	0.28%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 3	Analyzer Cal Response, % O_2	System Cal Response, % O_2	System Cal Cal. Bias % of Span	System Cal Response, % O_2	System Cal Cal. Bias % of Span	Drift % of span	Measured Run Average, Raw % O_2	Bias Corrected Average, % O_2
Zero Gas	0.0	0.0	-0.19%	0.0	-0.12%	0.06%		
Upscale Gas	22.6	22.1	-1.94%	22.4	-0.73%	1.22%	20.1	20.3
TEST RUN 4								
Zero Gas	0.0	0.0	-0.12%	0.0	-0.20%	-0.07%		
Upscale Gas	22.6	22.4	-0.73%	22.4	-0.70%	0.03%	20.2	20.3

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

O_2

BARR

EPA METHOD 3A

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Inlet Carbon Dioxide)

Project: Saint Gobain
Sample Loc.: RTO (PCE01)
Date: 8/25/2022
Operators: RMP

Analyzer Model / SN: O2-11 API (SN 182)
Analyzer span: 0- 9.5 %

	Cylinder	
	Serial No.	Certified Value, % CO_2
Zero Gas	95505028	0.0
Mid-Level Gas	EB0098395	4.9
High-Level Gas	EB0098604	9.5

Bias and Drift Calibration Gas Concentration, % CO_2: 4.9

ANALYZER CALIBRATION DATA

Note: Difference must be less than +/- 2 percent of span

TEST RUNS 3-4	Cylinder Value % CO_2	Analyzer Calibration Response, % CO_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.1	0.1	0.98%
Mid-Level Gas	4.9	4.9	0.0	0.36%
High-Level Gas	9.5	9.5	0.0	0.36%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 3	Analyzer Cal Response, % CO_2	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	Drift, % of span	Measured Run Average, Raw % CO_2	Bias Corrected Average, % CO_2
Zero Gas	0.1	0.1	-0.37%	0.1	0.07%	0.44%		
Upscale Gas	4.9	5.0	0.44%	5.0	0.69%	0.25%	0.3	0.2
TEST RUN 4								
Zero Gas	0.1	0.1	0.07%	0.1	-0.38%	-0.45%		
Upscale Gas	4.9	5.0	0.69%	4.9	-0.05%	-0.74%	0.2	0.1

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

CO_2

BARR

EPA METHOD 6C

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Outlet Oxygen)

Project	Saint Gobain
Sample Loc.	RTO (PCE01)
Date	8/25/2022
Operators	RMP
Analyzer Model / SN	O2-6 Servomex 1440 (SN 4977)
Analyzer span	0- 22.5 ppm

	Cylinder	
	Serial No.	Certified Value, % O_2
Zero Gas	95505028	0.0
Mid-Level Gas	EB0098604	9.5
High-Level Gas	EB0098395	22.5

ANALYZER CALIBRATION DATA

Bias and Drift Calibration Gas Concentration, % O2: 22.5

Note: Difference must be less than +/- 2 percent of span

TEST RUNS 3-4	Cylinder Value, % O_2	Analyzer Calibration Response, % O_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.0	0.0	0.14%
Mid-Level Gas	9.5	9.5	0.0	0.11%
High-Level Gas	22.5	22.5	0.0	0.19%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 3	Analyzer Cal Response, % O_2	System Cal Response, % O_2	System Cal Cal. Bias % of Span	System Cal Response, % O_2	System Cal Cal. Bias % of Span	Drift, Percent of span	Measured Run Average, Raw % O_2	Bias Corrected Average, % O_2
Zero Gas	0.0	0.0	0.17%	0.1	0.58%	0.41%		
Upscale Gas	22.5	22.0	-2.30%	22.3	-1.08%	1.22%	19.5	19.8
TEST RUN 4								
Zero Gas	0.0	0.1	0.58%	0.0	-0.01%	-0.59%		
Upscale Gas	22.5	22.3	-1.08%	22.2	-1.53%	-0.45%	19.5	19.8

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

O_2

BARR

EPA METHOD 7E

ANALYZER CALIBRATION and BIAS CORRECTED RESULTS

(Outlet Carbon Dioxide)

Project	Saint Gobain
Sample Loc.	RTO (PCE01)
Date	8/25/2022
Operators	RMP
Analyzer Model / SN	O2-6 Servomex 1440 (SN 4977)
Analyzer span	0- 9.5 ppm

	Cylinder	
	Serial No.	Certified Value, % CO_2
Zero Gas	95505028	0.0
CO_2 Mid-Level Gas	EB0098395	4.9
CO_2 High-Level Gas	EB0098604	9.5

ANALYZER CALIBRATION DATA

Note: Difference must be less than +/- 2 percent of span

Bias and Drift Calibration Gas Concentration: 4.9

TEST RUNS 3-4	Cylinder Value % CO_2	Analyzer Calibration Response, % CO_2	Absolute Difference	Difference, % of Span
Zero Gas	0.0	0.0	0.0	0.32%
Mid-Level Gas	4.9	5.0	0.1	1.05%
High-Level Gas	9.5	9.5	0.0	0.38%

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

		Initial Values		Final Values				
TEST RUN 3	Analyzer Cal Response, % CO_2	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	System Cal Response, % CO_2	System Cal Cal. Bias % of Span	Drift, Percent of span	Measured Run Average, Raw % CO_2	Bias Corrected Average, % CO_2
Zero Gas	0.0	0.0	0.11%	0.0	-0.32%	-0.43%		
Upscale Gas	5.0	4.9	-0.89%	4.9	-1.05%	-0.16%	0.7	0.7
TEST RUN 4								
Zero Gas	0.0	0.0	-0.32%	0.0	0.06%	0.38%		
Upscale Gas	5.0	4.9	-1.05%	4.9	-0.54%	0.50%	0.7	0.7

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

CO_2

Routine Dry Gas Meter Calibration

Control Module: C-17
DGM S/N : 22071021
Date : 8/1/2022
Technician : BSL

Leak checks
Negative 0.0 15 in. Hg
Positive : 0.0 > 5 in. W.C

Barometric Press. : 29.04
Previous Y : 0.9989
Previous dH@ : 1.8047

Orifice Diff Pressure, in. W.C.	Wet Test Volume, Ft^3	Dry Gas Meter Temp, °F Inlet	Dry Gas Meter Temp, °F Outlet	Wet Test Meter Temp, °F	Dry Gas Volume Ft^3	Elapsed Time of Cal. Point		Meter Coefficient Y	Orifice Coefficient dH@
Nominal	Initial	Initial	Initial	Initial	Initial				
0.50	480.50	73.0	73.0	72.0	93.290				
Actual	Final	Final	Final	Final	Final	Minutes	Sec.		
	485.50	73.0	73.0	72.0	98.380	12	27		
0.50	Total	Average	Average	Average	Total	Minutes			
	5.00	73.0	73.0	72.0	5.090	12.45		0.9829	1.8083
		73.0	Tm						
Nominal	Initial	Initial	Initial	Initial	Initial				
1.00	474.00	73.0	73.0	72.0	86.770				
Actual	Final	Final	Final	Final	Final	Minutes	Sec.		
	480.00	73.0	73.0	72.0	92.790	10	21		
1.00	Total	Average	Average	Average	Total				
	6.00	73.0	73.0	72.0	6.020	10.35		0.9960	1.7357
		73.0	Tm						
Nominal	Initial	Initial	Initial	Initial	Initial				
2.00	550.00	72.0	72.0	72.0	112.070				
Actual	Final	Final	Final	Final	Final	Minutes	Sec.		
	555.00	72.0	72.0	72.0	117.070	6	7		
2.00	Total	Average	Average	Average	Total				
	5.00	72.0	72.0	72.0	5.000	6.12		0.9949	1.7491
		72.0	Tm						
Nominal	Initial	Initial	Initial	Initial	Initial				
3.00	455.00	72.0	72.0	72.0	67.690				
Actual	Final	Final	Final	Final	Final	Minutes	Sec.		
	461.50	73.0	73.0	72.0	74.220	6	38		
3.00	Total	Average	Average	Average	Total				
	6.50	72.5	72.5	72.0	6.530	6.63		0.9888	1.8241
		72.5	Tm						
Nominal	Initial	Initial	Initial	Initial	Initial				
4.00	462.50	72.0	72.0	72.0	75.220				
Actual	Final	Final	Final	Final	Final	Minutes	Sec.		
	473.00	73.0	73.0	72.0	85.750	9	19		
4.00	Total	Average	Average	Average	Total				
	10.50	72.5	72.5	72.0	10.530	9.32		0.9881	1.8387
		72.5	Tm						
						Average		**0.9902**	**1.7912**

Reviewed By: David Herbst

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
September 15, 2022

Emission Measurement Center (EMC) Approved Alternate Method (ALT-009)
Alternative Method 5 Post-Test Calibration
RTO Inlet (PCE01 Inlet)
Control Module C17

Input Data	Symbol	Units	Run 2	Run 3	Run 4
Test date	-	-	8/24/2022	8/25/2022	8/25/2022
Test period	-	-	1323 - 1631	808 - 1115	1241 - 1547
Total run time	t	min	180	180	180
Total sample volume measured by dry gas meter	V_m	acf	118.8	116.0	119.9
Average dry gas meter temp	T_m	°F	76.4	72.8	76.6
Absolute average dry gas meter temp	T_m	°R	536.0	532.4	536.3
Barometric pressure	P_b	inches Hg	29.6	29.8	29.8
Conversion factor $(29.92/528)(0.75)^2$	---	(in Hg/°R) cfm^2	0.0319	0.0319	0.0319
Average orifice meter differential	ΔH_{avg}	in. H_2O	1.35	1.29	1.38
Orifice meter calibration coefficient	$\Delta H_@$	in. H_2O	1.79	1.79	1.79
Dry molecular weight of stack gas	M_d	lb/lb-mole	28.86	28.86	28.86
Dry molecular weight of air	---	lb/lb-mole	29.00	29.00	29.00
Specific gravity of mercury	---	Dimensionless	13.60	13.60	13.60
Average of the Sq. Root of the Δ H's	$(\sqrt{\Delta H})_{avg}$	---	1.15	1.13	1.17

$$Y_{qa} = \frac{t}{V_m}\sqrt{\frac{0.0319T_m}{\Delta H@\left(P_b + \frac{\Delta H_{avg}}{13.6}\right)P_b}\left(\frac{29}{M_d}\right)}\left(\sqrt{\Delta H}\right)_{avg}$$

$Method\ 5\ Eq.5-15$

Dry gas meter calibration check value	Y_{qa}	Dimensionless	0.9944	0.9928	0.9965
Dry gas meter calibration factor	Y	Dimensionless	0.9902	0.9902	0.9902

Average of Y_{qa}'s from test run series	**0.9946**
Dry gas meter calibration factor	**0.9902**
% difference between average Y_{qa}'s and Y (must be within ± 5%)	**-0.44%**

Routine Dry Gas Meter Calibration

Control Module: C-18
DGM S/N : 8219542
Date : 6/30/2022
Technician : AJW4

Leak checks
Negative 0.0 15 in. Hg
Positive : 0.0 > 5 in. W.C

Barometric Press. : 28.94
Previous Y : 1.0003
Previous dH@ : 1.8778

Orifice Diff Pressure, in. W.C.	Wet Test Volume, Ft^3	Dry Gas Meter Temp, °F Inlet	Dry Gas Meter Temp, °F Outlet	Wet Test Meter Temp, °F	Dry Gas Volume Ft^3	Elapsed Time of Cal. Point		Meter Coefficient Y	Orifice Coefficient dH@
Nominal 0.50	Initial 319.00	Initial 78.0	Initial 78.0	Initial 71.0	Initial 272.970				
Actual	Final 324.00	Final 78.0	Final 78.0	Final 71.0	Final 277.965	Minutes 12	Sec. 25.72		
0.50	Total 5.00	Average 78.0	Average 78.0	Average 71.0	Total 4.995	Minutes 12.43		1.0129	1.7848
		78.0	Tm						
Nominal 1.00	Initial 309.00	Initial 77.0	Initial 77.0	Initial 71.0	Initial 262.970				
Actual	Final 318.00	Final 78.0	Final 78.0	Final 71.0	Final 271.970	Minutes 15	Sec. 51.5		
1.00	Total 9.00	Average 77.5	Average 77.5	Average 71.0	Total 9.000	15.86		1.0097	1.7953
		77.5	Tm						
Nominal 2.00	Initial 280.00	Initial 74.0	Initial 74.0	Initial 71.0	Initial 233.980				
Actual	Final 288.00	Final 75.0	Final 75.0	Final 71.0	Final 241.955	Minutes 10	Sec. 11.31		
2.00	Total 8.00	Average 74.5	Average 74.5	Average 71.0	Total 7.975	10.19		1.0046	1.8863
		74.5	Tm						
Nominal 3.00	Initial 289.00	Initial 75.0	Initial 75.0	Initial 71.0	Initial 242.955				
Actual	Final 295.00	Final 76.0	Final 76.0	Final 71.0	Final 248.960	Minutes 6	Sec. 16.19		
3.00	Total 6.00	Average 75.5	Average 75.5	Average 71.0	Total 6.005	6.27		1.0000	1.9013
		75.5	Tm						
Nominal 4.00	Initial 296.00	Initial 76.0	Initial 76.0	Initial 71.0	Initial 249.960				
Actual	Final 308.00	Final 77.0	Final 77.0	Final 71.0	Final 261.970	Minutes 10	Sec. 50.75		
4.00	Total 12.00	Average 76.5	Average 76.5	Average 71.0	Total 12.010	10.85		0.9994	1.8929
		76.5	Tm						
						Average		**1.0053**	**1.8521**

Reviewed By:

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
September 15, 2022

Emission Measurement Center (EMC) Approved Alternate Method (ALT-009)
Alternative Method 5 Post-Test Calibration
RTO Outlet (PCE01)
Control Module C-18

Input Data	Symbol	Units	Run 2	Run 3	Run 4
Test date	-	-	8/24/2022	8/25/2022	8/25/2022
Test period	-	-	1323 - 1631	808 - 1115	1241 - 1547
Total run time	t	min	180	180	180
Total sample volume measured by dry gas meter	V_m	acf	127.6	125.3	124.8
Average dry gas meter temp	T_m	°F	77.8	74.5	77.5
Absolute average dry gas meter temp	T_m	°R	537.5	534.1	537.2
Barometric pressure	P_b	inches Hg	29.6	29.8	29.8
Conversion factor $(29.92/528)(0.75)^2$	---	(in Hg/°R) cfm^2	0.0319	0.0319	0.0319
Average orifice meter differential	ΔH_{avg}	in. H_2O	1.77	1.71	1.70
Orifice meter calibration coefficient	$\Delta H_@$	in. H_2O	1.85	1.85	1.85
Dry molecular weight of stack gas	M_d	lb/lb-mole	28.90	28.90	28.90
Dry molecular weight of air	---	lb/lb-mole	29.00	29.00	29.00
Specific gravity of mercury	---	Dimensionless	13.60	13.60	13.60
Average of the Sq. Root of the Δ H's	$(\sqrt{\Delta H})_{avg}$	---	1.28	1.27	1.26

$$Y_{qa} = \frac{t}{V_m}\sqrt{\frac{0.0319 T_m}{\Delta H@\left(P_b + \frac{\Delta H_{avg}}{13.6}\right)P_b}\left(\frac{29}{M_d}\right)}\left(\sqrt{\Delta H}\right)_{avg}$$

$Method\ 5\ Eq.5-15$

Dry gas meter calibration check value	Y_{qa}	Dimensionless	1.0131	1.0120	1.0124
Dry gas meter calibration factor	Y	Dimensionless	1.0053	1.0053	1.0053

Average of Y_{qa}'s from test run series	**1.0125**
Dry gas meter calibration factor	**1.0053**
% difference between average Y_{qa}'s and Y (must be within ± 5%)	**-0.72%**

Meter Pyrometer Calibration

Meter I.D.		C-17						
Temperature Calibrator Used		CL-3512-A #2						
Date		6/14/2022						
Technician		BSL						
Thermocouple I.D.		T.C. 1	T.C. 2	T.C. 3	T.C. 4	T.C. 5	T.C. 6	Meter out
Reference °F	**Acceptable Range**	** If not within Acceptable Range, unit not to be used within range at which failure occurred.						
1950	1932 to 1968	1954				1954	1954	
1400	1387 to 1413	1404				1403	1403	
1000	990 to 1010	1003				1004	1004	
600	593 to 607	601				601	601	
300	295 to 305	301	301	300		300	300	301
100	96 to 104	98	98	98	98	99	98	98
50	47 to 53	48	48	48	48	48	48	48
0	-3 to 3	0			0	0	0	0

Pass/Fail based on +/- 0.75% of Rankine value

Fail indicated by cell highlighting

Reviewed By: Ben Wiltse

Meter Pyrometer Calibration

Meter I.D.		C-18						
Temperature Calibrator Used		CL-3512-A #2						
Date		6/14/2022						
Technician		BSL						
Thermocouple I.D.		T.C. 1	T.C. 2	T.C. 3	T.C. 4	T.C. 5	T.C. 6	Meter out
Reference °F	**Acceptable Range**	** If not within Acceptable Range, unit not to be used within range at which failure occurred.						
1950	1932 to 1968	1956				1956	1957	
1400	1387 to 1413	1404				1403	1404	
1000	990 to 1010	1005				1005	1005	
600	593 to 607	602				602	602	
300	295 to 305	301	300	299		301	301	300
100	96 to 104	99	98	98	97	98	99	98
50	47 to 53	49	49	49	48	49	49	48
0	-3 to 3	1			1	1	1	1

Pass/Fail based on +/- 0.75% of Rankine value

Fail indicated by cell highlighting

Reviewed By: Ben Wiltse

BARR

Manometer Calibration Sheet

Manometer Number	M-23	Leak Check:	
Date of Calibration	2/10/2022	Negative	0.0 @3"
Technician	AJW4	Positive	0.0 @3"

	Oil Manometer	Manometer	Pass/Fail
Positive	**0.06**	0.06	Pass
	0.5	0.51	Pass
	1	1.01	Pass
	2	1.99	Pass
	3	3.02	Pass
	4	4.04	Pass
Negative	**0.06**	0.06	Pass
	0.5	0.50	Pass
	1	1.00	Pass
	2	2.01	Pass
	3	3.04	Pass
	4	4.03	Pass

Pass/Fail based on +/- 5% of set value

QA signature: Ben LaFond

BARR

Manometer Calibration Sheet

Manometer Number	M-29	Leak Check:	
Date of Calibration	2/10/2022	Negative	0.0 @3"
Technician	AJW4	Positive	0.0 @3"

	Oil Manometer	Manometer	Pass/Fail
Positive	**0.06**	0.06	Pass
	0.5	0.50	Pass
	1	1.01	Pass
	2	1.99	Pass
	3	3.03	Pass
	4	4.05	Pass
Negative	**0.06**	0.06	Pass
	0.5	0.50	Pass
	1	1.00	Pass
	2	2.01	Pass
	3	3.02	Pass
	4	4.02	Pass

Pass/Fail based on +/- 5% of set value

QA signature: Ben LaFond

THERMOCOUPLE CALIBRATION

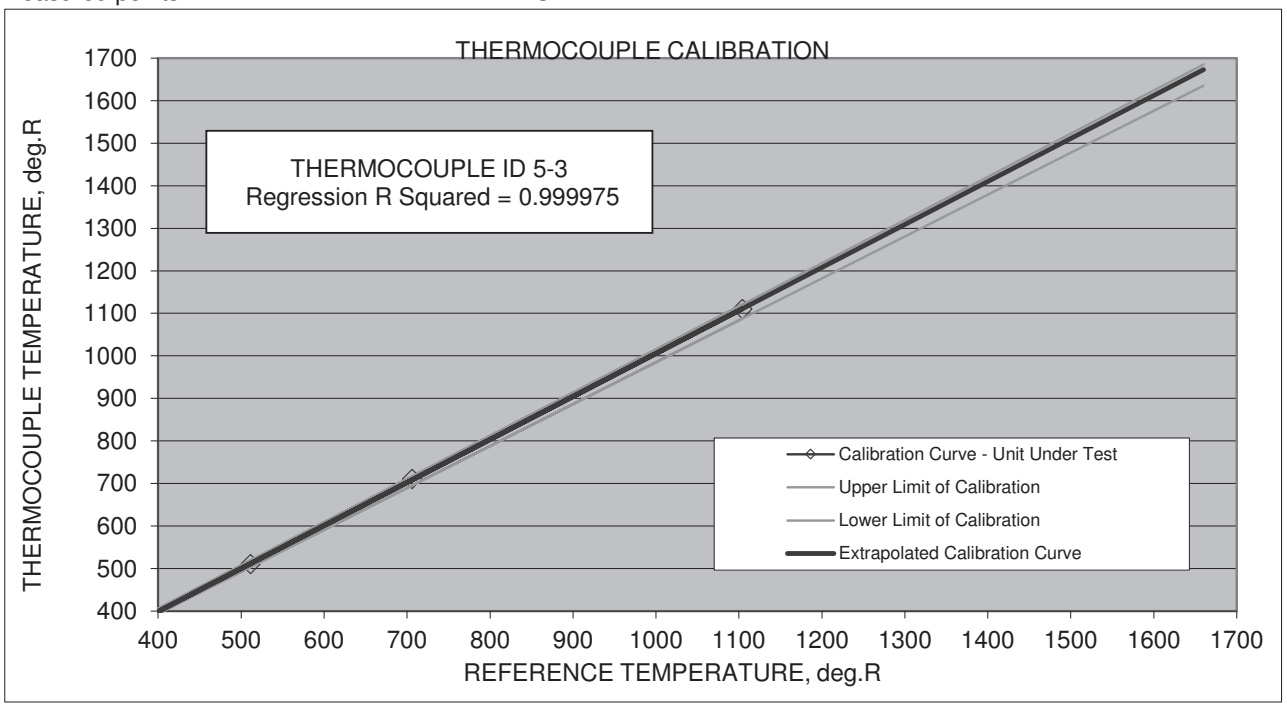
THERMOCOUPLE ID **5-3**

Cal Date: **12/27/2021** **Method 5 Probe**

CALIBRATION TECHNICIAN: **RMP**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	NBS Calibrations
Pyrometer ID	D-15		

Temperature Calibration Points	50	250	650
Reference Deg F (To)	51	246	644
Probe Temp (deg F)	50	250	650
Reference Temp (deg R) deg F + 460	511	706	1104
Probe Temp (deg R), deg F + 460	510	710	1110
Difference (degrees)	1	-4	-6
% Diff Abs. T	0.2%	0.6%	0.5%
Is difference less than 1.5% at all measured points?	YES		



Are extrapolated limits less than 1.5%? YES

FAHRENHEIT CALIBRATION RANGE

-20 1200

If not acceptable, describe corrective action:

Reviewed by: Tom Kulcinski

THERMOCOUPLE CALIBRATION

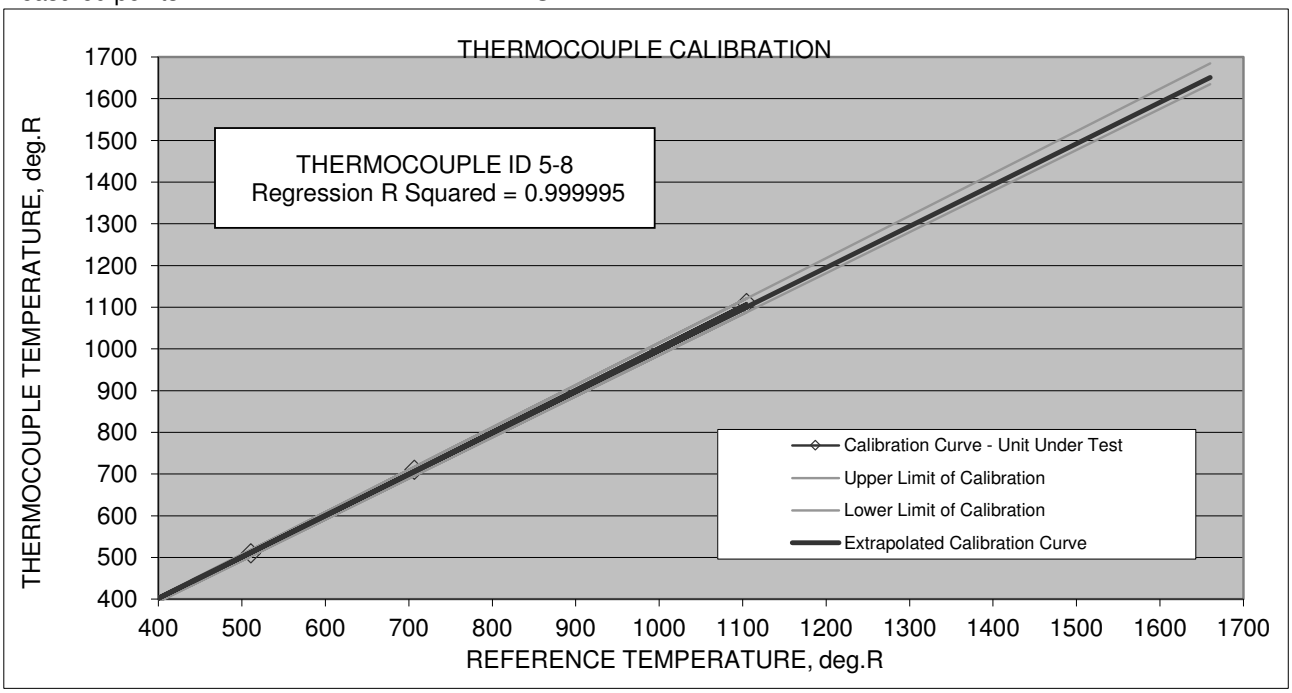
THERMOCOUPLE ID **5-8**

Cal Date: **1/11/2022** **Method 5 Probe**

CALIBRATION TECHNICIAN: **RMP**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyrometer ID	**D-15**		

Temperature Calibration Points	**50**	**250**	**650**
Reference Deg F (To)	**51**	**247**	**645**
Probe Temp (deg F)	50	250	650
Reference Temp (deg R) deg F + 460	511	707	1105
Probe Temp (deg R), deg F + 460	510	710	1110
Difference (degrees)	1	-3	-5
% Diff Abs. T	0.2%	0.4%	0.5%
Is difference less than 1.5% at all measured points?	YES		



Are extrapolated limits less than 1.5%? YES

FAHRENHEIT CALIBRATION RANGE
-20 1200

If not acceptable, describe corrective action:

Reviewed by:

THERMOCOUPLE CALIBRATION

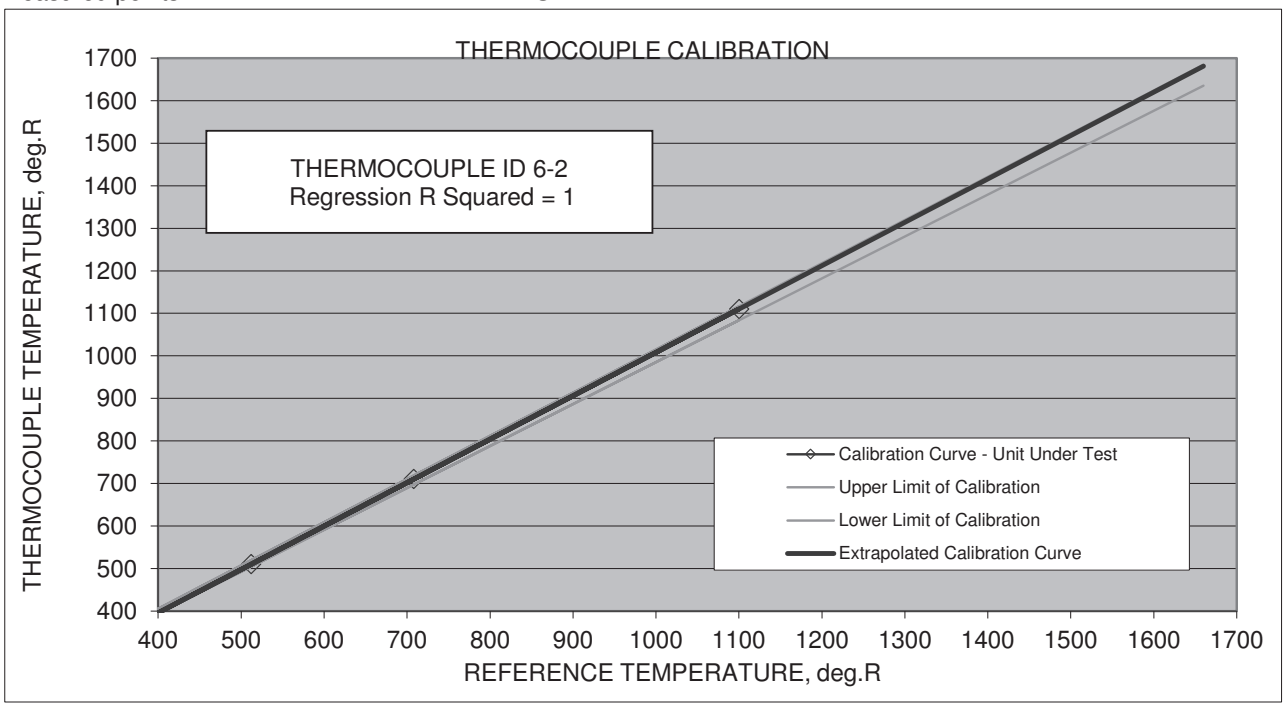
THERMOCOUPLE ID **6-2**

Cal Date: **12/27/2021** **Method 5 Probe**

CALIBRATION TECHNICIAN: **RMP**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyrometer ID	**D-15**		

Temperature Calibration Points	**50**	**250**	**650**
Reference Deg F (To)	**52**	**248**	**640**
Probe Temp (deg F)	50	250	650
Reference Temp (deg R) deg F + 460	512	708	1100
Probe Temp (deg R), deg F + 460	510	710	1110
Difference (degrees)	2	-2	-10
% Diff Abs. T	0.4%	0.3%	0.9%
Is difference less than 1.5% at all measured points?	YES		



Are extrapolated limits less than 1.5%? YES

FAHRENHEIT CALIBRATION RANGE
-20 1200

If not acceptable, describe corrective action:

Reviewed by: Tom Kulcinski

THERMOCOUPLE CALIBRATION

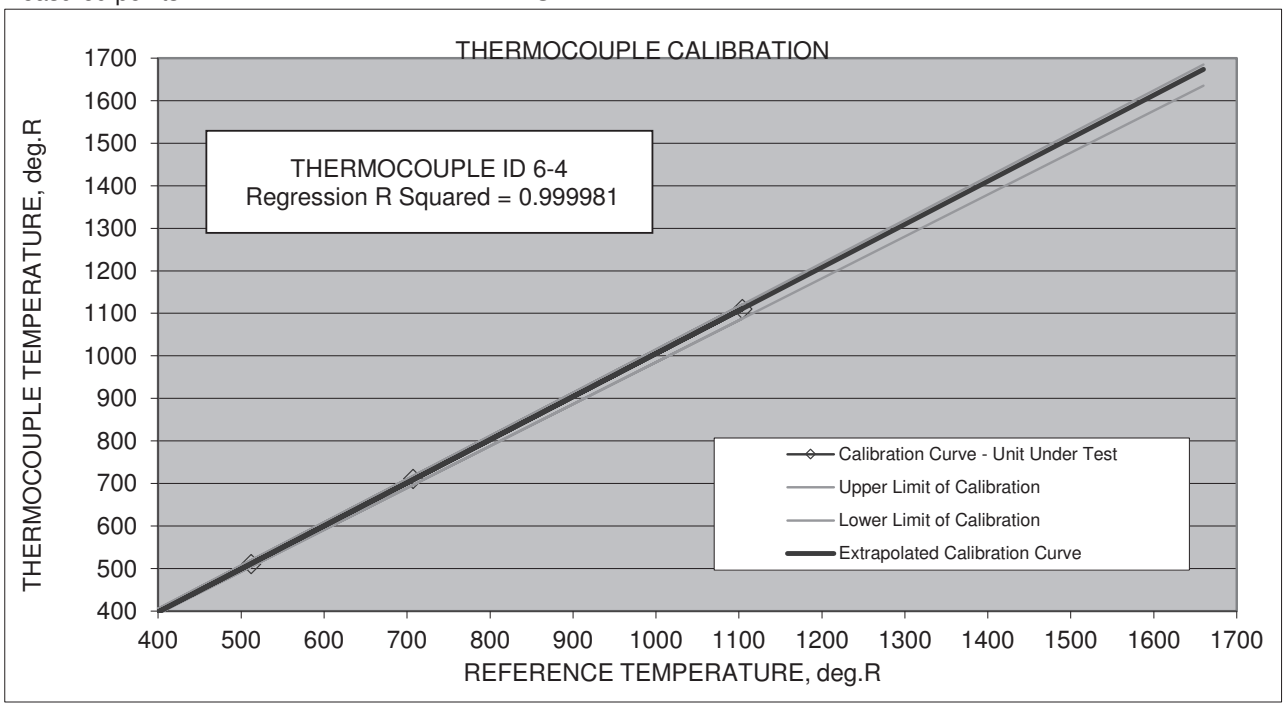
THERMOCOUPLE ID **6-4**

Cal Date: **12/27/2021** **Method 5 Probe**

CALIBRATION TECHNICIAN: **RMP**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	NBS Calibrations
Pyrometer ID	D-15		

Temperature Calibration Points	50	250	650
Reference Deg F (To)	**52**	**247**	**644**
Probe Temp (deg F)	50	250	650
Reference Temp (deg R) deg F + 460	512	707	1104
Probe Temp (deg R), deg F + 460	510	710	1110
Difference (degrees)	2	-3	-6
% Diff Abs. T	0.4%	0.4%	0.5%
Is difference less than 1.5% at all measured points?	YES		



Are extrapolated limits less than 1.5%? YES

FAHRENHEIT CALIBRATION RANGE
-20 1200

If not acceptable, describe corrective action:

Reviewed by: Tom Kulinski

THERMOCOUPLE CALIBRATION

Meter In/out **THERMOCOUPLE ID C-17**

Cal Date: **6/14/2022**

CALIBRATION TECHNICIAN: BSL

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyrometer ID	**D-15**		

Temperature Calibration Points	32	77	150
Reference Deg F (To)	32	77	150
Probe Temp (deg F)	33.8	77.1	148.4
Difference (degrees)	1.8	0.1	1.6
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: Ben Wiltse

THERMOCOUPLE CALIBRATION

Meter In/out **THERMOCOUPLE ID C-18**

Cal Date: **6/14/2022**

CALIBRATION TECHNICIAN: BSL

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyrometer ID	**D-15**		

Temperature Calibration Points	32	77	150
Reference Deg F (To)	32	77	150
Probe Temp (deg F)	33.6	77.1	148.9
Difference (degrees)	1.6	0.1	1.1
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: Ben Wiltse

THERMOCOUPLE CALIBRATION

M5 Filter Outlet TC **THERMOCOUPLE ID M5 FO 4**

Cal Date: **2/21/2022**

CALIBRATION TECHNICIAN: **BSL**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyrometer ID			

Temperature Calibration Points	**50**	**250**	**400**
Reference Deg F (To)	**50**	**250**	**400**
Probe Temp (deg F)	**49.6**	**249**	**397**
Difference (degrees) abs	0.4	1.0	3.0
Is All Difference less than 5.4 Degrees F?	YES		
Pass Calibration?			

Reviewed by:

THERMOCOUPLE CALIBRATION

M5 Filter Outlet TC **THERMOCOUPLE ID M5 FO 6**

Cal Date: **2/21/2022**

CALIBRATION TECHNICIAN: **BSL**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyrometer ID			

Temperature Calibration Points	**50**	**250**	**400**
Reference Deg F (To)	**50**	**250**	**400**
Probe Temp (deg F)	**51.2**	**249**	**398**
Difference (degrees) abs	1.2	1.0	2.0
Is All Difference less than 5.4 Degrees F?	YES		
Pass Calibration?			

Reviewed by:

THERMOCOUPLE CALIBRATION

M5 Filter Outlet TC **THERMOCOUPLE ID M5 FO 8**

Cal Date: **2/21/2022**

CALIBRATION TECHNICIAN: **BSL**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	NBS Calibrations
Pyrometer ID			

Temperature Calibration Points	50	250	400
Reference Deg F (To)	50	250	400
Probe Temp (deg F)	51.4	248	397
Difference (degrees) abs	1.4	2.0	3.0
Is All Difference less than 5.4 Degrees F?	YES		
Pass Calibration?			

Reviewed by:

THERMOCOUPLE CALIBRATION

M5 Filter Outlet TC **THERMOCOUPLE ID M5 FO 9**

Cal Date: **7/1/2022**

CALIBRATION TECHNICIAN: AJW4

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	NBS Calibrations
Pyrometer ID			

Temperature Calibration Points	50	250	400
Reference Deg F (To)	50	250	400
Probe Temp (deg F)	50.9	249	397
Difference (degrees) abs	0.9	1.0	3.0
Is All Difference less than 5.4 Degrees F?	YES		
Pass Calibration?			

Reviewed by: 

THERMOCOUPLE CALIBRATION

M5 Filter Outlet TC **THERMOCOUPLE ID M5 FO 10**

Cal Date: **7/1/2022**

CALIBRATION TECHNICIAN: **AJW4**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	NBS Calibrations
Pyrometer ID			

Temperature Calibration Points	50	250	400
Reference Deg F (To)	50	250	400
Probe Temp (deg F)	51.1	249	396
Difference (degrees) abs	1.1	1.0	4.0
Is All Difference less than 5.4 Degrees F?	YES		
Pass Calibration?			

Reviewed by: 

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-4**

Cal Date: **1/14/2022**

CALIBRATION TECHNICIAN: AJW4

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.4	70.7	150
Difference (degrees)	1.4	0.7	0.0
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by:

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-5**

Cal Date: **1/14/2022**

CALIBRATION TECHNICIAN: AJW4

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.2	70.6	151.6
Difference (degrees)	1.2	0.6	1.6
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by:

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-7**

Cal Date: **1/14/2022**

CALIBRATION TECHNICIAN: AJW4

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.2	70.7	151
Difference (degrees)	1.2	0.7	1.0
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by:

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-10**

Cal Date: **1/14/2022**

CALIBRATION TECHNICIAN: **AJW4**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.2	70.7	150.7
Difference (degrees)	1.2	0.7	0.7
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by:

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-11**

Cal Date: **7/1/2022**

CALIBRATION TECHNICIAN: **AJW4**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.3	70.2	149.9
Difference (degrees)	1.3	0.2	0.1
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: 

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-12**

Cal Date: **7/1/2022**

CALIBRATION TECHNICIAN: **AJW4**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	32.9	69.8	150.1
Difference (degrees)	0.9	0.2	0.1
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: 

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-13**

Cal Date: **7/1/2022**

CALIBRATION TECHNICIAN: **AJW4**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	32.1	69.7	150.3
Difference (degrees)	0.1	0.3	0.3
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: 

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-15**

Cal Date: **8/1/2022**

CALIBRATION TECHNICIAN: **BSL**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-24		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.1	70.1	150.6
Difference (degrees)	1.1	0.1	0.6
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: David Herbst

THERMOCOUPLE CALIBRATION

M23 Sorbent TC **THERMOCOUPLE ID M23-16**

Cal Date: **8/1/2022**

CALIBRATION TECHNICIAN: **BSL**

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	
Pyromter ID	D-24		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.4	70.1	149.8
Difference (degrees)	1.4	0.1	0.2
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: David Herbst

THERMOCOUPLE CALIBRATION

Impinger Outlet **THERMOCOUPLE ID TIO-64**

Cal Date: **1/10/2022**

CALIBRATION TECHNICIAN: AJW4

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	Report No. T21-1208-TN-3	12/8/2021	NBS Calibrations
Fluke 9144 s/n B5A077	Report No. T21-1208-TN-4	12/8/2021	NBS Calibrations
Pyromter ID	D-15		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.2	69.7	149.0
Difference (degrees)	1.2	0.3	1.0
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by:

THERMOCOUPLE CALIBRATION

Impinger Outlet **THERMOCOUPLE ID TIO-9121**

Cal Date: **4/12/2022**

CALIBRATION TECHNICIAN: DAH

REFERENCE STANDARDS	TRACEABILITY	DATE	LABORATORY
Hart Scientific 9103-A s/n A1B289	**Report No. T21-1208-TN-3**	**12/8/2021**	**NBS Calibrations**
Fluke 9144 s/n B5A077	**Report No. T21-1208-TN-4**	**12/8/2021**	**NBS Calibrations**
Pyromter ID	**D-15**		

Temperature Calibration Points	32	70	150
Reference Deg F (To)	32	70	150
Probe Temp (deg F)	33.0	71.0	150.0
Difference (degrees)	1.0	1.0	0.0
TC Meets Method 5 Specifications: (± 2.0 °F)	YES	YES	YES

Reviewed by: Ben LaFond

BARR

S-Type Pitot Tube Geometry Check

Pitot Tube Number: 5-3

Length: 5'

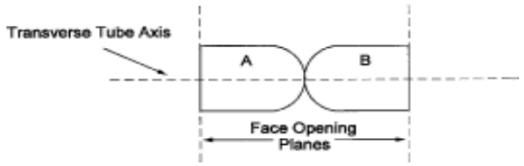
Function: M-5 Probe

Inspection Date: 12/29/021

Technician: RMP

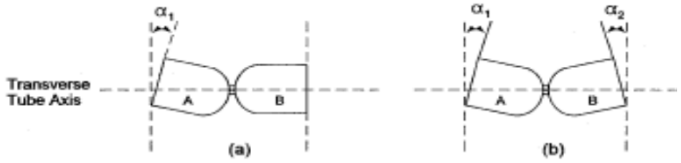
1. Are face openings perpendicular to tube axis?

☒ YES (go to 2) ☐ NO (go to 1a)



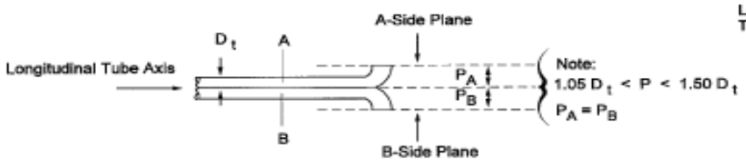
1a. If NO, is angle less than 10°?

☐ YES (go to 2) ☐ NO (discontinue use)



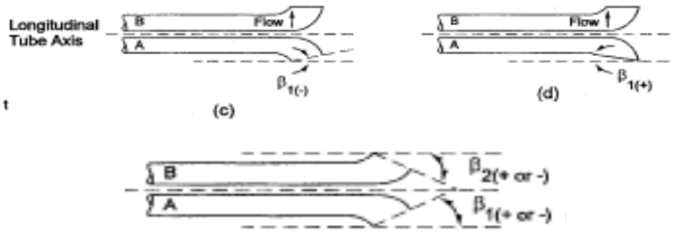
2. Are face openings parallel to longitudinal axis?

☒ YES (go to 3) ☐ NO (go to 2a)



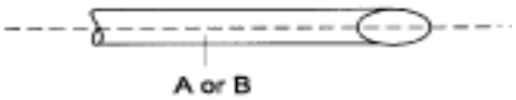
2a. If NO, is angle less than 5°?

☐ YES (go to 3) ☐ NO (discontinue use)



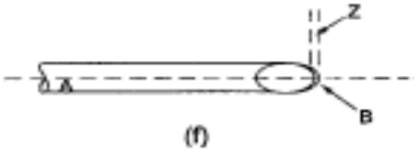
3. Are legs of equal length?

☒ YES (go to 4) ☐ NO (go to 3a)



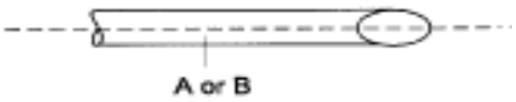
3a. If NO, is difference less than 1/8 inch?

☐ YES (go to 4) ☐ NO (discontinue use)



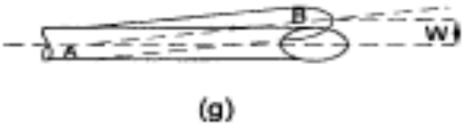
4. Are center-lines of legs coincident?

☒ YES (go to 5) ☐ NO (go to 4a)



4a. If NO, are center-lines of face openings less than 1/32 inch?

☐ YES (go to 5) ☐ NO (discontinue use)



5. Does this pitot tube pass all of the above criteria? ☒ YES ☐ NO

I certify that the pitot tube meets or exceeds all specifications and criteria listed in 40 CFR Part 60, Appendix A, EPA Method 2, and is assigned a pitot tube certification factor of 0.84.

Technician Signature: _____

Reviewed by: _____

BARR

S-Type Pitot Tube Geometry Check

Pitot Tube Number: 5-8

Length: 5'

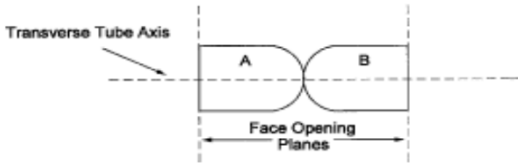
Function: M-5 Probe

Inspection Date: 1/4/2022

Technician: RMP

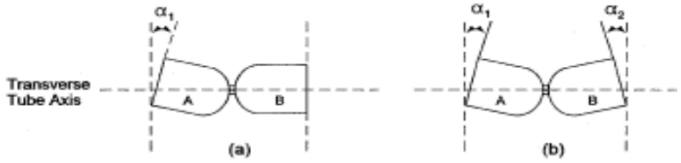
1. Are face openings perpendicular to tube axis?

☒ YES (go to 2) ☐ NO (go to 1a)



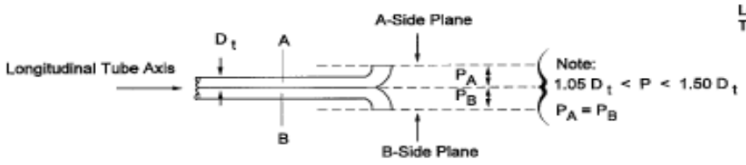
1a. If NO, is angle less than 10°?

☐ YES (go to 2) ☐ NO (discontinue use)



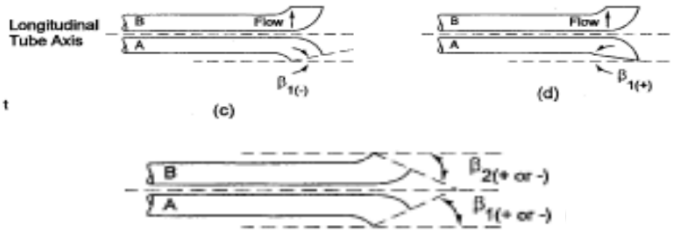
2. Are face openings parallel to longitudinal axis?

☒ YES (go to 3) ☐ NO (go to 2a)



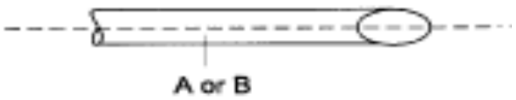
2a. If NO, is angle less than 5°?

☐ YES (go to 3) ☐ NO (discontinue use)



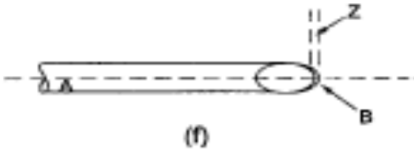
3. Are legs of equal length?

☒ YES (go to 4) ☐ NO (go to 3a)



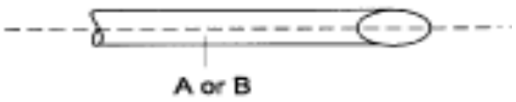
3a. If NO, is difference less than 1/8 inch?

☐ YES (go to 4) ☐ NO (discontinue use)



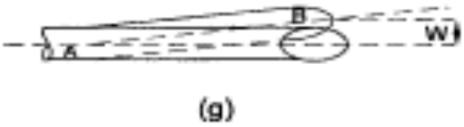
4. Are center-lines of legs coincident?

☒ YES (go to 5) ☐ NO (go to 4a)



4a. If NO, are center-lines of face openings less than 1/32 inch?

☐ YES (go to 5) ☐ NO (discontinue use)



5. Does this pitot tube pass all of the above criteria? ☒ YES ☐ NO

I certify that the pitot tube meets or exceeds all specifications and criteria listed in 40 CFR Part 60, Appendix A, EPA Method 2, and is assigned a pitot tube certification factor of 0.84.

Technician Signature: _____

Reviewed by: _____

BARR

S-Type Pitot Tube Geometry Check

Pitot Tube Number: 6-2

Length: 6'

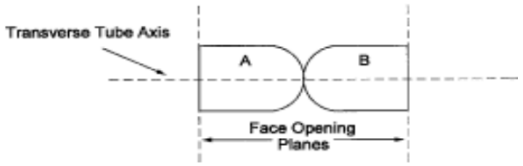
Function: M-5 Probe

Inspection Date: 1/4/2022

Technician: RMP

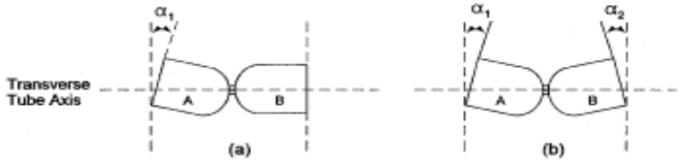
1. Are face openings perpendicular to tube axis?

☒ YES (go to 2) ☐ NO (go to 1a)



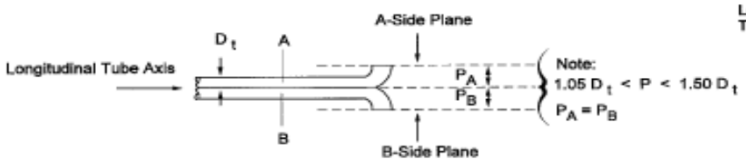
1a. If NO, is angle less than 10°?

☐ YES (go to 2) ☐ NO (discontinue use)



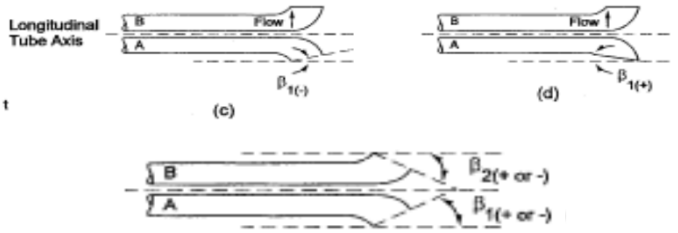
2. Are face openings parallel to longitudinal axis?

☒ YES (go to 3) ☐ NO (go to 2a)



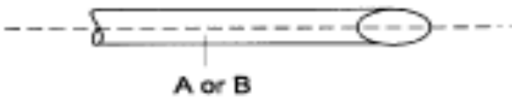
2a. If NO, is angle less than 5°?

☐ YES (go to 3) ☐ NO (discontinue use)



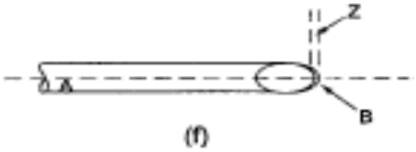
3. Are legs of equal length?

☒ YES (go to 4) ☐ NO (go to 3a)



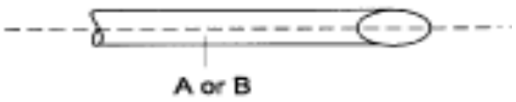
3a. If NO, is difference less than 1/8 inch?

☐ YES (go to 4) ☐ NO (discontinue use)



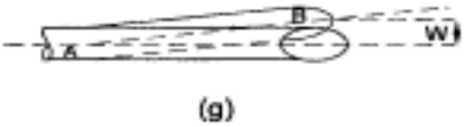
4. Are center-lines of legs coincident?

☒ YES (go to 5) ☐ NO (go to 4a)



4a. If NO, are center-lines of face openings less than 1/32 inch?

☐ YES (go to 5) ☐ NO (discontinue use)



5. Does this pitot tube pass all of the above criteria? ☒ YES ☐ NO

I certify that the pitot tube meets or exceeds all specifications and criteria listed in 40 CFR Part 60, Appendix A, EPA Method 2, and is assigned a pitot tube certification factor of 0.84.

Technician Signature: _____

Reviewed by: _____

BARR

S-Type Pitot Tube Geometry Check

Pitot Tube Number: 6-4

Length: 6'

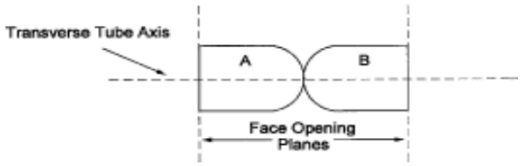
Function: M-5 Probe

Inspection Date: 12/29/2021

Technician: RMP

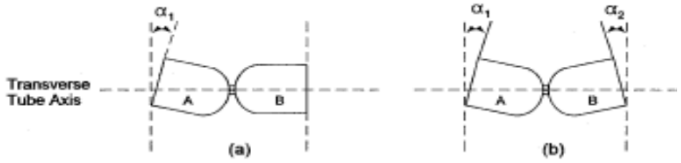
1. Are face openings perpendicular to tube axis?

☒ YES (go to 2) ☐ NO (go to 1a)



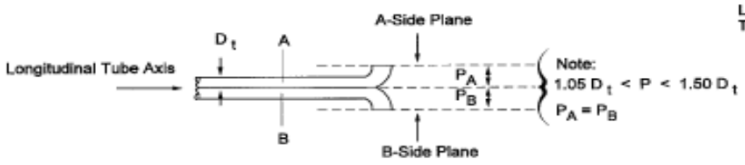
1a. If NO, is angle less than 10°?

☐ YES (go to 2) ☐ NO (discontinue use)



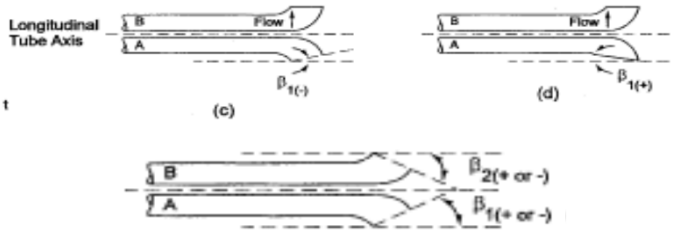
2. Are face openings parallel to longitudinal axis?

☒ YES (go to 3) ☐ NO (go to 2a)



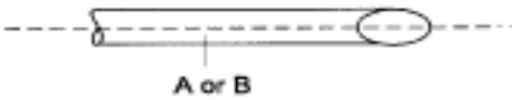
2a. If NO, is angle less than 5°?

☐ YES (go to 3) ☐ NO (discontinue use)



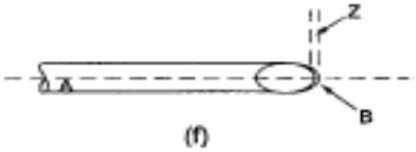
3. Are legs of equal length?

☐ YES (go to 4) ☒ NO (go to 3a)



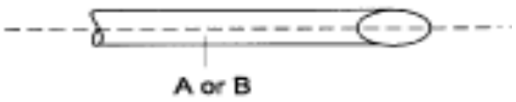
3a. If NO, is difference less than 1/8 inch?

☒ YES (go to 4) ☐ NO (discontinue use)



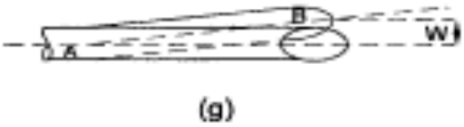
4. Are center-lines of legs coincident?

☒ YES (go to 5) ☐ NO (go to 4a)



4a. If NO, are center-lines of face openings less than 1/32 inch?

☐ YES (go to 5) ☐ NO (discontinue use)



5. Does this pitot tube pass all of the above criteria? ☒ YES ☐ NO

I certify that the pitot tube meets or exceeds all specifications and criteria listed in 40 CFR Part 60, Appendix A, EPA Method 2, and is assigned a pitot tube certification factor of 0.84.

Technician Signature: _____

Reviewed by: David Herbst

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
September 15, 2022

Nozzle Calibration
RTO Inlet (PCE01 Inlet)

Nozzle Calibration

Nozzle No. Glass 01

Used for Runs: 1 - 3

Point	Measurement, inches
1	0.195
2	0.195
3	0.195
Average	0.195

Test Date 8/24-25/2022

Date Measured: 8/23/2022

Technician: TMR

Saint Gobain
Performance Plastics
Merrimack, NH

Barr Engineering Co.
September 15, 2022

Nozzle Calibration
RTO Outlet (PCE01)

Nozzle Calibration

Nozzle No. Glass 02

Used for Runs: 1 - 3

Point	Measurement, inches
1	0.225
2	0.225
3	0.225
Average	0.225

Test Date 8/24-25/2022

Date Measured: 8/23/2022

Technician: TMR

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Inlet

Date 8/23, 24, 25
Operators QC

TEST RUN 1	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3003					T-3007		
	g	g	g	g	g	g	g	g
End	300.0	399.2	741.7	750.5	737.8	294.2	474.7	983.0
Start	296.3	357.1	743.9	752.0	737.6	295.1	472.3	958.1
CHANGE	3.7	42.1	-2.2	-1.5	0.2	-0.9	2.4	24.9
							MASS OF MOISTURE COLLECTED, g	68.7

TEST RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3010					T-3014		
	g	g	g	g	g	g	g	g
End	303.1	534.0	728.9	745.8	781.0	295.5	473.9	898.5
Start	296.2	493.4	731.2	746.2	780.4	297.3	469.2	877.1
CHANGE	6.9	40.6	-2.3	-0.4	0.6	-1.8	4.7	21.4
							MASS OF MOISTURE COLLECTED, g	69.7

TEST RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3017					T-3021		
	g	g	g	g	g	g	g	g
End	292.5	389.3	750.1	758.6	738.8	291.6	475.9	992.8
Start	287.7	364.1	745.2	758.0	738.4	289.5	473.7	965.7
CHANGE	4.8	24.2	4.9	0.6	0.4	2.1	2.2	27.1
							MASS OF MOISTURE COLLECTED, g	66.3

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-23-22	1 Kg	999.7
8-24-22	1 Kg	999.8
8-25-22	1 Kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Inlet

Date 8/25/22
Operators QC

TEST ____ RUN 1	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	Inlet-4 FRONT					Inlet-4 B/T		
	g	g	g	g	g	g	g	g
End	294.5	512.0	737.7	752.2	786.9	288.0	499.1	959.4
Start	289.0	473.8	740.0	752.2	786.5	291.6	496.5	936.2
CHANGE	5.5	38.2	-2.3	0.0	0.4	-3.6	2.6	23.2
T-2077						MASS OF MOISTURE COLLECTED, g		64.0

T-2081

TEST ____ RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
						MASS OF MOISTURE COLLECTED, g		

TEST ____ RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
						MASS OF MOISTURE COLLECTED, g		

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-25-22	1 kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Outlet

Date 8/23, 24, 25
Operators DC

TEST _____ RUN 1	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3024					T-3028		
	g	g	g	g	g	g	g	g
End	293.8	557.7	743.9	746.6	754.2	289.1	383.0	977.4
Start	286.6	487.4	748.5	748.1	753.9	290.2	379.4	947.8
CHANGE	7.2	70.3	-4.6	-1.5	0.3	-1.1	3.6	29.6
							MASS OF MOISTURE COLLECTED, g	103.8

TEST _____ RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3031					T-3035		
	g	g	g	g	g	g	g	g
End	301.0	569.9	738.1	735.4	784.3	295.7	351.8	952.3
Start	293.0	505.9	741.0	735.4	784.1	297.2	349.3	928.3
CHANGE	8.0	64.0	-2.9	0.0	0.2	-1.5	2.5	24.0
							MASS OF MOISTURE COLLECTED, g	94.3

TEST _____ RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3038					T-3042		
	g	g	g	g	g	g	g	g
End	318.6	550.3	747.5	747.1	753.9	310.8	385.4	965.6
Start	308.2	490.0	751.3	747.6	752.9	311.9	382.2	939.1
CHANGE	10.4	60.3	-3.8	-0.5	1.0	-1.1	3.2	26.5
							MASS OF MOISTURE COLLECTED, g	96.0

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-23-22	1 Kg	999.7
8-24-22	1 Kg	999.8
8-25-22	1 Kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St Gobain
Project No.
Source:
Sample Location: Outlet

Date 8-25-22
Operators DC

TEST RUN 1	RUN 4	Impinger /Trap Mass weights					knockout	DRY COLUMN
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP		
	Out-4 front					Out-4 BT		
	g	g	g	g	g	g	g	g
End	297.2	543.5	729.4	735.2	740.6	277.3	401.0	962.3
Start	290.8	490.4	732.7	735.7	739.5	278.6	397.5	944.3
CHANGE	6.4	53.1	-3.3	-0.5	1.1	-1.3	3.5	23.0
	T-2084					MASS OF MOISTURE COLLECTED, g	T-2088	82.0

TEST RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
						MASS OF MOISTURE COLLECTED, g		

TEST RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
						MASS OF MOISTURE COLLECTED, g		

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-25-22	1 kg	999.7

BARR

OTM-45
IMPINGER/TRAP RECOVERY

Client Name: St. Gobain
Project No.
Source:
Sample Location: Blank Trains

Date 8/23, 24, 25
Operators DC

Proof TEST ____ RUN 1 Blank	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3052					T-3056		
	g	g	g	g	g	g	g	g
End	294,0	487,4	742,9	742,2	752,8		379,4	947,8
Start	294,0	487,4	742,8	742,2	752,8	298,1	379,4	947,8
CHANGE	0	0	,1	0	0	298,1	~~379,4~~	0,0
MASS OF MOISTURE COLLECTED, g								

FBT TEST ____ RUN 2	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	T-3045					T-3049		
	g	g	g	g	g	g	g	g
End	297,2	508,2	745,4	738,3	789,6	296,8	352,2	948,3
Start	297,0	507,7	744,5	737,9	789,2	295,5	352,1	947,2
CHANGE								
MASS OF MOISTURE COLLECTED, g								

TEST ____ RUN 3	Impinger /Trap Mass weights							
	XAD Trap Primary	knockout	Impinger 1	Impinger 2	Impinger 3	XAD Trap BKUP	knockout	DRY COLUMN
	g	g	g	g	g	g	g	g
End								
Start								
CHANGE								
MASS OF MOISTURE COLLECTED, g								

Field Balance Calibration

Date	Balance Weight, g	Balance Response, g
8-23-22	1 Kg	999.7
8-24-22	1 Kg	999.8
8-25-22	1 Kg	999.7

Field Barometer Calibration

Calibration to PRINCO Mercury Barometer

Barr Engineering Co. Edina Field Office

			Reference, PRINCO	Field Barometer				
Date	Technician	Observation Time	Station Pressure	ID	Barometric Pressure	Condition	Remarks	Offset tolerance +/- 0.10
8/15/22	TMR	1500	29.22	BA-04	29.20	In Calibration	As Found	-0.02
9/2/22	TMR	1230	29.03	BA-04	29.05	In Calibration	As Found	0.02

Appendix H

Cylinder Gas Certifications

Assay Laboratory: Red Ball TGS
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150

CERTIFICATE OF ANALYSIS
(Zero Ambient Nitrogen)

Cylinder Number:	95505028	**Certification Date:**	05/02/2022
Product ID Number:	121026	**Expiration Date:**	04/30/2030
Cylinder Pressure:	1900 PSIG	**MFG Facility:**	RBTGS-Shreveport-LA
COA #	95505028.20220502-0	**Lot Number:**	95505028.20220502
Customer PO. NO.:		**Tracking Number:**	B2135028
Customer:		**Previous Certification Dates:**	

This mixture is for laboratory use only, not for drug, household or other use.
This mixture is certified in Mole % to be within ±2% of the actual number reported with a confidence of 95%.
This mixture was manufactured by scale; weights traceable to N.I.S.T. Certificate #822/266926-02.
Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Composing Material: Zero Ambient Nitrogen, Cert., Sz152

Component	Specification	Concentration
Nitrogen	Balance	Balance
Oxygen as Impurity	<1.0 PPM	<1.0 PPM
Carbon Dioxide as Impurity	<0.5 PPM	<0.5 PPM
Carbon Monoxide as Impurity	<0.5 PPM	<0.5 PPM
Total Oxides of Nitrogen as Impurity	<0.1 PPM	<0.1 PPM
Sulfur Dioxide as Impurity	<0.1 PPM	<0.1 PPM
Total Hydrocarbons as Impurity	<0.1 PPM	<0.1 PPM

Red Ball Technical Gas Service
PGVP Vendor ID # G12022
Information and Ordering
800-551-8150
Fax (318-425-6309)

Accreditation #62754

Christian Brown
Analytical Chemist

RED BALL TECHNICAL GAS SERVICES

PJLA Calibration and Testing
Accreditation #62754

Red Ball Technical Gas Service
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150
PGVP Vendor ID # G12018

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	EB0098604	**Certification Date:**	10/23/2018
Product ID Number:	126786	**Expiration Date:**	10/21/2026
Cylinder Pressure:	1900 PSIG	**MFG Facility:**	- Shreveport - LA
COA #	EB0098604.20181015-0	**Lot Number:**	EB0098604.20181015
Customer PO. NO.:		**Tracking Number:**	B1945352
Customer:		**Previous Certification Dates:**	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Carbon Dioxide	**9.46 %**	±0.09 %	NDIR	10/23/2018
Oxygen	**9.50 %**	±0.06 %	MPA	10/23/2018
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
EB0032246	EB0032246.20170209	08/05/2025	GMIS	N2	O2	24 %	0.502	071001
EB0041481	EB0041481.2017	05/22/2025	GMIS	N2	O2	9.329 %	0.235	2658a
EB0050249	EB0050249.20180323	07/15/2026	GMIS	N2	CO2	15 %	0.777	101001
EB0087453	EB0087453.20170424	11/25/2025	GMIS	N2	CO2	9.51 %	0.724	C1309410.01

Analytical Instrumentation

Component	Principle	Make	Model	Serial	MPC Date
O2	MPA	Thermo	410i	1162980025	10/05/2018
CO2	NDIR	Thermo	410i	1162980025	10/08/2018

SMART-CERT

This is to certify the gases referenced have been calibrated/tested, and verified to meet the defined specifications. This calibration/test was performed using Gases or Scales that are traceable through National Institute of Standards and Technology (NIST) to the International System of Units (SI). The basis of compliance stated is a comparison of the measurement parameters to the specified or required calibration/testing process. The expanded uncertainties use a coverage factor of k=2 to approximate the 95% confidence level of the measurement, unless otherwise noted. This calibration certificate applies only to the item described and shall not be reproduced other than in full, without written approval from Red Ball Technical Gas Services. If not included, the uncertainty of calibrations are available upon request and were taken into account when determining pass or fail.

Amisha Jewitt
Analytical Chemist
Assay Laboratory: Red Ball TGS
Version 02-J, Revised on 2018-09-17

Red Ball Technical Gas Service
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150
PGVP Vendor ID # G12020

PJLA Calibration and Testing
Accreditation #62754

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	EB0098395	**Certification Date:**	07/20/2020
Product ID Number:	127199	**Expiration Date:**	07/18/2028
Cylinder Pressure:	1900 PSIG	**MFG Facility:**	- Shreveport - LA
COA #	EB0098395.20200716-0	**Lot Number:**	EB0098395.20200716
Customer PO. NO.:		**Tracking Number:**	B1944980
Customer:		**Previous Certification Dates:**	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Carbon Dioxide	**4.93 %**	±0.019 %	NDIR	07/20/2020
Oxygen	**22.5 %**	±0.11 %	MPA	07/20/2020
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
EB0006119	EB0006119.20190327	06/18/2027	GMIS	N2	CO2	9.51 %	0.191	C1579010.02
EB0041474	EB0041474.20180504	07/21/2026	GMIS	N2	O2	24 %	0.497	071001
EB0070735	EB0070735.20170424	04/30/2027	GMIS	N2	CO2	5.02 %	0.751	C1579010.02
EB0089906	EB0089906.20190405	12/03/2027	GMIS	N2	O2	20 %	0.498	2659a

Analytical Instrumentation

Component	Principle	Make	Model	Serial	MPC Date
CO2	NDIR	Thermo	410i	1162980025	07/17/2020
O2	MPA	Thermo	410i	1162980025	06/24/2020

SMART-CERT

This is to certify the gases referenced have been calibrated/tested, and verified to meet the defined specifications. This calibration/test was performed using Gases or Scales that are traceable through National Institute of Standards and Technology (NIST) to the International System of Units (SI). The basis of compliance stated is a comparison of the measurement parameters to the specified or required calibration/testing process. The expanded uncertainties use a coverage factor of k=2 to approximate the 95% confidence level of the measurement, unless otherwise noted. This calibration certificate applies only to the item described and shall not be reproduced other than in full, without written approval from Red Ball Technical Gas Services. If not included, the uncertainty of calibrations are available upon request and were taken into account when determining pass or fail.

Jasmine Godfrey
Analytical Chemist
Assay Laboratory: Red Ball TGS
Version 02-J, Revised on 2018-09-17

Appendix I

Control Equipment Operating Data

Saint - Gobain
Performance Plastics
Merrimack, NH

Thermal Oxidizer - Run 1

August 24, 2022

Time	Average Temperature, deg F	Average Inlet Airflow Rate, SCFM
08/24/2022 08:50:00	1840.1	56552
08/24/2022 09:05:00	1840.3	56354
08/24/2022 09:20:00	1839.1	55466
08/24/2022 09:35:00	1840	56467
08/24/2022 09:50:00	1837.7	55227
08/24/2022 10:05:00	1837.9	55458
08/24/2022 10:20:00	1839.8	54850
08/24/2022 10:35:00	1838.4	54966
08/24/2022 10:50:00	1837.8	55485
08/24/2022 11:05:00	1837.7	56222
08/24/2022 11:20:00	1838.5	54751
08/24/2022 11:35:00	1838.7	55440
08/24/2022 11:50:00	1838.1	54949
08/24/2022 12:05:00	1837.2	54100
Test Average	**1838.7**	**55449**

Saint - Gobain
Performance Plastics
Merrimack, NH

Thermal Oxidizer - Run 2
August 24, 2022

Time	Average Temperature, deg F	Average Inlet Airflow Rate, SCFM
08/24/2022 13:20:00	1839.3	54300
08/24/2022 13:35:00	1838.9	54838
08/24/2022 13:50:00	1838.6	55778
08/24/2022 14:05:00	1839.5	55133
08/24/2022 14:20:00	1839.1	56268
08/24/2022 14:35:00	1838.7	54669
08/24/2022 14:50:00	1838.6	55430
08/24/2022 15:05:00	1839.3	55410
08/24/2022 15:20:00	1838.8	55526
08/24/2022 15:35:00	1838.8	55378
08/24/2022 15:50:00	1838.7	56342
08/24/2022 16:05:00	1839	55828
08/24/2022 16:20:00	1838.7	56402
08/24/2022 16:35:00	1838.8	52529
Test Average	**1838.9**	**55274**

Saint - Gobain
Performance Plastics
Merrimack, NH

Thermal Oxidizer - Run 3

August 25, 2022

Time	Average Temperature, deg F	Average Inlet Airflow Rate, SCFM
08/25/2022 08:05:00	1839.3	55280
08/25/2022 08:20:00	1838.9	55558
08/25/2022 08:35:00	1838.6	56337
08/25/2022 08:50:00	1839.5	56184
08/25/2022 09:05:00	1839.1	55641
08/25/2022 09:20:00	1838.7	55782
08/25/2022 09:35:00	1838.6	55896
08/25/2022 09:50:00	1839.3	56233
08/25/2022 10:05:00	1838.8	55305
08/25/2022 10:20:00	1838.8	56565
08/25/2022 10:35:00	1838.7	55774
08/25/2022 10:50:00	1839	55840
08/25/2022 11:05:00	1838.7	54516
08/25/2022 11:20:00	1838.8	54310
Test Average	**1838.9**	**55659**

Saint - Gobain
Performance Plastics
Merrimack, NH

Thermal Oxidizer - Run 4

August 25, 2022

Time	Average Temperature, deg F	Average Inlet Airflow Rate, SCFM
08/25/2022 12:35:00	1838.8	56520
08/25/2022 12:50:00	1839.1	56885
08/25/2022 13:05:00	1838.8	56641
08/25/2022 13:20:00	1839.3	56891
08/25/2022 13:35:00	1839.4	56545
08/25/2022 13:50:00	1838.1	56927
08/25/2022 14:05:00	1837.1	57051
08/25/2022 14:20:00	1837.4	56759
08/25/2022 14:35:00	1838.1	57957
08/25/2022 14:50:00	1838.4	56637
08/25/2022 15:05:00	1838.1	56436
08/25/2022 15:20:00	1837.5	56228
08/25/2022 15:35:00	1838.1	56620
08/25/2022 15:50:00	1837.3	57414
Test Average	**1838.3**	**56822**

Rosemount Service
8200 Market Blvd.
Chanhassen, MN 55317
T: 800-654-7768
F: 952-906-8844

August 15, 2022

CALIBRATION DATA SHEET

Consistent with ISO 10474 2.1 or EN 10204 2.1

Contact Information

Purchase Order:	0	**Service Request:**	2009766
Customer Name:	Saint Gobain	**Quote#:**	9743164-IVS
Location/Project:	701 Daniel Webster HWY	**Sales Representative:**	0
Address 1:	Merrimack NH	**Phone:**	0
Address 2:	0	**Email:**	
Customer Contact:	Brian Mudgett	**Service Representative:**	William J Young
Phone:	603-420-1265	**Phone:**	518-813-8839
Email:	brian.w.mudgett@saint-gobain.com	**Email:**	William.Young@Emerson.com

Device Information

Device Type:	Multivariable
Device Tag:	AF-1
Model:	3051SFA
Serial #:	16574

Calibration Range Data

Static Pressure Range:	300	To	600	InH2O
Differential Pressure Range:	0	To	3	InH2O
Temperature Range:	0	To	250	F
Analog Output Range:	4	To	20	mA

Test Equipment Used

Asset #	Description	Calibration Due
42320003	FLUKE 754 Documenting Process Calibrator	8-Aug-23
42236021	FLUKE 750PD3 (5 PSI)	8-Aug-23
4229188	FLUKE 750PD5 (-15 to + 30 PSI)	8-Aug-23

As Found Calibration Data

	Static Pressure				Differential Pressure			
Target % Of Span	Specified Range in InH2O	Applied InH2O	Indicated Static Pressure in InH2O	#N/A	Specified Range InH2O	Applied InH2O	Indicated Differential Pressure InH2O	#N/A
0.00	300.00	300.000	300.300	#N/A	0.00	0.000	0.010	Pass
50.00	450.00	450.000	450.250	#N/A	1.50	1.500	1.510	#N/A
100.00	600.00	600.000	600.150	#N/A	3.00	3.000	3.010	#N/A
	Temperature				**Analog Out**			
Target % Of Span	Specified Range Deg F	Applied Deg F	Indicated Digital Temp Deg F	Pass Fail +/- 0.67 Deg F	Specified Range mA	Simulated mA	Indicated Output mA	#N/A
0.00	0.00	0.00	0.110	Pass	4.0000	4.0000	4.0010	#N/A
50.00	125.00	125.00	124.930	Pass	12.0000	12.0000	12.0000	#N/A
100.00	250.00	250.00	249.940	Pass	20.0000	20.0000	20.0010	#N/A

As Left Calibration Data

	Static Pressure				Differential Pressure			
Target % Of Span	Specified Range in InH2O	Applied InH2O	Indicated Static Pressure in InH2O	#N/A	Specified Range InH2O	Applied InH2O	Indicated Differential Pressure InH2O	#N/A
0.00	300.00	300.000	300.300	#N/A	0.00	0.000	0.010	Pass
50.00	450.00	450.000	450.250	#N/A	1.50	1.500	1.510	#N/A
100.00	600.00	600.000	600.150	#N/A	3.00	3.000	3.010	#N/A
	Temperature				**Analog Out**			
Target % Of Span	Specified Range Deg F	Applied Deg F	Indicated Digital Temp Deg F	Pass Fail +/- 0.67 Deg F	Specified Range mA	Simulated mA	Indicated Output mA	#N/A
0.00	0.00	0.00	0.110	Pass	4.0000	4.0000	4.0010	#N/A
50.00	125.00	125.00	124.930	Pass	12.0000	12.0000	12.0000	#N/A
100.00	250.00	250.00	249.940	Pass	20.0000	20.0000	20.0010	#N/A

Certification

This is to validate that the listed product performs within the acceptable performance variation of the test equipment. Measuring and test equipment used in the inspection and validation of the listed product are traceable to the National Institute of Standards and Technology.

William J Young

William J Young
Rosemount Service Representative
PH: 518-813-8839

August 15, 2022
Date

Appendix J

Stack Test Plan

STACK TEST PLAN

Saint-Gobain Performance Plastics
Merrimack, New Hampshire

Test Plan Created: July 22, 2022
Revision Date: August 11, 2022
Scheduled Test Dates: August 24-25, 2022

PART 1: GENERAL INFORMATION

Emissions Facility Location	Facility Contact	Testing Company Contact
Saint-Gobain Performance Plastics Corporation 701 Daniel Webster Highway Merrimack, NH 03054	David Calentine Plant Manager Office: (603) 420-1267 Mobile: (253) 286-8390 Email: David.Calentine@saint-gobain.com William Kempskie Site EHS Manager Office: (603) 420-1387 Mobile: (508) 335-8665 Email: William.Kempskie@saint-gobain.com	Tim Russell Vice President Sr. Chemical Engineer Barr Engineering Co. 4300 Market Pointe Drive Edina, MN 55435 Office: (952) 832-2630 Mobile: (612) 741-6889 Email: Trussell@barr.com

FACILITY AIR EMISSION ID: 3301100165

PERMIT NUMBER: Temporary Permit No. 0256

REASON EMISSIONS UNITS ARE TO BE TESTED:

Saint-Gobain Performance Plastics (SGPP) has installed a regenerative thermal oxidizer (RTO) to control Per- and Polyfluorinated Substances (PFAS) emissions from multiple processes. The RTO started up on July 14, 2021. The initial stack test was conducted on September 7-8, 2021. Testing will be performed as required in the Temporary Permit # TP-0256 issued February 11, 2020 and Consent Decree pursuant to Docket No. 216-2021-CV-00077. The air permit and Consent Decree require the following annual testing to be completed no more than 13 months after the previous test:

1. PFAS emissions at the RTO exhaust.
2. Capture efficiency for PFC emissions from the controlled devices into the main header to the RTO
3. PFAS mass rates at the RTO inlet for destruction removal efficiency (DRE) determinations.
4. Dip pan samples of formulations will be taken during each stack test run from each line in operation and analyzed for a targeted list of PFAS compounds.

5. Monitoring the hourly block average of the active combustion chamber temperatures from all seven of the thermocouples of the RTO per the facility Air Pollution Control Equipment monitoring plan.

	Pollutants	Analytical Company & Contact
Analytical Laboratory and contact information:	PFAS OTM 45 Formulation samples for 537.1 analysis	Eurofins TestAmerica Dr. William Anderson 5815 Middlebrook Pike Knoxville, TN 37921 (865) 291-3080 office (865) 206-9004 mobile

Stack drawings showing stack dimensions and test port orientation and locations relative to airflow disturbances are provided in the attached Figures. The sample locations necessitate a 24-point traverse of the inlet and stack test locations for isokinetic method execution.

PART 2: TESTING REQUIREMENTS

The following table identifies pollutants to be determined, applicable emissions limit and units, and associated regulation for the emission unit and stack vent.

Source	Limitation Basis of Pollutant Tested	Pollutant Tested/Permit Limit	Specific Methods/Procedures Required Citation
Regenerative Thermal Oxidizer Exhaust (PCE01)	**PFAS**- RSA 125-C:10-e	• PFOA less than or equal to 0.45 lbs/yr • PFOS less than or equal to 0.57 lbs/yr.	EPA Method 1-4 EPA OTM 45 Three (3) test runs. 3 DSCM (105.9) dscf sample volume. Estimated 3 hour run time.

Source	Limitation Basis of Pollutant Tested	Pollutant Tested/Permit Limit	Specific Methods/Procedures Required Citation
Regenerative Thermal Oxidizer Inlet	**PFAS**- RSA 125-C:10-e. for DRE determination	none	EPA Method 1-4 EPA OTM-45 three (3) test runs. 3 DSCM (105.9) dscf sample volume. Estimated 3 hour run time.

Source	Limitation Basis of Pollutant Tested	Pollutant Tested/Permit Limit	Specific Methods/Procedures Required Citation
Process Operations Capture Efficiency (CE)Testing Potential units requiring CE EU01-EU08, EU12(1), EU13, EU15, EU16 and EU22	**None**	**None**	EPA Method 204 for determination of PFAS capture. Pressure differential and verification of inward flow at representative Natural Draft Openings (NDO) measured over one, 1-hour period in no less than 10-minute increments.

(1) EU12 (MG Tower) has run intermittently year-to-date in 2022 for a total of approximately 30 hours and is unlikely to be running during this test

PART 3: OPERATING CONDITIONS

The table below provides process equipment and control equipment description for units to be tested including parameters to be monitored during the test.

Item	Units/Specifications
Process Equipment Description for Units to be Tested	EU01-EU08, EU12, EU13, EU15, EU16 and EU22-EU26 The tower processes are fabric coating applications involving a preparation of aqueous fluoropolymer dispersion coating, coating application to a glass cloth web in a dip pan, and finally heat treating in three stages—dry zone, bake zone and fuse zone. The products being manufactured require multiple coating and heat-treating applications. The tests are usually conducted during the first coating pass, as the first pass is the heaviest application of coating. The coating formulation, consisting of aqueous fluoropolymer dispersion, surfactants and other compounds, will be sampled at the drip pan during the tests. Hot gases captured from the three stages of heating are routed to the RTO. Cast film production involves a multi-coat process where formulated dispersion is coated in a dip pan on a web at room temperature, and then passed through a vertical oven or tower, similar to the glass cloth coating process, where the water is removed. The web path through the tower is typically vertical. Multiple dipping and drying/baking steps may be used to produce a multi- layer film that is peeled from the web, resulting in the final product. The film is sintered like other fluoropolymer products to achieve final characteristics. Once the final film layer is applied, the film is wound onto a roller. During the performance test of the RTO, SGPP intends to run processes at speeds, widths, and number of coating dips consistent with data provided as part of the mass balance calculations used in the consent decree, which are representative operating conditions in accordance with Env-A 802.10. The site will also run a mix of regularly used coating towers, including wide towers and some auxiliary equipment that account for >90% of the 2021-22 total tower hours during the test. The intention is to run as many towers simultaneously as possible by coordinating the start-up and stopping of these processes. The facility uses a wide range of formulations, but has selected a mix of fluoropolymers like PTFE, FEP, PFA and fluorosurfactants that could account for

	highest expected potential emissions. A detailed breakdown of operational conditions and fluoromaterials to be used during the performance test will be provided under separate cover (Attachment 12) as Confidential Business Information ("CBI"). SGPP will also provide a more detailed tower and product run schedule ~1 week prior to the performance test to NHDES as CBI. The anticipated preliminary plan for (daylight or day shift) operations during these tests are: 1. Running all the regularly used towers on site • MA, MR, MC, MD, QX, MQ, MS, MTM 2. Running a mix of some wide towers • MP, MG (has run intermittently year-to-date), MB 3. Some infrequently used towers will not likely be running and are small sources • R&D, 20" SBC, 20" Coater 4. Using formulations during the test of regularly used fluorinated dispersions and surfactants
Item	**Units/Specifications**
Process Equipment Operating Parameter Monitoring During Performance Test	Fluoropolymer dispersion and surfactant identification, dispersion and surfactant application rate, web width, line speed, coating pass number and oven zone temperature information will be recorded during the test.
Process Monitoring Frequency	Continuously or at least every 15 minutes during test run.
Personnel Assigned to Record data	Saint-Gobain staff
Control Equipment Description	Thermgen Regenerative Thermal Oxidizer. Process emissions Routed to RTO (PCE01). Three chambered RTO operating at a minimum temperature of 1832 °F and having a residence time of 1 second per chamber. Inlet airflow rate maintained below 70,000 scfm.
Control Equipment Operating Parameter Monitoring During Performance Test	Operating temperature Inlet airflow rate
Control equipment monitoring frequency	Continuously or at least every 15 minutes during test run
Personnel Assigned to Record data	Saint-Gobain staff will provide data from HMI
Process Samples	Formulation samples taken from each operating dip pan
Sampling Frequency	1 sample per OTM-45 performance test run plus field blank
Personnel Assigned to Collect Samples	Barr staff

PART 4: TEST METHODS

All tests will be performed using the following USEPA reference test methods.

Test Methods	Descriptions
Method 1	Sample and Velocity Traverses for Stationary Sources. Once per location. Cyclonic flow determinations will be made at both test locations.
Method 2	EPA Method 2 for stack gas velocity and volumetric flow rate. One determination per test OTM-45 test run.
Method 3A	EPA Method 3A instrumental procedure for determination of oxygen and carbon dioxide at the inlet and outlet locations. One determination per OTM-45 test run. EPA Protocol 1 calibration gas mixtures for use with oxygen/carbon dioxide gas analyzer(s) in accordance with EPA Method 3A. CEMS grade nitrogen will be used for both oxygen and carbon dioxide instrument zero. EPA Protocol 1 gases will be used for span and midpoint for both oxygen and carbon dioxide analyzers. EPA Method 3A pre and post system bias and drift determinations will be performed at the prior to the beginning and at the end of each OTM-45 test run. A schematic of the gas analyzer system is provided as Attachment 1.
Method 4	EPA Method 4 for determination of moisture content in stack gas will be performed. Concurrent with OTM 45.
OTM 45	Other Test Method 45 (OTM-45) Measurement of Selected Per-and Polyfluorinated Alkyl Substances from Stationary Sources. PFAS testing will consist of six test runs (three at the inlet and three at the outlet of the RTO) obtaining 3 DSCM (105.9 dscf) minimum sample volume. Inlet and outlet test runs will be performed simultaneously for the same test run duration. Post-test meter calibrations will be done using the alternative procedure listed in EPA Method 5. A schematic of the OTM-45 sample train is provided in the Attachment 2. The OTM-45 target compound list is provided as Attachment 3. OTM-45 was developed by EPA's Emission Measurements Center to promote consistency with what they believe is the current best practices to sample and analyze PFAS targets from stationary sources. OTM-45 is a performance-based method applicable to the collection and quantitative analysis of specific semi volatile (Boiling point > 100°C) and particulate-bound per-and polyfluorinated alkyl substances (PFAS) in air emissions from stationary sources. Exceptions/deviations to OTM- 45: 1. The method specifies use of a PTFE ferrule to achieve the seal at the nozzle end of the probe. Barr requests the use of a graphite ferrule to achieve the seal between the probe union and probe liner. The method does not directly specify the composition of the probe/nozzle union. As such, Barr is planning to use a stainless-steel union and will use a PTFE ferrule to seal the glass nozzle to the union as an unavoidable necessity. Proofing of this modification will be made on-site with the train proof blank of the sample train at the RTO outlet.

Test Methods	Descriptions
	Sample train preparation will be performed as described in OTM 45 Section 8.1.1. at Barr's field offices/laboratory. 8.1.1.1.1 Soak all glassware in hot soapy water (Alconox® or equivalent) at 50 °C or higher. 8.1.1.1.2 Rinse three times with hot tap water. 8.1.1.1.3 Rinse three times with deionized/distilled water. Note Glassware washing steps take place in industrial laboratory grade dishwasher 8.1.1.1.4 Rinse three times each with Acetone, dichloromethane, and methanol. 8.1.1.1.5 Bake glassware at 300 °C (572 °F) for a minimum of 2 hours Note: Glass probe liners are not baked. Note: due to inlet duct orientation a flexible heated transfer line is necessary to connect the detached filter oven to the impinger/condenser system, as allowed by OTM-45. This line is cleaned by soaking and rinsing with noted above soapy water, DI water, acetone, methylene chloride and methanol. Sample recovery includes a rinse with the ammonia hydroxide/methanol reagent followed by acetone rinse to remove any residual reagent. Sample train preparation as specified in OTM-45 Section 8.1.3 through 8.1.4. 8.1.3.1 During field preparation and assembly of the sampling train, keep all train openings sealed where contamination can enter until just prior to assembly or until sampling is about to begin. To protect the adsorbent module from radiant heat and sunlight, you must wrap the module with aluminum foil or other suitable material capable of shielding the module from light. The XAD–2 adsorbent resin temperature must never exceed 50 °C (122 °F) because thermal decomposition will occur. Clean and prepare a complete set of sampling train components that will contact the sample for each sampling run. Include at least one complete field test proof blank and at least one field test field blank, as described in Sections 9.1.3 and 9.1.4 of this method. 8.1.3.2 Place approximately 100 mL of water in each of the second, third and fourth impingers but leave the first (condensate trap) impinger empty. Transfer approximately 200 g or more of silica gel from its container to the fifth impinger. Weigh each impinger and the adsorbent module, including the fitting caps, to the nearest 0.5 g using the field balance and record the weight for moisture determination. Remove the aluminum foil from the adsorbent module before weighing. Keep the module out of direct sunlight and rewrap the module with foil immediately after recording the module weight. 8.1.3.3 Using tweezers or clean disposable surgical gloves, place a filter in the filter holder. Be sure that the filter is properly centered, and the gasket properly placed, to prevent the sample gas stream from circumventing the filter. Check the filter for tears after completing the assembly. 8.1.3.4 Prepare the inside of the sampling probe and nozzle by brushing each component while rinsing three times each with methanol. Install the selected nozzle. You may use connecting systems described in Section 6.1.2 of this method. Mark the probe with heat resistant tape or by some other method to denote the proper distance into the stack or duct for each sampling point. Assemble the train as shown in Figure 45–1 of this method. Orient the adsorbent module vertically so condensed moisture drains into the first impinger. 8.1.3.5 Turn on the recirculation pump to the adsorbent module and condenser coil and begin monitoring the temperature of the gas entering the primary adsorbent module. Ensure proper temperature of the gas entering the adsorbent module before proceeding. 8.1.4 Leak-Check Procedure. Same as Section 8.4 of Method 5 of appendix A-3 to 40 CFR part 60 Sample train operation will be performed as stated in OTM-45 8.1.5.1. RTO inlet gas stream temperatures may be less than 250 °F and in that case probe and oven temperatures will be set at

Test Methods	Descriptions
	~20 °F above stack temperature to prevent moisture condensation. Temperatures at the RTO outlet are expected to be >250 degrees F and therefore the probe and oven temperatures will be maintained at 248 degrees +/- 25 °F. Sample recovery will be performed as described in OTM-45 8.2: 8.2.1 Preparation. Allow the probe to cool. Do not cap the probe tip tightly while the sampling train is cooling down because this will create a vacuum in the filter holder, drawing water from the impingers into the sorbent module, When the probe can be safely handled, wipe off all external particulate matter near the tip of the probe. Conduct a post-test leak check. Remove the probe from the train and close off both ends. Seal off the inlet to the filter. Remove the umbilical cord from the last impinger and cap the impinger. If a flexible line is used between the primary sorbent module and the filter holder, disconnect the line at the filter holder and let any condensed water or liquid drain into the organic module. Cap the filter-holder outlet and the inlet to the organic module. Separate the sorbent trap section of the organic module from the condensate knockout trap and the gas-conditioning section. Cap all sorbent module openings. Disconnect sorbent module knockout trap from the impinger train inlet and cap both of these openings. Ground-glass stoppers, Teflon tape, or other inert materials such as cleaned aluminum foil (e.g., rinsed with 5% ammonium hydroxide in methanol rinsing solution) may be used to seal all openings. 8.2.2 Transfer and Inspection. Transfer the sampling train components to the cleanup area. This method recommends cleaning and enclosing this area to minimize the chances of losing or contaminating the sample. To avoid sample contamination and unnecessary exposure to toxic chemicals, smoking or eating in the sample recovery area shall not be allowed. Inspect the train prior to and during disassembly. Note and record any abnormal conditions (e.g., broken filters, colored impinger liquid). Recover and prepare samples for shipping as follows in Sections 8.2.4 through 8.2.12 of this method. 8.2.3 Moisture Weight. Weigh the adsorbent module, impingers, and silica gel impinger to within ± 0.5 g using the field balance and record the weights. This information is required to calculate the moisture content of the effluent gas. Note: Moisture measurement in the field using the OTM 45 train requires weighing the primary adsorbent module before the sampling run described in 8.1.3.2 and after sampling as part of the sample recovery for stack moisture determination. 8.2.4 Container No. 1 – Filter. Either seal the filter holder or carefully remove the filter from the filter holder and place it in its identified container. If it is necessary to remove the filter, use a pair of cleaned tweezers to handle the filter. If necessary, fold the filter such that the particulate cake is inside the fold. Carefully transfer to the container any particulate matter and filter fibers that adhere to the filter holder gasket by using a dry inert bristle brush and a sharp-edged blade. Seal the container and store in a thermally insulated container for transport to the laboratory. 8.2.5 Container No. 2 – Front Half Rinse. Quantitatively recover material deposited in the nozzle, the front half of the filter holder, and the cyclone, if used, by brushing while rinsing three times with the 5% Ammonium hydroxide in methanol rinsing solution. Collect all the rinses in the HDPE sample bottle and label as Container No. 2. Mark the level of the liquid on the container. Store the sample container refrigerated or on ice until laboratory shipment. 8.2.6 Container No. 3 – Primary Adsorbent Module Sample. Remove the module from the train and tightly cover both ends. Replace the retaining clips around the glass joint. Remove the foil, drain the recirculating water from the module, weigh and record the module weight. The adsorbent trap module should be used as a sample transport container. Both ends should be sealed with tightly fitting ground-glass stoppers followed by Teflon tape around the glass joint. The sorbent trap should then be labeled, re-covered with aluminum foil, and packaged on ice for transport to the laboratory. Note: The XAD-2 resin modules (primary and breakthrough) are shipped back from the field as separate fractions for analysis. As more data is collected from the use of this method the requirement of analysis of the XAD-2 module as a separate fraction may change.

Test Methods	Descriptions
	8.2.7 Container No. 4 – Back Half Rinse. All sampling train components located between the back half of the filter holder and the inlet of the primary adsorbent module, including the condenser if a separate condenser and adsorbent module are used, and the heated sample transfer line connecting the filter outlet to the condenser (if used) shall be triple rinsed with 5% hydroxide in methanol rinsing solution. Collect all the rinses in the HDPE sample bottle and label as Container No. 4. Mark the level of the liquid on the container. Store the sample container refrigerated or on ice until laboratory shipment. 8.2.9 Container No. 5 – Condensate and Impinger Water. After weighing the impingers, quantitatively recover the impinger water samples, including the contents of the knockout impinger (if used), in the HDPE sample bottle and label as Container No. 5 Mark the level of the liquid on the container. Store the sample container refrigerated or on ice until laboratory shipment. Note: Make sure that no ammonium hydroxide in methanol rinsing solution is transferred to the container No. 5 sample. Doing so may compromise the sample for analysis. 8.2.10 Container 6 – Impingers Rinse. Rinse impingers 1-4 three times with the 5% ammonium hydroxide in methanol rinsing solution. Collect all the rinses in the HDPE sample bottle and label as Container No. 6. Mark the level of the liquid on the container. Store the sample container refrigerated or on ice until laboratory shipment. If impingers are used in a subsequent sampling run, they must be rinsed three times with reagent water to remove residual ammonium hydroxide in methanol. 8.2.11 Container 7 – Secondary Adsorbent Module Sample. Remove the module from the train and tightly cover both ends. Replace the retaining clips around the glass joint. Remove the foil, drain the recirculating water from the module, weigh and record the module weight. The adsorbent trap module should be used as a sample transport container. Both ends should be sealed with tightly fitting ground-glass stoppers followed by Teflon tape around the glass joint. The sorbent trap should then be labeled, re-covered with aluminum foil, and packaged on ice for transport to the laboratory. 8.2.10 Silica Gel. Note the color of the indicating silica gel to determine if it has been completely spent and report its condition on the field data sheet RTO inlet and outlet samples will be stored separately on ice. As stated in OTM-45 12.7.2.1, calculation of the gaseous concentration of targeted PFAS compounds for each test run will be based on the sum of detected fractions and the gaseous sample volume collected for that run. OTM-45 Table 45-11 list of compounds, analytical reporting and detection limits, based on sample volume of 3 cubic meters (105.9 dscf) is provided in Attachment 4. An example of the request for Analysis/Chain-of-Custody document is provided as Attachment 5. Confidential standard operating procedures for the extraction and analysis procedures were previously provided under separate cover and have not materially changed since the September 2021 initial compliance test. Sample media and reagents will be sourced from the contract lab. QA Samples include: Field media (Reagent) Blanks Sample train proof blank (unused sample train-RTO Outlet location only) Sample train field blank (previously used/recovered sample train (RTO outlet location only)

Test Methods	Descriptions
	Calculations: Sample calculations for the determination of volumetric air flow rate, stack gas composition and moisture content, air sample volume and isokinetics is provided in Attachment 6. Example field data sheets for these methods are provided as Attachment 7. Sample compound concentrations will be determined for each run using the following formula: PFAS Compound ug/dscm = Sum of individual compound fractions above detection levels, ng/sample / 1000 ng/ug / meter volume dry standard cubic meters. Sample individual compound emission rates will be determined for each run using the following formula for each PFAS compound at the inlet and outlet: PFAS Compound lb/hr = Sum of individual compound fractions above detection levels, ng/sample x 1 x10^{-9} g/ng x lb/453.59 g sample / Meter volume dry ft^3 x airflow rate dscf /min x 60 min/hr. Destruction efficiency will be calculated for each OTM-45 compound using the following formula: DRE PFAS individual compound by Mass Rates = (lb/hr Inlet – lb/hr Outlet) / lb/hr Inlet X 100
EPA Method 204	Each enclosure will be verified in accordance with the following EPA Method 204 permanent total enclosure criteria: Criteria # 1 Any natural draft opening (NDO) shall be at least four equivalent opening diameters from each PFC emitting point unless otherwise specified by the Administrator. Criteria # 2 The total area of all NDOs shall not exceed 5 percent of the surface area of the enclosure's walls, floor, and ceiling. Criteria # 3 The average facial velocity of air through all NDOs shall be at least 200 feet per minute (fpm). The direction of air flow through all NDOs shall be into the enclosure. Criteria # 4 All access doors and windows whose areas are not included as NDOs shall be closed during routine operation of the process. Criteria #5 All PFC emissions must be captured and contained for discharge through a control device. Face velocity will be verified by measuring the pressure differential across natural draft openings. A pressure drop of 0.007 inches of water column (in. H_2O) corresponds to a face velocity of 200 fpm. In accordance with Section 8.4 of EPA Method 204, the NDO pressure differential and inward flow at the NDO flow will be verified at 10-minute intervals for one hour. Multiple test runs are not required per the method and are not otherwise necessary as the ovens operate at a relative steady-state and are not opened for internal access during operations. Barr will measure pressure differential and verify inward NDO flow on approximately 1/3 of the tower emission units during each of the three, three-hour PFC test runs conducted August 24-25. Saint-Gobain has determined that PFAS are not emitted prior to the application of heat in the drying and curing process. Therefore, for the towers the enclosure to be verified consists of the oven structure itself with the NDOs consisting of the web slots into and out of the oven. A representative schematic of an emission unit (oven) is provided with a list of preliminary NDO sizes in a table format in Attachments 8 and 9, respectively. These values will be confirmed and documented on-site during the testing.

Test Methods	Descriptions
	NDO pressure differential will be measured using an Alnor AXD620 electronic digital manometer or equivalent. Face velocity verification of inward flow will be done using smoke tubes or streamers. Some process equipment that are tied into the RTO are not used on a continuous basis like EU22 (R&D tower), EU23 (Chemsil), EU25 (Step Press) and EU26 (Heat Clean). Also, lamination processes or processes that are not considered towers per permit condition Table 6, Item 16 (10).
EPA Method 537.1	EPA Method 537.1 shall be used to evaluate fluoropolymer formulations from dip pan samples. The samples will be sent to Eurofins Lancaster laboratory and analyzed for the same list of 24 compounds employed for past mass balance. The formulation PFAS analyte list is provided as Attachment 10.

PART 5: SAFETY

Emergency procedures are outlined in Saint-Gobain's "Contractor Control Program" which can be reviewed upon arrival at the facility. In the event of a medical, fire or other emergency response, dial 911 and then the company contact.

PART 6: TEST REPORT

The compliance stack test report shall contain the following information as required by Env-A 802.11:

(1) All the information required in the pre-test protocol as described in Env-A 802.04
(2) All test data
(3) All calibration data
(4) Process data that the department and the owner or operator agreed would be collected. Process data deemed confidential business information will be submitted under separate cover from the test report.
(5) All test results
(6) A description of any discrepancies or problems that occurred during testing or sample analysis
(7) An explanation of how discrepancies or problems were treated and the effect, if any, on the final results; and
(8) A list and description of all equations used in the test report, including sample calculations for each equation used and a calculation showing all inputted values for each test run.

Submittal Address:

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The test report will be submitted on or before the 60th day from the last day of testing of the mobilization.

PART 7: TEST SCHEDULE

Testing is scheduled for the week beginning Sunday, August 21, 2022

Sunday August 21st	Monday August 22nd	Tuesday August 23rd	Wednesday August 24th	Thursday August 25th	Friday August 26th
Travel	Travel	Safety training and test equipment setup on RTO	RTO Test Run 1 **0900-1230** RTO Test Run 2 **1400-1730**	RTO Test Run 3 **0830-1200** Teardown equipment Sample shipment	Travel

Detailed schedule: (see test matrix in Attachment 11)

PART 8: OTHER

SGGP and Barr Engineering Co. contacts met with NHDES on August 4. 2022 for a pretest meeting. This revised version of the stack test protocol is based upon comments received during the meeting.

PART 9: CLOSING REMARKS

If there are questions or comments about the information provided, please contact me by telephone or e-mail:

Mark Collette
Global EHS Director
Saint-Gobain Performance Plastics
Mobile: (440) 804-6925
Email: Mark.Collette@saint-gobain.com

Attachments:

Figure 1 - Test Location RTO Stack
Figure 2 - Test Location RTO Inlet
Attachment 1 – EPA Method 3A Sampling System
Attachment 2 – OTM-45 sample train schematic
Attachment 3– OTM 45 target compound list
Attachment 4 – OTM 45 Table 45-11 Detection limits
Attachment 5 – Example Request for Analysis/ Chain of Custody Document
Attachment 6 – Example Calculations for M2, M4, Meter volume and isokinetics
Attachment 7 – Field Data Sheets
Attachment 8 – Representative Tower drawing
Attachment 9 – Table of NDO opening sizes
Attachment 10 - Formulation PFAS analyte list
Attachment 11 - Sampling Matrix
Attachment 12 - Confidential Business Information Operational Conditions (to be submitted under separate cover)

Attachments

FIGURE 1

TEST PORT LOCATIONS RTO STACK

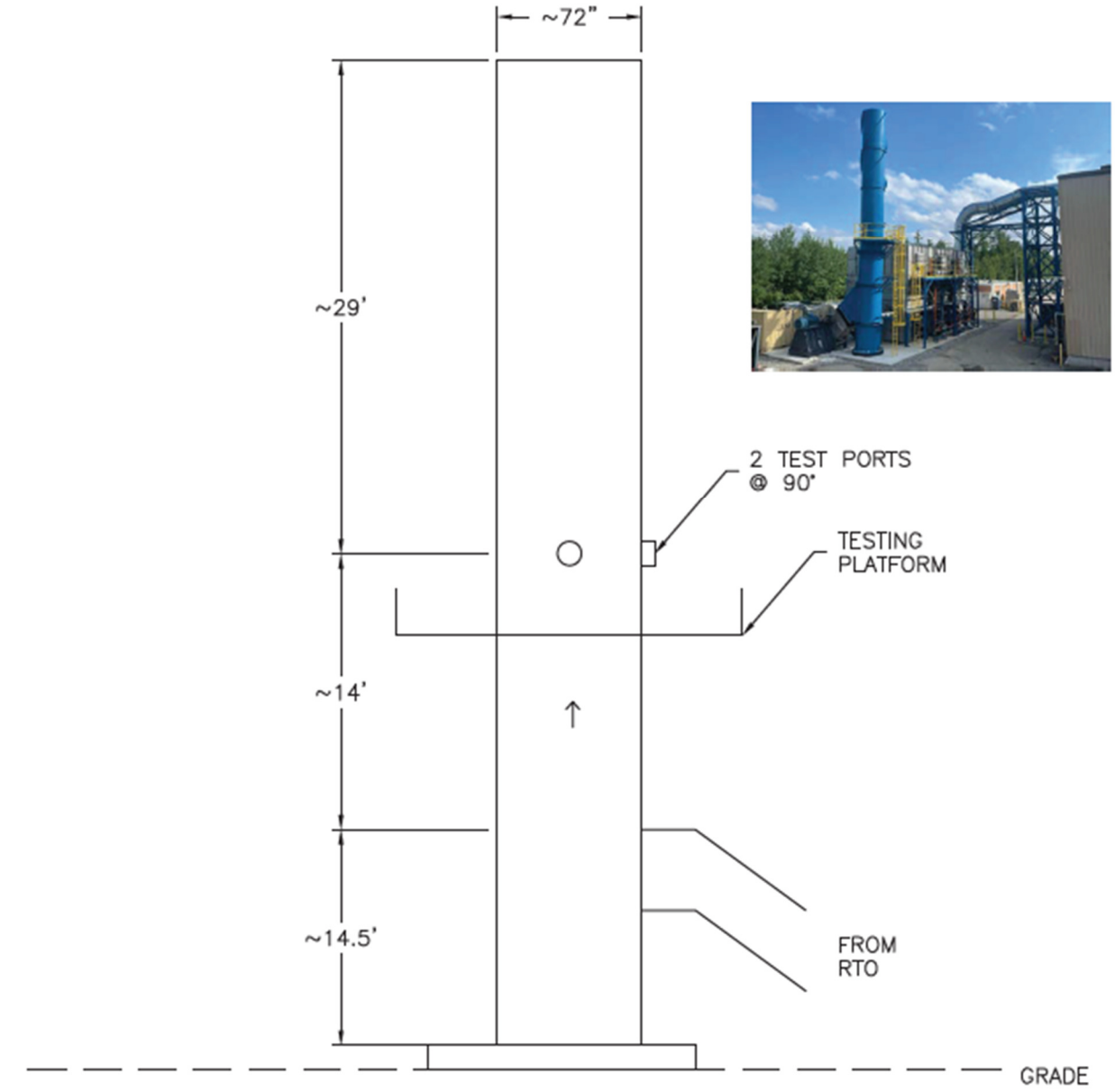


FIGURE 1

TEST PORT LOCATIONS
RTO STACK

NOT TO SCALE

FIGURE 2

TEST PORT LOCATIONS RTO INLET DUCT

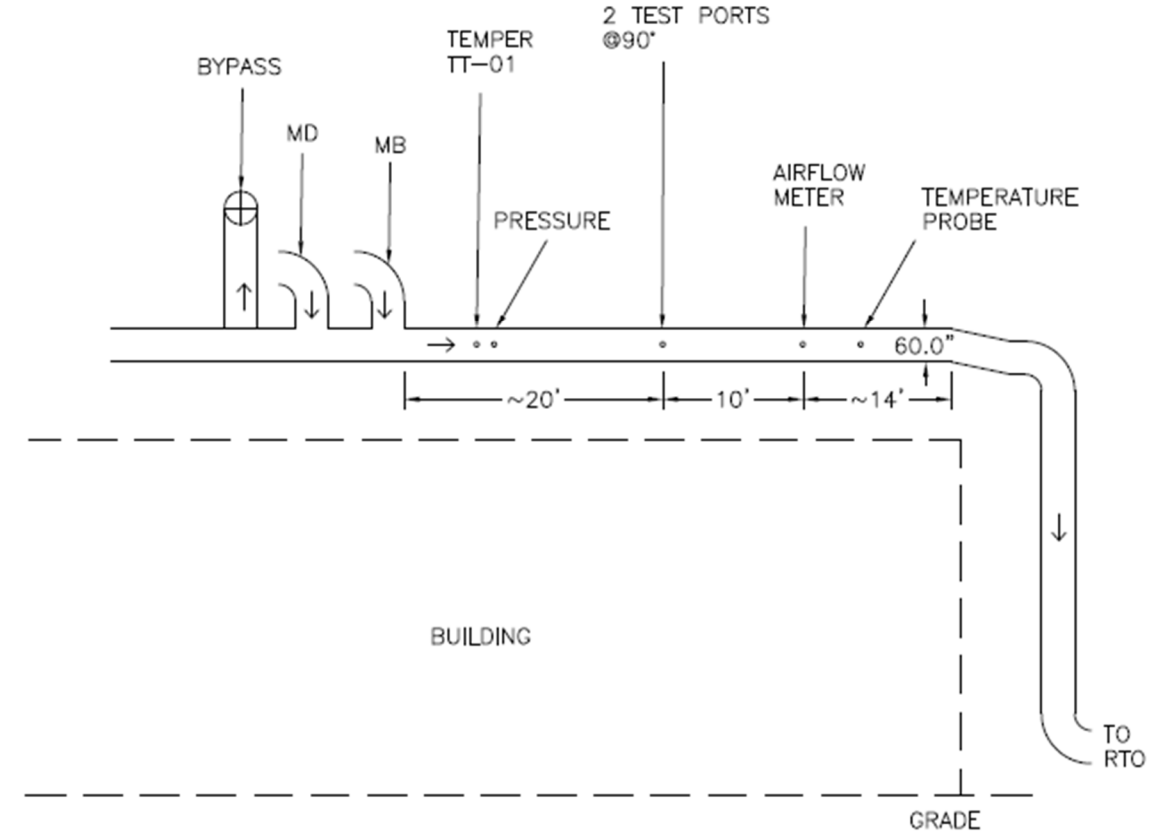
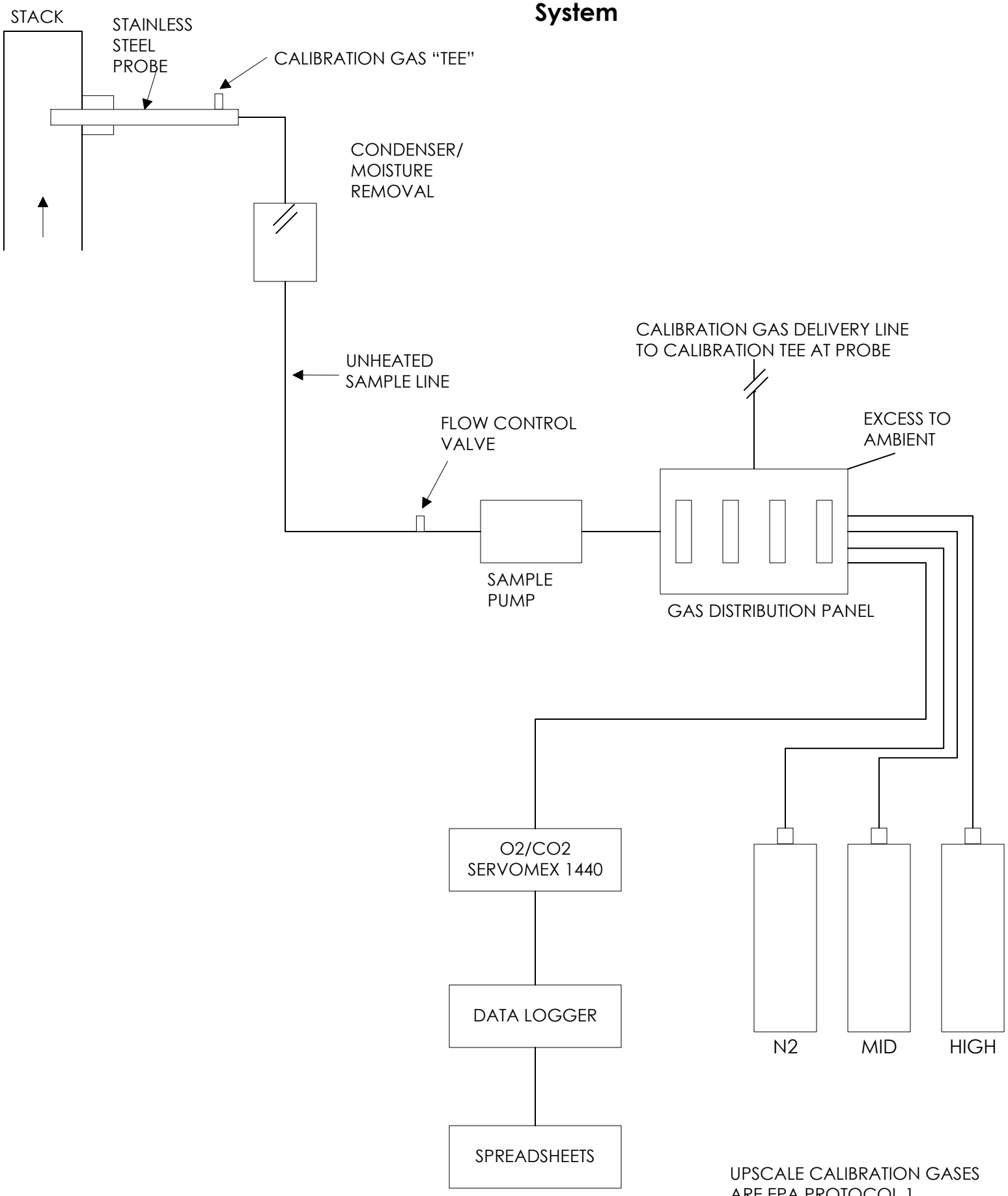


FIGURE 2

TEST PORT LOCATIONS
RTO INLET DUCT

NOT TO SCALE

Attachment 1: Method 3A Sample System



UPSCALE CALIBRATION GASES ARE EPA PROTOCOL 1

Attachment 2: OTM-45 Sample Train Schematic

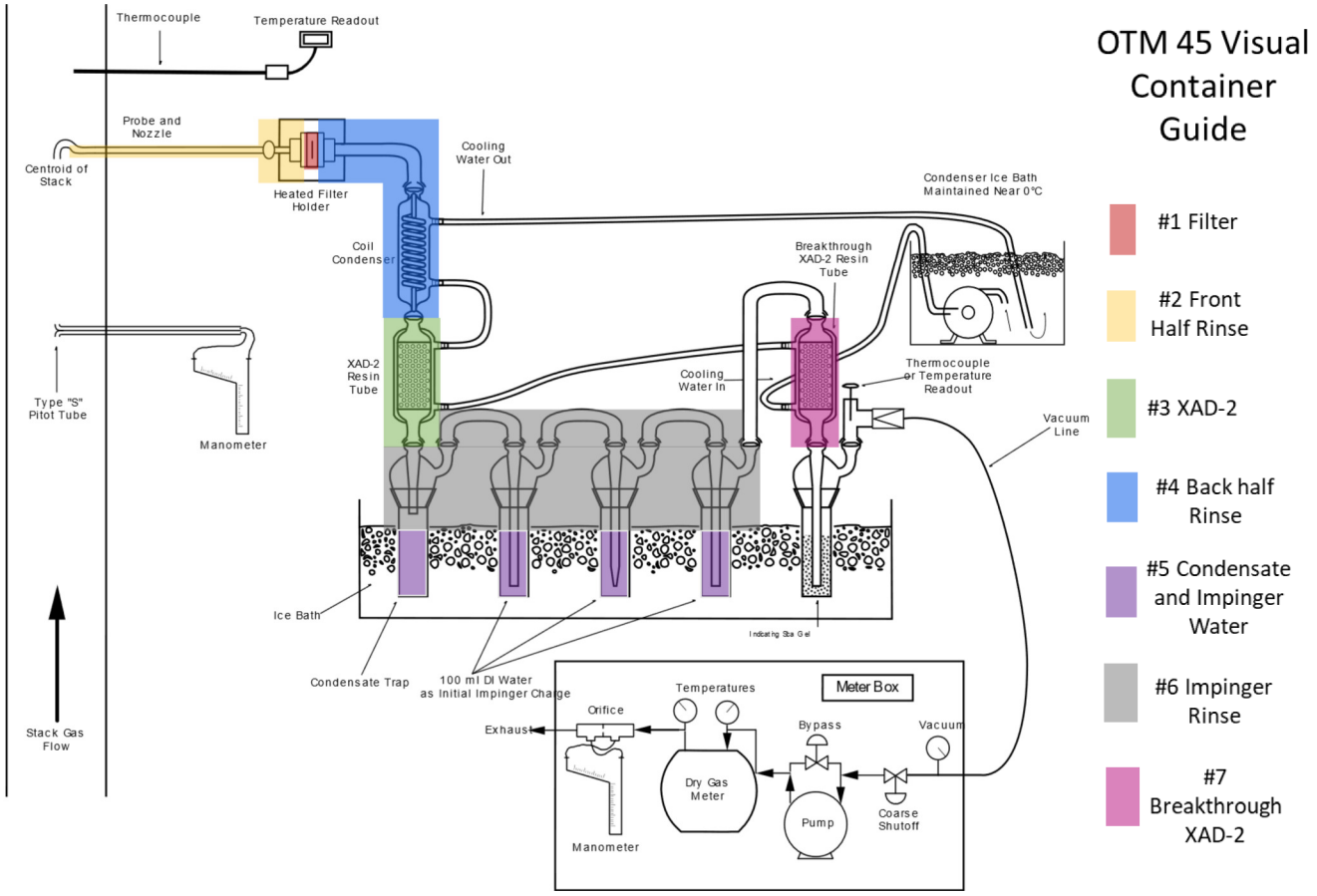


Figure OTM-45-1. Sampling Train

Attachment 3 – Targeted Compounds for OTM-45 Analysis

Table 45-1 PFAS Target Analytes

Common Name[a]	Abbreviated Name	CAS[b] Registry Number	Isotopic Pre-Extraction Pair
Perfluoroalkylcarboxylic acids (PFCAs)			
Perfluorobutanoic acid[1,3,4]	PFBA	375-22-4	^{13}C4-PFBA
Perfluoropentanoic acid[1,3,4]	PFPeA	2706-90-3	^{13}C5-PFPeA
Perfluorohexanoic acid[1,2,3,4]	PFHxA	307-24-4	^{13}C2-PFHxA
Perfluoroheptanoic acid[1,2,3,4]	PFHpA	375-85-9	^{13}C4-PFHpA
Perfluorooctanoic acid[1,2,3,4]	PFOA	335-67-1	^{13}C4-PFOA
Perfluorononanoic acid[1,2,3,4]	PFNA	375-95-1	^{13}C5-PFNA
Perfluorodecanoic acid[1,2,3,4]	PFDA	335-76-2	^{13}C2-PFDA
Perfluoroundecanoic acid[1,2,3,4]	PFUnDA	2058-94-8	^{13}C2-PFUndA
Perfluorododecanoic acid[1,2,3,4]	PFDoA	307-55-1	^{13}C2-PFDoA
Perfluorotridecanoic acid[2,3,4]	PFTrDA	72629-94-8	^{13}C2-PFDoA
Perfluorotetradecanoic acid[2,3,4]	PFTeDA	376-06-7	^{13}C2-PFTeDA
Perfluoro-n-hexadecanoic acid	PFHxDA	67905-19-5	^{13}C2-PFHxDA
Perfluoro-n-octadecanoic acid	PFODA	16517-11-6	^{13}C2-PFDoA
Perfluorinated sulfonic acids (PFSAs)			
Perfluoro-1-butanesulfonic acid[1,2,3,4]	PFBS	375-73-5	^{13}C3- PFBS
Perfluoro-1-pentanesulfonic acid[1,3]	PFPeS	2706-91-4	^{13}C3-PFHxS or ^{13}C3-PFBS
Perfluoro-1 -hexanesulfonic acid[1,2,3,4]	PFHxS	355-46-4	^{18}O2-PFHxS or ^{13}C3-PFHxS
Perfluoro-1-heptanesulfonic acid[1,3]	PFHpS	375-92-8	^{13}C4-PFHpA
Perfluoro-1-octanesulfonic acid[1,2,3,4]	PFOS	1763-23-1	^{13}C4-PFOS
Perfluoro-1-nonanesulfonic acid[3]	PFNS	68259-12-1	^{13}C4-PFOS
Perfluoro-1-decanesulfonic acid[3]	PFDS	335-77-3	^{13}C4-PFOS
Perfluorododecane sulfonate	PFDoS	79780-39-5	^{13}C4-PFOS
Perfluorinated sulfonamides (FOSAs)			
Perfluoro-1-octanesulfonamide[3,5]	FOSA	754-91-6	^{13}C8-FOSA
N-Methylperfluorooctanesulfonamide [5]	MeFOSA	31506-32-8	d3-MeFOSA
N-ethylperfluorooctanesulfonamide [5]	EtFOSA	4151-50-2	d5-EtFOSA
Perfluorinated sulfonamide ethanols (FOSEs)			
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol [5]	N-MeFOSE	24448-09-7	d7-N- MeFOSE
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol [5]	N-EtFOSE	1691-99-2	d9-N-EtFOSE

Attachment 3 – Targeted Compounds for OTM-45 Analysis

Common Name[a]	Abbreviated Name	CAS[b] Registry Number	Isotopic Pre-Extraction Pair
Perfluorinated sulfonamidoacetic acids (FOSAAs)			
N-methyl perfluorooctanesulfonamidoacetic acid[2,3]	MeFOSAA	2355-31-9	d3-MeFOSAA
N-ethyl perfluorooctanesulfonamidoacetic acid[2,3]	EtFOSAA	2991-50-6	d5-EtFOSAA
Fluorotelomer sulfonates (FTS)			
1H,1H,2H,2H-Perfluorohexane sulfonic acid[1,3]	4:2 FTS	757124-72-4	M2-4:2 FTS
1H,1H,2H,2H -Perfluorooctane sulfonic acid[1,3]	6:2 FTS	27619-97-2	M2-6:2 FTS
1H,1H,2H,2H -Perfluorodecane sulfonic acid[1,3]	8:2 FTS	39108-34-4	M2-8:2 FTS
1H,1H,2H,2H-perfluorododecane sulfonate (10:2)	10:2 FTS	120226-60-0	M2-10:2 FTS
Fluorinated Replacement Chemicals			
4,8-Dioxa-3H-perfluorononanoic acid	ADONA[1]	919005-14-4	^{13}C4-PFOS
Hexafluoropropylene Oxide Dimer Acid	HFPO-DA (GenX)[1]	13252-13-6	^{13}C3-HFPO-DA
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS (F-53B Major)[1]	756426-58-1	^{13}C4-PFOS
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid OR 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate[a]	11Cl-PF3OUdS (F-53B Minor)[1]	763051-92-9 83329-89-9	^{13}C4-PFOS
Additional Targets			
Nonafluoro-3,6-dioxaheptanoic acid[1,5]	NFDHA	151772-58-6	^{13}C5-PFHxA
Perfluoro(2-ethoxyethane)sulfonic acid[1,5]	PFEESA	113507-82-7	^{13}C3-PFBS
Sodium perfluoro-1-dodecanesulfonate[5]	PFDoS	1260224-54-1	^{13}C4-PFOS
Perfluoro-4-methoxybutanoic acid[1,5]	PFMBA	863090-89-5	^{13}C5-PFPeA
Perfluoro-3-methoxypropanoic acid[1,5]	PFMPA	377-73-1	^{13}C4-PFBA
Decafluoro-4-(pentafluoroethyl)cyclohexanesulfonate)[4]	PFecHS	67584-42-3	^{18}O2-PFHxS
2H-perfluoro-2-decenoic acid[4]	8:2 FTUCA or FOUEA	70887-84-2	^{13}C2-FOUEA
2-perfluorodecyl ethanoic acid[4]	10:2 FDEA	53826-13-4	^{13}C2-FDEA
2-perfluorooctyl ethanoic acid[4]	8:2 FTA or FOEA	27854-31-5	^{13}C2-FOEA
2H-perfluoro-2-octenoic acid[4]	6:2 FHUEA	70887-88-6	^{13}C2-FHUEA
2-perfluorohexyl ethanoic acid[4]	6:2FTCA or 6:2 FHEA	53826-12-3	^{13}C2-FHEA
3:3 Fluorotelomer carboxylic acid [5]	3:3 FTCA	356-02-5	^{13}C2-FHEA
5:3 Fluorotelomer carboxylic acid [5]	5:3 FTCA	914637-49-3	^{13}C2-FHEA
7:3 Fluorotelomer carboxylic acid or 3-perfluoropheptyl propanoic acid[4, 5]	7:3 FTCA or FHpPA	812-70-4	^{13}C2-FOEA

Attachment 4

Table 45-11. In-Stack Detection Limits

Analyte Description	CAS Number	QRL (ng/train)	MDL (ng/train)	QRL (ng/m3)	MDL (ng/m3)	QRL (PPQ)	MDL (PPQ)
Perfluorobutanoic acid (PFBA)	375-22-4	12.60	6.25	4.20	2.08	471.75	234.00
Perfluoropentanoic acid (PFPeA)	2706-90-3	1.80	0.59	0.60	0.20	54.63	17.88
Perfluorohexanoic acid (PFHxA)	307-24-4	2.40	0.92	0.80	0.31	61.24	23.42
Perfluoroheptanoic acid (PFHpA)	375-85-9	1.70	0.62	0.57	0.21	37.42	13.63
Perfluorooctanoic acid (PFOA)	335-67-1	2.50	1.28	0.83	0.43	48.38	24.69
Perfluorononanoic acid (PFNA)	375-95-1	1.50	0.46	0.50	0.15	25.90	7.87
Perfluorodecanoic acid (PFDA)	335-76-2	1.50	0.39	0.50	0.13	23.38	6.02
Perfluoroundecanoic acid (PFUnA)	2058-94-8	2.00	0.99	0.67	0.33	28.41	14.11
Perfluorododecanoic acid (PFDoA)	307-55-1	1.50	0.36	0.50	0.12	19.57	4.67
Perfluorotridecanoic acid (PFTriA)	72629-94-8	1.50	0.35	0.50	0.12	18.10	4.20
Perfluorotetradecanoic acid (PFTeA)	376-06-7	1.50	0.58	0.50	0.19	16.83	6.49
Perfluorobutanesulfonic acid (PFBS)	375-73-5	1.50	0.51	0.50	0.17	40.06	13.62
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	1.50	0.43	0.50	0.14	34.33	9.82
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1.70	0.82	0.57	0.27	34.05	16.50
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	1.50	0.25	0.50	0.08	26.71	4.52
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	2.40	1.06	0.80	0.35	38.46	16.98
Perfluorononanesulfonic acid (PFNS)	68259-12-1	1.50	0.42	0.50	0.14	21.85	6.16
Perfluorodecanesulfonic acid (PFDS)	335-77-3	1.50	0.51	0.50	0.17	20.03	6.86
Perfluorooctanesulfonamide (FOSA)	754-91-6	2.00	0.82	0.67	0.27	32.11	13.23
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	2.40	1.21	0.80	0.40	33.67	16.92
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	2.40	1.18	0.80	0.39	32.86	16.14
4:2 FTS	757124-72-4	1.50	0.59	0.50	0.20	36.63	14.43
6:2 FTS	27619-97-2	2.00	0.87	0.67	0.29	37.43	16.21
8:2 FTS	39108-34-4	1.70	0.81	0.57	0.27	25.79	12.23
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	1.60	0.41	0.53	0.14	33.91	8.61
HFPO-DA (GenX)	13252-13-6	16.60	8.30	5.53	2.77	403.05	201.62
F-53B Major	756426-58-1	1.50	0.51	0.50	0.17	22.57	7.61
F-53B Minor	763051-92-9	1.50	0.55	0.50	0.18	19.00	6.93

RL: Reporting Limit
MDL: Method Detection Limit
PPQ: Parts Per Quadrillion

Attachment 5

Request for Analysis/Chain-of-Custody – RFA/COC #001
Barr Engineering – St. Gobain
Stack Gas OTM-45

eurofins | Environment Testing TestAmerica

Project Identification:	**St. Gobain**
Client Name:	Barr Engineering
Client Contact:	Tim Russell Office: (612) 741-6889
TestAmerica Project Manager:	Courtney Adkins Office: (865) 291-3019
TestAmerica Program Manager:	Billy Anderson Office: (865) 291-3080 Cell: (865) 206-9004

Analytical Testing QC Requirements:
The Legend for Project-Specific Quality Control Testing is designated in the "QC" column as follows: "BT" = Blank Train, "RB" = Reagent Blank, "MS" = Matrix Spike, "MSD" = Matrix Spike Duplicate, "DUP" = Duplicate, "PB" = Proof Blank, "TB" = Trip Blank

Laboratory Deliverable Turnaround Requirements:	
Analytical Due Date: (Review-Released Data)	21 Days from Lab Receipt
Data Package Due Date:	28 Days from Lab Receipt
Laboratory Destination:	Eurofins TestAmerica 5815 Middlebrook Pike Knoxville, TN
Lab Phone Number:	(865) 291-3000
Courier:	Hand Deliver

Project Deliverables:
Report analytical results on TALS Report form Std_Tal_L4. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	**Holding Time Requirements:**	**Preservation Requirements:**
PFAS Compounds	14 Days to Extraction; 40 Days to Analysis	Cool, 4ºC

Field Sample No./Sample Coding ID	**Run No.**	**Sample Collection Date**	**Project QC Require-ments**	**Sample Bottle/ Container**	**Sample Type/Analysis**	**Analytical Specifications**
S-1140 R1 OTM-45 Filter (Combine with *S-1141*)	1			125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. Analyze for Target PFAS Compounds.
S-1141 R1 OTM-45 FH of Filter Holder & Probe Methanol Rinse (Combine with *S-1140*)	1			125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
S-1142 R1 OTM-45 XAD-2 Resin Tube	1			XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. Analyze for Target PFAS Compounds.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
S-1143 R1 OTM-45 BH of Filter Holder & Coil Condenser Methanol Rinse (Combine with *S-1142*)	1			125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. Analyze for Target PFAS Compounds.
S-1144 R1 OTM-45 Impingers 1,2 & 3 Condensate	1			500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train	**Knoxville**: Analyze for Target PFAS Compounds.
S-1145 R1 OTM-45 Impinger Glassware MeOH Rinse (Combine with *S-1142*)	1			250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
S-1146 R1 OTM-45 Breakthrough XAD-2 Resin Tube	1			XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. Analyze for Target PFAS Compounds.
S-1147 R2 OTM-45 Filter (Combine with *S-1148*)	2			125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** OTM-45 Train	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. Use the Front-Half Probe Rinse to assist the solvent extraction of the Particulate Filter sample. Analyze for Target PFAS Compounds
S-1148 R2 OTM-45 Front Half of Filter Holder & Probe Methanol Rinse (Combine with *S-1147*)	2			125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
S-1149 R2 OTM-45 XAD-2 Resin Tube	2			XAD-2 Resin Tube	**XAD-2 Resin Tube** OTM-45 Train	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. Use the Back-Half Glassware Rinse and the Impinger Glassware Methanol Rinse to assist the solvent extraction of the XAD-2 resin sample. Analyze for Target PFAS Compounds
S-1150 R2 OTM-45 BH of Filter Holder & Coil Condenser Methanol Rinse (Combine with *S-1149*)	2			125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. Analyze for Target PFAS Compounds
S-1151 R2 OTM-45 Impingers 1,2 & 3 Condensate	2			500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** OTM-45 Train	**Knoxville**: Analyze for Target PFAS Compounds
S-1152 R2 OTM-45 Impinger Glassware MeOH Rinse (Combine with *S-1149*)	2			250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** OTM-45 Train	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
S-1153 R2 OTM-45 Breakthrough XAD-2 Resin Tube	2			XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** OTM-45 Train	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. Analyze for Target PFAS Compounds

Sample Receipt Log and Condition of the Samples Upon Receipt:

Please fill in the following information:	Comments (Please write "NONE" if no comment applicable)
(1) Record the identities of any samples that were listed on the RFA but were not found in the sample shipment.	
(2) Record the sample shipping cooler temperature of all coolers transporting samples listed on this RFA:	
(3) Record any apparent sample loss/breakage.	
(4) Record any unidentified samples transported with this shipment of samples:	
(5) Indicate if all samples were received according to the project's required specifications (i.e. no nonconformances):	

Custody Transfer:

	Name	Company	Date/Time
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Attachment 6

CALCULATIONS and EXAMPLE

Barr Engineering Co.
August 18, 2021

Determination of Volumetric Air Flow Rate, Gas Composition, Moisture Content, Meter Volume and Isokinetics
EPA Method 1-4, 5 (Meter Volume)

Input Data	Symbol	Units	EXAMPLE
Test Date	-	-	8/10/2020
Test Period	-	-	800-1115
Number of Sample Ports	-	-	2
Number of Traverse Points	-	-	24
Duct Dimensions (diameter or Length x Width)	D, L X W	inches	60.00
Barometric Pressure	Pbar	in. Hg	29.25
Stack Static Pressure	Pg	in. H_2O	-0.25
Average Stack Temperature	Tsf	degrees F	310
Actual Dry Gas Meter Volume	Vm	cubic feet	125.00
Dry Gas Meter Calibration Factor	Y	-	0.9951
Average Orifice Meter Pressure Drop	DH	in H_2O	1.30
Average Meter Temperature	Tmf	degrees F	86
Pitot Tube Coefficient	Cp	-	0.84
Average Square Root of Velocity Head	(DP)^0.5	-	1.040
Mass of Water Vapor Condensed in Impingers	Vwc	g	155
Mass of Water Vapor Collected in Desiccant	Vwsg	g	26
Orsat Results, Dry Basis			
Oxygen	$\%O_2$	%v/v	19.7
Carbon Dioxide	$\%CO_2$	%v/v	0.4
Nitrogen + Carbon Monoxide	$\%N_2$ + %CO	%v/v	79.9
Nozzle Diameter	Dn	inches	0.210
Run Time	theta	minutes	180

Calculated Data	Symbol	Units	EXAMPLE
Average Absolute Stack Temperature Tsr = Tsf + 460	Tsr	degrees R	770
Stack Pressure Ps = Pbar + Pg / 13.6	Ps	in. Hg	29.23
Duct Area A = PI x D^2 / (4 x 144) or A = L x W / 144	A	Sq. ft	19.625
Meter Volume at Standard Conditions Vmstd = 17.64 x Vm x Y x ((Pbar + (DH / 13.6)) / (Tmf + 460))	Vmstd-ft3	cubic feet	117.93
Meter Volume at Standard Conditions Vmstd-m3 = Vmstd-ft3 x 0.02832	Vmstd-m3	cubic meter	3.34
Average Moisture Content of Stack Gas MC = ((0.04175 x Vwc + 0.04715 x Vwsg) / ((0.04715 x Vwc + 0.04715 x Vwsg) + (Vmstd)) x 100	MC	% Vol	6.75
Molecular Weight of Stack Gas, dry Md = (0.44 x $\%CO_2$) + (0.32 x $\%O_2$) + (0.28 x ($\%N_2$ + %CO))	Md	lb/lbmol	28.85
Molecular Weight of Stack Gas, wet Ms = Md x (1-(MC/100))+18 x (MC/100)	Ms	lb/lbmol	28.12
Average Stack Gas Velocity Vs = 85.49 x Cp x (dP)^0.5 x ((Tsr/(Ps x Ms))^0.5)	Vs	ft/sec	72.28
Actual Volumetric Air Flow Rate Qa = 60 x Vs x A	Qa	acfm	85,114
Volumetric Air Flow Rate at Standard Conditions Qs = Qa x (528 / (Ts + 460)) x (Ps / 29.92)	Qs	scfm	57,021
Dry Volumetric Air Flow Rate at Standard Conditions Qd = Qa x (1 - (MC / 100)) x (528 / Tsr) x (Ps / 29.92)	Qd	dscfm	53,173
Nozzle Cross-Sectional Area An =(3.14 x Dn^2) /(4 x 144)	An	sq. ft	0.000240
Isokinetic Variation I = (0.0945 x Tsr x Vmstd) / (Ps x Vs x An x theta x (1 - (MC / 100)))	I	%	100.6

Attachment 7: Example Field Data Sheets

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EPA METHOD 1
FIELD DATA SHEET

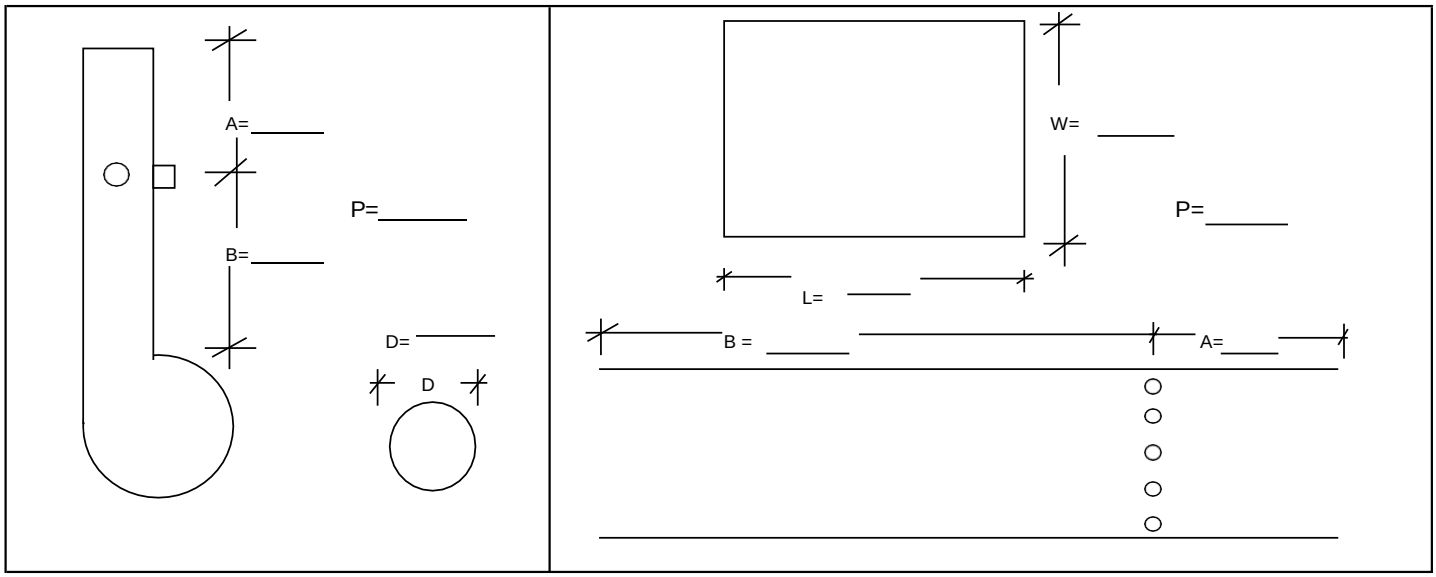
Project _____

Sample Location _____

Sample Date _____

Test Number _____

Port Locations



Flow Geometry

BARR

EPA METHOD 2
FIELD DATA SHEET

Project _____
Sample Location _____
Date _____
Operators _____
Duct Dimensions _____ inches
Port Length _____ inches
Pitot Tube No. _____ Cp _____
Manometer ID _____ Bar. ID _____
Digital Therm ID _____ T.C. ID _____

	Run 1	Run 2	Run 3	Run 4
Bar Press (In Hg)				
Stat. Press (In H_2O)				
Temp - Dry Bulb ºF				
Temp - Wet Bulb ºF				
Moist Content - %				
O_2 %				
Time of Meas.				

Pitot Leak Check Positive: _____ Negative: _____

Traverse Point Information			Cyclonic	**Velocity Head - Inches H_2O**				**Stack Temperature - ºF**			
Point	Inches From:		Flow	Run 1	Run 2	Run 3	Run 4	Run 1	Run 2	Run 3	Run 4
Number	Wall	Port	∠º	ΔP	ΔP	ΔP	ΔP	Temp.	Temp.	Temp.	Temp.

	Run 1	Run 2	Run 3	Run 4
Stack Pres. - In Hg				
Duct Area - Sq Ft.				
Mole Weight - Md				
Mole Weight - Ms				
Avg. Temp. - ºF				
Average ΔP				
Gas Vel - Ft/Sec				
ACFM				
SCFM				
DSCFM				

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EPA METHOD 3A -- Instrument Analysis Data Sheet

Project
Sample Location(s):
Test No:
Date:
Operators:

Analyzer Make / Model / Serial No. _____
Analyzer O_2 Range (span), %: _____
Analyzer CO_2 Range (span), %: _____

	Cylinder Serial No.	O_2 Cert. Conc.	CO_2 Cert. Conc.
Zero Gas			
O_2/CO_2 Mid-range			
O_2 High-range			
CO_2 High-range			

PRETEST ANALYZER CALIBRATION DATA

	O_2		CO_2	
	Cylinder Value, %	Analyzer Calibration Response, %	Cylinder Value, %	Analyzer Calibration Response, %
Zero Gas				
Mid-range:				
High-range:				

Time of Calibration_____to _____

INTEGRATED BAG ANALYSIS

Location/Test No.			
Run No.	**1**	**2**	**3**
Time Sampled			
Time Analyzed			
O_2, %			
CO_2,%			

POSTTEST ANALYZER CALIBRATION DATA

	O_2		CO_2	
	Cylinder Value, %	Analyzer Calibration Response, %	Cylinder Value, %	Analyzer Calibration Response, %
Zero Gas				
Mid-range:				
High-range:				

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EPA METHOD 3A
ANALYZER CALIBRATION

Project _____
Sample Location _____
Date _____
Operators _____

Analyzer Make / Model / Serial No. _____
Analyzer O_2 Range (span), %:_____-_____
Analyzer CO_2 Range (span), %:_____-_____
Stripchart Speed (include units): _____

	Cylinder	
	Serial No.	Cert. PPM
Zero Gas		
Low-range		
Mid-range		
High-range		

ANALYZER CALIBRATION DATA

Note: Difference must be less than +/- 2 percent of span

Test Runs :_____- ____	Cylinder Value, %	Analyzer Calibration Response, %	Absolute Difference %	Difference, Percent of Span
Zero Gas				
Low-Range:				
Mid-range:				
High-range:				

SYSTEM CALIBRATION BIAS AND DRIFT DATA:

Note: System Cal bias cannot exceed +/- 5 percent of span. Drift cannot exceed +/- 3 percent of span

			Initial Values		Final Values		
TEST RUN 1	Response Time (sec)	Analyzer Cal Response, %	System Cal Response, %	System Cal Cal. Bias % of Span	System Cal Response, %	System Cal Cal. Bias % of Span	Drift, Percent of span
Zero Gas							
Upscale Gas							
TEST RUN 2							
Zero Gas							
Upscale Gas							
TEST RUN 3							
Zero Gas							
Upscale Gas							

System Calibration Bias = [(System Cal. Response - Analyzer Cal. Response) / Span] x 100

Drift = [(Final System Cal. Response - Initial System Cal Response) / Span] x 100

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EPA OTM 045
FIELD DATA SHEET

Project _____ Meter ID _____ Probe ID _____ Bar. Pres _____ in Hg

Smpl Loc _____ Meter Y _____ Pitot ID _____ Stat. Pres _____ in H_2O

Test No. _____ Run _____ Orifice H@ _____ Pitot Cp _____ Probe Lgth _____ ft

Date _____ Operators _____ Liner Type: ☐ Glass ☐ S.S. ☐ Other_____

Sample Train Leak Rate (cfm)		
Pretest	at	in Hg
Posttest	at	in Hg
Pitot (3 in.) Pos. ☐ Neg. ☐		

Primary XAD Trap ID _____ XAD TC ID _____ Secondary XAD trap ID _____ Imp TC ID _____

Sample Point	Sample Time ΔT	Meter Volume Vm, ft³	Velocity ΔP, in H_2O	Orifice ΔH, in H_2O	Sample Vacuum, in Hg	Stack Temp. Ts, °F	Sample Train Temperatures, °F							Oxygen Content, %
							Probe	Filter	Prim XAD Inlet	Backup XAD	Impinger Outlet	Meter Inlet	Meter Outlet	
	0													
1	7.5													
2	15.0													
3	22.5													
4	30.0													
5	37.5													
6	45.0													
7	52.5													
8	60.0													
9	67.5													
10	75.0													
11	82.5													
12	90.0													
1	97.5													
2	105.0													
3	112.5													
4	120.0													
5	127.5													
6	135.0													
7	142.5													
8	150.0													
9	157.5													
10	165.0													
11	172.5													
12	180.0													
Ø=		V_m		ΔH		$\overline{Ts}$						$\overline{Tm}$=		

Mid-run leak check starting volume: _____ Mid-run leak check starting volume: _____

ending volume: _____ ending volume: _____

Nozzle Calibration

☐ See Run 1 ☐ See E-Copy

Initialization Values			Test Run Times		ORSAT System			Sample Train Components		
Meter Temp	Oxygen Content	Moisture Content	Start Time	End Time	Bag No.	Bag Vol	cc/min * at 15 in Hg	Filter No.	Nozzle No.	Nozzle Dn

Tech. _____ Date _____

Nozzle No.

1	
2	
3	
Avg. in.	

MOISTURE RECOVERY:

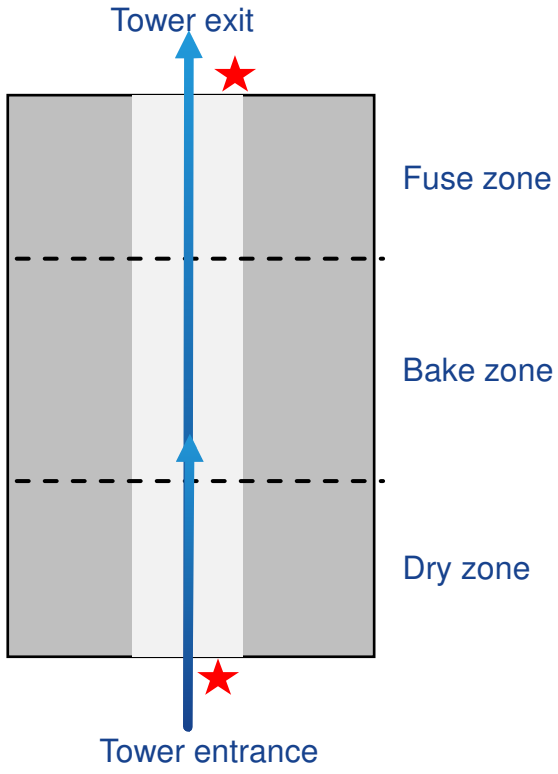
Impinger	XAD	Knockout	DI Imp 1	DI Imp 2	DI Imp 3	XAD BK	Knockout	Dessicant	Total
Final wt., g									
Initial wt., g									
Difference									

Attachment 8

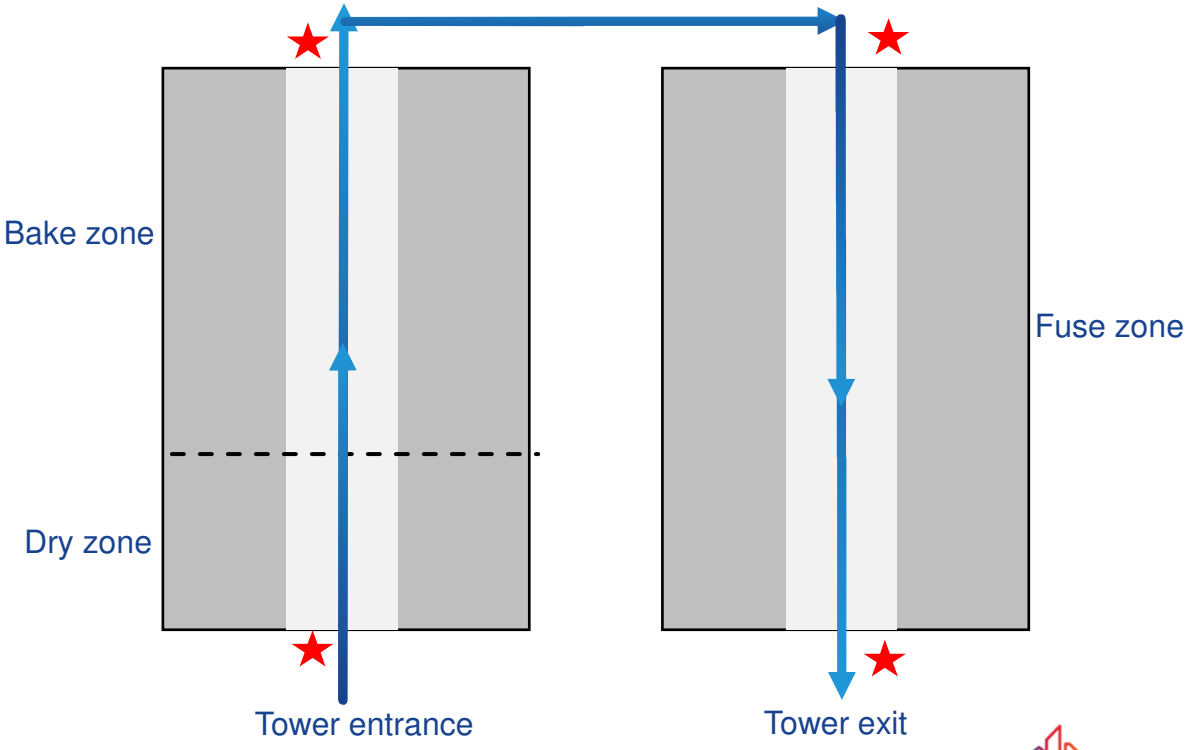
COATING TOWER SCHEMATIC

★ = NDO

Narrow/Intermediate towers



Wide towers



Attachment 9

summary of Tower Oven Enclosure NDO openings (2021 measurements) Saint-Gobain Performance Plastics Merrimack, NH

Source Name	Source EU #	Web Slot or Other Test Location	Webslot Width, in	Webslot Length, in
MA	EU01	Webslot In	3.0	72
		Webslot Out	4.3	79
MB	EU02	Unwind Webslot In	4.3	192
		Unwind Webslot Out	3.8	188
		Rewind Webslot In	2.8	188
		Rewind Webslot Out	2.8	188
MC	EU03	Webslot In	3.0	96
		Webslot Out	3.0	96
MR	EU04	Webslot In	3.0	96
		Webslot Out	3.0	95.5
MD	EU05	Initial Webslot In	3.0	96
		Initial Webslot Out	2.0	96
		Final Webslot In	3.0	96
		Final Webslot Out	2.0	96
QX	EU06	Stage 1 Webslot In	1.5	70
		Stage 1 Webslot Out	1.0	60
		Stage 2 Webslot In	2.5	70
		Stage 2 Webslot Out	1.0	60
		Stage 3 Webslot In	1.5	70
		Stage 3 Webslot Out	1.0	60
		Stage 4 Webslot In	2.0	70
		Stage 4 Webslot Out	1.0	60
		Stage 5 Webslot In	2.0	70
		Stage 5 Webslot Out	1.0	60
20" Coater and 20" Caster	EU07, EU08	Main entrance doorway (8" flaps)	TBD[1]	
MG	EU12	Webslot In	3.0	198.5
		Webslot Out	3.0	195.5
MP	EU13	Unwind Webslot In	4.0	186
		Unwind Webslot Out	2.5	182
		Rewind Webslot In	2.5	182
		Rewind Webslot Out	4.0	186
MQ	EU15	Webslot In	3.0	49
		Webslot Out	1.5	51
MS	EU16	Webslot In	3.0	96
		Webslot Out	3.5	96
R&D	EU22	Webslot In	1.0	33.8
		Webslot Out	2.0	30.5

1. Units are located in a room to be verified as permanent total enclosure

Attachment 10 - Formulation PFAS analyte list

Compound	CAS #
Perfluorobutanesulfonic acid (PFBS)	375-73-5
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	13252-13-6
Perfluorodecanoic acid (PFDA)	335-76-2
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSA	2991-50-6
N-methylperfluorooctanesulfonamidoacetic acid (NMeF(	2355-31-9
Perfluoroheptanoic acid (PFHpA)	375-85-9
Perfluorohexanesulfonic acid (PFHxS)	355-46-4
Perfluorononanoic acid (PFNA)	375-95-1
Perfluorohexanoic acid (PFHxA)	307-24-4
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8
Perfluorooctanesulfonic acid (PFOS)	1763-23-1
Perfluorodecanesulfonic acid (PFDS)	335-77-3
Perfluorooctanoic acid (PFOA)	335-67-1
Perfluorooctanesulfonamide (FOSA)	754-91-6
Perfluorobutanoic acid (PFBA)	375-22-4
Perfluoropentanoic acid (PFPeA)	2706-90-3
Perfluorotetradecanoic acid (PFTeA)	376-06-7
Perfluorotridecanoic acid (PFTriA)	72629-94-8
Perfluoroundecanoic acid (PFUnA)	2058-94-8
Perfluorododecanoic acid (PFDoA)	307-55-1
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4

Attachment 11

Saint Gobain Perfomance Plastics
Merrimack, New Hampshire
Testing Matrix
2022 RTO Performance Testing

Day	Run #	**Method 2-4 Inlet/Outlet[1]**	**PFAS by OTM 45 Perfomance Test Inlet/Outlet- simultaneous**	**Capture[2]**	**Formulation Samples 1/run/tower**
Wednesday August 24	Run 1	x	x	x	x
	Run 2	x	x	x	x
Thursday August 25	Run 3	x	x	x	x

1. EPA Method 2-4 in conjuction with corresponding PFAS method.
2. Capture demonstrations will be broken up into mulptiple groups of towers monitored for 1 hour each.

Appendix K

Project Participants

Project Participants

New Hampshire Department of Environmental Services

Cathy Beahm – SIP and Rulemaking Section -Administrator

Michael O'Brien – Testing and Monitoring Section Supervisor

Saint-Gobain Performance Plastics

David Calentine– Plant Manager

William Kempskie – EHS Manager

Mark Collette – Global EHS Director

Barr Engineering Co.

Tim Russell – Vice President/Chemical Engineer

Tom Kuchinski – Stack Testing Services Coordinator/Project Manager

Mark Petersen – Senior Air Quality Technician

Dan Koschak – Senior Air Quality Technician

Ryan Pantzke – Senior Air Quality Technician

Alex Adams – Air Quality Technician

Ashley Larson – Senior Air Quality Consultant / QEP

Eurofins – Test America

William C. Anderson, PhD - Senior Analytical Project Manager

Courtney Adkins - Project Manager

Doug Cahill - Technician