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The Chemours Company – Fayetteville, North Carolina

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Report

Date

January 2021

SOURCE EMISSIONS TESTING OF THE VINYL ETHERS SOUTH CARBON BED

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SOURCE EMISSIONS TESTING OF THE VINYL ETHERS SOUTH CARBON BED

Project name	**PFAS Emissions Testing**
Project no.	**1088211/119400100388**
Recipient	**Christel Compton**
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Date	**January 21, 2021**
Prepared by	**Patrick Grady, Project Associate**
Checked by	**David Ostaszewski, PE, Senior Managing Engineer**

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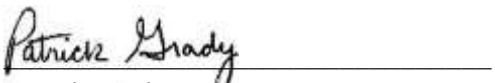
This report has been reviewed and to the best of our knowledge the report is complete, and the results presented herein are accurate, error free, legible, and representative of the actual emissions measured during testing.



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1. INTRODUCTION AND BACKGROUND

Ramboll Americas Engineering Solutions, Inc. (Ramboll) was retained by The Chemours Company (Chemours) to conduct source emissions testing at its facility located in Fayetteville, North Carolina. Ramboll has prepared the following test report summarizing the results of the testing on behalf of Chemours.

1.1 Testing Objective

As provided in their Title V Air Permit, Chemours is required to evaluate hexafluoro-propylene oxide-dimer acid (HFPO-DA) emissions from a carbon bed adsorber at the Fayetteville Works facility. The objective of this test program was to collect field sample data from the inlet and outlet to the carbon bed serving the Vinyl Ethers South (VES) process area to determine carbon bed replacement frequency.

The source emissions test program was performed on December 11, 2020. Messrs. Patrick Grady, Jeff Sheldon, Eric Alongi, Brian Goodhile and Antonio Anderson of Ramboll conducted the emissions testing. Ms. Christel Compton and Mr. Edward Vega coordinated process operations with the emissions testing. There were no representatives from any of the regulatory agencies present to observe the field test program.

This report presents a description of the sources tested, a summary of the scope of work conducted, sampling methods used, QA/QC procedures, and emission test results. The following section lists the testing program's participants and their contact information.

1.2 Emissions Testing Program Participants

Facility

Name:	The Chemours Company
Site Address:	22828 Hwy 87 W Fayetteville, NC 28306
Contact:	Christel E. Compton
e-mail:	christel.e.compton@chemours.com

Source Testing Firm

Name:	Ramboll
Address:	7600 Morgan Road Liverpool, NY 13090
Contact:	Patrick Grady
e-mail:	Patrick.grady@ramboll.com

Sample Analysis Laboratory

Name:	Eurofins TestAmerica, Knoxville
Address:	5815 Middlebrook Pike Knoxville, Tennessee 37921
Contact:	Courtney Adkins
e-mail:	courtney.adkins@testamericainc.com

2. PROCESS DESCRIPTION

This section provides a description of the VES process.

2.1 Process Description

VES is part of the fluoromonomer area at the Fayetteville facility. This area produces fluorocarbon compounds used to produce Chemours products, such as Nafion® Krytox® and Viton®. Indoor air fugitive emissions from VES are vented to a carbon bed which is then vented to atmosphere through a process stack (NEP-Hdr2).

2.2 Operating Conditions During Testing

Source emissions testing was performed during normal operations of the VES process. Facility personnel monitored and recorded process operations during the testing. These operating data were provided to Ramboll and are included in Appendix A of this report.

3. SUMMARY OF TEST PROGRAM

This section provides a summary of the testing scope of work conducted. Test methods used during the sampling program can be found in Section 4 of this report.

3.1 Test Program Summary

Emissions testing was conducted simultaneously at the inlet and outlet of the VES carbon bed in order to evaluate potential emissions and removal efficiencies of HFPO-DA. The testing at each location was conducted in triplicate and each test run was 96 minutes in duration. Results of the source emission testing are reported in units of milligrams per dry standard cubic meter (mg/dscm) and pounds per hour (lb/hr).

4. SAMPLING AND ANALYTICAL PROCEDURES

This section provides a description of the test methods that were utilized during the test program.

4.1 Test Methods

The test procedures were conducted in accordance with the most recent updates to the United States Environmental Protection Agency (USEPA) Reference Methods (RM) described in 40 CFR 60; Appendix A.

RM 1:	Sample and velocity traverses for stationary sources
RM 2:	Determination of stack gas velocity and volumetric flow rate (Type S pitot tube)
RM 3:	Determination of oxygen and carbon dioxide concentrations in emissions from stationary sources
RM 4:	Determination of moisture content in stationary sources
Modified 0010:	Determination of PFAS emissions from stationary sources (modified)

4.2 Sampling Locations

The sampling ports at the 36-inch inside diameter (ID) carbon bed inlet duct are located approximately 35 inches (1.0 diameters) downstream of a bend and approximately 41 inches (1.1 diameters) upstream of another bend. Test ports in the 41½ -inch ID carbon bed outlet stack are located approximately 12 ½ feet (3.6 diameters) downstream of a bend and approximately 31 feet (8.9 diameters) upstream from another bend. A total of 12 traverse points were sampled on each diameter during each test run for a total of 24 traverse points at each test location. Traverse points were located in accordance with USEPA RM 1. Schematics of the sample locations along with traverse point locations are provided in Appendix B.

4.3 Gas Velocity and Volumetric Flow Rate

Velocity was evaluated from differential pressure measurements using a stainless-steel Type-S pitot tube and oil manometer in accordance with USEPA RMs 1 and 2. These methods were conducted in conjunction with each test run. Exhaust gas volumetric flow rate in units of dry standard cubic feet per minute (dscfm) were derived from velocity, temperature, molecular weight, and moisture measurements. Pollutant mass emission rates (lb/hr) were calculated using these volumetric flow rate data and pollutant concentrations.

4.4 Oxygen and Carbon Dioxide Concentrations

Concentrations of oxygen (O_2) and carbon dioxide (CO_2) were evaluated at both locations in accordance with modified USEPA RM 3 procedures using a Fyrite® combustion analyzer. A grab sample was collected and introduced into the Fyrite® for O_2 and CO_2 analysis.

4.5 Moisture Content

The moisture content of the sample trains was quantified utilizing procedures identified in USEPA RM 4. A sample of gas was continuously collected from each traverse point using a dry gas meter stack sampling system along with a series of impingers. The moisture content of the gas was measured as a change in the volume of the water collected in each impinger solution and the increased weight of the desiccant during the sampling period.

4.6 HFPO-DA Emissions

HFPO-DA emissions were evaluated in accordance with a modified USEPA Method 0010. The sample train consisted of a stainless-steel nozzle attached directly to a heated borosilicate glass-lined probe. The probe was connected directly to a heated borosilicate glass filter holder containing a solvent-extracted glass fiber filter. In order to minimize possible thermal degradation of the HFPO-DA, the probe and particulate filter were heated to just above stack temperature to minimize water vapor condensation before the filter. The filter holder exit was connected to a water-cooled coil condenser followed by a water-cooled sorbent module containing approximately 40 grams of XAD-2 resin. The XAD-2 inlet temperature was monitored to ensure that the module is maintained at a temperature below 20°C.

The XAD-2 resin trap was followed by a condensate knockout impinger and a series of two impingers each containing 100-ml of high purity deionized water. The water impingers were followed by another condensate knockout impinger equipped with a second XAD-2 resin trap to account for any sample breakthrough. The final impinger contained approximately 250 grams of dry pre-weighed silica gel. The water impingers and condensate impingers were submerged in an ice bath through the duration of the testing. The water in the ice bath was also used to circulate around the coil condenser and the XAD-2 resin traps.

Exhaust gases were extracted from the sample locations isokinetically using a metering console equipped with a vacuum pump, a calibrated orifice, oil manometer and probe/filter heat controllers.

4.6.1 HFPO-DA Sample Train and Equipment Preparation

Prior to conducting the field work the following procedures were conducted to prepare the field sampling glassware and sample recovery tools.

1. Wash all glassware, brushes, and ancillary tools with low residue soap and hot water.
2. Rinse all glassware, brushes, and ancillary tools three (3) times with D.I. H_20.

3. Bake glassware (with the exception of probe liners) at 450°C for approximately 2 hours, (XAD-2 resin tube glassware will be cleaned by Eurofins/TestAmerica by this same procedure).
4. Solvent rinse three (3) times all glassware, brushes, and ancillary tools with the following sequence of solvents: acetone, methylene chloride, hexane, and methanol.
5. Clean glassware and tools will be sealed in plastic bags or aluminum foil for transport to the sampling site.
6. Squirt bottles will be new dedicated bottles of known history and dedicated to the D.I. Water and methanol/ammonium hydroxide (MeOH/ 5% NH_4OH) solvent contents. Squirt bottles will be labelled with the solvent content it contains.

4.6.2 HFPO-DA Sample Train Recovery

Following completion of each test run, the sample probe, nozzle and front-half of the filter holder were brushed and rinsed three times each with the MeOH/ 5% NH_4OH solution (Container #1). The glass fiber filter was removed from its housing and transferred to a polyethylene bottle (Container #2). Any particulate matter and filter fibers which adhered to the filter holder and gasket were also placed in Container #2. The XAD-2 resin trap was sealed, labelled and placed in an iced sample cooler. The back-half of the filter holder, coil condenser condensate trap and connecting glassware were rinsed with the same MeOH/ 5% NH_4OH solution and placed in Container #3.

The volume of water collected in the second and third impingers was measured for moisture determinations and then placed in Container #4. Impingers #2 and #3 were then rinsed with the MeOH/ 5% NH_4OH solution and placed in Container #5. The second (breakthrough) XAD-2 resin trap was sealed, labelled and placed in an iced sample cooler. The second condensate trap was rinsed with the MeOH/ 5% NH_4OH solution and placed in Container #5. The contents of the fifth impinger were placed in its original container and weighed for moisture determinations.

Containers were sealed and labeled with the appropriate sample information. Samples remained chilled until analysis. HFPO-DA analysis was conducted using liquid chromatography/dual mass spectrometry (LC/MS/MS).

5. EMISSIONS TEST RESULTS

A detailed summary of the test results is presented in Table 1 in the appendix. Supporting field data and calculations can be found in Appendix C. The laboratory report is presented in Appendix D. A brief discussion of the test results is presented below.

5.1 Emission Test Results

Table 1 presents a detailed summary of the HFPO-DA test results. HFPO-DA concentrations at the carbon bed inlet ranged from 2.02E-02 mg/dscm to 2.67E-02 mg/dscm and averaged 2.37E-02 mg/dscm. Corresponding mass emissions of HFPO-DA ranged from 1.41E-03 lb/hr to 1.91E-03 lb/hr and averaged 1.67E-03 lb/hr.

Concentrations of HFPO-DA at the carbon bed outlet ranged from 1.94E-03 mg/dscm to 2.93E-03 mg/dscm and averaged 2.47E-03 mg/dscm. Mass emission rates of HFPO-DA from the carbon bed outlet ranged from 1.22E-04 lb/hr to 1.81E-04 lb/hr and averaged 1.56E-04 lb/hr. The resulting removal efficiency of the VES carbon bed was consistent for all three test runs ranging from 89 percent to 91 percent and averaged 91 percent.

5.2 Discussion and Conclusion

There were no sampling or process operating problems encountered during the field testing that impacted the test results. Therefore, all test data are believed to be representative of actual emissions in evidence during the test program.

6. QUALITY ASSURANCE/QUALITY CONTROL

QA/QC was based on the recommended QA/QC procedures of the various sampling and analytical methods that were used for the test program. This section summarizes the pertinent QA/QC procedures that were employed during the emissions testing program.

6.1 Equipment Calibration

An important aspect of pre-sampling preparations is the inspection and calibration of all equipment planned to be used for the field effort. Equipment is inspected for proper operation and durability prior to calibration. Calibration of equipment is conducted in accordance with the procedures outlined in the USEPA document entitled "Quality Assurance Handbook for Air Pollution Measurement Systems; Volume III—Stationary Source Specific Methods" (EPA-600/4-77-027b). Equipment calibration is performed in accordance with USEPA guidelines and/or manufacturer's recommendations. Examples of the typical calibration requirements of the field equipment being used are as follows:

- Pitot tubes (QA Handbook Section 3.1.2, pp. 1-13) - measured for appropriate spacing and dimensions or calibrate in a wind tunnel. Rejection criteria given on the calibration sheet. Post-test check - inspect for damage.
- Probe nozzles (QA Handbook Section 3.4.2, pg. 19) - make three measurements of the nozzle ID (to the nearest 0.001 in.) using different diameters with a micrometer. Difference between the high and low values should not exceed 0.004 in. Post-test check - inspect for damage.
- Thermocouples (QA Handbook Section 3.4.2, pp. 15-18) - verify against a mercury-in-glass thermometer at two or more points including the anticipated measurement range. Acceptance limits - impinger ±2°F; DGM ±5.4°F; stack ±1.5 percent of stack temperature.
- Dry gas meters (QA Handbook Section 3.4.2, pp. 1-12) - Dry gas meters are calibrated using critical orifices. The procedure entails four runs using four separate critical orifices running at an actual vacuum 1-2 in. greater than the theoretical critical vacuum. The minimum sample volume required per orifice is 5 ft^3. Meter boxes are calibrated annually and then verified by use of the alternative USEPA RM 5 post-test calibration procedure. This procedure is referenced as Approved Alternate Method ALT-009 (June 21, 1994) by USEPA's Emission Measurement Center. The average Y-value obtained by this method must be within 5% of the initial Y-value.

6.2 Equipment Leak Checks

Pitot tube leak checks were conducted in accordance with USEPA RM 2. Leak checks were conducted on the HFPO-DA sample trains prior to and following each test run in accordance with the procedures outlined in USEPA RM 5, Sections 8.4.1 and 8.4.2.

6.3 Reagent Blanks and Field Blanks

A field blank for the Modified USEPA RM 0010 sample train was collected as part of the testing of Vinyl Ethers North (VEN) carbon bed. The blank train was assembled and set-up near VEN outlet test location and as close to the outlet sample train as possible. The blank train remained in place for the duration of the sampling run. The blank train was heated to the same temperature as used for the outlet sampling train, and the impinger portion of the train was iced down and chilled water circulated through the coil condenser as described in SW-846 Method 0010. The blank train was recovered in the same location, and by the same procedures as the actual sampling trains.

Additionally, a proof blank train rinse sample was collected one time during the sampling campaign. The glassware components of the train received a thorough solvent rinse after samples were recovered and put away for a sampling run. This secondary rinse was used to prove that the sampling breakdown collection processes capture all HFPO-DA material, and generally leave none of the target analytes uncaptured on the sample glassware. All sampling train glassware parts, including brushes and other tools used, were thoroughly rinsed with MeOH / 5% NH_4OH solution to evaluate the general rinsing efficiency of the sampling train recovery process.

Reagent blanks of the diH_2O used in the sample trains and MeOH/5% NH_4OH solution used for sample recovery were also submitted to the laboratory for analysis along with the field samples. The field blank train was collected during test Run 1 at VEN. The proof blank was collected following completion of Run 1 at VEN. Results of the field blank, proof blank and reagent blanks and are included with the laboratory reports in Appendix D.

6.4 Test Data and Report Review

Test data input and emission calculations were double-checked for accuracy. The test results were reviewed by senior personnel for reasonableness and accuracy. The final report was peer reviewed by senior personnel and certified by the project manager.

TABLES

Table 1
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed
Fayetteville, North Carolina

Run Identification	Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average
Source ID:		Carbon Bed Inlet				Carbon Bed Outlet		
Run Date	11Dec20	11Dec20	11Dec20		11Dec20	11Dec20	11Dec20	
Start/Stop Time	1010-1211	1242-1431	1452-1640		1010-1211	1242-1431	1452-1640	
Exhaust Gas Conditions								
Temperature (deg. F)	60	66	69	**65**	67	72	73	**71**
Moisture (volume %)	0.8	1.2	1.0	**1.0**	1.1	1.2	1.0	**1.1**
Oxygen (dry volume %)	20.9	20.9	20.9	**20.9**	20.9	20.9	20.9	**20.9**
Carbon Dioxide (dry volume %)	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	**0.0**
Volumetric Flow Rate								
acfm	18,991	18,738	18,821	**18,850**	17,287	16,655	16,918	**16,953**
dscfm	19,128	18,614	18,605	**18,782**	17,339	16,535	16,773	**16,883**
HFPO - Dimer Acid								
mg/dscm	2.67E-02	2.43E-02	2.02E-02	**2.37E-02**	2.54E-03	2.93E-03	1.94E-03	**2.47E-03**
lb/hr	1.91E-03	1.69E-03	1.41E-03	**1.67E-03**	1.65E-04	1.81E-04	1.22E-04	**1.56E-04**
Carbon Bed Removal Efficiency								
percent	91	89	91	91				

APPENDIX A
PROCESS OPERATING DATA

Date **12/11/2020**

Time	1000				1100				1200				1300				1400				1500				1600				1700				1800			
Stack Testing		RUN 1 - 1010-1211								RUN 2 - 1242-1431								RUN 3 - 1452-1640																		
VES Product	PM/PE																																			
VES Precursor																																				
VES Condensation (HFPO)																																				
VES ABR (East)			Burnout																																	
VES ABR (West)		Burnout																																		
VES Refining																																				

APPENDIX B
SCHEMATICS OF THE TEST LOCATIONS

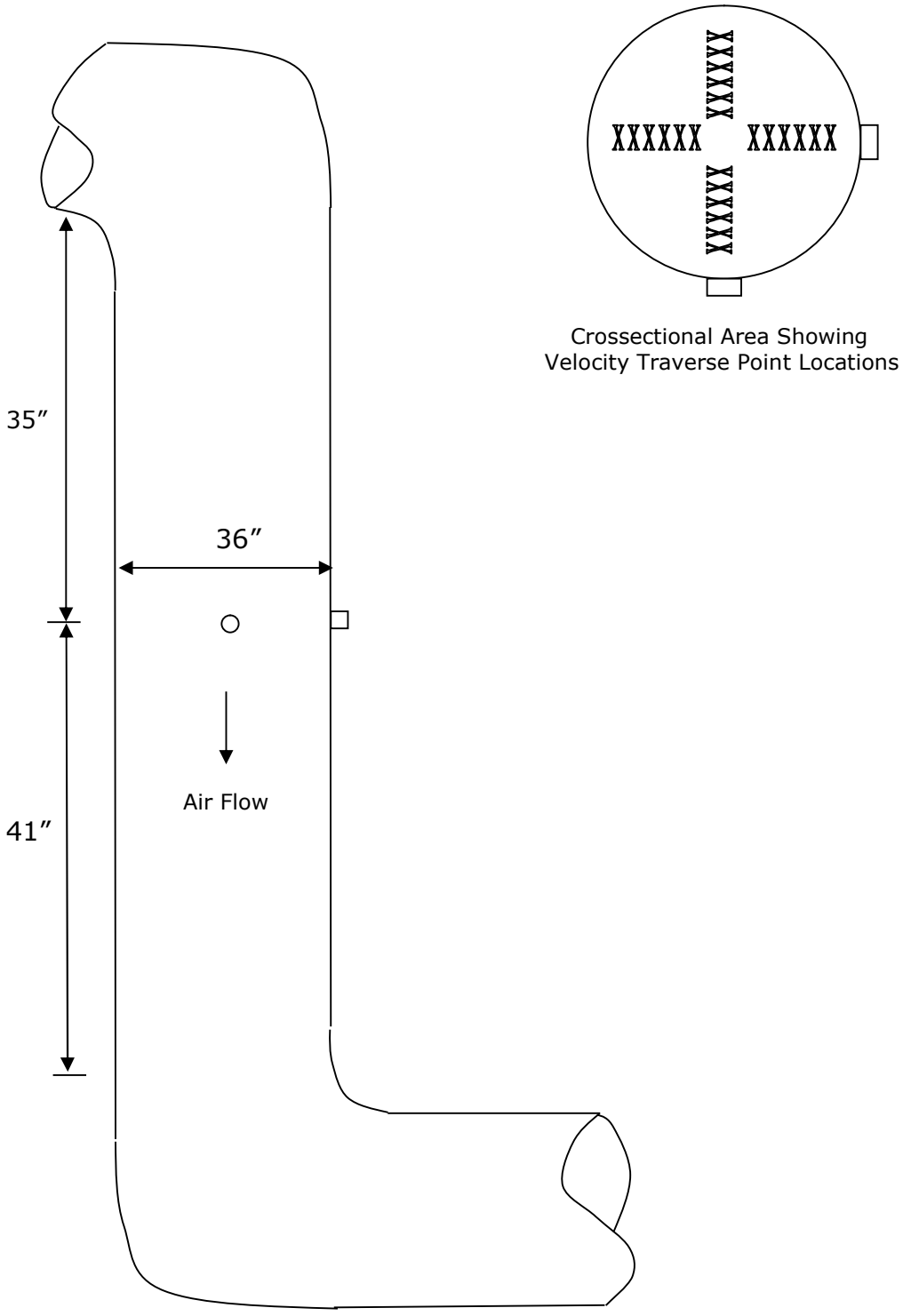


Figure 1
Carbon Bed Inlet Sampling Location
Vinyl Ethers South
The Chemours Company
Fayetteville, North Carolina

Sample Traverse Point Locations for Circular Stacks

Facility: The Chemours Company

Source Identification: VES Carbon Bed Inlet

Stack Diameter: 36 inches

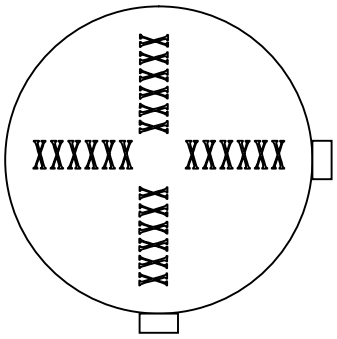
Sampling Locations: 1.0 diameters downstream
1.1 diameters upstream

Minimum Number of Traverse points as specified by EPA Method 1: 24

Number of traverse points sampled: 24

Traverse Point Number	Percent of Stack Diameter From Inside Wall	Distance in Inches From Inside Wall*
1	2.1	1.0
2	6.7	2.4
3	11.8	4.2
4	17.7	6.4
5	25.0	9.0
6	35.6	12.8
7	64.4	23.2
8	75.0	27.0
9	82.3	29.6
10	88.2	31.8
11	93.3	33.6
12	97.9	35.0

*Traverse points located within 1.00" to the stack wall for stacks having an inside diameter greater than 24" will be relocated as well as traverse points located within 0.50 inches to the stack wall on stacks with a 24" ID or less to meet criteria.



Crossectional Area Showing
Velocity Traverse Point Locations

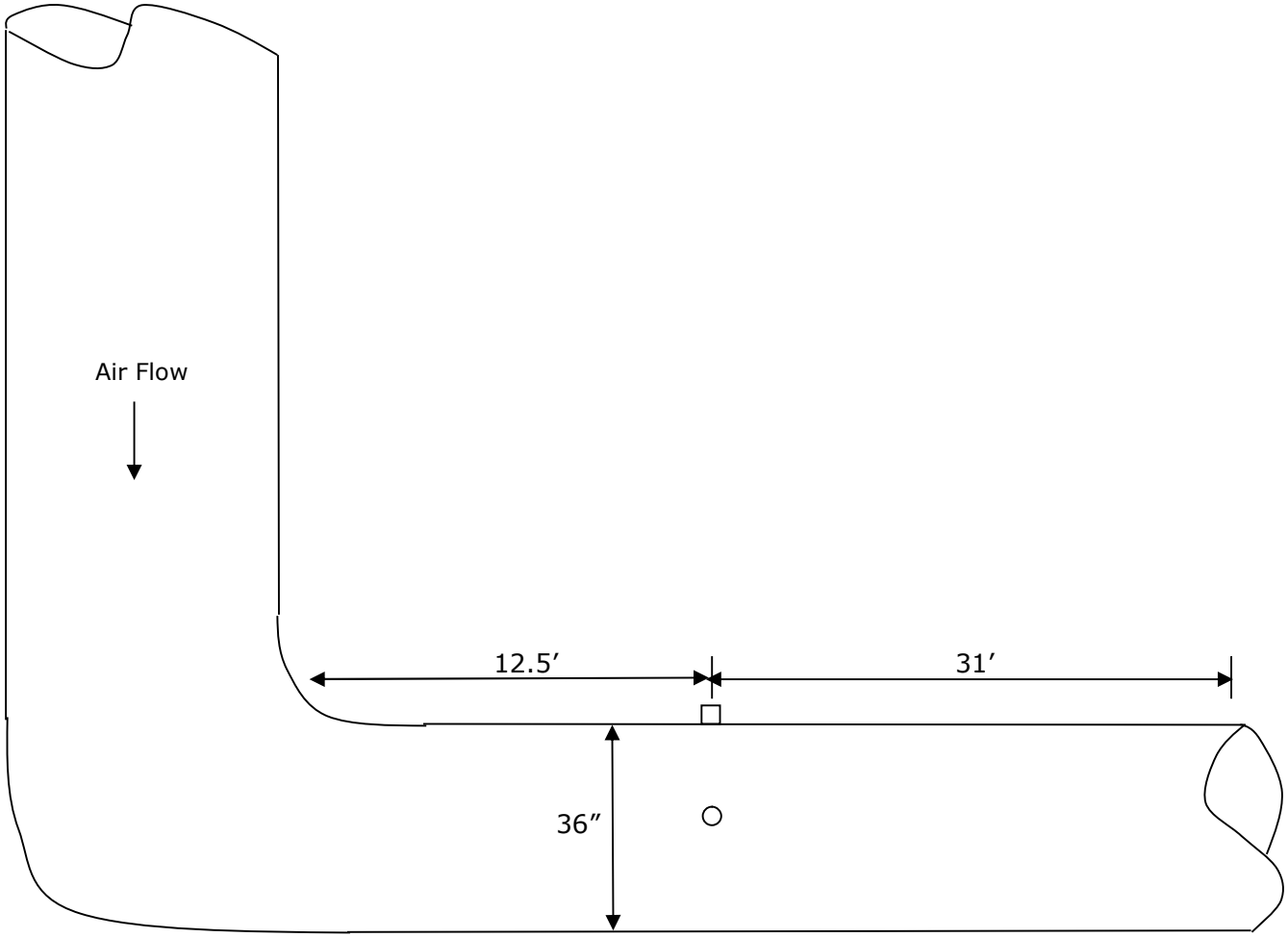


Figure 2
Carbon Bed Outlet Sampling Location
Vinyl Ethers South
The Chemours Company
Fayetteville, North Carolina

Sample Traverse Point Locations for Circular Stacks

Facility: The Chemours Company

Source Identification: VES Carbon Bed Outlet

Stack Diameter: 41.5 inches

Sampling Locations: 3.6 diameters downstream
8.9 diameters upstream

Minimum Number of Traverse points as specified by EPA Method 1: 24

Number of traverse points sampled: 24

Traverse Point Number	Percent of Stack Diameter From Inside Wall	Distance in Inches From Inside Wall*
1	2.1	1.0
2	6.7	2.8
3	11.8	4.9
4	17.7	7.3
5	25.0	10.4
6	35.6	14.8
7	64.4	26.7
8	75.0	31.1
9	82.3	34.2
10	88.2	36.6
11	93.3	38.7
12	97.9	35.0

*Traverse points located within 1.00" to the stack wall for stacks having an inside diameter greater than 24" will be relocated as well as traverse points located within 0.50 inches to the stack wall on stacks with a 24" ID or less to meet criteria.

APPENDIX C
FIELD DATA AND CALCULATIONS

VES Carbon Bed Inlet Field Test Data

Field Data Summary
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Inlet
Fayetteville, North Carolina

	Run 1						Run 2						Run 3					
Traverse	Stack	Delta	Delta	Tm(F)		SQRT	Stack	Delta	Delta	Tm(F)		SQRT	Stack	Delta	Delta	Tm(F)		SQRT
Point	Temp(F)	P	H	in	out	Delta P	Temp(F)	P	H	in	out	Delta P	Temp(F)	P	H	in	out	Delta P
A1	57	1.00	1.64	48	47	1.0000	64	0.95	1.55	65	63	0.9747	68	0.89	1.45	69	68	0.9434
2	57	0.97	1.59	52	47	0.9849	64	0.92	1.50	69	64	0.9592	68	0.91	1.49	71	68	0.9539
3	58	0.93	1.52	55	48	0.9644	63	0.80	1.31	71	64	0.8944	68	0.88	1.44	72	68	0.9381
4	58	0.89	1.45	57	49	0.9434	63	0.75	1.23	72	64	0.8660	69	0.88	1.44	73	68	0.9381
5	58	0.82	1.34	59	49	0.9055	64	0.68	1.11	73	65	0.8246	69	0.82	1.34	73	68	0.9055
6	59	0.73	1.19	61	50	0.8544	64	0.68	1.11	73	65	0.8246	69	0.69	1.13	73	68	0.8307
7	59	0.58	0.95	62	51	0.7616	65	0.62	1.01	74	65	0.7874	69	0.54	0.88	73	68	0.7348
8	59	0.44	0.72	62	52	0.6633	65	0.62	1.01	74	65	0.7874	69	0.43	0.70	73	68	0.6557
9	59	0.34	0.55	62	53	0.5831	65	0.62	1.01	74	66	0.7874	69	0.33	0.54	73	68	0.5745
10	59	0.29	0.47	63	53	0.5385	65	0.58	0.95	74	66	0.7616	69	0.29	0.47	72	68	0.5385
11	59	0.24	0.39	63	54	0.4899	65	0.55	0.90	74	66	0.7416	69	0.25	0.41	72	68	0.5000
12	60	0.17	0.28	63	55	0.4123	65	0.55	0.90	76	67	0.7416	69	0.22	0.36	72	68	0.4690
B1	61	0.91	1.49	62	59	0.9539	66	0.92	1.50	70	67	0.9592	69	0.80	1.31	71	68	0.8944
2	63	0.90	1.47	65	59	0.9487	66	0.90	1.47	73	67	0.9487	69	0.85	1.39	73	68	0.9220
3	62	0.90	1.47	68	59	0.9487	66	0.87	1.42	75	68	0.9327	69	0.85	1.39	74	68	0.9220
4	61	0.82	1.34	70	60	0.9055	66	0.86	1.41	74	67	0.9274	69	0.82	1.34	74	68	0.9055
5	61	0.74	1.21	71	61	0.8602	66	0.80	1.31	75	68	0.8944	69	0.74	1.21	75	68	0.8602
6	62	0.74	1.21	71	62	0.8602	67	0.65	1.06	75	68	0.8062	70	0.69	1.13	75	69	0.8307
7	62	0.67	1.09	72	62	0.8185	67	0.53	0.86	75	68	0.7280	69	0.62	1.01	75	69	0.7874
8	62	0.62	1.01	72	62	0.7874	67	0.45	0.73	74	68	0.6708	69	0.61	1.00	76	69	0.7810
9	62	0.60	0.98	72	63	0.7746	67	0.35	0.57	74	68	0.5916	70	0.59	0.97	75	69	0.7681
10	62	0.61	1.00	72	63	0.7810	67	0.27	0.44	74	68	0.5196	69	0.58	0.95	75	69	0.7616
11	62	0.57	0.93	72	63	0.7550	67	0.27	0.44	74	68	0.5196	69	0.56	0.91	75	69	0.7483
12	62	0.57	0.93	72	63	0.7550	68	0.19	0.31	74	69	0.4359	69	0.56	0.91	75	69	0.7483
						0.0000						0.0000						0.0000
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						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
Average	60	0.67	1.09	64	56	0.8021	66	0.64	1.05	73	66	0.7869	69	0.64	1.05	73	68	0.7880

Test Data Summary and Calculations
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Inlet
Fayetteville, North Carolina

Parameter	Run 1	Run 2	Run 3
Run Date	12/11/20	12/11/20	12/11/20
Start/Stop Time	1010-1211	1242-1431	1452-1640
Duration of Run, Minutes	96	96	96
Ave. Nozzle Diameter, inches	0.21	0.21	0.21
Pitot Calibration Factor, CF	0.84	0.84	0.84
Meter Gamma	1.004	1.004	1.004
Meter Delta H, inches of H2O	1.64	1.64	1.64
Stack Diameter, inches	36	36	36
Rectangular Width, inches	0	0	0
Rectangular Length, inches	0	0	0
Stack Area, sq.ft.	7.07	7.07	7.07
Barometric Pressure, inches of Hg	30.2	30.2	30.2
Static Pressure, inches of H2O	-3.5	-3.5	-3.5
Dry Gas Meter Sample Volume, (VM)ft3			
Initial	678.136	734.649	791.722
Final	734.393	791.592	848.325
Total Volume	56.257	56.943	56.603
Ave. Stack Temperature, Ts(F)	60.2	65.5	69.0
Ave. Meter Temperature, Tm(F)	60.2	69.8	70.8
Ave. Run Delta H, inches of H2O	1.09	1.05	1.05
Ave. Square Root of Delta P	0.8021	0.7869	0.7880
Moisture Data			
Volume of water collected, mls	1.5	3.2	1.7
Silica Gel, grams	9	11.8	11.1
Total Collected, mls	10.5	15	12.8
ORSAT Data			
%O2	20.90	20.90	20.90
%CO2	0.0	0.0	0.0
%CO			
Calculations			
Vw(std), scf =	0.494	0.706	0.602
Vm(std), dscf =	58.018	57.657	57.205
Bws=	0.008	0.012	0.010
Md=	28.84	28.84	28.84
Ms=	28.74	28.70	28.72
Vs, ft/sec =	44.8	44.2	44.4
Qs, acfm =	18,991	18,738	18,821
Qs(std), dscfm =	19,128	18,614	18,605
Isokinetic Sampling Rate, %	92.9	94.8	94.1

Where:
An = area of the nozzle
As = area of the stack
Vw(std) = volume of water vapor in gas, standard conditions = 0.04707*Vlc
Vm(std) = vol. of gas sampled, standard conditions = 17.647 x Vm x gamma x [Pb + (dH/13.6)]/Tm(R)
Bws = water vapor in gas stream, proportion by volume = Vw(std)/(Vm(std) + Vw(std))
Md = molecular weight of stack gas, dry basis = (0.44 x%CO2) + (0.32 x%O2) + [0.28 x (%N2 + %CO)]
Ms = molecular weight of stack gas, wet basis = [Md x (1-Bws)] + (18.0 x Bws)
Vs = stack gas velocity = 85.49 x Cp x (avg. Sq.Rt. dP) x [Sq.Rt. (Ts(R))/(Ms x Ps)]
Qs = stack gas flow rate = Vs x As x 60
Qs(std) = stack gas flow rate, standard conditions = Qs x (1-Bws) x (528/(Ts(R)) x (Ps/29.92)
Isokinetic sampling rate = {(Ts(R)) x [(0.00267 x Vlc) + (Vm(std)/17.647)] x 100}/(Time x vs x Ps x An x60)

Results Summary
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Inlet
Fayetteville, North Carolina

Parameter:		Run 1				Run 2				Run 3				Average			
	Mol. Wt.	mg	mg/dscm	ppm	lb/hr	mg	mg/dscm	ppm	lb/hr	mg	mg/dscm	ppm	lb/hr	mg	mg/dscm	ppm	lb/hr
HFPO - Dimer Acid	330	0.04380	2.67E-02	1.94E-03	1.91E-03	0.03962	2.43E-02	1.77E-03	1.69E-03	0.03280	2.02E-02	1.48E-03	1.41E-03	0.04	2.37E-02	1.73E-03	1.67E-03

Where:
Pollutant Emission Concentration:
mg= total sample collected, milligrams
mg/dscm = milligrams of pollutant per dry standard cubic meter sampled = (mg/dscf) x (35.314 cubic feet/cubic meter)
ppm = parts per million =((mg/dscm x 24.04 liters/mol)/mol.wt))

Pollutant Emission Rate:
lb/hr = pounds of pollutant emitted per hour = mg/1000/[(453.59 g/lb)/(dscf)] x dscfm x 60 min/hr

Example Calculations

The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Inlet
Fayetteville, North Carolina
Note: Values are shown for example purposes only.

Vm,a = Dry gas volume at actual conditions (acf)

Initial gas meter volume:	678.136
Final gas meter volume:	734.393
Difference:	56.257

Vm,std = Volume of dry gas at standard conditions (dscf)

= 17.647x Vm, a x Gamma*[Pbar+(DeltaH/13.6)]/Tm(R)
= 17.647 x 0.000 x 1.004 x (30.20 + [(1.640 /13.6) / 520
= 58.018

Vl,c = Volume of water collected in impingers and silica gel (ml)

impinger catch (mls):	2
silica gel (g)	9.0
total:	10.5

Vw,std = Volume of water vapor in gas at standard conditions (cu.ft.)

= (0.04707) x (Vl,c)
= 0.04707 x 10.5
= 0.494

Bwo = Proportion by volume of water vapor in gas stream

= Vw,std/(Vw,std+Vm,std)
= 0.49 / (0.49 + 58.018)
= 0.008

Ps = Stack gas static pressure (in. Hg)

= St/13.6
= -3.50 / 13.6
= -0.257

Pa = Absolute stack gas pressure (in. Hg)

= Ps+Pbar
= -0.257 + 30.20
= 29.94

MFD = Dry mole fraction of stack gas

= 1-Bwo
= 1 - 0.008
= 0.992

Md = Dry molecular weight of stack gas (lb/lb-mol)

= (0.32 x %O2) + (0.44 x %CO2) + (0.28 x %N2)
= (0.32 x 20.90)+(0.44 x 0.00) + (0.28 x 79.10)
= 28.84

Mw = Wet molecular weight of stack gas (lb/lb-mol)

= (Md) x (MFD) + (0.18) x (Bwo*100)
= 28.84 x 0.992 + 0.18 x 0.84466
= 28.74

Example Calculations

The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Inlet
Fayetteville, North Carolina
Note: Values are shown for example purposes only.

Vs,avg = **Average stack gas velocity (fps)**
= Kp x (Cp) x (sqrt,deltaP) x sqrt((Ts + 460°R)/Mw*Pa))
= 85.48 x 0.84 x 0.80 x sqrt (##)
= 44.8

A **Cross sectional areas of stack (sq. ft)**
= pi/4*d^2
= 3.14159/4 x 3.00 ^2
= 7.07

Qa **Volumetric flow rate at actual conditions (acfm)**
= (60)sec/min(A)(Vs, avg)
= 60 x 7.0686 x 44.77
= 18,989

Qstd **Volumetric flow rate at standard conditions (scfm)**
= Qa x (528/Ts,avg + 460) x Pa/29.92
= 18,989 x (528 / 520) x 1.001
= 19,289

Qstd,dry **Volumetric flow rate at dry standard conditions per minute(dscfm)**
= Qstd x (1-Bwo)
= 19,289 x 0.9916
= 19,126

mg/dscm **HFPO-DA concentration**
= (mg/dscf) x 35.314 cu. ft./cu. meter
= (0.044 / 58.02) :35.314
= 2.67E-02

lb/hr **HFPO-DA Mass Emission Rate**
= mg/1000/[(453.59 g/lb)/(dscf)] x dscfm x 60 min/hr
= 0.044 / 1,000 /[453.59) / 58.02)] x 19,128 x 60
= 1.91E-03

EPA Isokinetic Field Sheet

Methods Performed _____

Client	Chemours	Run Number	1	Pitot Number	P4-2
Location	Fayetteville NC	Stack Diameter	36	Pitot Coefficient	0.84
Source	VE South Inlet	Barometric Pres.	30.20	Stack TC I.D.	TC-5D
Date	12/11/20	Static Pressure	~~2.0~~ -3.5	Oven Box I.D.	OB-5
Operators	EA/BA	Meter Box #	3	Impinger Out I.D.	IO-11
Start Time	1010 / 1123	Meter delta H	1.64	Nozzle Size	.210
End Time	1058 / 1211	Meter Gamma	1.004	XAD Trap I.D.	NA

K-1.64

Leak Check Rates	Sample Rate in.	Sample Rate cfm	Pitot +	Pitot -
Initial	11	0.007	✓	✓
Mid				
Mid				
Final	8	0.005	✓	✓

Sample Point	Sample Time (min)	Velocity Head (in. H_2O)	Orifice Setting (in. H_2O)	Meter Volume (ft^3)	Temperature Readings in Degrees Farenheit: Stack	Probe	Oven Box	Impinger	Aux	Meter Inlet	Meter Outlet	Vacuum (in. hg)	Comments/Notes
1	4	1.0	1.64	678.136	57	72	73	45	38	48	47	5	
2	8	0.97	1.59	680.9	57	73	73	38	34	52	47	5	
3	12	0.93	1.52	683.6	58	73	74	36	35	55	48	5	
4	16	0.89	1.45	686.4	58	73	75	37	36	57	49	5	
5	20	0.82	1.34	689.1	58	73	74	36	35	59	49	5	
6	24	0.73	1.19	691.8	59	74	73	36	35	61	50	5	
7	28	0.58	0.95	694.2	59	74	73	36	35	62	51	4	
8	32	0.44	0.72	696.5	59	73	74	36	35	62	52	4	
9	36	0.34	0.55	698.5	59	74	74	35	35	62	53	3	
10	40	0.29	0.47	700.2	59	73	75	36	35	63	53	3	
11	44	0.24	0.39	701.8	59	74	75	35	37	63	54	3	
12	48	0.17	0.28	703.2	60	74	74	35	36	63	55	1	
1	52	0.91	1.49	704.489	61	73	74	45	37	62	59	5	
2	56	0.90	1.47	707.1	63	74	74	36	34	65	59	5	
3	1 00	0.90	1.47	—	62	74	75	36	34	68	54	5	
4	1 04	0.82	1.34	712.6	61	76	77	35	33	70	60	5	
5	1 08	0.74	1.21	715.3	61	76	76	36	34	71	61	5	
6	1 12	0.74	1.21	717.9	62	76	75	36	33	71	62	5	
7	1 16	0.67	1.09	720.4	62	76	75	36	34	72	62	5	
8	1 20	0.62	1.01	722.8	62	76	75	36	35	72	62	5	
9	1 24	0.60	0.98	725.2	62	76	74	37	34	72	63	4	
10	1 28	0.61	1.0	727.5	62	76	75	37	34	72	63	4	
11	1 32	0.57	0.93	729.8	62	76	75	37	35	72	63	4	
12	1 36	0.57	0.93	—	62	76	75	38	37	72	63		
				734.393									

Impinger Data (vol)		
#	Initial	Final
1		
2		
3		
4		
5		
6		

Silica Gel Data (gm)		
#	Initial	Final
1		
2		

Moisture Gain	
_____	ml.
_____	gm
_____	Total

Filter Data		
#	Number	Tare
1		
2		
3		

Molecular Weight Data (%		
#	O_2	CO_2
1		
2		
3		
Avg		

RAMBOLL

EPA Isokinetic Field Sheet

Methods Performed _____

Client	Chemours	Run Number	2	Pitot Number	P4-2		
Location	Fayetteville NC	Stack Diameter	36	Pitot Coefficient	0.84		
Source	VE South Inlet	Barometric Pres.	30.20	Stack TC I.D.	TC-5D		
Date	12/11/20	Static Pressure	-3.5	Oven Box I.D.	OB-5		
Operators	EA/AA	Meter Box #	3	Impinger Out I.D.	IO-4		
Start Time	1242 / 1343	Meter delta H	1.604	Nozzle Size	.210		
End Time	1330 / 1431	Meter Gamma	1.004	XAD Trap I.D.	NA	K-1.64	

Leak Check Rates				
	Sample Rate		Pitot	
	in.	cfm	+	-
Initial	10	0.009	✓	✓
Mid				
Mid				
Final	8	0.007	✓	✓

Sample Point	Sample Time (min)	Velocity Head (in. H_2O)	Orifice Setting (in. H_2O)	Meter Volume (ft^3)	Temperature Readings in Degrees Farenheit							Vacuum (in. hg)	Comments/Notes
					Stack	Probe	Oven Box	Impinger	Aux	Meter Inlet	Meter Outlet		
1	4	0.95	1.55	734.649	64	76	80	55	57	65	63	5	
2	8	0.92	1.50	737.4	64	76	80	50	33	69	64	5	
3	12	0.80	1.31	740.2	63	76	78	49	34	71	64	5	
4	16	0.75	1.23	743.0	63	77	77	48	35	72	64	5	
5	20	0.68	1.11	745.6	64	76	75	49	35	73	65	5	
6	24	0.68	1.11	748.2	64	76	75	46	35	73	65	5	
7	28	0.62	1.01	750.6	65	76	75	44	35	74	65	4	
8	32	0.62	1.01	753.0	65	76	75	43	34	74	65	4	
9	36	0.62	1.01	—	65	75	76	42	35	74	66	4	
10	40	0.58	0.95	758.0	65	76	75	41	36	74	66	4	
11	44	0.55	0.90	760.0	65	76	74	42	36	74	66	4	
12	48	0.55	0.90	762.2	65	76	75	42	35	76	67	4	
1	52	0.92	1.50	764.444	66	76	75	44	35	70	67	5	
2	56	0.90	1.47	767.2	66	76	75	43	34	73	67	5	
3	60	.87	1.42	770.0	66	76	75	40	33	75	68	5	
4	64	0.86	1.41	—	66	76	75	41	33	74	67	5	
5	68	0.80	1.31	775.5	66	76	75	41	33	75	68	5	
6	1 12	0.65	1.06	778.2	67	76	75	41	33	75	68	4	
7	1 16	0.53	0.86	780.7	67	76	75	41	32	75	68	4	
8	1 20	0.45	0.73	782.8	67	76	75	41	32	74	68	4	
9	1 24	0.35	0.57	—	67	76	76	40	33	74	68	4	
10	1 28	0.27	0.44	786.9	67	76	75	40	33	74	68	4	
11	1 32	0.27	0.44	—	67	76	75	40	33	74	68	4	
12	1 36	0.19	0.31	789.9	68	76	76	40	34	74	69	4	
				791.592									

Impinger Data (vol)		
#	Initial	Final
1		
2		
3		
4		
5		
6		

Silica Gel Data (gm)		
#	Initial	Final
1		
2		

Moisture Gain	
_____	ml.
_____	gm
_____	Total

Filter Data		
#	Number	Tare
1		
2		
3		

Molecular Weight Data (%		
#	O_2	CO_2
1		
2		
3		
Avg		

RAMBOLL

EPA Isokinetic Field Sheet

Methods Performed _____

Client	Cikmours	Run Number	3	Pitot Number	P4-2
Location	Fayetteville NC	Stack Diameter	36	Pitot Coefficient	0.84
Source	VE South Inlet	Barometric Pres.	30.20	Stack TC I.D.	TC-50
Date	12/11/20	Static Pressure	-3.5	Oven Box I.D.	OB-5
Operators	EA/AA	Meter Box #	3	Impinger Out I.D.	IO-11
Start Time	1452 / 1552	Meter delta H	1.64	Nozzle Size	.210
End Time	1540 / 1640	Meter Gamma	1.004	XAD Trap I.D.	N/A

1.64

Leak Check Rates	Sample Rate in.	Sample Rate cfm	Pitot +	Pitot -
Initial	10	0.010	✓	✓
Mid				
Mid				
Final	9	0.009	✓	✓

Sample Point	Sample Time (min)	Velocity Head (in. H_2O)	Orifice Setting (in. H_2O)	Meter Volume (ft^3)	Temperature Readings in Degrees Farenheit: Stack	Probe	Oven Box	Impinger	Aux	Meter Inlet	Meter Outlet	Vacuum (in. hg)	Comments/Notes
1	4	0.89	1.45	791.722	68	75	75	56	34	69	68	5	
2	8	0.91	1.49	—	68	76	74	50	34	71	68	5	
3	12	0.88	1.44	797.0	68	76	74	45	34	72	68	5	
4	16	0.88	1.44	—	69	75	75	43	34	73	68	5	
5	20	0.82	1.31	802.5	69	76	75	42	33	73	68	5	
6	24	0.69	1.13	805.1	69	76	74	41	33	73	68	5	
7	28	0.54	0.88	807.7	69	80	81	41	33	73	68	4	
8	32	0.43	0.70	809.9	69	80	80	40	33	73	68	4	
9	36	0.33	0.54	811.9	69	80	80	40	33	73	68	4	
10	40	0.29	0.47	813.7	69	80	81	41	33	72	68	4	
11	44	0.25	0.41	815.4	69	80	80	40	33	72	68	4	
12	48	0.22	0.36	817.0	69	80	81	40	34	72	68	3	
1	52	0.80	1.31	818.470	69	80	80	46	35	71	68	4	
2	56	0.85	1.39	820.2	69	80	80	41	34	73	68	4	
3	1 00	0.85	1.39	—	69	80	81	38	34	74	68	4	
4	1 04	0.82	1.34	826.4	69	80	80	39	35	74	68	4	
5	1 08	0.74	1.21	829.1	69	80	81	40	34	75	69	4	
6	1 12	0.69	1.13	831.7	70	80	80	40	34	75	69	4	
7	1 16	0.62	1.01	834.4	69	80	81	40	34	76	69	4	
8	1 20	0.61	1.00	836.73	69	79	80	40	35	76	69	4	
9	1 24	0.59	0.97	839.09	70	80	80	40	35	75	69	4	
10	1 28	0.58	0.95	841.43	69	79	80	40	36	75	69	4	
11	1 32	0.56	0.91	843.7	69	80	80	41	36	75	69	4	
12	1 36	0.56	0.91	—	69	80	80	41	36	75	69	4	
				848.325									

Impinger Data (vol)		
#	Initial	Final
1		
2		
3		
4		
5		
6		

Silica Gel Data (gm)		
#	Initial	Final
1		
2		

Moisture Gain	
_____	ml.
_____	gm
_____	Total

Filter Data		
#	Number	Tare
1		
2		
3		

Molecular Weight Data (%		
#	O_2	CO_2
1		
2		
3		
Avg		

RAMBOLL

Sample Train Recovery Data Sheet

Client Chemours Location Fayetteville Source VES Inlet Method 0010 Date 12/11/20

Run # 1

	Final ml or gm	Initial ml or gm	Net Gain
Impinger #1	499.6	499.5	
Impinger #2	763.6	764.2	
Impinger #3	706.4	705.7	
Impinger #4	491.6	490.3	
Impinger #5	855.3	846.3	
Impinger #6			
Impinger #7			
Impinger #8			
		Total Gain	ml/gm

Filter #1 _____
Filter #2 _____
Filter #3 _____
Run Start Time _____
Run End Time _____
Recovery Technician _____

Run # 2

	Final ml or gm	Initial ml or gm	Net Gain
Impinger #1	518.8	518.4	
Impinger #2	766.7	767.5	
Impinger #3	629.7	628.7	
Impinger #4	499.8	498.8	
Impinger #5	847.4	835.6	
Impinger #6			
Impinger #7			
Impinger #8			
		Total Gain	ml/gm

Filter #1 _____
Filter #2 _____
Filter #3 _____
Run Start Time _____
Run End Time _____
Recovery Technician _____

Run # 3

	Final ml or gm	Initial ml or gm	Net Gain
Impinger #1	500.3	499.9	
Impinger #2	763.9	764.3	
Impinger #3	711.6	711.1	
Impinger #4	492.1	490.9	
Impinger #5	914.1	903.0	
Impinger #6			
Impinger #7			
Impinger #8			
		Total Gain	ml/gm

Filter #1 _____
Filter #2 _____
Filter #3 _____
Run Start Time _____
Run End Time _____
Recovery Technician _____

VES Carbon Bed Outlet Field Test Data

Field Data Summary
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Outlet
Fayetteville, North Carolina

	Run 1						Run 2						Run 3					
Traverse Point	Stack Temp(F)	Delta P	Delta H	Tm(F) in	Tm(F) out	SQRT Delta P	Stack Temp(F)	Delta P	Delta H	Tm(F) in	Tm(F) out	SQRT Delta P	Stack Temp(F)	Delta P	Delta H	Tm(F) in	Tm(F) out	SQRT Delta P
A1	63	0.26	0.63	48	48	0.5099	71	0.23	0.56	63	63	0.4796	73	0.23	0.56	66	66	0.4796
2	64	0.28	0.68	49	49	0.5292	71	0.23	0.56	63	63	0.4796	73	0.23	0.56	67	67	0.4796
3	64	0.30	0.73	49	49	0.5477	71	0.22	0.53	63	63	0.4690	73	0.24	0.58	66	66	0.4899
4	65	0.32	0.78	50	50	0.5657	71	0.22	0.53	63	63	0.4690	73	0.24	0.58	66	66	0.4899
5	65	0.32	0.78	50	50	0.5657	71	0.21	0.51	63	63	0.4583	73	0.27	0.66	66	66	0.5196
6	65	0.33	0.80	51	51	0.5745	71	0.25	0.61	63	63	0.5000	73	0.28	0.68	66	66	0.5292
7	65	0.36	0.88	51	51	0.6000	71	0.31	0.75	63	63	0.5568	73	0.30	0.73	66	66	0.5477
8	65	0.36	0.88	52	52	0.6000	71	0.34	0.83	63	63	0.5831	73	0.34	0.83	66	66	0.5831
9	66	0.37	0.90	53	53	0.6083	71	0.35	0.85	63	63	0.5916	73	0.34	0.83	67	67	0.5831
10	66	0.37	0.90	53	53	0.6083	71	0.37	0.90	64	64	0.6083	73	0.37	0.90	67	67	0.6083
11	66	0.36	0.88	54	54	0.6000	71	0.37	0.90	64	64	0.6083	73	0.38	0.93	67	67	0.6164
12	66	0.39	0.95	54	54	0.6245	71	0.38	0.93	64	64	0.6164	73	0.38	0.93	67	67	0.6164
B1	67	0.37	0.90	57	57	0.6083	72	0.37	0.90	65	65	0.6083	73	0.36	0.88	68	68	0.6000
2	67	0.35	0.73	59	59	0.5916	72	0.35	0.85	65	65	0.5916	74	0.36	0.88	68	68	0.6000
3	68	0.35	0.73	59	59	0.5916	72	0.36	0.88	65	65	0.6000	74	0.36	0.88	68	68	0.6000
4	68	0.30	0.73	60	60	0.5477	72	0.35	0.85	66	66	0.5916	74	0.35	0.85	68	68	0.5916
5	68	0.34	0.83	60	60	0.5831	72	0.32	0.78	66	66	0.5657	74	0.34	0.83	68	68	0.5831
6	69	0.28	0.68	61	61	0.5292	72	0.28	0.68	66	66	0.5292	74	0.30	0.73	68	68	0.5477
7	69	0.28	0.68	61	61	0.5292	72	0.24	0.58	66	66	0.4899	74	0.24	0.58	68	68	0.4899
8	69	0.24	0.58	61	61	0.4899	72	0.24	0.58	66	66	0.4899	74	0.24	0.58	68	68	0.4899
9	69	0.22	0.54	62	62	0.4690	72	0.22	0.53	67	67	0.4690	74	0.22	0.53	68	68	0.4690
10	70	0.20	0.49	62	62	0.4472	72	0.18	0.44	67	67	0.4243	74	0.20	0.49	68	68	0.4472
11	70	0.18	0.44	62	62	0.4243	72	0.18	0.44	67	67	0.4243	74	0.18	0.44	68	68	0.4243
12	70	0.18	0.44	62	62	0.4243	72	0.18	0.44	67	67	0.4243	74	0.18	0.44	68	68	0.4243
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
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						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
						0.0000						0.0000						0.0000
Average	67	0.30	0.73	56	56	0.5487	72	0.28	0.68	65	65	0.5262	73	0.29	0.70	67	67	0.5337

Test Data Summary and Calculations
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Outlet
Fayetteville, North Carolina

Parameter	Run 1	Run 2	Run 3
Run Date	12/11/20	12/11/20	12/11/20
Start/Stop Time	1010-1211	1242-1431	1452-1640
Duration of Run, Minutes	96	96	96
Ave. Nozzle Diameter, inches	0.243	0.243	0.243
Pitot Calibration Factor, CF	0.84	0.84	0.84
Meter Gamma	1.013	1.013	1.013
Meter Delta H, inches of H2O	1.73	1.73	1.73
Stack Diameter, inches	41.5	41.5	41.5
Rectangular Width, inches	0	0	0
Rectangular Length, inches	0	0	0
Stack Area, sq.ft.	9.39	9.39	9.39
Barometric Pressure, inches of Hg	30.2	30.2	30.2
Static Pressure, inches of H2O	1	1	1
Dry Gas Meter Sample Volume, (VM)ft3			
Initial	307.545	351.505	394.586
Final	351.737	394.505	437.7
Total Volume	44.09	42.743	43.027
Ave. Stack Temperature, Ts(F)	66.8	71.5	73.5
Ave. Meter Temperature, Tm(F)	55.8	64.7	67.2
Ave. Run Delta H, inches of H2O	0.73	0.68	0.70
Ave. Square Root of Delta P	0.5487	0.5262	0.5337
Moisture Data			
Volume of water collected, mls	2	2.8	1.1
Silica Gel, grams	8.8	8.8	8.4
Total Collected, mls	10.8	11.6	9.5
ORSAT Data			
%O2	20.90	20.90	20.90
%CO2	0.0	0.0	0.0
%CO			

Calculations

Vw(std), scf =	0.508	0.546	0.447
Vm(std), dscf =	46.226	44.055	44.136
Bws=	0.011	0.012	0.010
Md=	28.84	28.84	28.84
Ms=	28.72	28.70	28.73
Vs, ft/sec =	30.7	29.6	30.0
Qs, acfm =	17,287	16,655	16,918
Qs(std), dscfm =	17,339	16,535	16,773
Isokinetic Sampling Rate, %	81.0	80.9	79.9

Where:
An = area of the nozzle
As = area of the stack
Vw(std) = volume of water vapor in gas, standard conditions = 0.04707*Vlc
Vm(std) = vol. of gas sampled, standard conditions = 17.647 x Vm x gamma x [Pb + (dH/13.6)]/Tm(R)
Bws = water vapor in gas stream, proportion by volume = Vw(std)/(Vm(std) + Vw(std))
Md = molecular weight of stack gas, dry basis = (0.44 x%CO2) + (0.32 x%O2) + [0.28 x (%N2 + %CO)]
Ms = molecular weight of stack gas, wet basis = [Md x (1-Bws)] + (18.0 x Bws)
Vs = stack gas velocity = 85.49 x Cp x (avg. Sq.Rt. dP) x [Sq.Rt. (Ts(R))/(Ms x Ps)]
Qs = stack gas flow rate = Vs x As x 60
Qs(std) = stack gas flow rate, standard conditions = Qs x (1-Bws) x (528/(Ts(R)) x (Ps/29.92)
Isokinetic sampling rate = {(Ts(R)) x [(0.00267 x Vlc) + (Vm(std)/17.647)] x 100}/(Time x vs x Ps x An x60)

Results Summary
The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Outlet
Fayetteville, North Carolina

Parameter:		Run 1				Run 2				Run 3				Average			
	Mol. Wt.	mg	mg/dscm	ppm	lb/hr	mg	mg/dscm	ppm	lb/hr	mg	mg/dscm	ppm	lb/hr	mg	mg/dscm	ppm	lb/hr
HFPO - Dimer Acid	330	0.00333	2.54E-03	1.85E-04	1.65E-04	0.00365	2.93E-03	2.13E-04	1.81E-04	0.00243	1.94E-03	1.41E-04	1.22E-04	0.00	2.47E-03	1.80E-04	1.56E-04

Where:
Pollutant Emission Concentration:
mg= total sample collected, milligrams
mg/dscm = milligrams of pollutant per dry standard cubic meter sampled = (mg/dscf) x (35.314 cubic feet/cubic meter)
ppm = parts per million =((mg/dscm x 24.04 liters/mol)/mol.wt))

Pollutant Emission Rate:
lb/hr = pounds of pollutant emitted per hour = mg/1000/[(453.59 g/lb)/(dscf)] x dscfm x 60 min/hr

Example Calculations

The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Outlet
Fayetteville, North Carolina
Note: Values are shown for example purposes only.

Vm,a = Dry gas volume at actual conditions (acf)

Initial gas meter volume:	307.545
Final gas meter volume:	351.737
Difference:	44.192

Vm,std = Volume of dry gas at standard conditions (dscf)

= 17.647x Vm, a x Gamma*[Pbar+(DeltaH/13.6)]/Tm(R)
= 17.647 x 0.000 x 1.013 x (30.20 + [(1.730 /13.6) / 516
= 46.226

Vl,c = Volume of water collected in impingers and silica gel (ml)

impinger catch (mls):	2
silica gel (g)	8.8
total:	10.8

Vw,std = Volume of water vapor in gas at standard conditions (cu.ft.)

= (0.04707) x (Vl,c)
= 0.04707 x 10.8
= 0.508

Bwo = Proportion by volume of water vapor in gas stream

= Vw,std/(Vw,std+Vm,std)
= 0.51 / (0.51 + 46.226)
= 0.011

Ps = Stack gas static pressure (in. Hg)

= St/13.6
= 1.00 / 13.6
= 0.074

Pa = Absolute stack gas pressure (in. Hg)

= Ps+Pbar
= 0.074 + 30.20
= 30.27

MFD = Dry mole fraction of stack gas

= 1-Bwo
= 1 - 0.011
= 0.989

Md = Dry molecular weight of stack gas (lb/lb-mol)

= (0.32 x %O2) + (0.44 x %CO2) + (0.28 x %N2)
= (0.32 x 20.90)+(0.44 x 0.00) + (0.28 x 79.10)
= 28.84

Mw = Wet molecular weight of stack gas (lb/lb-mol)

= (Md) x (MFD) + (0.18) x (Bwo*100)
= 28.84 x 0.989 + 0.18 x 1.08775
= 28.72

Example Calculations

The Chemours Company - Fayetteville Works
Vinyl Ethers South Carbon Bed Outlet
Fayetteville, North Carolina
Note: Values are shown for example purposes only.

Vs,avg = **Average stack gas velocity (fps)**

= Kp x (Cp) x (sqrt,deltaP) x sqrt((Ts + 460°R)/Mw*Pa))
= 85.48 x 0.84 x 0.55 x sqrt (##)
= 30.7

A **Cross sectional areas of stack (sq. ft)**

= pi/4*d^2
= 3.14159/4 x 3.46 ^2
= 9.39

Qa **Volumetric flow rate at actual conditions (acfm)**

= (60)sec/min(A)(Vs, avg)
= 60 x 9.3934 x 30.67
= 17,286

Qstd **Volumetric flow rate at standard conditions (scfm)**

= Qa x (528/Ts,avg + 460) x Pa/29.92
= 17,286 x (528 / 527) x 1.012
= 17,529

Qstd,dry **Volumetric flow rate at dry standard conditions per minute(dscfm)**

= Qstd x (1-Bwo)
= 17,529 x 0.9891
= 17,338

mg/dscm **HFPO-DA concentration**

= (mg/dscf) x 35.314 cu. ft./cu. meter
= (0.003 / 46.23) :35.314
= 2.54E-03

lb/hr **HFPO-DA Mass Emission Rate**

= mg/1000/[(453.59 g/lb)/(dscf)] x dscfm x 60 min/hr
= 0.00 / 1,000 /[453.59) / 46.23)] x 17,339 x 60
= 1.65E-04

EPA Isokinetic Field Sheet

Methods Performed: PEAS

Client	CHEMTRADE	Run Number	1	Pitot Number	P4
Location	FAYETTEVILLE NC	Stack Diameter	36 41.5"	Pitot Coefficient	0.84
Source	V6 SOUTH OUTLET	Barometric Pres.	30.20	Stack TC I.D.	TC-7D
Date	12/11/20	Static Pressure	+1.0	Oven Box I.D.	OB-2
Operators	EA/JLS	Meter Box #	15	Impinger Out I.D.	IO-12
Start Time	1010	Meter delta H	1.73	Nozzle Size	.243
End Time	1211	Meter Gamma	1.013	XAD Trap I.D.	

K-2.45

Leak Check Rates	Sample Rate in.	Sample Rate cfm	Pitot +	Pitot -
Initial	10	0.005	✓	✓
Mid				
Mid				
Final	8	.002	✓	✓

Sample Point	Sample Time (min)	Velocity Head (in. H_2O)	Orifice Setting (in. H_2O)	Meter Volume (ft^3)	Temperature Readings in Degrees Farenheit: Stack	Probe	Oven Box	Impinger	Aux	Meter Inlet	Meter Outlet	Vacuum (in. hg)	Comments/Notes
1	4	0.26	0.63	307.595	63	79	79	50	48	48	48	4	
2	8	.28	.68	309.7—	64	79	79	47	48	49	49	4	
3	12	.30	.73	—	64	79	79	46	47	49	49	4	
4	16	.32	.78	—	65	79	79	47	47	50	50	4	
5	20	.32	.78	314.50	65	79	79	47	47	50	50	4	
6	24	.33	.80	316 —	65	79	79	48	47	51	51	5	
7	28	.36	.88	—	65	79	79	47	46	51	51	5	
8	32	.36	.88	320.50	65	79	79	46	46	52	52	5	
9	36	.37	.88	322 —	66	79	79	48	46	53	53	5	.90
10	40	.37	.90	324.8	66	79	79	47	46	53	55	5	
11	44	.36	.88	326.—	66	79	79	50	46	54	54	5	
12	48	.39	.95	328.40	66	79	79	50	47	54	54	5	1058
				330.638									
1	52	.37	.90	330.740	67	80	80	54	47	57	57	5	1123
2	56	.35	0.73	—	67	80	80	45	47	59	59	5	
3	1 00	.35	.73	334.6	68	79	79	44	47	59	59	5	
4	1 04	.30	.73	336.—	68	79	79	44	46	60	60	5	
5	1 08	.34	.83	—	68	79	79	43	42	60	60	5	
6	1 12	.28	.68	340 —	69	78	79	43	42	61	61	5	
7	1 16	.28	.68	341.80	69	79	79	43	46	61	61	5	
8	1 20	.24	.58	343 —	69	79	79	43	44	61	61	4	
9	1 24	.22	.54	345.60	69	79	79	43	45	62	62	4	
10	1 28	.20	.49	—	70	79	79	43	45	62	62	4	
11	1 32	.18	.44	348.6	70	78	79	43	46	62	62	4	
12	1 36	.18	.44	349.90	70	78	79	43	46	62	62	4	
				357.73	7								

Impinger Data (vol) #	Initial	Final
1		
2		
3		
4		
5		
6		

Silica Gel Data (gm) #	Initial	Final
1		
2		

Moisture Gain	
	ml.
	gm
	Total

Filter Data #	Number	Tare
1		
2		
3		

Molecular Weight Data (% #	O_2	CO_2
1		
2		
3		
Avg		

RAMBOLL

EPA Isokinetic Field Sheet

Methods Performed: PFAS

Client	CHEMOURS	Run Number	2	Pitot Number	P4
Location	FAYETTEVILLE NC	Stack Diameter	~~36~~ 41.5"	Pitot Coefficient	.84
Source	VES OUTLET	Barometric Pres.	30.20	Stack TC I.D.	TC 70
Date	12/11/20	Static Pressure	+1.0	Oven Box I.D.	2
Operators	JLS, EA	Meter Box #	15	Impinger Out I.D.	12
Start Time	1242	Meter delta H	1.73	Nozzle Size	.243
End Time	~~1330~~ 1431	Meter Gamma	1.013	XAD Trap I.D.	

K-2.45

Leak Check Rates	Sample Rate in.	Sample Rate cfm	Pitot +	Pitot -
Initial	8	.000	✓	✓
Mid				
Mid				
Final	9	.000	✓	✓

Sample Point	Sample Time (min)	Velocity Head (in. H_2O)	Orifice Setting (in. H_2O)	Meter Volume (ft^3)	Stack	Probe	Oven Box	Impinger	Aux	Meter Inlet	Meter Outlet	Vacuum (in. hg)	Comments/Notes
					Temperature Readings in Degrees Farenheit								
1	4	0.23	0.56	351.505	71	79	79	58	56	63	63	3	
2	8	0.23	0.56	353.2	71	79	82	54	56	63	63	3	
3	12	.22	.53	354.70	71	79	81	51	54	63	63	2	
4	16	0.22	0.53	—	71	79	79	48	55	63	63	2	
5	20	0.21	0.57	357.9	71	79	80	47	56	63	63	2	
6	24	.25	0.61	359.—	71	79	78	47	55	63	63	2	
7	28	.31	.75	361 —	71	79	79	46	51	63	63	2	
8	32	.34	.83	363.40	71	79	79	45	52	63	63	2	
9	36	.35	.85	365.10	71	79	79	45	56	63	63	3	
10	40	.37	.90	367.	71	79	79	46	53	64	64	2	
11	44	.37	.90	—	71	78	79	46	53	64	64	2	
12	48	.38	.93	371.20	71	79	79	46	53	64	64	2	1330
				373.121									
1	52	.37	.90	373.378	72	79	79	51	52	65	65	2	1342
2	56	.35	.85	375 —	72	79	79	46	55	65	65	2	
3	60	.36	.88	377.72	72	79	79	44	42	65	65	2	
4	64	.35	.85	379.00	72	79	79	44	43	66	66	2	1.04
5	68	.32	.78	381 —	72	79	79	44	43	66	66	2	1.08
6	72	.28	.68	—	72	79	79	44	41	66	66	2	1.12
7	76	.24	.58	386.40	72	79	79	44	42	66	66	2	1.16
8	80	.24	.58	—	72	79	80	44	42	66	66	2	1.20
9	84	.22	.53	388.50	72	79	79	44	43	67	67	2	1.24
10	88	.18	.44	390 —	72	79	79	45	43	67	67	2	1.28
11	92	.18	.44	391 —	72	79	79	45	44	67	67	2	1.32
12	96	.18	.44	392.0	72	79	79	45	44	67	67	2	1.36
				394.605									

Impinger Data (vol) #	Initial	Final
1		
2		
3		
4		
5		
6		

Silica Gel Data (gm) #	Initial	Final
1		
2		

Moisture Gain

_____ ml.

_____ gm

_____ Total

Filter Data #	Number	Tare
1		
2		
3		

Molecular Weight Data (%) #	O_2	CO_2
1		
2		
3		
Avg		

RAMBOLL

EPA Isokinetic Field Sheet

Methods Performed: PCLS

Client	CITIZENS	Run Number	3	Pitot Number	P4
Location	FAYETTEVILLE NC	Stack Diameter	~~36~~ 41.5"	Pitot Coefficient	.84
Source	YES OUTLET	Barometric Pres.	30.13	Stack TC I.D.	TC TD
Date	12/4/20	Static Pressure	+1.0	Oven Box I.D.	2
Operators	JLS EA.	Meter Box #	15	Impinger Out I.D.	12
Start Time	1452	Meter delta H	1.73	Nozzle Size	.243
End Time	1640	Meter Gamma	1.013	XAD Trap I.D.	

Leak Check Rates

	Sample Rate in.	Sample Rate cfm	Pitot +	Pitot -
Initial	8	.001	✓	✓
Mid				
Mid				
Final	9	.002	✓	✓

H-2.45

Sample Point	Sample Time (min)	Velocity Head (in. H_2O)	Orifice Setting (in. H_2O)	Meter Volume (ft^3)	Temperature Readings in Degrees Farenheit: Stack	Probe	Oven Box	Impinger	Aux	Meter Inlet	Meter Outlet	Vacuum (in. hg)	Comments/Notes
1	4	0.23	0.56	394.586	73	70	79	55	48	66	66	3	
2	8	.23	.56	396 —	73	69	79	53	48	67	67	3	
3	12	.24	.58	397 —	73	69	79	49	48	66	66	3	
4	16	.24	.58	399 —	73	69	79	49	48	66	66	3	
5	20	.27	.66	400 —	73	68	79	49	47	66	66	3	
6	24	.28	.68	402 —	73	68	79	49	46	66	66	3	
7	28	.30	.73	403.9	73	68	79	48	46	66	66	5	403.9
8	32	.34	.83	405 —	73	69	79	48	46	66	66	3	
9	36	.34	.83	407.60	73	69	79	48	46	67	67	3	
10	40	.37	.90	409.60	73	69	79	48	46	67	67	3	
11	44	.38	.93	411 —	73	69	79	48	47	67	67	3	
12	48	.38	.93	413.90	73	69	79	47	47	67	67	3	1540
				415.923									
				416.010									1552
1	52	.36	.88	416.010	73	69	80	53	47	68	68	3	
2	56	.36	.88	417.80	74	69	79	47	47	68	68	3	
3	60	.36	.88	420.—	74	70	79	45	47	68	68	3	
4	1.04	.35	.85	——	74	72	79	45	47	68	68	3	
5	1.08	.34	.83	424 —	74	72	79	45	47	68	68	3	
6	1.12	.30	.73	——	74	70	79	45	47	68	68	3	
7	1.16	.24	.58	——	74	79	79	45	48	68	68	3	
8	1.20	.24	.58	430.14	74	79	79	44	49	68	68	3	
9	1.24	.22	.53	431.88	74	79	79	45	55	68	68	3	
10	1.28	.20	.49	433.60	74	79	79	44	49	68	68	3	
11	1.32	.18	.44	435.00	74	79	79	44	49	68	68	3	
12	1.36	.18	.44	436.50	74	79	79	45	49	68	68	3	
				437.700									

Impinger Data (vol)

#	Initial	Final
1		
2		
3		
4		
5		
6		

Silica Gel Data (gm)

#	Initial	Final
1		
2		

Moisture Gain

_____ ml.
_____ gm
_____ Total

Filter Data

#	Number	Tare
1		
2		
3		

Molecular Weight Data (%)

#	O_2	CO_2
1		
2		
3		
Avg		

RAMBOLL

Sample Train Recovery Data Sheet

Client Chemours Location Fayetteville, NC Source VES OUTLET Method 0010 Date 12/11/20

Run # _____

	Final ml or gm	Initial ml or gm	Net Gain
Impinger #1	515.8	515.0	
Impinger #2	761.2	761.7	
Impinger #3	755.1	754.7	
Impinger #4	509.8	508.5	
Impinger #5	840.2	881.4	
Impinger #6			
Impinger #7			
Impinger #8			
	Total Gain		ml/gm

Filter #1 _____
Filter #2 _____
Filter #3 _____
Run Start Time _____
Run End Time _____
Recovery Technician _____

Run # _____

	Final ml or gm	Initial ml or gm	Net Gain
Impinger #1	477.9	476.9	
Impinger #2	725.3	725.4	
Impinger #3	697.2	696.8	
Impinger #4	470.0	468.8	
Impinger #5	758.6	749.8	
Impinger #6			
Impinger #7			
Impinger #8			
	Total Gain		ml/gm

Filter #1 _____
Filter #2 _____
Filter #3 _____
Run Start Time _____
Run End Time _____
Recovery Technician _____

Run # _____

	Final ml or gm	Initial ml or gm	Net Gain
Impinger #1	515.2	515.0	
Impinger #2	761.3	761.1	
Impinger #3	754.4	753.9	
Impinger #4	508.5	508.3	
Impinger #5	842.9	834.5	
Impinger #6			
Impinger #7			
Impinger #8			
	Total Gain		ml/gm

Filter #1 _____
Filter #2 _____
Filter #3 _____
Run Start Time _____
Run End Time _____
Recovery Technician _____

APPENDIX D
LABORATORY DATA

VES Carbon Bed Inlet Laboratory Data

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-21318-1
Client Project/Site: VES CB Inlet - M0010

For:
The Chemours Company FC, LLC
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Michael Aucoin

Authorized for release by:
1/8/2021 1:28:24 PM

Courtney Adkins, Project Manager II
(865)291-3019
courtney.adkins@eurofinset.com

Table of Contents

Definitions/Glossary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.

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: 140-21318-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-21318-1

Sample Receipt

The samples were received on December 12, 2020 at 2:00 PM in good condition and properly preserved. The temperature of the cooler at receipt was 0.8º C.

LCMS

LC/MS/MS Sampling Train Preparation and Analysis: The sampling train components are extracted and analyzed for Per- and Polyfluorinated Alkyl Substances (PFAS) using Eurofins TestAmerica Knoxville standard operating procedures KNOX-OP-0026 and KNOX-LC-0007.

The sampling trains are prepared as four analytical fractions: The particulate filter and front half of the filter holder, nozzle and probe solvent rinses are combined for one analytical fraction. The XAD-2 resin trap and back half of the filter holder, coil condenser and connecting glassware solvent rinses are also combined as a separate analytical fraction. The condensate, impinger contents and their related glassware DI water rinses make up the third analytical fraction. The breakthrough XAD module makes up the fourth analytical fraction.

The filters and XAD components are spiked with isotope dilution internal standards and the components are extracted with methanol/ammonium hydroxide by shaking for at least 18 hours. The extracts are concentrated to 10 mL and analyzed by HPLC/MS/MS. The condensates are spiked with the isotope dilution internal standards and extracted using either Solid-Phase Extraction (SPE) or diluting the water sample for analysis. Each extract at its final volume is 80:20 methanol:water

Sample results were calculated using the following equation:

Result, ηg/sample = (on-column concentration, ηg/mL) × (nominal final volume of extract (10 mL) / 1 sample) × DF × SF

Where:
DF = Instrument dilution factor
SF = Extraction Split Factor = (final volume of extract in the initial extraction batch / initial volume of extract in the “Split” batch)
For condensate, if less than the entire sample is extracted, the fraction of sample used replaces “1 sample”

Method 537 (modified): The following samples were reported with elevated reporting limits for all analytes: C-1862,1863 VES CB INLET R1 M0010 FH (140-21318-1), C-1869,1870 VES CB INLET R2 M0010 FH (140-21318-5) and C-1876,1877 VES CB INLET R3 M0010 FH (140-21318-9). The sample was analyzed at a dilution based on screening results.

Method 537 (modified): The required dilution factor for the following samples were higher than could be achieved by "in vial" dilution, as it would dilute out the Isotope Dilution Analytes (IDA): C-1862,1863 VES CB INLET R1 M0010 FH (140-21318-1), C-1869,1870 VES CB INLET R2 M0010 FH (140-21318-5) and C-1876,1877 VES CB INLET R3 M0010 FH (140-21318-9). As such, the dilution was achieved by taking a subsample of the undiluted extract, adding sufficient solvent, and re-spiking the extract with IDA.

Method 537 (modified): The method blank for preparation batch 140-45356 and 140-45592 contained HFPO-DA above the reporting limit (RL). The entire sample was consumed during analysis or extraction, therefore, the data have been reported.

Method 537 (modified): The following samples were reported with elevated reporting limits for all analytes: C-1864,1865,1867 VES CB INLET R1 M0010 BH (140-21318-2), C-1871,1872,1874 VES CB INLET R2 M0010 BH (140-21318-6) and C-1878,1879,1881 VES CB INLET R3 M0010 BH (140-21318-10). The sample was analyzed at a dilution based on screening results.

Method 537 (modified): Results for samples C-1864,1865,1867 VES CB INLET R1 M0010 BH (140-21318-2), C-1871,1872,1874 VES CB INLET R2 M0010 BH (140-21318-6) and C-1878,1879,1881 VES CB INLET R3 M0010 BH (140-21318-10) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Job ID: 140-21318-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

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

Organic Prep

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

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: C-1862,1863 VES CB INLET R1 M0010 FH

Lab Sample ID: 140-21318-1

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	40.7	B	0.500	0.290	ug/Sample		12/16/20 12:02	01/04/21 17:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	105		25 - 150	12/16/20 12:02	01/04/21 17:07	1

Client Sample ID: C-1864,1865,1867 VES CB INLET R1 M0010 BH

Lab Sample ID: 140-21318-2

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	2.93		0.0800	0.0700	ug/Sample		12/21/20 13:11	01/06/21 15:16	50

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	110		25 - 150	12/21/20 13:11	01/06/21 15:16	50

Client Sample ID: C-1866 VES CB INLET R1 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21318-3

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.162		0.0485	0.00800	ug/Sample		12/22/20 10:02	12/22/20 23:53	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	105		25 - 150	12/22/20 10:02	12/22/20 23:53	1

Client Sample ID: C-1868 VES CB INLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21318-4

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.00772		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 15:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		25 - 150	12/21/20 13:11	01/06/21 15:25	1

Client Sample ID: C-1869,1870 VES CB INLET R2 M0010 FH

Lab Sample ID: 140-21318-5

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	33.2	B	0.496	0.287	ug/Sample		12/16/20 12:02	01/04/21 17:16	1

Client Sample ID: C-1869,1870 VES CB INLET R2 M0010 FH

Lab Sample ID: 140-21318-5

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	101		25 - 150	12/16/20 12:02	01/04/21 17:16	1

Client Sample ID: C-1871,1872,1874 VES CB INLET R2 M0010 BH

Lab Sample ID: 140-21318-6

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	6.36		0.0800	0.0700	ug/Sample		12/21/20 13:11	01/06/21 15:34	50

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	136		25 - 150	12/21/20 13:11	01/06/21 15:34	50

Client Sample ID: C-1873 VES CB INLET R2 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21318-7

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0510		0.0490	0.00809	ug/Sample		12/22/20 10:02	12/23/20 00:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	107		25 - 150	12/22/20 10:02	12/23/20 00:02	1

Client Sample ID: C-1875 VES CB INLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21318-8

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.00628		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 15:43	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		25 - 150	12/21/20 13:11	01/06/21 15:43	1

Client Sample ID: C-1876,1877 VES CB INLET R3 M0010 FH

Lab Sample ID: 140-21318-9

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	31.3	B	0.500	0.290	ug/Sample		12/16/20 12:02	01/04/21 17:43	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	99		25 - 150	12/16/20 12:02	01/04/21 17:43	1

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: C-1878,1879,1881 VES CB INLET R3 M0010 BH

Lab Sample ID: 140-21318-10

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	1.28		0.0800	0.0700	ug/Sample		12/21/20 13:11	01/06/21 15:51	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*109*		*25 - 150*	*12/21/20 13:11*	*01/06/21 15:51*	*50*

Client Sample ID: C-1880 VES CB INLET R3 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21318-11

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.166		0.0505	0.00833	ug/Sample		12/22/20 10:02	12/23/20 00:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*118*		*25 - 150*	*12/22/20 10:02*	*12/23/20 00:29*	*1*

Client Sample ID: C-1882 VES CB INLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21318-12

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0563		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 16:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*89*		*25 - 150*	*12/21/20 13:11*	*01/06/21 16:00*	*1*

Default Detection Limits

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
HFPO-DA	0.00100	0.000580	ug/Sample
HFPO-DA	0.00160	0.00140	ug/Sample
HFPO-DA	0.00200	0.000330	ug/Sample

Isotope Dilution Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Method: 537 (modified) - Fluorinated Alkyl Substances

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

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	HFPODA (25-150)
140-21318-1	C-1862,1863 VES CB INLET R1	105
140-21318-2	C-1864,1865,1867 VES CB INLET R1 M0010 BH	110
140-21318-3	C-1866 VES CB INLET R1 M0010 IMPINGERS 1,2&3 CON	105
140-21318-4	C-1868 VES CB INLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	84
140-21318-5	C-1869,1870 VES CB INLET R2 M0010 FH	101
140-21318-6	C-1871,1872,1874 VES CB INLET R2 M0010 BH	136
140-21318-7	C-1873 VES CB INLET R2 M0010 IMPINGERS 1,2&3 CON	107
140-21318-8	C-1875 VES CB INLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	87
140-21318-9	C-1876,1877 VES CB INLET R3 M0010 FH	99
140-21318-10	C-1878,1879,1881 VES CB INLET R3 M0010 BH	109
140-21318-11	C-1880 VES CB INLET R3 M0010 IMPINGERS 1,2&3 CON	118
140-21318-12	C-1882 VES CB INLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	89
LCS 140-45356/2-B	Lab Control Sample	80
LCS 140-45495/2-B	Lab Control Sample	90
LCS 140-45516/2-B	Lab Control Sample	106
LCSD 140-45356/3-B	Lab Control Sample Dup	77
LCSD 140-45495/3-B	Lab Control Sample Dup	66
LCSD 140-45516/3-B	Lab Control Sample Dup	109
MB 140-45356/14-B	Method Blank	69
MB 140-45356/1-B	Method Blank	86
MB 140-45495/1-B	Method Blank	84
MB 140-45516/14-B	Method Blank	100
MB 140-45516/1-B	Method Blank	104

Surrogate Legend

HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-45356/14-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.001709		0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 16:23	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*69*		*25 - 150*	*12/16/20 12:02*	*01/04/21 16:23*	*1*

Lab Sample ID: MB 140-45356/1-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.001713		0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 14:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*86*		*25 - 150*	*12/16/20 12:02*	*01/04/21 14:10*	*1*

Lab Sample ID: LCS 140-45356/2-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45356

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0200	0.02307		ug/Sample		115	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*80*		*25 - 150*

Lab Sample ID: LCSD 140-45356/3-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45356

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.0200	0.02465		ug/Sample		123	60 - 140	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*77*		*25 - 150*

Lab Sample ID: MB 140-45495/1-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 14:50	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84*		*25 - 150*	*12/21/20 13:11*	*01/06/21 14:50*	*1*

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

Lab Sample ID: LCS 140-45495/2-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45495

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0200	0.01975		ug/Sample		99	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*90*		*25 - 150*

Lab Sample ID: LCSD 140-45495/3-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45495

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.0200	0.01964		ug/Sample		98	60 - 140	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*66*		*25 - 150*

Lab Sample ID: MB 140-45516/14-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 23:09	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*100*		*25 - 150*	*12/22/20 10:02*	*12/22/20 23:09*	*1*

Lab Sample ID: MB 140-45516/1-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 20:57	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*104*		*25 - 150*	*12/22/20 10:02*	*12/22/20 20:57*	*1*

Lab Sample ID: LCS 140-45516/2-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45516

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0100	0.01110		ug/Sample		111	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*106*		*25 - 150*

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

Lab Sample ID: LCSD 140-45516/3-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45516

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.0100	0.01129		ug/Sample		113	60 - 140	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*109*		*25 - 150*

QC Association Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

LCMS

Prep Batch: 45356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-1	C-1862,1863 VES CB INLET R1 M0010 FH	Total/NA	Air	None	
140-21318-5	C-1869,1870 VES CB INLET R2 M0010 FH	Total/NA	Air	None	
140-21318-9	C-1876,1877 VES CB INLET R3 M0010 FH	Total/NA	Air	None	
MB 140-45356/14-B	Method Blank	Total/NA	Air	None	
MB 140-45356/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 45495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-2	C-1864,1865,1867 VES CB INLET R1 M0010 BH	Total/NA	Air	None	
140-21318-4	C-1868 VES CB INLET R1 M0010 BREAKTHRO	Total/NA	Air	None	
140-21318-6	C-1871,1872,1874 VES CB INLET R2 M0010 BH	Total/NA	Air	None	
140-21318-8	C-1875 VES CB INLET R2 M0010 BREAKTHRO	Total/NA	Air	None	
140-21318-10	C-1878,1879,1881 VES CB INLET R3 M0010 BH	Total/NA	Air	None	
140-21318-12	C-1882 VES CB INLET R3 M0010 BREAKTHRO	Total/NA	Air	None	
MB 140-45495/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45495/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45495/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 45516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-3	C-1866 VES CB INLET R1 M0010 IMPINGERS 1	Total/NA	Air	None	
140-21318-7	C-1873 VES CB INLET R2 M0010 IMPINGERS 1	Total/NA	Air	None	
140-21318-11	C-1880 VES CB INLET R3 M0010 IMPINGERS 1	Total/NA	Air	None	
MB 140-45516/14-B	Method Blank	Total/NA	Air	None	
MB 140-45516/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 45531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-3	C-1866 VES CB INLET R1 M0010 IMPINGERS 1	Total/NA	Air	Split	45516
140-21318-7	C-1873 VES CB INLET R2 M0010 IMPINGERS 1	Total/NA	Air	Split	45516
140-21318-11	C-1880 VES CB INLET R3 M0010 IMPINGERS 1	Total/NA	Air	Split	45516
MB 140-45516/14-B	Method Blank	Total/NA	Air	Split	45516
MB 140-45516/1-B	Method Blank	Total/NA	Air	Split	45516
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	Split	45516
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45516

Analysis Batch: 45544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-3	C-1866 VES CB INLET R1 M0010 IMPINGERS 1	Total/NA	Air	537 (modified)	45531
140-21318-7	C-1873 VES CB INLET R2 M0010 IMPINGERS 1	Total/NA	Air	537 (modified)	45531
140-21318-11	C-1880 VES CB INLET R3 M0010 IMPINGERS 1	Total/NA	Air	537 (modified)	45531
MB 140-45516/14-B	Method Blank	Total/NA	Air	537 (modified)	45531
MB 140-45516/1-B	Method Blank	Total/NA	Air	537 (modified)	45531
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45531
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45531

QC Association Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

LCMS

Cleanup Batch: 45592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-1	C-1862,1863 VES CB INLET R1 M0010 FH	Total/NA	Air	Split	45356
140-21318-5	C-1869,1870 VES CB INLET R2 M0010 FH	Total/NA	Air	Split	45356
140-21318-9	C-1876,1877 VES CB INLET R3 M0010 FH	Total/NA	Air	Split	45356
MB 140-45356/14-B	Method Blank	Total/NA	Air	Split	45356
MB 140-45356/1-B	Method Blank	Total/NA	Air	Split	45356
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	Split	45356
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45356

Cleanup Batch: 45768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-2	C-1864,1865,1867 VES CB INLET R1 M0010 BH	Total/NA	Air	Split	45495
140-21318-4	C-1868 VES CB INLET R1 M0010 BREAKTHRO	Total/NA	Air	Split	45495
140-21318-6	C-1871,1872,1874 VES CB INLET R2 M0010 BH	Total/NA	Air	Split	45495
140-21318-8	C-1875 VES CB INLET R2 M0010 BREAKTHRO	Total/NA	Air	Split	45495
140-21318-10	C-1878,1879,1881 VES CB INLET R3 M0010 BH	Total/NA	Air	Split	45495
140-21318-12	C-1882 VES CB INLET R3 M0010 BREAKTHRO	Total/NA	Air	Split	45495
MB 140-45495/1-B	Method Blank	Total/NA	Air	Split	45495
LCS 140-45495/2-B	Lab Control Sample	Total/NA	Air	Split	45495
LCSD 140-45495/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45495

Cleanup Batch: 45772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-1	C-1862,1863 VES CB INLET R1 M0010 FH	Total/NA	Air	Dilution	45592
140-21318-5	C-1869,1870 VES CB INLET R2 M0010 FH	Total/NA	Air	Dilution	45592
140-21318-9	C-1876,1877 VES CB INLET R3 M0010 FH	Total/NA	Air	Dilution	45592

Analysis Batch: 45773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-1	C-1862,1863 VES CB INLET R1 M0010 FH	Total/NA	Air	537 (modified)	45772
140-21318-5	C-1869,1870 VES CB INLET R2 M0010 FH	Total/NA	Air	537 (modified)	45772
140-21318-9	C-1876,1877 VES CB INLET R3 M0010 FH	Total/NA	Air	537 (modified)	45772
MB 140-45356/14-B	Method Blank	Total/NA	Air	537 (modified)	45592
MB 140-45356/1-B	Method Blank	Total/NA	Air	537 (modified)	45592
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45592
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45592

Analysis Batch: 45831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21318-2	C-1864,1865,1867 VES CB INLET R1 M0010 BH	Total/NA	Air	537 (modified)	45768
140-21318-4	C-1868 VES CB INLET R1 M0010 BREAKTHRO	Total/NA	Air	537 (modified)	45768
140-21318-6	C-1871,1872,1874 VES CB INLET R2 M0010 BH	Total/NA	Air	537 (modified)	45768
140-21318-8	C-1875 VES CB INLET R2 M0010 BREAKTHRO	Total/NA	Air	537 (modified)	45768
140-21318-10	C-1878,1879,1881 VES CB INLET R3 M0010 BH	Total/NA	Air	537 (modified)	45768
140-21318-12	C-1882 VES CB INLET R3 M0010 BREAKTHRO	Total/NA	Air	537 (modified)	45768
MB 140-45495/1-B	Method Blank	Total/NA	Air	537 (modified)	45768
LCS 140-45495/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45768
LCSD 140-45495/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45768

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: C-1862,1863 VES CB INLET R1 M0010 FH
Lab Sample ID: 140-21318-1
Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	72 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			36 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Cleanup	Dilution			20 uL	10000 uL	45772	01/04/21 12:43	JRC	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 17:07	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1864,1865,1867 VES CB INLET R1 M0010 BH
Lab Sample ID: 140-21318-2
Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		50			45831	01/06/21 15:16	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1866 VES CB INLET R1 M0010 IMPINGERS 1,2&3 COND
Lab Sample ID: 140-21318-3
Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.01031 Sample	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 23:53	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1868 VES CB INLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-21318-4
Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 15:25	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: C-1869,1870 VES CB INLET R2 M0010 FH

Lab Sample ID: 140-21318-5

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	113 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			57 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Cleanup	Dilution			20 uL	10000 uL	45772	01/04/21 12:43	JRC	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 17:16	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1871,1872,1874 VES CB INLET R2 M0010 BH

Lab Sample ID: 140-21318-6

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		50			45831	01/06/21 15:34	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1873 VES CB INLET R2 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21318-7

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.0102 Sample	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/23/20 00:02	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1875 VES CB INLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21318-8

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 15:43	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: C-1876,1877 VES CB INLET R3 M0010 FH

Lab Sample ID: 140-21318-9

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	66 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			33 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Cleanup	Dilution			20 uL	10000 uL	45772	01/04/21 12:43	JRC	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 17:43	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1878,1879,1881 VES CB INLET R3 M0010 BH

Lab Sample ID: 140-21318-10

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		50			45831	01/06/21 15:51	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1880 VES CB INLET R3 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21318-11

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.0099 Sample	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/23/20 00:29	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: C-1882 VES CB INLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21318-12

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 16:00	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45356/14-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	50 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 16:23	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45356/1-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:10	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45495/1-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 14:50	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45516/14-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	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 23:09	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45516/1-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 20:57	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45356/2-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:19	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45495/2-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 14:59	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45516/2-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 21:06	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45356/3-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:28	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45495/3-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 15:07	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Client Sample ID: Lab Control Sample Dup

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

Lab Sample ID: LCSD 140-45516/3-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 21:15	JRC	TAL KNX
	Instrument ID: LCA									

Laboratory References:

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

Accreditation/Certification Summary

Client: The Chemours Company FC, LLC
Job ID: 140-21318-1
Project/Site: VES CB Inlet - M0010

Laboratory: Eurofins TestAmerica, 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	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
ANAB	ISO/IEC 17025	L2311	02-14-22
Arkansas DEQ	State	88-0688	06-17-21
California	State	2423	06-30-21
Colorado	State	TN00009	02-28-21
Connecticut	State	PH-0223	09-30-21
Florida	NELAP	E87177	07-01-21
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21
Kentucky (DW)	State	90101	01-01-21 *
Louisiana	NELAP	83979	06-30-21
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-21
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-21
New Hampshire	NELAP	299919	01-17-21
New Jersey	NELAP	TN001	07-01-21
New York	NELAP	10781	03-31-21
North Carolina (DW)	State	21705	07-31-21
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-21
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-21
Virginia	NELAP	460176	09-14-21
Washington	State	C593	01-19-21
West Virginia (DW)	State	9955C	01-01-21 *
West Virginia DEP	State	345	05-01-21
Wisconsin	State	998044300	08-31-21

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

Method Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL KNX
Dilution	Dilution and Re-fortification of Standards	None	TAL KNX
None	Leaching Procedure	TAL SOP	TAL KNX
None	Leaching Procedure for Condensate	TAL SOP	TAL KNX
None	Leaching Procedure for Filter	TAL SOP	TAL KNX
Split	Source Air Split	None	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Inlet - M0010

Job ID: 140-21318-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
140-21318-1	C-1862,1863 VES CB INLET R1 M0010 FH	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-2	C-1864,1865,1867 VES CB INLET R1 M0010 BH	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-3	C-1866 VES CB INLET R1 M0010 IMPINGERS 1,2&3 COND	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-4	C-1868 VES CB INLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-5	C-1869,1870 VES CB INLET R2 M0010 FH	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-6	C-1871,1872,1874 VES CB INLET R2 M0010 BH	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-7	C-1873 VES CB INLET R2 M0010 IMPINGERS 1,2&3 COND	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-8	C-1875 VES CB INLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-9	C-1876,1877 VES CB INLET R3 M0010 FH	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-10	C-1878,1879,1881 VES CB INLET R3 M0010 BH	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-11	C-1880 VES CB INLET R3 M0010 IMPINGERS 1,2&3 COND	Air	12/11/20 00:00	12/12/20 14:00	
140-21318-12	C-1882 VES CB INLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	Air	12/11/20 00:00	12/12/20 14:00	

Request for Analysis/Chain-of-Custody – RFA/COC #006
The Chemours Company – Fayetteville NC Facility
PFAS Testing on VES Carbon Bed Inlet

eurofins
Environment Testing
TestAmerica

Project Identification:	Chemours Emissions Test
Client Name:	The Chemours Company FC, LLC
Client Contact:	Ms. Christel Compton Office: (910) 678-1213 Cell: (910) 975-3386
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, "PB" = Proof Blank, "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 Reports and in data packages. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	Holding Time Requirements:
HFPO-DA (CAS No. 13252-13-6)	14 Days to Extraction; 40 Days to Analysis

140-21318 Chain of Custody

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
C-1862 VES CB Inlet R1 M0010 Filter	1	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
C-1863 VES CB Inlet R1 M0010 FH of Filter Holder & Probe MeOH Rinse	1	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
C-1864 VES CB Inlet R1 M0010 XAD-2 Resin Tube	1	12/11/20		XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require -ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
C-1865 VES CB Inlet R1 M0010 BH of Filter Holder & Coil Condenser MeOH Rinse	1	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. **Knoxville**: Analyze for HFPO-DA.
C-1866 VES CB Inlet R1 M0010 Impingers 1,2 & 3 Condensate	1	12/11/20		500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Measure the volume of the Impinger Composite and forward a 250 mL portion to Knoxville for analysis. **Knoxville**: Analyze for HFPO-DA.
C-1867 VES CB Inlet R1 M0010 Impinger Glassware MeOH Rinse	1	12/11/20		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
C-1868 VES CB Inlet R1 M0010 Breakthrough XAD-2 Resin Tube	1	12/11/20		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. **Knoxville**: Analyze for HFPO-DA.
C-1869 VES CB Inlet R2 M0010 Filter	2	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
C-1870 VES CB Inlet R2 M0010 FH of Filter Holder & Probe MeOH Rinse	2	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**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
C-1871 VES CB Inlet R2 M0010 XAD-2 Resin Tube	2	12/11/20		XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
C-1872 VES CB Inlet R2 M0010 BH of Filter Holder & Coil Condenser MeOH Rinse	2	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. **Knoxville**: Analyze for HFPO-DA.
C-1873 VES CB Inlet R2 M0010 Impingers 1,2 & 3 Condensate	2	12/11/20		500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Measure the volume of the Impinger Composite and forward a 250 mL portion to Knoxville for analysis. **Knoxville**: Analyze for HFPO-DA.
C-1874 VES CB Inlet R2 M0010 Impinger Glassware MeOH Rinse	2	12/11/20		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
C-1875 VES CB Inlet R2 M0010 Breakthrough XAD-2 Resin Tube	2	12/11/20		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. **Knoxville**: Analyze for HFPO-DA.
C-1876 VES CB Inlet R3 M0010 Filter	3	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require -ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
C-1877 VES CB Inlet R3 M0010 FH of Filter Holder & Probe MeOH Rinse	3	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
C-1878 VES CB Inlet R3 M0010 XAD-2 Resin Tube	3	12/11/20		XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
C-1879 VES CB Inlet R3 M0010 BH of Filter Holder & Coil Condenser MeOH Rinse	3	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. **Knoxville**: Analyze for HFPO-DA.
C-1880 VES CB Inlet R3 M0010 Impingers 1,2 & 3 Condensate	3	12/11/20		500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Measure the volume of the Impinger Composite and forward a 250 mL portion to Knoxville for analysis. **Knoxville**: Analyze for HFPO-DA.
C-1881 VES CB Inlet R3 M0010 Impinger Glassware MeOH Rinse	3	12/11/20		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
C-1882 VES CB Inlet R3 M0010 Breakthrough XAD-2 Resin Tube	3	12/11/20		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. **Knoxville**: Analyze for HFPO-DA.

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:	[signature]	Rondo 11	12/11/20 1900
Accepted By:	[signature]	FTA KNOX	12/11/20 1900
Relinquished By:	[signature]	FTA KNOX	12/12/20 1400
Accepted By:	[signature]	FTA KNX	12.12.20 14:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Loc: 140
21318

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:**

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
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 : 568 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	

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: 12-13-20

QA026R32.doc, 062719

1/8/2021

VES Carbon Bed Outlet Laboratory Data

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-21319-1
Client Project/Site: VES CB Outlet

For:
The Chemours Company FC, LLC
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Michael Aucoin

Authorized for release by:
1/8/2021 1:33:20 PM

Courtney Adkins, Project Manager II
(865)291-3019
courtney.adkins@eurofinset.com

Table of Contents

Definitions/Glossary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 140-21319-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-21319-1

Sample Receipt

The samples were received on December 12, 2020 at 2:00 PM in good condition and properly preserved. The temperature of the cooler at receipt was 0.9º C.

LCMS

LC/MS/MS Sampling Train Preparation and Analysis: The sampling train components are extracted and analyzed for Per- and Polyfluorinated Alkyl Substances (PFAS) using Eurofins TestAmerica Knoxville standard operating procedures KNOX-OP-0026 and KNOX-LC-0007.

The sampling trains are prepared as four analytical fractions: The particulate filter and front half of the filter holder, nozzle and probe solvent rinses are combined for one analytical fraction. The XAD-2 resin trap and back half of the filter holder, coil condenser and connecting glassware solvent rinses are also combined as a separate analytical fraction. The condensate, impinger contents and their related glassware DI water rinses make up the third analytical fraction. The breakthrough XAD module makes up the fourth analytical fraction.

The filters and XAD components are spiked with isotope dilution internal standards and the components are extracted with methanol/ammonium hydroxide by shaking for at least 18 hours. The extracts are concentrated to 10 mL and analyzed by HPLC/MS/MS. The condensates are spiked with the isotope dilution internal standards and extracted using either Solid-Phase Extraction (SPE) or diluting the water sample for analysis. Each extract at its final volume is 80:20 methanol:water

Sample results were calculated using the following equation:

Result, ηg/sample = (on-column concentration, ηg/mL) × (nominal final volume of extract (10 mL) / 1 sample) × DF × SF

Where:
DF = Instrument dilution factor
SF = Extraction Split Factor = (final volume of extract in the initial extraction batch / initial volume of extract in the “Split” batch)
For condensate, if less than the entire sample is extracted, the fraction of sample used replaces “1 sample”

Method 537 (modified): The following samples were reported with elevated reporting limits for all analytes: K-1762,1763 VES CB OUTLET R1 M0010 FH (140-21319-1), K-1769,1770 VES CB OUTLET R2 M0010 FH (140-21319-5) and K-1776,1777 VES CB OUTLET R3 M0010 FH (140-21319-9). The sample was analyzed at a dilution based on screening results.

Method 537 (modified): Results for samples K-1776,1777 VES CB OUTLET R3 M0010 FH (140-21319-9) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method 537 (modified): The required dilution factor for the following samples were higher than could be achieved by "in vial" dilution, as it would dilute out the Isotope Dilution Analytes (IDA): K-1762,1763 VES CB OUTLET R1 M0010 FH (140-21319-1). As such, the dilution was achieved by taking a subsample of the undiluted extract, adding sufficient solvent, and re-spiking the extract with IDA.

Method 537 (modified): The method blank for preparation batch 140-45356 and 140-45592 contained HFPO-DA above the reporting limit (RL). The entire sample was consumed during analysis or extraction, therefore, the data have been reported.

Method 537 (modified): The following samples were reported with elevated reporting limits for all analytes: K-1764,1765,1767 VES CB OUTLET R1 M0010 BH (140-21319-2), K-1771,1772,1774 VES CB OUTLET R2 M0010 BH (140-21319-6) and K-1778,1779,1781 VES CB OUTLET R3 M0010 BH (140-21319-10). The sample was analyzed at a dilution based on screening results.

Method 537 (modified): Results for samples K-1764,1765,1767 VES CB OUTLET R1 M0010 BH (140-21319-2), K-1771,1772,1774 VES CB OUTLET R2 M0010 BH (140-21319-6) and K-1778,1779,1781 VES CB OUTLET R3 M0010 BH (140-21319-10) were reported from the

Job ID: 140-21319-1 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

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

Organic Prep

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

Client Sample Results

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: K-1762,1763 VES CB OUTLET R1 M0010 FH
Lab Sample ID: 140-21319-1

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	3.19	B	0.100	0.0580	ug/Sample		12/16/20 12:02	01/04/21 17:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*104*		*25 - 150*	*12/16/20 12:02*	*01/04/21 17:52*	*1*

Client Sample ID: K-1764,1765,1767 VES CB OUTLET R1 M0010 BH
Lab Sample ID: 140-21319-2

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.133		0.00800	0.00700	ug/Sample		12/21/20 13:11	01/06/21 16:09	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*101*		*25 - 150*	*12/21/20 13:11*	*01/06/21 16:09*	*5*

Client Sample ID: K-1766 VES CB OUTLET R1 M0010 IMPINGERS 1,2&3 COND
Lab Sample ID: 140-21319-3

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0495	0.00817	ug/Sample		12/22/20 10:02	12/23/20 00:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*109*		*25 - 150*	*12/22/20 10:02*	*12/23/20 00:37*	*1*

Client Sample ID: K-1768 VES CB OUTLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-21319-4

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.00300		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 16:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*83*		*25 - 150*	*12/21/20 13:11*	*01/06/21 16:35*	*1*

Client Sample ID: K-1769,1770 VES CB OUTLET R2 M0010 FH
Lab Sample ID: 140-21319-5

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	3.38	B	0.100	0.0580	ug/Sample		12/16/20 12:02	01/04/21 18:01	1

Client Sample ID: K-1769,1770 VES CB OUTLET R2 M0010 FH

Lab Sample ID: 140-21319-5

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	102		25 - 150	12/16/20 12:02	01/04/21 18:01	1

Client Sample ID: K-1771,1772,1774 VES CB OUTLET R2 M0010 BH

Lab Sample ID: 140-21319-6

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.239		0.0160	0.0140	ug/Sample		12/21/20 13:11	01/06/21 16:44	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	100		25 - 150	12/21/20 13:11	01/06/21 16:44	10

Client Sample ID: K-1773 VES CB OUTLET R2 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21319-7

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0221	J	0.0495	0.00817	ug/Sample		12/22/20 10:02	12/23/20 00:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	111		25 - 150	12/22/20 10:02	12/23/20 00:46	1

Client Sample ID: K-1775 VES CB OUTLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21319-8

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.00883		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 16:53	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		25 - 150	12/21/20 13:11	01/06/21 16:53	1

Client Sample ID: K-1776,1777 VES CB OUTLET R3 M0010 FH

Lab Sample ID: 140-21319-9

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	2.24	B	0.0495	0.0287	ug/Sample		12/16/20 12:02	01/04/21 18:10	50

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	94		25 - 150	12/16/20 12:02	01/04/21 18:10	50

Client Sample ID: K-1778,1779,1781 VES CB OUTLET R3 M0010 BH

Lab Sample ID: 140-21319-10

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.184		0.0160	0.0140	ug/Sample		12/21/20 13:11	01/06/21 17:11	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*93*		*25 - 150*	*12/21/20 13:11*	*01/06/21 17:11*	*10*

Client Sample ID: K-1780 VES CB OUTLET R3 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21319-11

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0500	0.00825	ug/Sample		12/22/20 10:02	12/23/20 00:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*112*		*25 - 150*	*12/22/20 10:02*	*12/23/20 00:55*	*1*

Client Sample ID: K-1782 VES CB OUTLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21319-12

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00
Sample Container: Air Train

Matrix: Air

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.00167		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 17:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84*		*25 - 150*	*12/21/20 13:11*	*01/06/21 17:19*	*1*

Default Detection Limits

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
HFPO-DA	0.00100	0.000580	ug/Sample
HFPO-DA	0.00160	0.00140	ug/Sample
HFPO-DA	0.00200	0.000330	ug/Sample

Isotope Dilution Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Method: 537 (modified) - Fluorinated Alkyl Substances

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

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	HFPODA (25-150)						
140-21319-1	K-1762,1763 VES CB OUTLET I	104						
140-21319-2	K-1764,1765,1767 VES CB OUTLET R1 M0010 BH	101						
140-21319-3	K-1766 VES CB OUTLET R1 M0010 IMPINGERS 1,2&3 CON	109						
140-21319-4	K-1768 VES CB OUTLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	83						
140-21319-5	K-1769,1770 VES CB OUTLET R2 M0010 FH	102						
140-21319-6	K-1771,1772,1774 VES CB OUTLET R2 M0010 BH	100						
140-21319-7	K-1773 VES CB OUTLET R2 M0010 IMPINGERS 1,2&3 CON	111						
140-21319-8	K-1775 VES CB OUTLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	85						
140-21319-9	K-1776,1777 VES CB OUTLET R3 M0010 FH	94						
140-21319-10	K-1778,1779,1781 VES CB OUTLET R3 M0010 BH	93						
140-21319-11	K-1780 VES CB OUTLET R3 M0010 IMPINGERS 1,2&3 CON	112						
140-21319-12	K-1782 VES CB OUTLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	84						
LCS 140-45356/2-B	Lab Control Sample	80						
LCS 140-45495/2-B	Lab Control Sample	90						
LCS 140-45516/2-B	Lab Control Sample	106						
LCSD 140-45356/3-B	Lab Control Sample Dup	77						
LCSD 140-45495/3-B	Lab Control Sample Dup	66						
LCSD 140-45516/3-B	Lab Control Sample Dup	109						
MB 140-45356/14-B	Method Blank	69						
MB 140-45356/1-B	Method Blank	86						
MB 140-45495/14-B	Method Blank	79						
MB 140-45495/1-B	Method Blank	84						
MB 140-45516/14-B	Method Blank	100						
MB 140-45516/1-B	Method Blank	104						

Surrogate Legend

HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-45356/14-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.001709		0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 16:23	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*69*		*25 - 150*	*12/16/20 12:02*	*01/04/21 16:23*	*1*

Lab Sample ID: MB 140-45356/1-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.001713		0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 14:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*86*		*25 - 150*	*12/16/20 12:02*	*01/04/21 14:10*	*1*

Lab Sample ID: LCS 140-45356/2-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45356

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0200	0.02307		ug/Sample		115	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*80*		*25 - 150*

Lab Sample ID: LCSD 140-45356/3-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45356

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.0200	0.02465		ug/Sample		123	60 - 140	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*77*		*25 - 150*

Lab Sample ID: MB 140-45495/14-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 17:02	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*79*		*25 - 150*	*12/21/20 13:11*	*01/06/21 17:02*	*1*

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

Lab Sample ID: MB 140-45495/1-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.00160	0.00140	ug/Sample		12/21/20 13:11	01/06/21 14:50	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84*		*25 - 150*	*12/21/20 13:11*	*01/06/21 14:50*	*1*

Lab Sample ID: LCS 140-45495/2-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45495

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0200	0.01975		ug/Sample		99	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*90*		*25 - 150*

Lab Sample ID: LCSD 140-45495/3-B
Matrix: Air
Analysis Batch: 45831

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45495

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.0200	0.01964		ug/Sample		98	60 - 140	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA	*66*		*25 - 150*

Lab Sample ID: MB 140-45516/14-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 23:09	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*100*		*25 - 150*	*12/22/20 10:02*	*12/22/20 23:09*	*1*

Lab Sample ID: MB 140-45516/1-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 20:57	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*104*		*25 - 150*	*12/22/20 10:02*	*12/22/20 20:57*	*1*

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

Lab Sample ID: LCS 140-45516/2-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45516

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HFPO-DA			0.0100	0.01110		ug/Sample		111	60 - 140		
Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*								
13C3 HFPO-DA	*106*		*25 - 150*								

Lab Sample ID: LCSD 140-45516/3-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45516

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA			0.0100	0.01129		ug/Sample		113	60 - 140	2	30
Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*								
13C3 HFPO-DA	*109*		*25 - 150*								

QC Association Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

LCMS

Prep Batch: 45356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-1	K-1762,1763 VES CB OUTLET R1 M0010 FH	Total/NA	Air	None	
140-21319-5	K-1769,1770 VES CB OUTLET R2 M0010 FH	Total/NA	Air	None	
140-21319-9	K-1776,1777 VES CB OUTLET R3 M0010 FH	Total/NA	Air	None	
MB 140-45356/14-B	Method Blank	Total/NA	Air	None	
MB 140-45356/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 45495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-2	K-1764,1765,1767 VES CB OUTLET R1 M0010 I	Total/NA	Air	None	
140-21319-4	K-1768 VES CB OUTLET R1 M0010 BREAKTHR	Total/NA	Air	None	
140-21319-6	K-1771,1772,1774 VES CB OUTLET R2 M0010 I	Total/NA	Air	None	
140-21319-8	K-1775 VES CB OUTLET R2 M0010 BREAKTHR	Total/NA	Air	None	
140-21319-10	K-1778,1779,1781 VES CB OUTLET R3 M0010 I	Total/NA	Air	None	
140-21319-12	K-1782 VES CB OUTLET R3 M0010 BREAKTHR	Total/NA	Air	None	
MB 140-45495/14-B	Method Blank	Total/NA	Air	None	
MB 140-45495/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45495/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45495/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 45516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-3	K-1766 VES CB OUTLET R1 M0010 IMPINGERS	Total/NA	Air	None	
140-21319-7	K-1773 VES CB OUTLET R2 M0010 IMPINGERS	Total/NA	Air	None	
140-21319-11	K-1780 VES CB OUTLET R3 M0010 IMPINGERS	Total/NA	Air	None	
MB 140-45516/14-B	Method Blank	Total/NA	Air	None	
MB 140-45516/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 45531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-3	K-1766 VES CB OUTLET R1 M0010 IMPINGERS	Total/NA	Air	Split	45516
140-21319-7	K-1773 VES CB OUTLET R2 M0010 IMPINGERS	Total/NA	Air	Split	45516
140-21319-11	K-1780 VES CB OUTLET R3 M0010 IMPINGERS	Total/NA	Air	Split	45516
MB 140-45516/14-B	Method Blank	Total/NA	Air	Split	45516
MB 140-45516/1-B	Method Blank	Total/NA	Air	Split	45516
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	Split	45516
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45516

Analysis Batch: 45544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-3	K-1766 VES CB OUTLET R1 M0010 IMPINGERS	Total/NA	Air	537 (modified)	45531
140-21319-7	K-1773 VES CB OUTLET R2 M0010 IMPINGERS	Total/NA	Air	537 (modified)	45531
140-21319-11	K-1780 VES CB OUTLET R3 M0010 IMPINGERS	Total/NA	Air	537 (modified)	45531
MB 140-45516/14-B	Method Blank	Total/NA	Air	537 (modified)	45531
MB 140-45516/1-B	Method Blank	Total/NA	Air	537 (modified)	45531
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45531
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45531

QC Association Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

LCMS

Cleanup Batch: 45592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-1	K-1762,1763 VES CB OUTLET R1 M0010 FH	Total/NA	Air	Split	45356
140-21319-5	K-1769,1770 VES CB OUTLET R2 M0010 FH	Total/NA	Air	Split	45356
140-21319-9	K-1776,1777 VES CB OUTLET R3 M0010 FH	Total/NA	Air	Split	45356
MB 140-45356/14-B	Method Blank	Total/NA	Air	Split	45356
MB 140-45356/1-B	Method Blank	Total/NA	Air	Split	45356
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	Split	45356
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45356

Cleanup Batch: 45768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-2	K-1764,1765,1767 VES CB OUTLET R1 M0010 I	Total/NA	Air	Split	45495
140-21319-4	K-1768 VES CB OUTLET R1 M0010 BREAKTHR	Total/NA	Air	Split	45495
140-21319-6	K-1771,1772,1774 VES CB OUTLET R2 M0010 I	Total/NA	Air	Split	45495
140-21319-8	K-1775 VES CB OUTLET R2 M0010 BREAKTHR	Total/NA	Air	Split	45495
140-21319-10	K-1778,1779,1781 VES CB OUTLET R3 M0010 I	Total/NA	Air	Split	45495
140-21319-12	K-1782 VES CB OUTLET R3 M0010 BREAKTHR	Total/NA	Air	Split	45495
MB 140-45495/14-B	Method Blank	Total/NA	Air	Split	45495
MB 140-45495/1-B	Method Blank	Total/NA	Air	Split	45495
LCS 140-45495/2-B	Lab Control Sample	Total/NA	Air	Split	45495
LCSD 140-45495/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45495

Cleanup Batch: 45772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-1	K-1762,1763 VES CB OUTLET R1 M0010 FH	Total/NA	Air	Dilution	45592
140-21319-5	K-1769,1770 VES CB OUTLET R2 M0010 FH	Total/NA	Air	Dilution	45592

Analysis Batch: 45773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-1	K-1762,1763 VES CB OUTLET R1 M0010 FH	Total/NA	Air	537 (modified)	45772
140-21319-5	K-1769,1770 VES CB OUTLET R2 M0010 FH	Total/NA	Air	537 (modified)	45772
140-21319-9	K-1776,1777 VES CB OUTLET R3 M0010 FH	Total/NA	Air	537 (modified)	45592
MB 140-45356/14-B	Method Blank	Total/NA	Air	537 (modified)	45592
MB 140-45356/1-B	Method Blank	Total/NA	Air	537 (modified)	45592
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45592
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45592

Analysis Batch: 45831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21319-2	K-1764,1765,1767 VES CB OUTLET R1 M0010 I	Total/NA	Air	537 (modified)	45768
140-21319-4	K-1768 VES CB OUTLET R1 M0010 BREAKTHR	Total/NA	Air	537 (modified)	45768
140-21319-6	K-1771,1772,1774 VES CB OUTLET R2 M0010 I	Total/NA	Air	537 (modified)	45768
140-21319-8	K-1775 VES CB OUTLET R2 M0010 BREAKTHR	Total/NA	Air	537 (modified)	45768
140-21319-10	K-1778,1779,1781 VES CB OUTLET R3 M0010 I	Total/NA	Air	537 (modified)	45768
140-21319-12	K-1782 VES CB OUTLET R3 M0010 BREAKTHR	Total/NA	Air	537 (modified)	45768
MB 140-45495/14-B	Method Blank	Total/NA	Air	537 (modified)	45768
MB 140-45495/1-B	Method Blank	Total/NA	Air	537 (modified)	45768
LCS 140-45495/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45768
LCSD 140-45495/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45768

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: K-1762,1763 VES CB OUTLET R1 M0010 FH

Lab Sample ID: 140-21319-1

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Cleanup	Dilution			100 uL	10000 uL	45772	01/04/21 12:43	JRC	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 17:52	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1764,1765,1767 VES CB OUTLET R1 M0010 BH

Lab Sample ID: 140-21319-2

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		5			45831	01/06/21 16:09	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1766 VES CB OUTLET R1 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21319-3

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.0101 Sample	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/23/20 00:37	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1768 VES CB OUTLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21319-4

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 16:35	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: K-1769,1770 VES CB OUTLET R2 M0010 FH

Lab Sample ID: 140-21319-5

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00

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	110 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			55 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Cleanup	Dilution			100 uL	10000 uL	45772	01/04/21 12:43	JRC	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 18:01	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1771,1772,1774 VES CB OUTLET R2 M0010 BH

Lab Sample ID: 140-21319-6

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		10			45831	01/06/21 16:44	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1773 VES CB OUTLET R2 M0010 IMPINGERS 1,2&3 COND

Lab Sample ID: 140-21319-7

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00

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			0.0101 Sample	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/23/20 00:46	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1775 VES CB OUTLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE

Lab Sample ID: 140-21319-8

Date Collected: 12/11/20 00:00
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 16:53	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: K-1776,1777 VES CB OUTLET R3 M0010 FH
Lab Sample ID: 140-21319-9

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	107 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			54 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		50			45773	01/04/21 18:10	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1778,1779,1781 VES CB OUTLET R3 M0010 BH
Lab Sample ID: 140-21319-10

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		10			45831	01/06/21 17:11	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1780 VES CB OUTLET R3 M0010 IMPINGERS 1,2&3 COND
Lab Sample ID: 140-21319-11

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.01 Sample	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/23/20 00:55	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: K-1782 VES CB OUTLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE
Lab Sample ID: 140-21319-12

Date Collected: 12/11/20 00:00
Matrix: Air
Date Received: 12/12/20 14:00

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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 17:19	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45356/14-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	50 mL	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 16:23	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45356/1-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:10	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45495/14-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 17:02	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45495/1-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 14:50	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45516/14-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	10 mL	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 23:09	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45516/1-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 20:57	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45356/2-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:19	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45495/2-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 14:59	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45516/2-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 21:06	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45356/3-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:28	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45495/3-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	45495	12/21/20 13:11	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45768	01/04/21 11:00	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45831	01/06/21 15:07	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Client Sample ID: Lab Control Sample Dup

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

Lab Sample ID: LCSD 140-45516/3-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 21:15	JRC	TAL KNX
	Instrument ID: LCA									

Laboratory References:

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

Accreditation/Certification Summary

Client: The Chemours Company FC, LLC
Job ID: 140-21319-1
Project/Site: VES CB Outlet

Laboratory: Eurofins TestAmerica, 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	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
ANAB	ISO/IEC 17025	L2311	02-14-22
Arkansas DEQ	State	88-0688	06-17-21
California	State	2423	06-30-21
Colorado	State	TN00009	02-28-21
Connecticut	State	PH-0223	09-30-21
Florida	NELAP	E87177	07-01-21
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21
Kentucky (DW)	State	90101	01-01-21 *
Louisiana	NELAP	83979	06-30-21
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-21
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-21
New Hampshire	NELAP	299919	01-17-21
New Jersey	NELAP	TN001	07-01-21
New York	NELAP	10781	03-31-21
North Carolina (DW)	State	21705	07-31-21
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-21
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-21
Virginia	NELAP	460176	09-14-21
Washington	State	C593	01-19-21
West Virginia (DW)	State	9955C	01-01-21 *
West Virginia DEP	State	345	05-01-21
Wisconsin	State	998044300	08-31-21

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

Method Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL KNX
Dilution	Dilution and Re-fortification of Standards	None	TAL KNX
None	Leaching Procedure	TAL SOP	TAL KNX
None	Leaching Procedure for Condensate	TAL SOP	TAL KNX
None	Leaching Procedure for Filter	TAL SOP	TAL KNX
Split	Source Air Split	None	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: The Chemours Company FC, LLC
Project/Site: VES CB Outlet

Job ID: 140-21319-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
140-21319-1	K-1762,1763 VES CB OUTLET R1 M0010 FH	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-2	K-1764,1765,1767 VES CB OUTLET R1 M0010 BH	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-3	K-1766 VES CB OUTLET R1 M0010 IMPINGERS 1,2&3 COND	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-4	K-1768 VES CB OUTLET R1 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-5	K-1769,1770 VES CB OUTLET R2 M0010 FH	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-6	K-1771,1772,1774 VES CB OUTLET R2 M0010 BH	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-7	K-1773 VES CB OUTLET R2 M0010 IMPINGERS 1,2&3 COND	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-8	K-1775 VES CB OUTLET R2 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-9	K-1776,1777 VES CB OUTLET R3 M0010 FH	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-10	K-1778,1779,1781 VES CB OUTLET R3 M0010 BH	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-11	K-1780 VES CB OUTLET R3 M0010 IMPINGERS 1,2&3 COND	Air	12/11/20 00:00	12/12/20 14:00	
140-21319-12	K-1782 VES CB OUTLET R3 M0010 BREAKTHROUGH XAD-2 RESIN TUBE	Air	12/11/20 00:00	12/12/20 14:00	

Request for Analysis/Chain-of-Custody – RFA/COC #007
The Chemours Company – Fayetteville NC Facility
PFAS Testing on VES Carbon Bed Outlet

eurofins Environment Testing TestAmerica

Project Identification:	Chemours Emissions Test
Client Name:	The Chemours Company FC, LLC
Client Contact:	Ms. Christel Compton Office: (910) 678-1213 Cell: (910) 975-3386
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, "PB" = Proof Blank, "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 Reports and in data packages. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	Holding Time Requirements:	ients:
HFPO-DA (CAS No. 13252-13-6)	14 Days to Extraction; 40 Days to An	

140-21319 Chain of Custody

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require -ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
K-1762 VES CB Outlet R1 M0010 Filter	1	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
K-1763 VES CB Outlet R1 M0010 FH of Filter Holder & Probe MeOH Rinse	1	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
K-1764 VES CB Outlet R1 M0010 XAD-2 Resin Tube	1	12/11/20		XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
K-1765 VES CB Outlet R1 M0010 BH of Filter Holder & Coil Condenser MeOH Rinse	1	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. **Knoxville**: Analyze for HFPO-DA.
K-1766 VES CB Outlet R1 M0010 Impingers 1,2 & 3 Condensate	1	12/11/20		500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Measure the volume of the Impinger Composite and forward a 250 mL portion to Knoxville for analysis. **Knoxville**: Analyze for HFPO-DA.
K-1767 VES CB Outlet R1 M0010 Impinger Glassware MeOH Rinse	1	12/11/20		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
K-1768 VES CB Outlet R1 M0010 Breakthrough XAD-2 Resin Tube	1	12/11/20		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. **Knoxville**: Analyze for HFPO-DA.
K-1769 VES CB Outlet R2 M0010 Filter	2	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
K-1770 VES CB Outlet R2 M0010 FH of Filter Holder & Probe MeOH Rinse	2	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**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
K-1771 VES CB Outlet R2 M0010 XAD-2 Resin Tube	2	12/11/20		XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
K-1772 VES CB Outlet R2 M0010 BH of Filter Holder & Coil Condenser MeOH Rinse	2	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. **Knoxville**: Analyze for HFPO-DA.
K-1773 VES CB Outlet R2 M0010 Impingers 1,2 & 3 Condensate	2	12/11/20		500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Measure the volume of the Impinger Composite and forward a 250 mL portion to Knoxville for analysis. **Knoxville**: Analyze for HFPO-DA.
K-1774 VES CB Outlet R2 M0010 Impinger Glassware MeOH Rinse	2	12/11/20		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
K-1775 VES CB Outlet R2 M0010 Breakthrough XAD-2 Resin Tube	2	12/11/20		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. **Knoxville**: Analyze for HFPO-DA.
K-1776 VES CB Outlet R3 M0010 Filter	3	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require -ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
K-1777 VES CB Outlet R3 M0010 FH of Filter Holder & Probe MeOH Rinse	3	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the Particulate Filter extraction.
K-1778 VES CB Outlet R3 M0010 XAD-2 Resin Tube	3	12/11/20		XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**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. **Knoxville**: Analyze for HFPO-DA.
K-1779 VES CB Outlet R3 M0010 BH of Filter Holder & Coil Condenser MeOH Rinse	3	12/11/20		125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. **Knoxville**: Analyze for HFPO-DA.
K-1780 VES CB Outlet R3 M0010 Impingers 1,2 & 3 Condensate	3	12/11/20		500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Measure the volume of the Impinger Composite and forward a 250 mL portion to Knoxville for analysis. **Knoxville**: Analyze for HFPO-DA.
K-1781 VES CB Outlet R3 M0010 Impinger Glassware MeOH Rinse	3	12/11/20		250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
K-1782 VES CB Outlet R3 M0010 Breakthrough XAD-2 Resin Tube	3	12/11/20		XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Train HFPO-DA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. **Knoxville**: Analyze for HFPO-DA.

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:	@ 0.8/ @ 0.9 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:	Patti Bales	Ramboll	12/11/20 1900
Accepted By:	Doug Cahill	ETA KNOX	12/11/20 1900
Relinquished By:	Doug Cahill	ETA KNOX	12/12/20 1400
Accepted By:	Ryan Lanman	ETA KNX	12-12-20 14:00
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Loc: 140
21319

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 : S618 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: 12-13-20

QA026R32.doc, 062719

1/8/2021

QA / QC Laboratory Data

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ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-21303-1
Client Project/Site: Quarter 4 Field QC - M0010

For:
The Chemours Company FC, LLC
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, Delaware 19713

Attn: Michael Aucoin

Authorized for release by:
1/6/2021 8:07:00 AM

Courtney Adkins, Project Manager II
(865)291-3019
courtney.adkins@eurofinset.com

Table of Contents

Definitions/Glossary

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 140-21303-1

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-21303-1

Comments
No additional comments.

Receipt
The samples were received on 12/10/2020 6:25 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.2º C.

LCMS
LC/MS/MS Sampling Train Preparation and Analysis: The sampling train components are extracted and analyzed for Per- and Polyfluorinated Alkyl Substances (PFAS) using Eurofins TestAmerica Knoxville standard operating procedures KNOX-OP-0026 and KNOX-LC-0007.

The sampling trains are prepared as four analytical fractions: The particulate filter and front half of the filter holder, nozzle and probe solvent rinses are combined for one analytical fraction. The XAD-2 resin trap and back half of the filter holder, coil condenser and connecting glassware solvent rinses are also combined as a separate analytical fraction. The condensate, impinger contents and their related glassware DI water rinses make up the third analytical fraction. The breakthrough XAD module makes up the fourth analytical fraction.

The filters and XAD components are spiked with isotope dilution internal standards and the components are extracted with methanol/ammonium hydroxide by shaking for at least 18 hours. The extracts are concentrated to 10 mL and analyzed by HPLC/MS/MS. The condensates are spiked with the isotope dilution internal standards and extracted using either Solid-Phase Extraction (SPE) or diluting the water sample for analysis. Each extract at its final volume is 80:20 methanol:water

Sample results were calculated using the following equation:

Result, ηg/sample = (on-column concentration, ηg/mL) × (nominal final volume of extract (10 mL) / 1 sample) × DF × SF

Where:
DF = Instrument dilution factor
SF = Extraction Split Factor = (final volume of extract in the initial extraction batch / initial volume of extract in the “Split” batch)
For condensate, if less than the entire sample is extracted, the fraction of sample used replaces “1 sample”

Method 537 (modified): The method blank for preparation batch 140-45299 and 140-45468 was spilled during sample transfer to concentration thimble. About half of the sample was spilled. The method blank was allowed to continue on through analysis. IDA recovery for 13C6 HFPO-DA was still above QC limits, while 13C4 PFOA was outside QC limits, but with a signal to noise ratio greater than 10:1. This was the second method blank for this batch. The first method blank passed all QC requirements. The samples were consumed during the extraction process, therefore, the data have been reported.

Method 537 (modified): The method blank for preparation batch 140-45356 and 140-45592 contained HFPO-DA above the reporting limit (RL). The entire sample was consumed during analysis or extraction, therefore, the data have been reported.

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

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

Client Sample ID: Q-1562,1563 QC VEN CB M0010 FH BT

Lab Sample ID: 140-21303-1

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	0.00903		0.00100	0.000190	ug/Sample		12/16/20 12:02	01/04/21 15:30	1
HFPO-DA	0.0156	B	0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 15:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*94*		*25 - 150*	*12/16/20 12:02*	*01/04/21 15:30*	*1*
13C3 HFPO-DA	*87*		*25 - 150*	*12/16/20 12:02*	*01/04/21 15:30*	*1*

Client Sample ID: Q-1564,1565,1567 QC VEN CB M0010 BH BT

Lab Sample ID: 140-21303-2

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	0.0120		0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 11:36	1
HFPO-DA	0.0487		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 11:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*106*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:36*	*1*
13C3 HFPO-DA	*95*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:36*	*1*

Client Sample ID: Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 COND BT

Lab Sample ID: 140-21303-3

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.000500	0.0000950	ug/Sample		12/22/20 10:02	12/22/20 22:17	1
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 22:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*101*		*25 - 150*	*12/22/20 10:02*	*12/22/20 22:17*	*1*
13C3 HFPO-DA	*101*		*25 - 150*	*12/22/20 10:02*	*12/22/20 22:17*	*1*

Client Sample ID: Q-1568 QC VEN CB M0010 BREAKTHROUGH XAD-2 RESIN TUBE BT

Lab Sample ID: 140-21303-4

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	0.0102		0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 11:46	1
HFPO-DA	0.00475		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 11:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*105*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:46*	*1*
13C3 HFPO-DA	*94*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:46*	*1*

Client Sample ID: Q-1569 QC VEN CB M0010 DI WATER RB

Lab Sample ID: 140-21303-5

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.000500	0.0000950	ug/Sample		12/22/20 10:02	12/22/20 22:43	1
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 22:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*106*		*25 - 150*	*12/22/20 10:02*	*12/22/20 22:43*	*1*
13C3 HFPO-DA	*112*		*25 - 150*	*12/22/20 10:02*	*12/22/20 22:43*	*1*

Client Sample ID: Q-1570 QC VEN CB M0010 MEOH WITH 5% NH4OH RB

Lab Sample ID: 140-21303-6

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 11:54	1
HFPO-DA	ND		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 11:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*92*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:54*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:54*	*1*

Client Sample ID: Q-1571 QC VEN CB M0010 COMBINED GLASSWARE RINSES (MEOH/5% NH4OH) PB

Lab Sample ID: 140-21303-7

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	**0.000756**	**J**	0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 12:03	1
HFPO-DA	**0.0270**		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 12:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*89*		*25 - 150*	*12/15/20 14:18*	*12/24/20 12:03*	*1*
13C3 HFPO-DA	*90*		*25 - 150*	*12/15/20 14:18*	*12/24/20 12:03*	*1*

Client Sample ID: A-7263 MEDIA CHECK XAD

Lab Sample ID: 140-21303-8

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	**0.00917**		0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 13:32	1
HFPO-DA	**0.0325**		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 13:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*96*		*25 - 150*	*12/15/20 14:18*	*12/24/20 13:32*	*1*
13C3 HFPO-DA	*89*		*25 - 150*	*12/15/20 14:18*	*12/24/20 13:32*	*1*

Client Sample Results

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Client Sample ID: A-7264 MEDIA CHECK FILTER

Lab Sample ID: 140-21303-9

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25
Sample Container: Air Train

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.00100	0.000190	ug/Sample		12/16/20 12:02	01/04/21 15:56	1
HFPO-DA	**0.00669**	**B**	0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 15:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*88*		*25 - 150*	*12/16/20 12:02*	*01/04/21 15:56*	*1*
13C3 HFPO-DA	*85*		*25 - 150*	*12/16/20 12:02*	*01/04/21 15:56*	*1*

Default Detection Limits

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Prep: None

Analyte	RL	MDL	Units
HFPO-DA	0.00100	0.000580	ug/Sample
HFPO-DA	0.00160	0.00140	ug/Sample
HFPO-DA	0.00200	0.000330	ug/Sample
PFOA	0.00100	0.000190	ug/Sample
PFOA	0.00100	0.000170	ug/Sample
PFOA	0.00200	0.000380	ug/Sample

Isotope Dilution Summary

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Air

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	PFOA (25-150)	HFPODA (25-150)
140-21303-1	Q-1562,1563 QC VEN CB M001	94	87
140-21303-2	Q-1564,1565,1567 QC VEN CB M0010 BH BT	106	95
140-21303-3	Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 COND BT	101	101
140-21303-4	Q-1568 QC VEN CB M0010 BREAKTHROUGH XAD-2 RESI TUBE BT	105	94
140-21303-5	Q-1569 QC VEN CB M0010 DI WATER RB	106	112
140-21303-6	Q-1570 QC VEN CB M0010 MEOH WITH 5% NH4OH RB	92	96
140-21303-7	Q-1571 QC VEN CB M0010 COMBINED GLASSWARE RINSES (MEOH/5% NH4OH) PI	89	90
140-21303-8	A-7263 MEDIA CHECK XAD	96	89
140-21303-9	A-7264 MEDIA CHECK FILTER	88	85
LCS 140-45299/2-B	Lab Control Sample	62	77
LCS 140-45356/2-B	Lab Control Sample	83	80
LCS 140-45516/2-B	Lab Control Sample	102	106
LCSD 140-45299/3-B	Lab Control Sample Dup	47	64
LCSD 140-45356/3-B	Lab Control Sample Dup	79	77
LCSD 140-45516/3-B	Lab Control Sample Dup	101	109
MB 140-45299/14-B	Method Blank	17 *5-	30
MB 140-45299/1-B	Method Blank	73	83
MB 140-45356/1-B	Method Blank	86	86
MB 140-45516/1-B	Method Blank	101	104

Surrogate Legend

PFOA = 13C4 PFOA

HFPODA = 13C3 HFPO-DA

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 140-45299/14-B
Matrix: Air
Analysis Batch: 45601

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 11:06	1
HFPO-DA	ND		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 11:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*17*	*5-*	*25 - 150*	*12/15/20 14:18*	*12/24/20 11:06*	*1*
13C3 HFPO-DA	*30*		*25 - 150*	*12/15/20 14:18*	*12/24/20 11:06*	*1*

Lab Sample ID: MB 140-45299/1-B
Matrix: Air
Analysis Batch: 45601

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.00100	0.000170	ug/Sample		12/15/20 14:18	12/24/20 08:53	1
HFPO-DA	ND		0.00160	0.00140	ug/Sample		12/15/20 14:18	12/24/20 08:53	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*73*		*25 - 150*	*12/15/20 14:18*	*12/24/20 08:53*	*1*
13C3 HFPO-DA	*83*		*25 - 150*	*12/15/20 14:18*	*12/24/20 08:53*	*1*

Lab Sample ID: LCS 140-45299/2-B
Matrix: Air
Analysis Batch: 45601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45299

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PFOA			0.0200	0.02175		ug/Sample		109	60 - 140		
HFPO-DA			0.0200	0.02114		ug/Sample		106	60 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFOA	*62*		*25 - 150*
13C3 HFPO-DA	*77*		*25 - 150*

Lab Sample ID: LCSD 140-45299/3-B
Matrix: Air
Analysis Batch: 45601

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45299

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PFOA			0.0200	0.02163		ug/Sample		108	60 - 140	1	30
HFPO-DA			0.0200	0.02185		ug/Sample		109	60 - 140	3	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFOA	*47*		*25 - 150*
13C3 HFPO-DA	*64*		*25 - 150*

Lab Sample ID: MB 140-45356/1-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.00100	0.000190	ug/Sample		12/16/20 12:02	01/04/21 14:10	1

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

Lab Sample ID: MB 140-45356/1-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.001713		0.00100	0.000580	ug/Sample		12/16/20 12:02	01/04/21 14:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*86*		*25 - 150*	*12/16/20 12:02*	*01/04/21 14:10*	*1*
13C3 HFPO-DA	*86*		*25 - 150*	*12/16/20 12:02*	*01/04/21 14:10*	*1*

Lab Sample ID: LCS 140-45356/2-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PFOA	0.0200	0.02151		ug/Sample		108	60 - 140
HFPO-DA	0.0200	0.02307		ug/Sample		115	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFOA	*83*		*25 - 150*
13C3 HFPO-DA	*80*		*25 - 150*

Lab Sample ID: LCSD 140-45356/3-B
Matrix: Air
Analysis Batch: 45773

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45356

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PFOA	0.0200	0.02270		ug/Sample		113	60 - 140	5	30
HFPO-DA	0.0200	0.02465		ug/Sample		123	60 - 140	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFOA	*79*		*25 - 150*
13C3 HFPO-DA	*77*		*25 - 150*

Lab Sample ID: MB 140-45516/1-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PFOA	ND		0.000500	0.0000950	ug/Sample		12/22/20 10:02	12/22/20 20:57	1
HFPO-DA	ND		0.000500	0.0000825	ug/Sample		12/22/20 10:02	12/22/20 20:57	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*101*		*25 - 150*	*12/22/20 10:02*	*12/22/20 20:57*	*1*
13C3 HFPO-DA	*104*		*25 - 150*	*12/22/20 10:02*	*12/22/20 20:57*	*1*

Lab Sample ID: LCS 140-45516/2-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45516

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PFOA	0.0100	0.01040		ug/Sample		104	60 - 140
HFPO-DA	0.0100	0.01110		ug/Sample		111	60 - 140

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

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFOA	102		25 - 150
13C3 HFPO-DA	106		25 - 150

Lab Sample ID: LCSD 140-45516/3-B
Matrix: Air
Analysis Batch: 45544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45516

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PFOA			0.0100	0.01088		ug/Sample		109	60 - 140	5	30
HFPO-DA			0.0100	0.01129		ug/Sample		113	60 - 140	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFOA	101		25 - 150
13C3 HFPO-DA	109		25 - 150

LCMS

Prep Batch: 45299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-2	Q-1564,1565,1567 QC VEN CB M0010 BH BT	Total/NA	Air	None	
140-21303-4	Q-1568 QC VEN CB M0010 BREAKTHROUGH)	Total/NA	Air	None	
140-21303-6	Q-1570 QC VEN CB M0010 MEOH WITH 5% NH	Total/NA	Air	None	
140-21303-7	Q-1571 QC VEN CB M0010 COMBINED GLASS	Total/NA	Air	None	
140-21303-8	A-7263 MEDIA CHECK XAD	Total/NA	Air	None	
MB 140-45299/14-B	Method Blank	Total/NA	Air	None	
MB 140-45299/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45299/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45299/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Prep Batch: 45356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-1	Q-1562,1563 QC VEN CB M0010 FH BT	Total/NA	Air	None	
140-21303-9	A-7264 MEDIA CHECK FILTER	Total/NA	Air	None	
MB 140-45356/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 45468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-2	Q-1564,1565,1567 QC VEN CB M0010 BH BT	Total/NA	Air	Split	45299
140-21303-4	Q-1568 QC VEN CB M0010 BREAKTHROUGH)	Total/NA	Air	Split	45299
140-21303-6	Q-1570 QC VEN CB M0010 MEOH WITH 5% NH	Total/NA	Air	Split	45299
140-21303-7	Q-1571 QC VEN CB M0010 COMBINED GLASS	Total/NA	Air	Split	45299
140-21303-8	A-7263 MEDIA CHECK XAD	Total/NA	Air	Split	45299
MB 140-45299/14-B	Method Blank	Total/NA	Air	Split	45299
MB 140-45299/1-B	Method Blank	Total/NA	Air	Split	45299
LCS 140-45299/2-B	Lab Control Sample	Total/NA	Air	Split	45299
LCSD 140-45299/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45299

Prep Batch: 45516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-3	Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 (	Total/NA	Air	None	
140-21303-5	Q-1569 QC VEN CB M0010 DI WATER RB	Total/NA	Air	None	
MB 140-45516/1-B	Method Blank	Total/NA	Air	None	
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	None	
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	None	

Cleanup Batch: 45531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-3	Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 (	Total/NA	Air	Split	45516
140-21303-5	Q-1569 QC VEN CB M0010 DI WATER RB	Total/NA	Air	Split	45516
MB 140-45516/1-B	Method Blank	Total/NA	Air	Split	45516
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	Split	45516
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45516

Analysis Batch: 45544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-3	Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 (	Total/NA	Air	537 (modified)	45531
140-21303-5	Q-1569 QC VEN CB M0010 DI WATER RB	Total/NA	Air	537 (modified)	45531
MB 140-45516/1-B	Method Blank	Total/NA	Air	537 (modified)	45531

LCMS (Continued)

Analysis Batch: 45544 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 140-45516/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45531
LCSD 140-45516/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45531

Cleanup Batch: 45592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-1	Q-1562,1563 QC VEN CB M0010 FH BT	Total/NA	Air	Split	45356
140-21303-9	A-7264 MEDIA CHECK FILTER	Total/NA	Air	Split	45356
MB 140-45356/1-B	Method Blank	Total/NA	Air	Split	45356
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	Split	45356
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	Split	45356

Analysis Batch: 45601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-2	Q-1564,1565,1567 QC VEN CB M0010 BH BT	Total/NA	Air	537 (modified)	45468
140-21303-4	Q-1568 QC VEN CB M0010 BREAKTHROUGH)	Total/NA	Air	537 (modified)	45468
140-21303-6	Q-1570 QC VEN CB M0010 MEOH WITH 5% NH	Total/NA	Air	537 (modified)	45468
140-21303-7	Q-1571 QC VEN CB M0010 COMBINED GLASS	Total/NA	Air	537 (modified)	45468
140-21303-8	A-7263 MEDIA CHECK XAD	Total/NA	Air	537 (modified)	45468
MB 140-45299/14-B	Method Blank	Total/NA	Air	537 (modified)	45468
MB 140-45299/1-B	Method Blank	Total/NA	Air	537 (modified)	45468
LCS 140-45299/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45468
LCSD 140-45299/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45468

Analysis Batch: 45773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-21303-1	Q-1562,1563 QC VEN CB M0010 FH BT	Total/NA	Air	537 (modified)	45592
140-21303-9	A-7264 MEDIA CHECK FILTER	Total/NA	Air	537 (modified)	45592
MB 140-45356/1-B	Method Blank	Total/NA	Air	537 (modified)	45592
LCS 140-45356/2-B	Lab Control Sample	Total/NA	Air	537 (modified)	45592
LCSD 140-45356/3-B	Lab Control Sample Dup	Total/NA	Air	537 (modified)	45592

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Client Sample ID: Q-1562,1563 QC VEN CB M0010 FH BT
Lab Sample ID: 140-21303-1
Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 15:30	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Q-1564,1565,1567 QC VEN CB M0010 BH BT
Lab Sample ID: 140-21303-2
Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 11:36	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 COND BT
Lab Sample ID: 140-21303-3
Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 22:17	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Q-1568 QC VEN CB M0010 BREAKTHROUGH XAD-2 RESIN TUBE BT
Lab Sample ID: 140-21303-4
Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 11:46	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Q-1569 QC VEN CB M0010 DI WATER RB
Lab Sample ID: 140-21303-5
Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 22:43	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Q-1570 QC VEN CB M0010 MEOH WITH 5% NH4OH RB

Lab Sample ID: 140-21303-6

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 11:54	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Q-1571 QC VEN CB M0010 COMBINED GLASSWARE RINSES (MEOH/5% NH4OH) PB

Lab Sample ID: 140-21303-7

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 12:03	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: A-7263 MEDIA CHECK XAD

Lab Sample ID: 140-21303-8

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 13:32	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: A-7264 MEDIA CHECK FILTER

Lab Sample ID: 140-21303-9

Date Collected: 12/09/20 00:00
Matrix: Air
Date Received: 12/10/20 06:25

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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 15:56	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank

Lab Sample ID: MB 140-45299/14-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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 11:06	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45299/1-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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 08:53	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45356/1-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:10	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Method Blank
Lab Sample ID: MB 140-45516/1-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 20:57	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45299/2-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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 09:02	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45356/2-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:19	JRC	TAL KNX
	Instrument ID: LCA									

Lab Chronicle

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 140-45516/2-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 21:06	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45299/3-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	45299	12/15/20 14:18	DWS	TAL KNX
Total/NA	Cleanup	Split			180 mL	10 mL	45468	12/21/20 06:28	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45601	12/24/20 09:11	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45356/3-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	45356	12/16/20 12:02	DWS	TAL KNX
Total/NA	Cleanup	Split			25 mL	10 mL	45592	12/24/20 04:02	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45773	01/04/21 14:28	JRC	TAL KNX
	Instrument ID: LCA									

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 140-45516/3-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	45516	12/22/20 10:02	DWS	TAL KNX
Total/NA	Cleanup	Split			10 mL	10 mL	45531	12/22/20 12:21	DWS	TAL KNX
Total/NA	Analysis	537 (modified)		1			45544	12/22/20 21:15	JRC	TAL KNX
	Instrument ID: LCA									

Laboratory References:
TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: The Chemours Company FC, LLC
Job ID: 140-21303-1
Project/Site: Quarter 4 Field QC - M0010

Laboratory: Eurofins TestAmerica, 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	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
ANAB	ISO/IEC 17025	L2311	02-14-22
Arkansas DEQ	State	88-0688	06-17-21
California	State	2423	06-30-21
Colorado	State	TN00009	02-28-21
Connecticut	State	PH-0223	09-30-21
Florida	NELAP	E87177	07-01-21
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21
Kentucky (DW)	State	90101	01-01-21 *
Louisiana	NELAP	83979	06-30-21
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-21
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-31-21
New Hampshire	NELAP	299919	01-17-21
New Jersey	NELAP	TN001	07-01-21
New York	NELAP	10781	03-31-21
North Carolina (DW)	State	21705	07-31-21
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-21
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-21
Virginia	NELAP	460176	09-14-21
Washington	State	C593	01-19-21
West Virginia (DW)	State	9955C	01-01-21 *
West Virginia DEP	State	345	05-01-21
Wisconsin	State	998044300	08-31-21

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

Method Summary

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

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

Protocol References:

EPA = US Environmental Protection Agency

None = None

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: The Chemours Company FC, LLC
Project/Site: Quarter 4 Field QC - M0010

Job ID: 140-21303-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
140-21303-1	Q-1562,1563 QC VEN CB M0010 FH BT	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-2	Q-1564,1565,1567 QC VEN CB M0010 BH BT	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-3	Q-1566 QC VEN CB M0010 IMPINGERS 1,2&3 COND BT	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-4	Q-1568 QC VEN CB M0010 BREAKTHROUGH XAD-2 RESIN TUBE BT	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-5	Q-1569 QC VEN CB M0010 DI WATER RB	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-6	Q-1570 QC VEN CB M0010 MEOH WITH 5% NH4OH RB	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-7	Q-1571 QC VEN CB M0010 COMBINED GLASSWARE RINSES (MEOH/5% NH4OH) PB	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-8	A-7263 MEDIA CHECK XAD	Air	12/09/20 00:00	12/10/20 06:25	
140-21303-9	A-7264 MEDIA CHECK FILTER	Air	12/09/20 00:00	12/10/20 06:25	

Request for Analysis/Chain-of-Custody – RFA/COC #003
The Chemours Company – Fayetteville NC Facility
PFAS Testing on PPA Carbon Bed Field QC Samples

eurofins
Environment Testing
TestAmerica

Project Identification:	Chemours Emissions Test
Client Name:	The Chemours Company FC, LLC
Client Contact:	Ms. Christel Compton Office: (910) 678-1213 Cell: (910) 975-3386
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, "PB" = Proof Blank, "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 Reports and in data packages. Include "Field Sample Number", "Sample Type", and "Run Number" on all TALS Reports.

Analytical Parameter:	Holding Time Requirements:
HFPO-DA (CAS No. 13252-13-6) & PFOA (CAS No. 335-67-1)	14 Days to Extraction; 40 Days to Analysis

140-21303 Chain of Custody

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require-ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
Q-1562 QC VEN CB M0010 Filter BT	QC	12/9/20	Blank Train	125 mL HDPE Wide-Mouth Bottle	**Particulate Filter (82.6 mm Whatman Glass Microfiber)** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**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 Filter sample. Analyze for HFPO-DA and PFOA.
Q-1563 QC VEN CB M0010 FH of Filter Holder & Probe MeOH Rinse BT	QC	12/9/20	Blank Train	125 mL HDPE Wide-Mouth Bottle	**Front Half of Filter Holder & Probe Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**Knoxville**: Use this solvent sample in the Filter extraction.
Q-1564 QC VEN CB M0010 XAD-2 Resin Tube BT	QC	12/9/20	Blank Train	XAD-2 Resin Tube	**XAD-2 Resin Tube** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**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 HFPO-DA and PFOA.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require -ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
Q-1565 QC VEN CB M0010 BH of Filter Holder & Coil Condenser MeOH Rinse BT	QC	12/9/20	Blank Train	125 mL HDPE Wide-Mouth Bottle	**Back Half of Filter Holder & Coil Condenser Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**Knoxville**: Use this solvent sample and the Impinger Glassware Methanol Rinse in the XAD-2 Resin extraction. Analyze for HFPO-DA and PFOA.
Q-1566 QC VEN CB M0010 Impingers 1,2 & 3 Condensate BT	QC	12/9/20	Blank Train	500 mL HDPE Wide-Mouth Bottle	**Impinger #1, #2 & #3 Condensate** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**Knoxville**: Measure the total volume of the Impinger Composite. Analyze for HFPO-DA and PFOA.
Q-1567 QC VEN CB M0010 Impinger Glassware MeOH Rinse BT	QC	12/9/20	Blank Train	250 mL HDPE Wide-Mouth Bottle	**Impinger Glassware Methanol/5% Ammonium Hydroxide Rinse** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**Knoxville**: Use this solvent sample in the XAD-2 Resin Extraction.
Q-1568 QC VEN CB M0010 Breakthrough XAD-2 Resin Tube BT	QC	12/9/20	Blank Train	XAD-2 Resin Tube	**Breakthrough XAD-2 Resin Tube** Method 0010 Blank Train HFPO-DA & PFOA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level and perform the regular XAD-2 Resin Extraction. Analyze for HFPO-DA and PFOA.
Q-1569 QC VEN CB M0010 DI Water RB	QC	12/9/20	Reagent Blank	500 mL HDPE Wide-Mouth Bottle	**Deionized (DI) Water Reagent Blank** Method 0010 Train HFPO-DA & PFOA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. **Knoxville**: Analyze for HFPO-DA and PFOA.
Q-1570 QC VEN CB M0010 MeOH with 5% NH_4OH RB	QC	12/9/20	Reagent Blank	250 mL HDPE Wide-Mouth Bottle	**Methanol with 5% NH_4OH Reagent Blank** Method 0010 Train HFPO-DA & PFOA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. **Knoxville**: Analyze for HFPO-DA and PFOA.

Field Sample No./Sample Coding ID	Run No.	Sample Collection Date	Project QC Require -ments	Sample Bottle/ Container	Sample Type/Analysis	Analytical Specifications
Q-1571 QC VEN CB M0010 Combined Glassware Rinses (MeOH/5% NH_4OH) PB	QC	12/9/20	Proof Blank	125 mL HDPE Wide-Mouth Bottle	**Front Half, Back Half and Impinger Glassware Rinses Composite Proof Blank** Method 0010 Train HFPO-DA & PFOA Analysis	**Knoxville**: Spike sample with the Isotope Dilution Internal Standard (IDIS) at the regular level. **Knoxville**: Analyze for HFPO-DA and PFOA.

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/CT 1.2°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:	Patsy Gray	Ramboll	12/9/20/2030
Accepted By:	Doug Cahill	ETA KNOX	12/9/20 2030
Relinquished By:	Doug Cahill	ETA KNOX	12/10/20 0625
Accepted By:		ETA KNOX	12-10-20 06:25
Relinquished By:			
Accepted By:			
Relinquished By:			
Accepted By:			

Loc: 140
21303

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 : SG68 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: Angie Cannon Date: 12-12-20

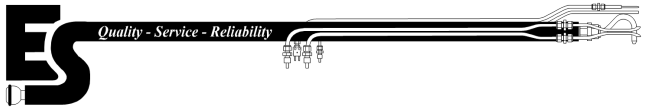
QA026R32.doc, 062719

1/6/2021

APPENDIX E
EQUIPMENT CALIBRATION DATA

Pretest Equipment Calibration Data

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES



1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells, YELLOW cells are calculated.

					INITIAL	FINAL	AVG (P_{bar})
DATE:	1/15/2020	METER SERIAL #:	M3	BAROMETRIC PRESSURE (in Hg):	29.59	29.59	29.59
METER PART #:		CRITICAL ORIFICE SET SERIAL #:	1393				

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	DGM READINGS (FT^3) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) q	DGM DH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y % Diff to Average Y	Y % Diff with other orifices	$DH_@$
11	1	0.306	24	993.117	999.052	5.935	70.7	70	71	68	69	69.5	15.00	0.43	5.8603	5.8974	1.006			1.55
	2	0.306																		
	3	0.306																		
																AVG =	1.006	0.23	0.67	
16	1	0.4268	22.5	987.575	993.117	5.542	70.7	70	70	67	68	68.75	10.00	0.86	5.4858	5.4837	1.000			1.59
	2	0.4268																		
	3	0.4268																		
																AVG =	1.000	-0.44	-0.67	
18	1	0.4961	21.5	999.052	1,005.432	6.380	70.3	70	71	68	70	69.75	10.00	1.2	6.3087	6.3765	1.011			1.64
	2	0.4961																		
	3	0.4961																		
																AVG =	1.011	0.67	1.57	
26	1	0.7131	19	971.683	980.920	9.237	70	69	69	64	66	67	10.00	2.6	9.2133	9.1682	0.995			1.74
	2	0.7131																		
	3	0.7131																		
																AVG =	0.995	-0.89	-1.30	
31	1	0.8358	17.5	961.057	971.683	10.626	69.5	64	69	63	64	65	10.00	3.5	10.6628	10.7508	1.008			1.71
	2	0.8358																		
	3	0.8358																		
																AVG =	1.008	0.42	1.32	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.004

AVERAGE $DH_@$ = 1.64

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions
K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)
T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions
T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)
K' = Average K' factor from Critical Orifice Calibration

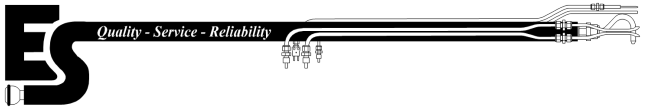
(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

$$DH_@ = \left(\frac{0.75\ q}{V_{cr(std)}}\right)^2 DH \left(\frac{V_{m(std)}}{V_m}\right)$$

RAMBOLL

METHOD 5 DRY GAS METER CALIBRATION USING CRITICAL ORIFICES



1) Select three critical orifices to calibrate the dry gas meter which bracket the expected operating range.
2) Record barometric pressure before and after calibration procedure.
3) Run at tested vacuum (from Orifice Calibration Report), for a period of time necessary to achieve a minimum total volume of 5 cubic feet.
4) Record data and information in the **GREEN** cells, YELLOW cells are calculated.

					INITIAL	FINAL	AVG (P_{bar})
DATE:	1/14/2020	METER SERIAL #:	MB 15	BAROMETRIC PRESSURE (in Hg):	30.27	30.27	30.27
METER PART #:		CRITICAL ORIFICE SET SERIAL #:	1393				

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	DGM READINGS (FT^3) NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) q	DGM DH ($in\ H_2O$)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y % Diff to Average Y	Y % Diff with other orifices	$DH_@$
11	1	0.306	23.5	240.408	246.224	5.816	70.4	65	67	65	67	66	15.00	0.5	5.9147	6.0346	1.020			1.77
	2	0.306																		
	3	0.306																		
																AVG =	1.020	0.68	1.04	
16	1	0.4268	22.5	246.224	251.697	5.473	70.4	67	68	67	68	67.5	10.00	1	5.5568	5.6113	1.010			1.81
	2	0.4268																		
	3	0.4268																		
																AVG =	1.010	-0.35	-1.03	
18	1	0.4961	20.5	251.697	257.984	6.287	70.5	68	70	68	70	69	10.00	1.2	6.3682	6.5218	1.024			1.61
	2	0.4961																		
	3	0.4961																		
																AVG =	1.024	1.06	1.87	
26	1	0.7131	17.5	257.984	267.179	9.195	70.9	70	71	70	71	70.5	10.00	2.7	9.3212	9.3709	1.005			1.75
	2	0.7131																		
	3	0.7131																		
																AVG =	1.005	-0.79	-0.21	
31	1	0.8358	17.5	267.179	277.971	10.792	71.1	71	73	71	73	72	10.03	3.6	10.9329	11.0142	1.007			1.70
	2	0.8358																		
	3	0.8358																		
																AVG =	1.007	-0.59	0.21	

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
The following equations are used to calculate the standard volumes of air passed through the DGM, V_m (std), and the critical orifice, V_{cr} (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.013

AVERAGE $DH_@$ = 1.73

(1) $$Vm_{(std)} = K_1 * Vm * \frac{Pbar + (\Delta H / 13.6)}{Tm}$$

= Net volume of gas sample passed through DGM, corrected to standard conditions
K_1 = 17.64 °R/in. Hg (English), 0.3858 °K/mm Hg (Metric)
T_m = Absolute DGM avg. temperature (°R - English, °K - Metric)

(2) $$Vcr_{(std)} = K' * \frac{Pbar * \Theta}{\sqrt{Tamb}}$$

= Volume of gas sample passed through the critical orifice, corrected to standard conditions
T_{amb} = Absolute ambient temperature (°R - English, °K - Metric)
K' = Average K' factor from Critical Orifice Calibration

(3) $$Y = \frac{Vcr_{(std)}}{Vm_{(std)}}$$

= DGM calibration factor

$$DH_@ = \left(\frac{0.75\ q}{V_{cr(std)}}\right)^2 DH \left(\frac{V_{m(std)}}{V_m}\right)$$

Initial Impinger Outlet Thermocouple Calibration

ID Number	Ice Bath			Ambient			Hot Water Bath			Technician	Date Performed
	Reference Temperature (^{o}Rk)	Thermocouple Temperature (^{o}Rk)	Deviation*	Reference Temperature (^{o}Rk)	Thermocouple Temperature (^{o}Rk)	Deviation*	Reference Temperature (^{o}Rk)	Thermocouple Temperature (^{o}Rk)	Deviation*		
IO-1	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	670.67	-0.1%	JLS	01/30/20
IO-2	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	671.67	0.0%	JLS	01/30/20
IO-3	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	670.67	-0.1%	JLS	01/30/20
IO-4	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	669.67	-0.3%	JLS	01/30/20
IO-5	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	671.67	0.0%	JLS	01/30/20
IO-6	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	672.67	0.1%	JLS	01/30/20
IO-7	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	670.67	-0.1%	JLS	01/30/20
IO-8	491.67	493.67	0.4%	527.67	527.67	0.0%	671.67	669.67	-0.3%	JLS	01/30/20
IO-9	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	672.67	0.1%	JLS	01/30/20
IO-10	491.67	492.67	0.2%	527.67	526.67	-0.2%	671.67	672.67	0.1%	JLS	01/30/20
IO-11	491.67	493.67	0.4%	527.67	527.67	0.0%	671.67	672.67	0.1%	JLS	01/30/20
IO-12	491.67	492.67	0.2%	527.67	526.67	-0.2%	671.67	672.67	0.1%	JLS	01/30/20
IO-13	NA			NA			NA			JLS	01/30/20
IO-14	491.67	494.67	0.6%	527.67	526.67	-0.2%	671.67	670.67	-0.1%	JLS	01/30/20
IO-15	491.67	493.67	0.4%	527.67	527.67	0.0%	671.67	670.67	-0.1%	JLS	01/30/20
IO-16	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	671.67	0.0%	JLS	01/30/20
IO-17	NA			NA			NA			JLS	01/30/20
IO-18	491.67	493.67	0.4%	527.67	527.67	0.0%	671.67	669.67	-0.3%	JLS	01/30/20
IO-19	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	671.67	0.0%	JLS	01/30/20
IO-19	491.67	493.67	0.4%	527.67	526.67	-0.2%	671.67	671.67	0.0%	JLS	01/30/20

Reference Thermocouple: Fluke S/N: 83450033 or S/N 90460057 traceable to the Untied States National Institute of Standards and Technology
*Acceptable Deviation: 1.5%

Initial Oven Box Thermocouple Calibration

ID Number	Ice Bath			Ambient			Hot Water Bath			Technician	Date Performed
	Reference Temperature (^{o}R)	Thermocouple Temperature (^{o}R)	Deviation*	Reference Temperature (^{o}R)	Thermocouple Temperature (^{o}R)	Deviation*	Reference Temperature (^{o}R)	Thermocouple Temperature (^{o}R)	Deviation*		
OB-1	491.67	492.67	0.2%	524.67	523.67	-0.2%	671.67	673.67	0.3%	JLS	01/17/20
OB-2	491.67	492.67	0.2%	524.67	524.67	0.0%	671.67	669.67	-0.3%	JLS	01/17/20
OB-3	491.67	492.67	0.2%	524.67	524.67	0.0%	671.67	669.67	-0.3%	JLS	01/17/20
OB-4	491.67	493.67	0.4%	524.67	524.67	0.0%	671.67	670.67	-0.1%	JLS	01/17/20
OB-A	491.67	492.67	0.2%	524.67	526.67	0.4%	671.67	673.67	0.3%	JLS	01/17/20
OB-B	491.67	492.67	0.2%	524.67	526.67	0.4%	671.67	672.67	0.1%	JLS	01/17/20
OB-5	491.67	494.67	0.6%	524.67	523.67	-0.2%	671.67	669.67	-0.3%	JLS	01/17/20
OB-C	491.67	492.67	0.2%	524.67	525	0.0%	671.67	673.67	0.3%	JLS	01/17/20
OB-6	491.67	493.67	0.4%	524.67	525	0.0%	671.67	669.67	-0.3%	JLS	01/17/20
OB-7	491.67	494.67	0.6%	524.67	525	0.0%	671.67	671.67	0.0%	JLS	01/17/20
OB-E	491.67	494	0.4%	524.67	528	0.6%	671.67	668.67	-0.4%	JLS	01/17/20
OB-10	491.67	493.67	0.4%	524.67	525.67	0.2%	671.67	671.67	0.0%	JLS	01/17/20
OB-11	491.67	493.67	0.4%	524.67	525.67	0.2%	671.67	671.67	0.0%	JLS	01/17/20

Reference Thermocouple: Fluke S/N: 83450033 or S/N 90460057 traceable to the Untied States National Institute of Standards and Technology

*Acceptable Deviation: 1.5%

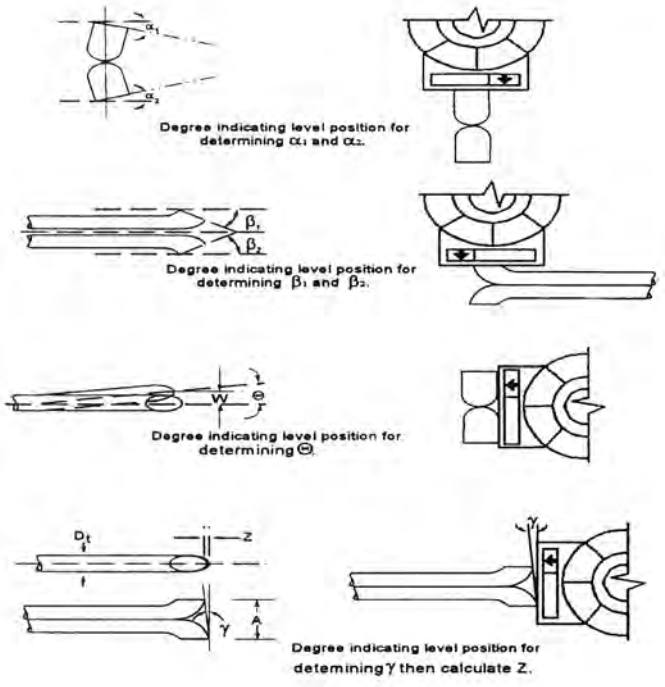
Initial Sample Probe Calibration Form

Probe ID: P4-2/TC-5D | Date: 06/16/20 | Technician: P. Grady

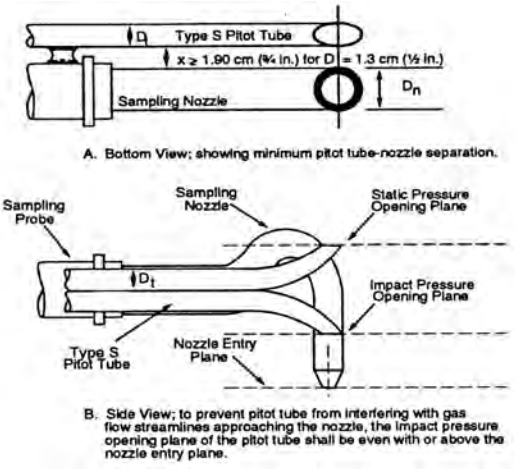
"S" Type Pitot Calibration

Is the Pitot Level and Perpindicular?	Yes
Is There any Obstruction?	No
Is the Pitot Damaged	No
α_1 ($-10^o = \alpha_1 = +10^o$)	2
α_2 ($-10^o = \alpha_2 = +10^o$)	1
$ß_1$ ($-5^o = ß_1 = +5^o$)	1
$ß_2$ ($-5^o = ß_2 = +5^o$)	1
γ	1
Θ	0
z = A Tan γ (< 0.125")	0.011
W = A Tan Θ (< 0.03125")	0.0000
D_t (3/16 = D_t = 3/8")	0.251
A	0.650
$A/2D_t$ (1.05 = P_A/D_t = 1.5)	1.295

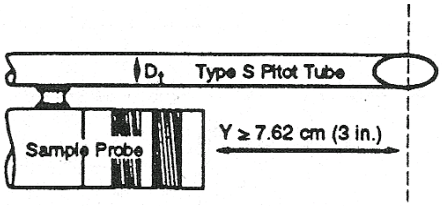
Source: Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III, Stationary Source-Specific Methods. EPA/600/R-94/038c, September 30, 1994



Verification of "S" Type Pitot, Thermocouple and Nozzle Placement



Does X Exceed 0.75 inches?	Yes
Does Y Exceed 3 inches?	NA



Thermocouple Calibration

	Ice Bath °R			Ambient °R			Boiling Water °R		
	1	2	3	1	2	3	1	2	3
Reference Temp	492.3	492.3	492.3	533.4	533.4	533.4	671.5	671.5	671.5
Thermocouple Temp	492.9	492.8	492.8	532.7	532.6	532.7	673.1	673	673
Difference (%)	0.1	0.1	0.1	-0.1	-0.1	-0.1	0.2	0.2	0.2

Temperature values must be within 1.5% of reference temperature

I certify that the probe ID P4-2/TC-5D meets or exceeds all specifications, criteria and/or applicable design features and is herby assigned a pitot tube calibration factor C_p of 0.84.

Certified By: P. Grady Date: 06/16/20

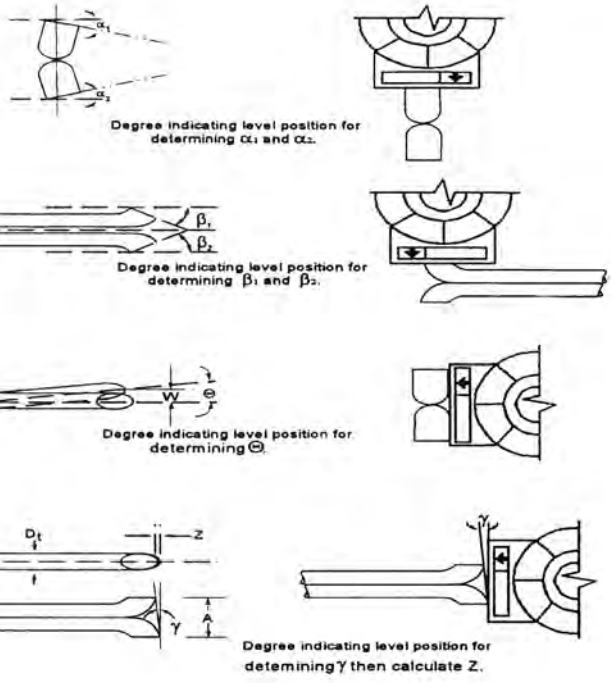
Initial Sample Probe Calibration Form

Probe ID: P4-3/TC-7D | Date: 06/16/20 | Technician: P. Grady

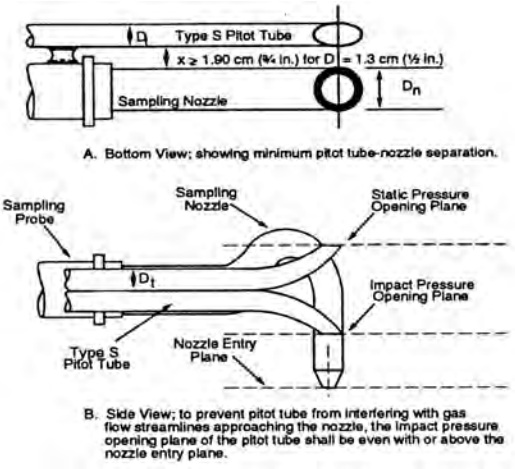
"S" Type Pitot Calibration

Is the Pitot Level and Perpindicular?	Yes
Is There any Obstruction?	No
Is the Pitot Damaged	No
α_1 ($-10^o = \alpha_1 = +10^o$)	1
α_2 ($-10^o = \alpha_2 = +10^o$)	0
$ß_1$ ($-5^o = ß_1 = +5^o$)	1
$ß_2$ ($-5^o = ß_2 = +5^o$)	1
γ	1
Θ	1
z = A Tan γ (< 0.125")	0.011
W = A Tan Θ (< 0.03125")	0.0110
D_t (3/16 = D_t = 3/8")	0.251
A	0.628
$A/2D_t$ (1.05 = P_A/D_t = 1.5)	1.251

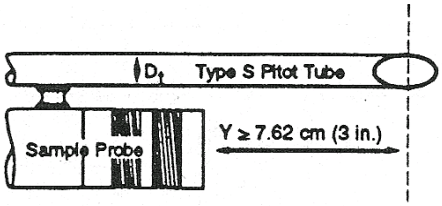
Source: Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III, Stationary Source-Specific Methods. EPA/600/R-94/038c, September 30, 1994



Verification of "S" Type Pitot, Thermocouple and Nozzle Placement



Does X Exceed 0.75 inches?	Yes
Does Y Exceed 3 inches?	NA



Thermocouple Calibration

	Ice Bath °R			Ambient °R			Boiling Water °R		
	1	2	3	1	2	3	1	2	3
Reference Temp	492.3	492.3	492.3	533.4	533.4	533.4	671.5	671.5	671.5
Thermocouple Temp	492.7	492.6	492.6	533.1	533.2	533.2	671.8	671.8	671.8
Difference (%)	0.1	0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0

Temperature values must be within 1.5% of reference temperature

I certify that the probe ID P4-3/TC-7D meets or exceeds all specifications, criteria and/or applicable design features and is herby assigned a pitot tube calibration factor C_p of 0.84.

Certified By: P. Grady Date: 06/16/20

Nozzle Calibration Form

Plant I.D. Chemours Project No. 100388

Source I.D. VES Inlet Personnel PG/JLS

Date

Nozzle ID:	Stainless Steel
Diameter 1	0.208
Diameter 2	0.211
Diameter 3	0.211
Average	0.210

< 0.004" between high & low diameters

Nozzle Calibration Form

Plant I.D. Chemours Project No. 100388

Source I.D. VES Outlet Personnel PG/JLS

Date

Nozzle ID:	Stainless Steel
Diameter 1	0.245
Diameter 2	0.242
Diameter 3	0.242
Average	0.243

< 0.004" between high & low diameters

Post Test Equipment Calibration Data

POST TEST DRY GAS METER CALIBRATION

DATE:	01/19/21	METER BOX #:	3	BAROMETRIC PRESSURE (in Hg):	INITIAL 30.01	FINAL 30.01	AVG (P_{bar}) 30.01
TECHNICIAN:	A. Anderson	CRITICAL ORIFICE SET SERIAL #:	1393				

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) q	DGM DH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y % Diff to Average Y	$DH_@$
	1																		
	2																		
	3																		
																AVG =			
18	1	0.4961	21	855.649	862.094	6.445	61	59	61	59	60	59.75	10.00	1.2	6.5876	6.5245	0.990	-0.17	1.62
	2	0.4961	21	862.094	868.541	6.447	61	61	62	60	61	61	10.00	1.2	6.5738	6.5245	0.992	0.04	1.62
	3	0.4961	21	868.541	874.992	6.451	61	62	63	61	61	61.75	10.00	1.2	6.5684	6.5245	0.993	0.12	1.61
																AVG =	0.992		
	1																		
	2																		
	3																		
																AVG =			

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 0.992

PRE-DETERMINED DRY GAS METER CALIBRATION FACTOR, Y = 1.004

PERCENT DIFFERENCE = -1.2

POST TEST DRY GAS METER CALIBRATION

DATE:	01/15/21	METER BOX #:	15	BAROMETRIC PRESSURE (in Hg):	INITIAL 29.92	FINAL 29.92	AVG (P_{bar}) 29.92
TECHNICIAN:	S. Waters	CRITICAL ORIFICE SET SERIAL #:	1393				

ORIFICE #	RUN #	K' FACTOR (AVG)	TESTED VACUUM (in Hg)	DGM READINGS (FT^3) INITIAL	DGM READINGS (FT^3) FINAL	NET (V_m)	TEMPERATURES °F AMBIENT	DGM INLET INITIAL	DGM INLET FINAL	DGM OUTLET INITIAL	DGM OUTLET FINAL	DGM AVG	ELAPSED TIME (MIN) q	DGM DH (in H_2O)	(1) V_m (STD)	(2) V_{cr} (STD)	(3) Y	Y % Diff to Average Y	$DH_@$
	1																		
	2																		
	3																		
																AVG =			
18	1	0.4961	21	884.568	890.770	6.202	56	52	56	52	56	54	10.00	1.2	6.3910	6.5364	1.023	-0.05	1.63
	2	0.4961	21	890.770	896.942	6.172	58	56	59	56	59	57.5	10.00	1.2	6.3171	6.5237	1.033	0.93	1.62
	3	0.4961	21	896.942	903.269	6.327	59	60	63	60	63	61.5	10.00	1.2	6.4260	6.5174	1.014	-0.88	1.61
																AVG =	1.023		
	1																		
	2																		
	3																		
																AVG =			

AVERAGE DRY GAS METER CALIBRATION FACTOR, Y = 1.023

PRE-DETERMINED DRY GAS METER CALIBRATION FACTOR, Y = 0.978

PERCENT DIFFERENCE = 4.6

Post-Test Sample Probe Calibration Form

Probe ID P4-2 / TC5D

Visual Inspection

Do pitot tips appear to be damaged?	NO
Do thermocouple wires appear broken or shorted?	NO
Do all components appear to be in good condition?	YES

Post-Test Thermocouple Calibration

Reference Temperature ^{O}F	Thermocouple Temperature ^{O}F	Difference ^{O}F
56	57	1

s

Reference Thermocouple: Fluke S/N: 83450033 traceable to the Untied States National Institute of Standards and Technology

Accepatable Deviation +/- 2 ^{O}F

X Acceptable

Unacceptable

Date 01/15/21

Technician AA

Post-Test Sample Probe Calibration Form

Probe ID P4-3 / TC7D

Visual Inspection

Do pitot tips appear to be damaged?	NO
Do thermocouple wires appear broken or shorted?	NO
Do all components appear to be in good condition?	YES

Post-Test Thermocouple Calibration

Reference Temperature ^{O}F	Thermocouple Temperature ^{O}F	Difference ^{O}F
55.8	57.6	1.8

s

Reference Thermocouple: Fluke S/N: 83450033 traceable to the Untied States National Institute of Standards and Technology

Accepatable Deviation +/- 2 ^{O}F

X Acceptable

_____ Unacceptable

Date 01/15/21 Technician AA