UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
FOUR PENN CENTER – 1600 JOHN F. KENNEDY BLVD.
PHILADELPHIA, PENNSYLVANIA 19103-2852

In the Matter of:	
The Chemours Company FC, LLC 1007 Market Street Wilmington, DE 19801 Respondent	**ADMINISTRATIVE ORDER ON CONSENT** Proceeding Under Section 309(a) of the Clean Water Act, 33 U.S.C. § 1319(a)
	EPA Docket No. CWA-03-2023-0025DN
Facility located at: Washington Works 8480 DuPont Road Washington, WV 26181	

I. STATUTORY AND REGULATORY BACKGROUND

1. The United States Environmental Protection Agency, Region III ("EPA") makes the following findings of fact and conclusions of law below and thus issues this Administrative Compliance Order on Consent ("Order") pursuant to the authority vested in the Administrator of EPA under Section 309(a) of the Clean Water Act ("CWA" or "Act"), 33 U.S.C. § 1319(a). The Administrator delegated this authority to the Regional Administrator of EPA Region III, who further delegated it to the Director, Enforcement & Compliance Assurance Division, Region III.

2. EPA has jurisdiction over the above-captioned matter.

3. Respondent, The Chemours Company FC, LLC ("Chemours"), has agreed to the issuance of this Consent Order.

4. Section 309(a) of the Act, 33 U.S.C. § 1319(a), provides, *inter alia*, that whenever on the basis of any information available, the Administrator finds that any person is in violation of Section 301 of the Act, 33 U.S.C. § 1311, or any permit condition or limitation implementing certain CWA sections in a permit issued under Section 402 of the Act, 33 U.S.C. § 1342, the Administrator shall issue an order requiring such person to comply with such section or requirement.

5. "Discharge of a pollutant" means "[a]ny addition of any 'pollutant' or combination of pollutants to 'waters of the United States' from any 'point source'." 40 C.F.R. § 122.2. *See also* Section 502(12) of the Act, 33 U.S.C. § 1362(12).

6. Section 301(a) of the Act, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant from a point source into waters of the United States except in compliance with, *inter alia*, a permit issued pursuant to the National Pollutant Discharge Elimination System ("NPDES") program under Section 402 of the Act, 33 U.S.C. § 1342.

7. Section 402(a) of the Act, 33 U.S.C. § 1342(a), provides that the Administrator of EPA may issue permits under the NPDES program for the discharge of pollutants from point sources to waters of the United States, to ensure compliance with the requirements of the CWA. The discharges are subject to specific terms and conditions, as prescribed in the permit. *See also* Section 301 of the Act, 33 U.S.C. § 1311.

8. Section 402(p) of the Act, 33 U.S.C. § 1342(p), and 40 C.F.R. Sections 122.21 and 122.26 provide for the regulation of stormwater discharges pursuant to NPDES permitting requirements under Section 402(a) of the Act, 33 U.S.C. § 1342(a).

9. "Stormwater" is defined as "stormwater runoff, snow melt runoff and surface runoff and drainage." 40 C.F.R. § 122.26(b)(13).

10. An NPDES permit is required for discharges of stormwater associated with industrial activity. Section 402(p) of the Act, 33 U.S.C. § 1342(p); 40 C.F.R. § 122.26(a); 40 C.F.R. § 122.21.

11. Facilities under Standard Industrial Classification 2869 (Industrial Organic Chemicals) are engaged in "industrial activity." 40 C.F.R. § 122.26(b)(14)(xi).

12. EPA approved West Virginia to administer the NPDES program in the State on May 10, 1982.

13. Pursuant to the authority of the Act, the NPDES program approval, and the West Virginia Water Pollution Control Law, West Virginia issued West Virginia National Pollutant Discharge Elimination System ("WV NPDES") Permit No. WV0001279 to Chemours (an operating subsidiary of The Chemours Company), on July 30, 2018, with an effective date of September 1, 2018, and an expiration date of July 29, 2023 ("2018 Permit").

14. The 2018 Permit authorizes terms for the discharge of stormwater and industrial wastewater at the Chemours Washington Works facility ("Facility") for certain specified pollutants in accordance with the provisions of the 2018 Permit. The 2018 Permit requires the permittee to comply with all conditions in the Permit.

15. The 2018 Permit classified the Facility under Standard Industrial Classification ("SIC") Code 2869 ("Industrial Organic Chemicals"), and NAICS Code 32519 ("Other Basic

Organic Chemical Manufacturing").

16. EPA has consulted with the West Virginia Department of Environmental Protection ("WVDEP") regarding this Order. Subsequent to the Effective Date of this Order, EPA will provide a copy of this fully executed Order to the appropriate WVDEP official.

II. FINDINGS OF FACT AND CONCLUSIONS OF LAW

17. At all times relevant to this Order, Chemours was the owner and operator of the Washington Works Site located at 8480 DuPont Road, Parkersburg, West Virginia 26181 ("Facility"). DuPont de Nemours, Inc. ("DuPont") and Kuraray Co. Ltd. ("Kuraray") are tenants on the property.

18. Chemours is a limited liability company and a "person" within the meaning of Section 502(5) of the Act, 33 U.S.C. § 1362(5).

19. Section 502(6) of the Act, 33 U.S.C. § 1362(6), defines the term "pollutant" to include, *inter alia*: solid waste, sewage, garbage, chemical wastes, biological materials, radioactive materials, and industrial waste discharged into water. Parameters cited in this Order -- including per- and polyfluoroalkyl substances ("PFAS") such as ammonium perfluorooctanoate (and related compound perfluorooctanoic acid ("PFOA")) and HFPO Dimer Acid (also known as HFPO-DA and C3 Dimer Acid/Salt) are "pollutants" within the meaning of Section 502(6) of the Act, 33 U.S.C. § 1362(6).

20. Section 502(14) of the Act, 33 U.S.C. § 1362(14), defines the term "point source" to mean "any discernible, confined and discrete conveyance […]." Outlets at the Facility are discernible, confined and discrete conveyances and are, therefore, "point sources" within the meaning of Section 502(14) of the Act, 33 U.S.C. § 1362(14).

21. The Facility is located along the southeastern bank of the Ohio River and has Outlets that discharge directly to either the Ohio River, Page Run or Coal Hollow. Both Page Run and Coal Hollow are hydrologically connected tributaries of the Ohio River. The Ohio River, Page Run and Coal Hollow are, therefore, "navigable waters" as that term is defined in Section 502(7) of the Act, 33 U.S.C. § 1362(7).

22. Chemours operates multiple separate manufacturing units at the Facility that produce a variety of organic chemical products. Chemours' manufacturing operations at the Facility include fluoropolymer production. HFPO Dimer Acid is a processing aid used in the manufacture of fluoropolymers at the Facility. PFOA was used in the past as a processing aid at the Facility. In addition, Chemours accepts wastewater at the Facility from its onsite tenants DuPont and Kuraray into Chemours' primary biological treatment system. Chemours also operates non-biological/physical treatment systems via Outlet 002. Wastewater received from onsite tenants is permitted under the 2018 Permit.

23. The 2018 Permit authorizes discharges of industrial wastewater (cooling water, process

water, groundwater, filter backwash wastewater, stormwater runoff, steam condensate, boiler blowdown, pump seal water, or a combination thereof) under specified conditions and limitations. The 2018 Permit authorizes discharges of specific wastewaters under specified conditions at the following Outlets at the Facility (*see* Exhibits 1 and 2 for Outlet maps and drainage areas):

a. A combination of non-contact cooling water, stormwater, groundwater, and filter backwash wastewater via Outlet 001.

b. A combination of process wastewater, non-contact cooling water, steam condensate, boiler blowdown and stormwater via Outlet 002.

c. A combination of non-contact cooling water, stormwater, and steam condensate wastewater via Outlet 003.

d. A combination of process wastewater, non-contact cooling water, steam condensate, sanitary wastewater, cooling tower blowdown, and stormwater via Outlet 005.

e. A combination of non-contact cooling water, stormwater, and steam condensate wastewater via Outlet 006.

f. A combination of non-contact cooling water and stormwater via Outlet 007.

g. The direct discharge of pump seal water via Outlet 013 and Outlet 028 into Page Run, a tributary of the Ohio River.

h. The direct discharge of untreated stormwater via Outlets 016, 019, 026, 030-034, and 036.

i. The direct discharge of untreated stormwater via Outlet 011 into Coal Hollow, a tributary to the Ohio River, and via Outlets 022, 023, and 025 into Page Run, a tributary of the Ohio River.

24. In August 2018, prior to the September 1, 2018 effective date of the 2018 Permit, Chemours discharged PFAS, including 6:2 Fluorotelomer Sulfonate, Perfluoro-2-methoxyacetic Acid, Perfluorobutane Sulfonic Acid, Perfluorobutanoic Acid, Perfluorodecanoic Acid, Perfluorododecanoic Acid, Perfluoroheptanoic Acid, Perfluorohexadecanoic Acid, Perfluorohexane Sulfonic Acid, Perfluorohexanoic Acid, Perfluorononanoic Acid, Perfluorooctadecanoic Acid, Perfluorooctane Sulfonic Acid, Perfluoropentane sulfonic Acid, Perfluoropentanoic Acid, Perfluorotetradecanoic Acid, Perfluorotridecanoic Acid, Perfluoroundecanoic Acid, from Outlet 002 or Outlet 005 in concentrations up to 870 parts per trillion (ppt).

25. In November 2018, after the September 1, 2018 effective date of the 2018 Permit, Chemours discharged PFAS, including 6:2 Fluorotelomer Sulfonate, 8:2 Fluorotelomer

Sulfonate, Perfluorobutanoic Acid, and Perfluoropentanoic Acid, from Outlet 001, Outlet 002, or Outlet 005 in concentrations up to 360 ppt.

26. At all times relevant to this Order, Chemours has also regularly discharged HFPO Dimer Acid to the Ohio River from Outlet 002 and Outlet 005 at the Facility.

27. On November 27-29, 2018, an EPA compliance inspection team inspected the Facility for compliance with its NPDES permit and the CWA ("Inspection").

28. The 2018 Permit provided for interim limits on PFOA and HFPO Dimer Acid discharges from certain outlets effective immediately, with more stringent final limits on PFOA and HFPO Dimer Acid discharges that took effect on January 1, 2022.

29. Based on observations made at the November 27-29, 2018 Inspection, Chemours' various information request letter responses, and information exchanged by the parties over the last several years, EPA has identified a number of violations of the 2018 Permit and Section 301 of the Clean Water Act, 33 U.S.C. § 1311, including the following.

Count 1
NPDES Discharge Exceedances of PFOA and HFPO Dimer Acid

30. The allegations in the preceding paragraphs are incorporated by reference.

31. Part A of the 2018 Permit includes discharge limitations for certain industrial discharges, stormwater discharges, and a combination thereof from permitted outlets.

32. According to the discharge monitoring reports ("DMRs") submitted by Respondent to WVDEP during the period of September 30, 2018 through March 31, 2023, Respondent had the following NPDES Exceedances:

Table 1: NPDES Exceedances of PFOA and HFPO-DA

Monitoring Period Date	Outlet	Parameter Description	Limit Type	DMR Value	DMR Value Unit	Limit Value	Limit Value Unit	% Exceedance
9/30/2018	005	PFOA	DAILY MX	2.3	µg/l	2	µg/l	15
1/31/2019	002	HFPO Dimer Acid	DAILY MX	120	µg/l	32	µg/l	275
1/31/2019	002	HFPO Dimer Acid	MO AVG	38.1	µg/l	9	µg/l	323
6/30/2019	005	HFPO Dimer Acid	DAILY MX	57	µg/l	43	µg/l	33
6/30/2019	005	HFPO Dimer Acid	MO AVG	19.33	µg/l	15	µg/l	29
7/31/2019	005	HFPO Dimer Acid	DAILY MX	45	µg/l	43	µg/l	5
7/31/2019	005	HFPO Dimer Acid	MO AVG	18.89	µg/l	15	µg/l	26
10/31/2020	002	HFPO Dimer Acid	DAILY MX	33	µg/l	32	µg/l	3
10/31/2020	002	HFPO Dimer Acid	MO AVG	9.51	µg/l	9	µg/l	6
10/31/2020	005	PFOA	DAILY MX	3.3	µg/l	2	µg/l	65

1/31/2021	002	HFPO Dimer Acid	MO AVG	11.26	µg/l	9	µg/l	25
2/28/2021	002	HFPO Dimer Acid	MO AVG	10.3	µg/l	9	µg/l	14
4/30/2021	002	HFPO Dimer Acid	DAILY MX	52	µg/l	32	µg/l	63
2/28/2022	001	HFPO Dimer Acid	MO AVG	3.3	µg/l	1.4	µg/l	136
2/28/2022	001	HFPO Dimer Acid	DAILY MX	3.3	µg/l	2	µg/l	65
2/28/2022	002	HFPO Dimer Acid	MO AVG	1.55	µg/l	1.4	µg/l	11
2/28/2022	002	HFPO Dimer Acid	DAILY MX	5.5	µg/l	2.3	µg/l	139
2/28/2022	006	HFPO Dimer Acid	MO AVG	1.8	µg/l	0.14	µg/l	1185
2/28/2022	006	HFPO Dimer Acid	DAILY MX	1.8	µg/l	0.204	µg/l	782
3/31/2022	002	HFPO Dimer Acid	MO AVG	2.26	µg/l	1.4	µg/l	61
3/31/2022	002	HFPO Dimer Acid	DAILY MX	7.9	µg/l	2.3	µg/l	243
3/31/2022	006	HFPO Dimer Acid	MO AVG	1	µg/l	0.14	µg/l	614
3/31/2022	006	HFPO Dimer Acid	DAILY MX	1	µg/l	0.204	µg/l	390
4/30/2022	002	HFPO Dimer Acid	DAILY MX	4.1	µg/l	2.3	µg/l	78
4/30/2022	006	HFPO Dimer Acid	MO AVG	2.9	µg/l	0.14	µg/l	1971
4/30/2022	006	HFPO Dimer Acid	DAILY MX	2.9	µg/l	0.204	µg/l	1322
5/31/2022	001	HFPO Dimer Acid	DAILY MX	7.1	µg/l	2	µg/l	255
5/31/2022	006	HFPO Dimer Acid	DAILY MX	1.7	µg/l	0.204	µg/l	733
5/31/2022	006	HFPO Dimer Acid	MO AVG	1.7	µg/l	0.14	µg/l	1114
6/30/2022	002	HFPO Dimer Acid	DAILY MX	4.5	µg/l	2.3	µg/l	96
6/30/2022	006	HFPO Dimer Acid	MO AVG	1.6	µg/l	0.14	µg/l	1043
6/30/2022	006	HFPO Dimer Acid	DAILY MX	1.6	µg/l	0.204	µg/l	684
7/31/2022	001	HFPO Dimer Acid	MO AVG	10.25	µg/l	1.4	µg/l	632
7/31/2022	001	HFPO Dimer Acid	DAILY MX	18	µg/l	2	µg/l	800
7/31/2022	002	PFOA	MO AVG	10.6	µg/l	2	µg/l	430
7/31/2022	002	PFOA	DAILY MX	28	µg/l	3.3	µg/l	748
7/31/2022	002	HFPO Dimer Acid	MO AVG	10.6	µg/l	1.4	µg/l	657
7/31/2022	002	HFPO Dimer Acid	DAILY MX	28	µg/l	2.3	µg/l	1117
7/31/2022	006	HFPO Dimer Acid	DAILY MX	3	µg/l	0.204	µg/l	1371
7/31/2022	006	HFPO Dimer Acid	MO AVG	3	µg/l	0.14	µg/l	2043
8/31/2022	006	HFPO Dimer Acid	MO AVG	1.3	µg/l	0.14	µg/l	829
8/31/2022	006	HFPO Dimer Acid	DAILY MX	1.3	µg/l	0.204	µg/l	537
9/30/2022	002	HFPO Dimer Acid	DAILY MX	74	µg/l	2.3	µg/l	3117
9/30/2022	002	HFPO Dimer Acid	MO AVG	15.4	µg/l	1.4	µg/l	1000
10/31/2022	001	HFPO Dimer Acid	MO AVG	1.63	µg/l	1.4	µg/l	16
10/31/2022	001	HFPO Dimer Acid	DAILY MX	2.8	µg/l	2	µg/l	40
10/31/2022	002	PFOA	DAILY MX	11.5	µg/l	3.3	µg/l	248
10/31/2022	002	PFOA	MO AVG	3.1	µg/l	2	µg/l	55
11/30/2022	005	HFPO Dimer Acid	DAILY MX	2.48	µg/l	2.3	µg/l	8
12/31/2022	001	HFPO Dimer Acid	DAILY MX	13	µg/l	2	µg/l	550
12/31/2022	001	HFPO Dimer Acid	MO AVG	13	µg/l	1.4	µg/l	829
12/31/2022	002	HFPO Dimer Acid	MO AVG	2.1	µg/l	1.4	µg/l	50

12/31/2022	002	HFPO Dimer Acid	DAILY MX	5.77	µg/l	2.3	µg/l	151
12/31/2022	006	HFPO Dimer Acid	MO AVG	2.17	µg/l	0.14	µg/l	1450
12/31/2022	006	HFPO Dimer Acid	DAILY MX	2.17	µg/l	0.204	µg/l	964
1/31/2023	001	HFPO Dimer Acid	DAILY MX	5.94	µg/l	2	µg/l	197
1/31/2023	001	HFPO Dimer Acid	MO AVG	5.94	µg/l	1.4	µg/l	324
1/31/2023	002	HFPO Dimer Acid	MO AVG	2.92	µg/l	1.4	µg/l	109
1/31/2023	002	HFPO Dimer Acid	DAILY MX	3.94	µg/l	2.3	µg/l	71
1/31/2023	006	HFPO Dimer Acid	DAILY MX	1.28	µg/l	0.204	µg/l	527
1/31/2023	006	HFPO Dimer Acid	MO AVG	1.28	µg/l	0.14	µg/l	814
2/28/2023	001	HFPO Dimer Acid	DAILY MX	10.4	µg/l	2	µg/l	420
2/28/2023	001	HFPO Dimer Acid	MO AVG	10.4	µg/l	1.4	µg/l	643
2/28/2023	006	HFPO Dimer Acid	DAILY MX	1.81	µg/l	0.204	µg/l	787
2/28/2023	006	HFPO Dimer Acid	MO AVG	1.81	µg/l	0.14	µg/l	1193
3/31/2023	001	HFPO Dimer Acid	DAILY MX	6.35	µg/l	2	µg/l	217
3/31/2023	001	HFPO Dimer Acid	MO AVG	6.35	µg/l	1.4	µg/l	354
3/31/2023	006	HFPO Dimer Acid	DAILY MX	2.87	µg/l	0.204	µg/l	1307
3/31/2023	006	HFPO Dimer Acid	MO AVG	2.87	µg/l	0.14	µg/l	1950

33. The discharge exceedances in Table 1 reported by Respondent are violations of the 2018 Permit and Sections 301 and 402 of the Act, 33 U.S.C. §§ 1311 and 1342.

Count 2
Failure to Properly Operate and Maintain all Facilities and Systems

34. The allegations in the preceding paragraphs are incorporated herein by reference.

35. Appendix A.II.1 of the 2018 Permit requires that "the permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit."

36. At the Inspection, the team observed a partially uncovered grate leading directly to Outlet 002 that was located near a staging area for waste containing HFPO Dimer Acid. There was evidence of staining on the ground near the grate. The grate and piping were not plugged, allowing for some of the waste to end up in Outlet 002.

37. At the Inspection, the team observed an inlet covered by a grate outside of Building 514 which houses the Polymer Processing Aid Abatement Process Line 1 Treatment process. The grate was partially covered by a rubber mat. The inlet was located near an area used to stage filter press waste containing HFPO Dimer Acid from Line 1. The Facility representatives indicated that the filter press waste is typically fully saturated with liquid and also contains a significant amount of standing liquid. Additionally, the Inspection team observed evidence of staining on the ground near the roll-off bin and the garage door,

indicating that material may have been historically spilled in this area. The Inspection team also observed that the liner inside the roll-off bin appeared to have rips and tears. The Facility representatives indicated that the inlet leads directly to Outlet 002 and is normally covered with the rubber mat to prevent any splashes or spills from the roll-off bin that occur when the roll-off bin is moved from entering the grate. The uncovered corner of the grate at the time of the Inspection was the corner closest to the filter press waste. Facility representatives indicated that the grate was periodically vacuumed out to remove solids.

38. The Inspection team observed staining on the ground in the storage yard near where the facility stores roll-off bins holding filter press waste containing HFPO Dimer Acid, indicating a potential historic spill of material from the roll-off bins. Additionally, Chemours had previously conducted soil sampling in this area and concluded "both PFOA and HFPO-DA were detected in soil, mainly in the samples located adjacent to the southern edge of the East Truck Pad [where the roll-off bins are stored], indicating that a release has occurred."

39. The Inspection team observed that the Facility was storing roll-off bins holding filter press waste containing HFPO Dimer Acid from the polymer processing aid ("PPA") Abatement Process in an unpaved, gravel-lined storage yard located on the eastern side of the Facility property. The Inspection team observed that these bins were all covered but stored on a slope. There was evidence of ground staining in the area surrounding the roll-off bins. In addition, there was standing water behind the roll-off bins in the direction that the bins were angled (i.e., downslope). The Inspection team observed that the liner of the roll-off bin being actively filled at the filter press had rips and was pulling away from the sides of the bin. There was also liquid accumulated in the bin such that it pooled in certain areas.

40. Stormwater from the area where the roll-off bins were located in the storage yard is discharged, untreated, through Outlet 011, as shown on the Stormwater Outlet and Drainage Map in Appendix E of the Inspection report. Outlet 011 has the highest levels of HFPO Dimer Acid reported for all outlets in the Facility's September 2018 through March 2020 DMRs. The Facility's 2018 Permit does not have numeric limits for HFPO Dimer Acid discharges from Outlet 011 but requires Chemours to sample this Outlet quarterly for HFPO Dimer Acid.

41. The observations stated in this Count 2 indicate a failure to properly operate and maintain Facility systems installed or used for compliance with the Permit.

42. Respondent's failure to properly operate and maintain all Facility systems installed or used for compliance with the Permit is a violation of the 2018 Permit and Sections 301 and 402 of the Act, 33 U.S.C. §§ 1311 and 1342.

III. ORDER

AND NOW, pursuant to section 309(a) of the Act, 33 U.S.C. § 1319(a), having taken into account the seriousness of the violations, Respondent is hereby ORDERED to take the following

steps:

43. Subject to and in compliance with this Order, the Respondent shall take all actions necessary to comply with the Clean Water Act, including, but not limited to, complying with all requirements of the 2018 Permit (or subsequent NPDES permits or NPDES permit modifications, including permit compliance schedules, issued by WVDEP).

44. Respondent shall implement the Sampling Plan, attached hereto as Exhibit 3, to characterize the nature of the stormwater runoff and effluent wastewater leaving the Facility by conducting specified PFAS sampling to identify and quantify PFAS discharges at each permitted Outlet. The Sampling Plan provides for the characterization of PFAS in both stormwater and wastewater, including but not limited to PFAS that are already listed in the 2018 Permit, and includes:
    i. Monitoring at all outlets using draft EPA Methods 1621 (for absorbable organic fluorine) and 1633;
    ii. Total oxidizable precursor assay; and
    iii. Non-targeted PFAS analysis.

45. All sampling results shall be submitted to EPA and WVDEP. Following review of the sampling results submitted pursuant to this Section, EPA, in consultation with WVDEP, may seek, pursuant to this Order, additional actions to characterize or monitor the discharge of PFAS from the Facility.

46. Within 120 days of the Effective Date of this Order, Respondent shall submit an Alternatives Analysis and Implementation Plan for the treatment of HFPO Dimer Acid and PFOA to ensure that such discharges meet numeric effluent limits at each of Outlets 001, 002, 005, and 006. The time for submission of the Plan may be extended by agreement of the Parties, including in the event that there are not sufficient wet weather conditions during such time to allow for necessary sampling. The analysis for each Outlet shall include:
    i. A characterization of the discharges at each Outlet, including the quality and quantity of process water and stormwater.
    ii. A discussion of available alternatives, including a cost analysis, to achieve compliance with the 2018 Permit (or subsequent NPDES permits or NPDES permit modifications issued by WVDEP) at such Outlet. The alternatives to be considered shall include use of additional technologies capable of meeting existing effluent limits (which shall include, but not be limited to, ion exchange, granular activated carbon, reverse osmosis, and any additional current technologies capable of treating PFAS); and may also include use of enhanced facility management practices that would prevent or minimize the amount of PFOA or HFPO Dimer Acid that can reach and be discharged from such Outlet.
    iii. Selection of the recommended alternative, a justification and any supporting documentation, and implementation/construction schedule.
    iv. A draft sampling plan to evaluate the removal efficiency of PFAS for the selected treatment technology.

47. Upon review and approval by EPA of Respondent's Alternatives Analysis and Implementation Plan, Respondent will implement the Plan according to the approved schedule.
48. Within 30 days of the Effective Date of this Order, Respondent shall submit electronically for EPA's review and comment:
    a. Respondent's existing Standard Operating Procedures (SOPs) relating to the management of wastewater for the Local Landfill granular activated carbon "GAC" System, W9 Line 1 GAC System, Dryer Belt Wash Water GAC System, PPA Recovery System, Permeate GAC System, and Ranney Well GAC System, describing proper operation and maintenance of the Facility, including maintenance schedules, source control measures, ongoing good housekeeping practices, and frequency of inspections; and
    b. Respondent's revised Storm Water Pollution Prevention Plan ("SWPPP"), which Respondent submitted as part of its NPDES Permit renewal application on February 24, 2023. Upon review and comment by EPA in consultation with WVDEP, Respondent shall update its SWPPP to address EPA's comments, and shall implement the updated SWPPP within 30 days.

49. At all times material hereto, Respondent shall ensure compliance with the recordkeeping requirements in the SWPPP and the 2018 Permit.

IV. PROCEDURES FOR SUBMISSIONS

50. Respondent shall include with all documents required to be submitted by this Order and any Request for Termination a certification signed by a responsible officer, as defined in 40 CFR § 122.22(d), that reads as follows:

> *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*
> Signed _____
> Title _____

51. Any submission or communication relating to this Order shall be submitted via electronic transmission to:

Chad Harsh (3ED32)
Enforcement and Compliance Assurance Division
U.S. EPA, Region III
Philadelphia, PA 19103
harsh.chad@epa.gov

and

Pamela J. Lazos
Senior Assistant Regional Counsel (3RC40)
U.S. EPA, Region III
Philadelphia, PA 19103
lazos.pamela@epa.gov
and
R3_ORC_mailbox@epa.gov
[attn: Pamela J. Lazos, Dkt. No. CWA-03-2022-0076DN]

52. For each submission required pursuant to this Order, EPA will review the submission and provide comments. If EPA comments on a submission, Respondent agrees to respond in writing within 30 calendar days, unless EPA agrees in writing to a longer period.

53. Respondent may assert a business confidentiality claim covering part or all of the information which this Order requires it to submit to EPA, but only to the extent and only in the manner described in Part 2 Subpart B of Title 40 of the C.F.R. The EPA will disclose information submitted under a confidentiality claim only as provided in Part 2 Subpart B of Title 40 of the C.F.R. Information which is effluent data or a standard or limitation is not eligible for confidential treatment pursuant to 40 C.F.R. 2.302(e). If Respondent does not assert a confidentiality claim, EPA may make the submitted information available to the public without further notice to Respondent. Respondent may not withhold information relevant to this Order from EPA on the grounds that it is confidential business information.

V. GENERAL PROVISIONS

54. The intent of this Order is to address the violations described herein. EPA reserves the right to commence action against any person, including Chemours, in response to any condition which EPA determines may present an imminent and substantial endangerment to the public health, public welfare, or the environment. Chemours reserves its rights and defenses with respect to any such action.

55. EPA reserves any existing rights and remedies available to it under the CWA, 33 U.S.C. § 1251, *et seq.*, the regulations promulgated thereunder, and any other federal laws or regulations for which EPA has jurisdiction, including, without limitation, the right to seek, pursuant to applicable enforcement authority, additional actions to characterize, monitor, or control the discharge of PFAS from the outlets at the Facility. Further, EPA reserves any rights and remedies available to it under the CWA, the regulations promulgated thereunder,

and any other federal laws or regulations for which EPA has jurisdiction, to enforce the provisions of this Order, following its Effective Date (as defined below).

56. This Order does not constitute a waiver or modification of the terms or conditions of the Respondent's NPDES Permit. Compliance with the terms and conditions of this Order does not relieve Respondent of its obligations to comply with any applicable federal, state, or local law, regulation or permit. The terms of this Order, including any attached appendices, may be modified only by a subsequent written agreement signed by Respondent and EPA.

57. Respondent waives any and all remedies, claims for relief and otherwise available rights to judicial or administrative review that Respondent may have with respect to any issue of fact or law set forth in this Order, including any right of judicial review pursuant to Chapter 7 of the Administrative Procedure Act, 5 U.S.C. §§ 701-706. Notwithstanding the foregoing, Respondent does not admit any finding of fact herein.

58. EPA reserves all existing inspection authority otherwise available to EPA pursuant to Section 308 of the CWA, 33 U.S.C. § 1318, or pursuant to any other statute or law.

59. The undersigned representative of Respondent certifies that he or she is fully authorized by the party represented to enter into the terms and conditions of this Order and to execute and legally bind the party.

60. For the purpose of this proceeding only, Respondent admits each jurisdictional allegation set forth in this Order. Respondent agrees not to contest the jurisdiction of EPA with respect to the execution or enforcement of this Order.

61. For purposes of this proceeding only, Respondent hereby expressly waives its right to contest the allegations set forth in this Order except as expressly provided herein, including but not limited to Paragraph 60 regarding admission to jurisdictional allegations, and this waiver is not intended to be, nor should it be interpreted to be, an admission of fact or waiver of defenses in any proceeding brought by a third party against Respondent or any other action or proceeding brought by EPA or the United States.

62. In any subsequent administrative or judicial proceeding initiated by the EPA or the United States for injunctive relief, civil penalties, or other relief relating to the Washington Works Facility, Chemours will not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim splitting, or other defenses based upon any contention that the claims raised by the EPA or the United States in the subsequent proceeding were or should have been brought in the instant matter.

63. Respondent shall bear its own costs and attorney's fees in connection with this Order.

64. By signing this Order, Respondent acknowledges that this Order will be available to the public and represents that, to the best of Respondent's knowledge and belief, this Order does not contain any confidential business information or personally identifiable

information from Respondent.

65. Respondent certifies that any information or representation it has supplied or made to EPA concerning this matter was, at the time of submission true, accurate, and complete and that there has been no material change regarding the truthfulness, accuracy or completeness of such information or representation. EPA shall have the right to institute further actions to recover appropriate relief if EPA obtains evidence that any information provided and/or representations made by Respondent to the EPA regarding matters relevant to this Order, including information about respondent's ability to pay a penalty, are false or, in any material respect, inaccurate. This right shall be in addition to all other rights and causes of action that EPA may have, civil or criminal, under law or equity in such event. Respondent and its officers, directors and agents are aware that the submission of false or misleading information to the United States government may subject a person to separate civil and/or criminal liability.

66. This Order shall apply to and be binding upon the Respondent and the officers, directors, employees, contractors, successors, agents and assigns of Respondent.

67. If Respondent becomes aware, or reasonably should have become aware, of any event that causes or may cause a delay in Respondent's compliance with any of the deadlines set forth in this Order, Respondent shall notify EPA in writing within ten (10) calendar days after Respondent's knowledge of such delay or potential for delay, describing in detail the specific cause or causes of the delay and the measures taken to minimize the delay. If the anticipated length of the delay, the measures to be taken to minimize the delay, and the timetable for the implementation of such measures are known, Respondent's notice shall contain such information. If such information is not then known, Respondent's notice shall include a schedule of the date(s) by which Respondent expects to have such information and be able to provide it to EPA. Such notification shall be deemed submitted after notification is electronically transmitted and EPA has acknowledged receipt of the electronic transmission. Upon receipt of such notification, EPA will determine whether to extend the time for compliance with the deadline and provide Respondent with a response, in writing. If EPA agrees that the delay was unavoidable, EPA will provide a revised compliance date. Such an extension shall not alter the schedule for performance or completion of any other tasks required by this Order unless these tasks are unavoidably affected by the delay. Respondent shall implement all reasonable measures to avoid or minimize any such delay. Failure to notify EPA within the time period set forth shall constitute a waiver of any claim that circumstances beyond Respondent's control have prevented compliance with this Order. Notification, by itself, shall not excuse delay.

68. For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 162-21(b)(2), performance of Section III of this Order is restitution, remediation, or required to come into compliance with the law.

VI. TERMINATION AND SATISFACTION

69. After the completion of all items in Section III, above, Respondent shall submit to EPA a

Request for Termination of this Order.

70. EPA reserves the right to unilaterally terminate this Order in its unreviewable discretion.

71. EPA shall provide Respondent with written notification of termination of this Order.

VII. EFFECTIVE DATE

72. This Order is effective upon Respondent's receipt of a fully executed document.

SO ORDERED:

KAREN MELVIN Digitally signed by KAREN MELVIN
Date: 2023.04.25 13:16:15 -04'00'

_____

Karen Melvin
Director, Enforcement & Compliance Assurance Division
U.S. EPA Region III
(signed and dated electronically)

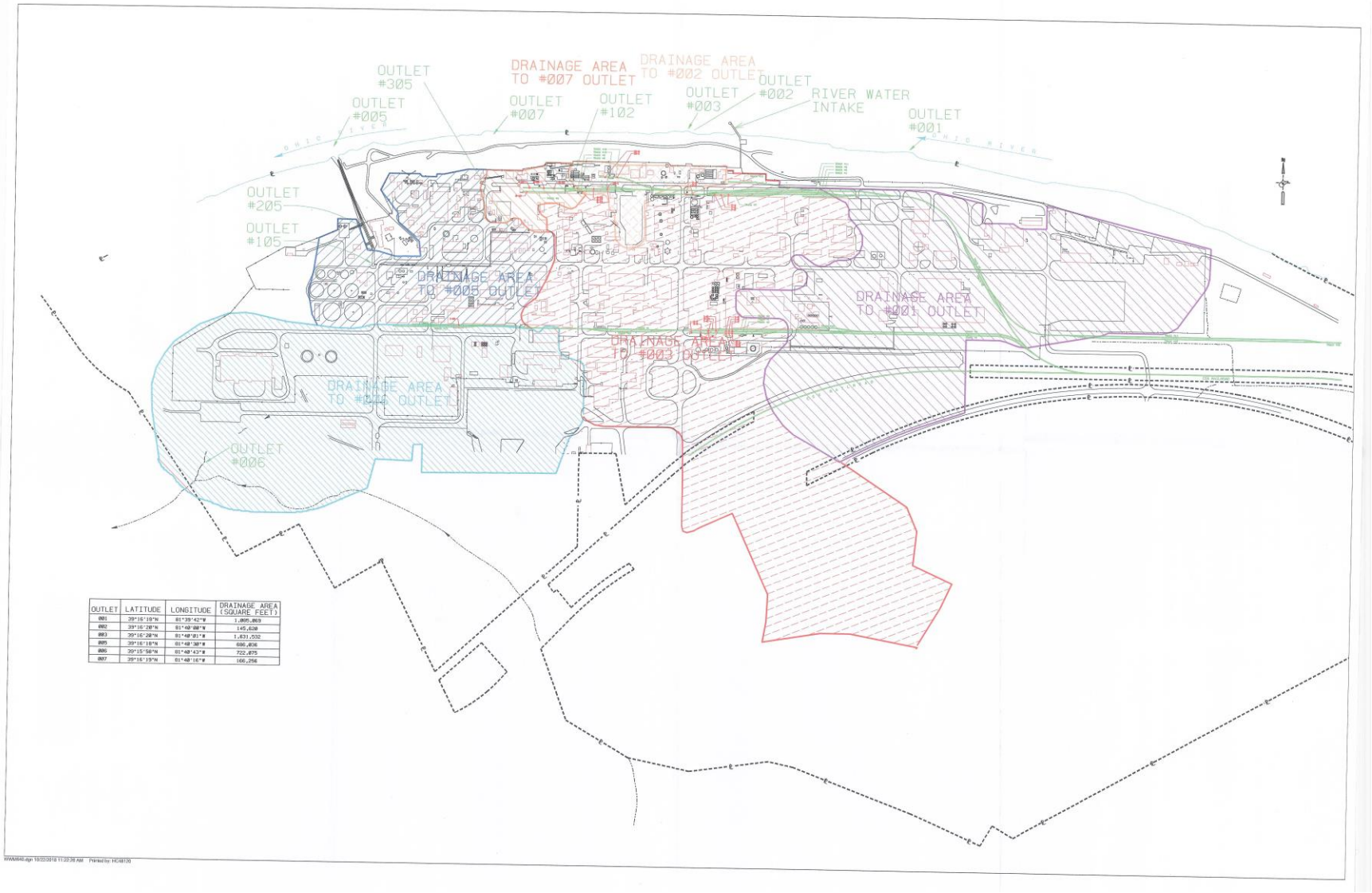
AGREED TO FOR THE RESPONDENT:

04/14/2023

Name: Timothy L. Byrd
Title: Vice President of Operations
The Chemours Company FC, LLC
(signed and dated electronically)

Exhibit 1

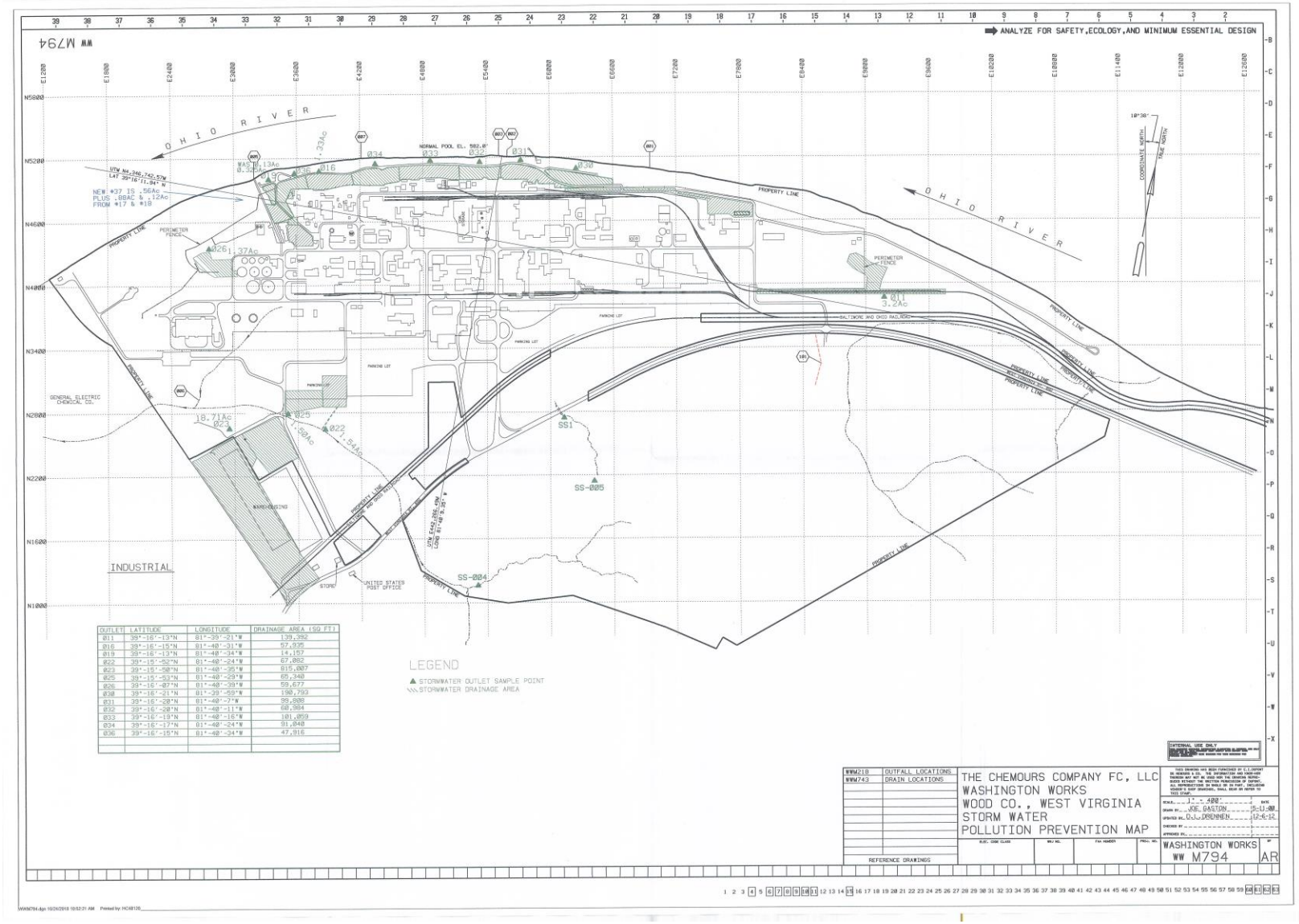
Map and Drainage Areas of Outlets 001-007



OUTLET	LATITUDE	LONGITUDE	DRAINAGE AREA (SQUARE FEET)
001	39°16'19"N	81°39'42"W	1,805,863
002	39°16'28"N	81°40'08"W	145,638
003	39°16'28"N	81°40'01"W	1,631,532
005	39°16'18"N	81°40'38"W	686,836
006	39°15'58"N	81°40'43"W	722,875
007	39°16'19"N	81°40'16"W	166,256

Exhibit 2

Map and Drainage Areas of Outlets 011-036



OUTLET	LATITUDE	LONGITUDE	DRAINAGE AREA (SQ FT)
Ø11	39°-16'-13"N	81°-39'-21"W	139,392
Ø16	39°-16'-15"N	81°-40'-31"W	57,935
Ø19	39°-16'-13"N	81°-40'-34"W	14,157
Ø22	39°-15'-52"N	81°-40'-24"W	67,852
Ø23	39°-15'-58"N	81°-40'-35"W	815,007
Ø25	39°-15'-53"N	81°-40'-29"W	65,340
Ø26	39°-16'-07"N	81°-40'-39"W	59,677
Ø30	39°-16'-21"N	81°-39'-59"W	190,793
Ø31	39°-16'-20"N	81°-40'-7"W	99,888
Ø32	39°-16'-20"N	81°-40'-11"W	68,304
Ø33	39°-16'-19"N	81°-40'-16"W	101,859
Ø34	39°-16'-17"N	81°-40'-24"W	91,040
Ø36	39°-16'-15"N	81°-40'-34"W	47,916

Field Sampling Plan for Administrative Order on Consent (AOC) Sample Collection

Chemours Washington Works

Prepared by:
The Chemours Company
1007 N. Market Street
Wilmington, DE 19898

Date: March 2023

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 Introduction

This field sampling plan (FSP) provides general information about the sampling program, as agreed to in the Administrative Order on Consent (AOC), for the collection of samples of per- and polyfluoroalkyl substances (PFAS) using draft U.S. Environmental Protection Agency (EPA) draft Methods 1633, 1621, as well as the total oxidizable precursor (TOP) assay and non-targeted analysis (NTA) leaving the Chemours Washington Works Facility (the Facility) via stormwater and wastewater outlets. This FSP includes specific sampling points, analyses, methodologies, and logistics.

1.1 Project Organization

Chemours Washington Works will manage the AOC Sampling, with support by AECOM, who will provide technical professionals to assist in conducting the sampling activities. Laboratory analytical testing of water samples will be conducted by Eurofins Lancaster Laboratories, located in Lancaster, Pennsylvania. The contract laboratory will be accredited as required by the state agencies and others, as appropriate.

1.2 Sampling Objectives and Scope

The requested PFAS sampling program is being conducted with specified sampling at each permitted Outlet using the following analytical methods:

- Draft EPA Methods 1621 (for absorbable organic fluorine) and 1633;
- TOP assay. (E.F. Houtz, D.L. Sedlak Oxidative conversion as a means of detecting precursors to perfluoroalkyl acids in urban runoff Environ. Sci. Technol., 46 (2012), pp. 9342-934 and the actual analysis for PFAS (before and after TOP procedure) 537 Modified); and
- Non-targeted analysis will be conducted referencing Chemours, 2019[1], Koelmel et al, 2019[2] , and McCord and Strynar, 2019[3].

- The Non-targeted analysis (NTA) will be performed using Chemours internal facilities and scientists on various Outlet samples (similar to Chemours 2019 NTA studies at Washington Works) following the procedures outlined in the above-cited references. Chemours will establish the Method Detection Limit (MDL) of the NTA method by following the procedures outlined in EPA Office of Water mdl-procedure_rev2_12-13-2016 (EPA 821-R-16-006) by using labeled 13C standards of PFBA, HFPO-DA and PFOA. For sample analysis, known quantities of labeled 13C standards of PFBA, HFPO-DA and PFOA will be spiked into each sample to further demonstrate the MDL as well as for quantification, if applicable.

[1] PFAS Non-targeted Analysis and Methods Development Plan, Process and Non-Process Wastewater and Stormwater, *Prepared by* The Chemours Company FC, LLC and Geosyntec Consultants of NC, P.C. Geosyntec Project Number TR0795, December 5, 2019.
[2] Koelmel, Jeremy P., et al. "FluoroMatch 2.0—making automated and comprehensive non-targeted PFAS annotation a reality." *Analytical and Bioanalytical Chemistry* 414.3 (2022): 1201-1215.
[3] McCord, James, and Mark Strynar. "Identification of per-and polyfluoroalkyl substances in the Cape Fear River by high resolution mass spectrometry and nontargeted screening." *Environmental Science & Technology* 53.9 (2019): 4717-4727.

- Analytical method details will be submitted to EPA for review and approval prior to sample collecting and analysis.
- Upon request duplicate samples will be provided to EPA.
- All raw data will be submitted to allow independent analysis of results.

1.3 Stormwater Runoff and Effluent Wastewater Locations

Chemours will characterize the nature of the stormwater runoff and effluent wastewater leaving the Facility by identifying PFAS per draft method 1633 and 1621 as well as TOP and NTA analyses at each permitted outlet for both stormwater and wastewater.

Samples will be collected from the following Facility outlets (see Figure 1):

- 001 011 030
- 002 016 031
- 003 019 032
- 005 022 033
- 006 023 034
- 007 025 036

1.4 Sampling Point Selection

Sampling points will be at the defined sampling point for each of the outfalls listed above.

1.5 Analysis Selection and Number of Samples

This sampling program analyzes PFAS compounds using EPA (Draft) Method 1633 and by a screening method, EPA (Draft) Method 1621 (EPA, 2022), to estimate adsorbable organic fluoride concentrations (AOF). Samples will also be analyzed by a 537 Modified method before and following the TOP and NTA methods.

1.6 Sampling Program Schedule

The sampling program will be conducted in accordance with the overall AOC schedule.

1.7 Sampling Responsibilities

Samples will be collected at the selected sampling points and sampling personnel will prepare, package, and ship the samples to contract laboratories for analysis. Sampling personnel will document the sample collection by recording contemporaneous engineering and field measurement data.

1.8 Monitoring Methodologies

This section will discuss procedures for the various sampling activities, including daily field preparation, sampling, sample packing and shipping, equipment decontamination, and waste handling for split sample collection.

1.8.1 Daily Field Preparation

Upon arrival on-site for daily field activities, the field team must complete the following tasks prior to beginning sampling activities:

- Plan the day's activities.
- Calibrate equipment.

These tasks are discussed in detail in this section.

1.8.2 Daily Work Permit

If outside contractors are utilized a work permit must be completed daily for all work performed on Chemours sites. Upon arrival at the site to begin work, the Chemours Site Representative (CSR) will complete this work permit. A copy of the work permit will be kept on file.

1.8.3 Daily Tailgate Meeting

The field team leader will hold a daily safety tailgate meeting. All field personnel will be present and will sign the safety tailgate form. The daily safety tailgate forms will be kept on file in the field binder during the event. The field team leader will file the safety tailgate forms with all other sample event data in the project file.

1.8.4 Equipment Calibration

All sampling and monitoring equipment will be calibrated daily prior to beginning sampling tasks. Field team members will maintain instrument efficiency by performing the calibration procedures outlined in the operation and field manuals accompanying the field monitoring instruments.

The following equipment will be calibrated:

- Water quality meter (pH, conductivity, and temperature)

Calibration records will be entered daily on the equipment calibration check sheet to be maintained in the field binder, or directly into the field log.

A calibration program will be implemented to ensure that routine calibration and maintenance is performed on all field instruments. Field team members familiar with field calibrations and equipment operations will maintain instrument proficiency by performing the prescribed calibration procedures outlined in the operation and field manuals accompanying the field monitoring instruments.

The pH, conductivity, and temperature meters will be calibrated prior to each day's use according to the manufacturer's instructions. More frequent calibrations will be performed as necessary to maintain analytical integrity. The pH meter will be calibrated at a minimum of two values that bracket the anticipated pH values of the samples to be analyzed and that are three pH units or more apart. The conductivity meter will be calibrated using a standard solution of known conductivity.

Following calibration, each instrument will be tagged identifying the person who calibrated the instrument and the calibration date. Calibration records for each field instrument used during the investigation will be maintained, and copies of the records will be stored in the project QA files.

2.0 Sampling Procedures

2.1 Sample Collection Timing and Schedule

Samples will be collected during normal operations, when the facility is manufacturing and/or processing PFAS. “Normal operations” include all operating periods other than periods associated with startup, shutdown, equipment malfunction, or upset.

Samples will be grab samples collected at the time of day when typical, representative wastewater volumes are expected (including stormwater component to mixed discharges). For stormwater only outfalls grab samples will be collected.

2.2 Sample Analysis

Table 1 lists the planned analyses, analytical method numbers, laboratory measurement techniques, and analytical hold times for samples. The analyses will be performed for all samples (see Section 2.6); analyses will be specified as follows.

Table 1. Analyses, Analytical Methods, and Analytical Hold Times

Analysis	Method	Method Description	Hold Time
PFAS	Draft EPA 1633	Liquid Chromatography/ Tandem Mass Spectrometry	28 days
AOF	Draft EPA 1621	Activated Carbon Adsorption and Combustion Ion Chromatography	28 days
TOP PFAS*	537 Modified (before and following TOP)	Liquid Chromatography/ Tandem Mass Spectrometry	28 days
NTA	See section 1.2 above	Liquid Chromatography coupled to High Resolution Mass Spectrometry with identification and confirmation using authentic standards	28 days

* E.F. Houtz, D.L. Sedlak Oxidative conversion as a means of detecting precursors to perfluoroalkyl acids in urban runoff Environ. Sci. Technol., 46 (2012), pp. 9342-934

2.3 Field Measurements

The sampling team will measure water quality parameters at each wastewater outlet sampling point when each grab sample is collected. Table 2 lists the field measurements, how they will be measured, and the measurement frequency.

Table 2. Field Measurements

Parameter	Method	Purpose	Measurement Frequency
Temperature	Thermometer or pH/temperature meter	Characterize wastewater	Once per grab sample collection at each wastewater sampling point
pH	Four-color pH indicator strip or pH/ temperature meter	Characterize wastewater	Once per grab sample collection at each wastewater sampling point

Samplers will use the following steps to perform field measurements:

- Obtain temperature and pH measurement. Perform required calibration, if any.

- Assemble field measurement container for each sampling point (one 500-mL container). Containers should be dedicated to each sampling point.
- Fill the field measurement containers with sample using the same methodology as for wastewater samples described in Section 3.7.
- Immediately measure sample temperature and pH, and record the information on the Field Sampling Log Sheet (Appendix A).

2.4 Sample Containers and Sample Preservation

Table 3 lists the analyses, container types, sample volume, and preservation requirements.

Table 3. Sample Containers and Preservation

Analysis	Sample Container	Field Preservation	Hold Time
PFAS	Two HDPE containers with linerless HDPE caps: 500-mL and 250-mL (fill to shoulder)	Cool to ≤6°C	28 days
AOF	125-mL HDPE with linerless HDPE caps (fill to shoulder)	Cool to ≤6°C	28 days
TOP PFAS	Two HDPE containers with linerless HDPE caps: 250-mL (fill to shoulder)	Cool to ≤6°C	28 days
NTA	Two HDPE containers with linerless HDPE caps: 250-mL (fill to shoulder)	Cool to ≤6°C	28 days

At no time will measurement devices such as probes, pH paper or thermometers be inserted into sample containers. Step-by-step instructions for sample preservation are included as part of the sample collection instructions provided in Section 2.7. Sampling containers for PFAS draft Method 1633 and AOF draft Method 1621 will be provided by contract laboratories and will be free from PFAS contamination.

2.5 Sample Labeling

Sample kits provided by the contract laboratory will include sample containers labeled with the following information on self- adhesive labels:

- Facility ID number/Episode Number.
- Sample ID number.
- Sampling point number and description.
- Container type.
- Sample analysis.
- Preservation.

The sampling team will confirm the pre-printed information (correcting any incorrect information using indelible ink). This information will be recorded on a chain of custody (COC) to accompany the samples in printed and electronic form.

2.6 Sampling Points and Analyses

Table 4 lists the sampling points, analyses, and numbers of samples for the sampling.

Table 4. Sampling Points, Analyses, and Number of Samples for Sampling

Sampling Point[a]	PFAS Draft Method 1633	AOF Draft Method 1621	PFAS TOP	NTA
In Process Treatment				
Outfalls				
Effluent as described in section 1.2 above.	18	18	18	18
Quality Control Samples[a]				
Field Duplicate	1	1	1	1
Equipment Blank	1	1	1	1
Field Blank	1	1	1	1
Laboratory QC Volume	1	1	1	1

a – See Section 2.7.1 for additional information regarding quality control (QC) samples. Note that the sample volume for laboratory QC requires two duplicate aliquots (e.g., one for the matrix spike and one for the matrix spike duplicate)

2.7 Sample Collection

Ideally, grab samples of wastewater and/or stormwater will be collected from sample taps directly into sample containers, eliminating the need for additional sampling equipment and its associated potential for sample contamination. Sample taps should not be outfitted with Teflon™, low-density plastic tubing, or other similar fittings.

Facility-specific considerations, such as sample temperature, sample pressure, static wastewater, or health and safety considerations, may require alternative sample collection methodologies. For example, PFAS may stratify under static conditions and are known to accumulate at the air/water interface. If sampling locations exhibit any of these characteristics, then the samplers will use alternative sample collection methodologies to ensure collection of representative samples. If sampling equipment other than sample taps is required, then the project will describe the equipment, its use, cleaning procedures to avoid contamination, and equipment blank collection procedures to evaluate the effectiveness of the equipment cleaning procedures.

PFAS are used in many industries and products, including clothing, fabric softener, sunscreen, insect repellant, cosmetics, shampoo, dental floss, and food packaging. To prevent PFAS contamination and cross contamination, the sampling team will wear new, powderless nitrile gloves at each sampling point and will not contact the insides of sample containers or the undersides of caps. The sampling team will also use good housekeeping practices, including:

- Not applying personal care products or eating or drinking near sampling points or sample staging areas.
- Hand washing after eating or drinking, after the use of any personal care products, and prior to collecting samples.
- Avoiding contact with clothing, skin, hair, surfaces, and plant equipment during sample collection.
- Not wearing water repellant clothing or using water repellant or recycled paper products (e.g., notebook paper or paper towels).

Samplers will use the following steps to collect grab samples from sample taps:

- Assemble the appropriate sample containers and field measurement container for the sampling point and sampling day and confirm by reviewing the sample container labels. The order of sample collection by analysis is not important; however, to minimize temporal variability, sample containers for the same analysis should be filled in immediate sequence (e.g., original, field duplicate, and laboratory QC sample volumes for PFAS analysis).
- The two-person sampling team washes their hands and dons powderless nitrile gloves to prevent sample contamination. Team Member 1 will be “dirty hands”, responsible for operating the sample tap, collecting field measurement aliquots, performing field tests, and completing the Field Sampling Log Sheet (see Appendix A). Team Member 2 will be “clean hands”, responsible for filling sample containers.
- Wear a new pair of disposable gloves at each sampling point to prevent sample cross-contamination. Replace gloves if contamination is suspected (for example, if “clean hands” accidently contacts equipment other than the sample containers).
- “Dirty hands” opens the sample tap and allows wastewater to flow into a slop bucket. It is preferable to fully open the sample tap; however, if this results in an excessive flowrate, then the sample tap will be partially opened to obtain a reasonable, steady flow rate. The sample tap will remain open for a period sufficient to purge the sampling line. This should be a minimum of 2 to 3 gallons or a minimum of 30 seconds, depending on the size of the sample tap orifice and the resulting flow rate.
- After the sample line has been sufficiently purged, “dirty hands” fills the field measurement container, performs field measurements, calculates required volumes of sodium thiosulfate preservation chemical, and records the information on the Field Sampling Log Sheet.
- While continuing to allow the wastewater to flow, “clean hands” fills the sample containers as described below. “Dirty hands” records the sampling time on the Field Sampling Log Sheet.
- For sample containers other than 40-mL vials:
  - Retrieve a sample container and remove the cap. Do not touch the inside of the sample container or the underside of the cap.
  - Introduce the sample container into the wastewater stream and fill to the required level (see Table 3). Use care to prevent contacting the inside of the sample container with the sample tap.
  - Replace the cap.
  - Retrieve the next sample container and repeat these steps until all containers have been filled.
  - For pre-preserved sample containers, invert the sample containers several times to mix the sample. Confirm the acid preservation target pH <2 by pouring a few drops of sample onto a four-color pH indicator strip. If acid preservation target pH<2 is not achieved, add additional acid preservative until the target is achieved. Do not add an amount greater than 10% of the sample volume to avoid sample dilution. Record preservative addition on the Field Sampling Log Sheet.

- Tighten the lids of the filled sample containers, being careful not to over tighten. If needed, wipe the outsides of the sample containers with a clean, dry cloth.
- Place the filled sample containers and temperature blanks[4] into an ice bath to chill the samples to the required preservation temperature (see Table 3) prior to packing and shipping (see Section 2.8). Drain melted ice water from the ice bath as needed to prevent sample contamination at the sample lids.
- Dispose the contents of the slop bucket into the facility's drain system for the wastewater treatment plant. Note that it may be necessary to empty the slop bucket more than once during sample collection.

2.7.1 Quality Control Samples

Quality control (QC) samples are designed to measure or estimate the effect of issues such as contamination, matrix effects, and imprecision, in both sample collection and sample analysis. QC samples include field QC samples and laboratory QC samples.

2.7.2 Field QC Samples

Field QC samples are listed in Table 5.

Table 5. Field QC Samples

QC Sample Type	Analyses	Sampling Point/Location	Purpose	Frequency
Field Duplicate	All analyses (see Table 1)	Site permitted Outlet locations	Evaluate total measurement precision and assess potential sources of data variability, including sample collection, handling, preparation, and analysis.	One duplicate sample collected at 1 per 20 samples.
Equipment Blank (other than bottles)	All analyses (see Table 1)	Sample staging area	Document adequate decontamination of sampling equipment before use.	One for each type of sampling equipment used at each facility.
Field Blank	Select analyses (see Table 1)	Sampling point with the highest expected PFAS concentrations	Monitor potential contamination from exposure to the sampling site conditions, field handling, storage, preservation, and all analytical procedures.	One field blank for the one-day grab sampling.

[4] A temperature blank is a small sample container filled with tap water placed in each cooler of samples shipped to the laboratory. Laboratory personnel measure the temperature of the temperature blank upon sample receipt to verify sample temperature preservation.

QC Sample Type	Analyses	Sampling Point/Location	Purpose	Frequency
Laboratory QC Volume	Select analyses (see Table 1)	Site permitted outlet locations	Extra sample volume collected for laboratory QC, such as MS/MSD	Collected at 1 per 20 samples.

Samplers will use the following steps to collect field QC samples:

- Field Duplicate. Field duplicates will be collected at the same time using the same sample collection methodology as the original wastewater or stormwater sample. Field duplicate sampling point(s) will be selected in the field. The duplicate(s) will be archived for potential future analysis to confirm analyte identities after compound identification pursuant to the NTA. Field duplicates will be discharged if not used within 1 year of sample collection
- Equipment Blank. Equipment blanks are prepared by pouring or pumping reagent-grade blank water over/through sampling equipment. Equipment blanks will not be necessary if sample containers are filled directly from sample taps as potential contamination of sample containers will be monitored by the laboratory using bottle blanks. If additional sampling equipment is required for sample collection, both the sampling equipment and the equipment blank collection methodology will be described in the field logbook.

  Field Blank. Prepared by pouring reagent-grade blank water into sample containers in the area of the sample locations specified
- Trip Blank. Only used for VOC samples. Laboratories will prepare trip blanks by pouring reagent-grade blank water into sample vials. The trip blank vials will accompany the empty sample containers in transport to the facilities and will then accompany the collected samples in transport back to the laboratory.
- Laboratory QC Volume. Collected at the same time using the same sample collection methodology as the original wastewater sample. Sample volume for laboratory QC requires two duplicate aliquots (e.g., one for the matrix spike and one for the matrix spike duplicate).

2.7.3 Laboratory QC Samples

The laboratories will use standard analytical methods, conducted using method-specific standard operating procedures developed based on method requirements. The laboratories will comply with the quality assurance and quality control requirements specified in 40 CFR §136.7.

In addition, the contract laboratories will provide field supplies including sample containers, laboratory blank water, and field preservation chemicals. The contract laboratory will perform QC for these supplies as specified in their standard operating procedures, such as analyzing blanks for each lot of sample containers and blank water.

2.8 Sample Packing and Shipment

Samplers will use the following steps to package samples for shipment to each of the laboratories:

- Remove the FedEx shipping label and COC form from the inside of the cooler and retain for later.
- Line the bottom of sample coolers with bubble wrap and place two garbage bags inside each other in the coolers.
- Provide 10 pounds of wet ice per sample cooler. More ice may be needed when ambient temperatures are high. Package the ice inside two one-gallon sealable freezer bags to isolate ice melt from the samples.
- Confirm the samples in the ice bath have reached the desired preservation temperature both by touch and by measuring the temperature of the temperature blank. Complete cooling is critical for ensuring that the samples are maintained at preservation temperature for the duration of sample shipment and receipt at the laboratory.
- For glass sample containers:
  - Wrap each sample container with two layers of bubble wrap or a bubble bag to prevent breakage (the three sample vials for VOC analysis can be wrapped together). The bubble wrap must fit snugly and completely cover the sample containers.
  - Package each bubble-wrapped container in a sealable freezer bag to isolate samples in the event of breakage or leaks.
- For plastic sample containers: Package each container in a sealable freezer bag to isolate samples in the event of breakage or leaks.
  - Place packaged sample containers and a temperature blank upright in the garbage bags in the cooler. Samples can be snug but not so tight as to stress the containers, which can cause breakage or leaking. If a second sample cooler is needed, ensure that all sample containers for the same analysis are shipped together in the same cooler (e.g., all VOC + TICs together in one cooler). Close the interior garbage bag by tying or twist tie.
  - Arrange packaged wet ice (4 x 2.5 pounds of ice) on top of the closed interior garbage bag and then close the second garbage bag by tying or twist tie.
- Fill in any free space with cushioning material to prevent movement during shipment.
- Package the COC form in a sealable freezer bag and place in the sample cooler.
- Close the cooler and wrap at both cooler ends with packaging tape to ensure the lid remains closed during shipment.
- Place any tags or labels required by the carrier (e.g., FedEx) on the cooler. Deliver sample coolers to the carrier or schedule for carrier pickup. Priority overnight shipment is needed to ensure samples meet analytical hold times and temperature preservation requirements.

Samples are expected to be shipped under the exclusion allowed for transporting laboratory samples in 40 CFR Part 261.4(d) and under the definition and exception in CFR 49 Part 173.134. For any samples that do not qualify for this exclusion, facility personnel shall package and label samples for shipment in compliance with current U.S. Department of Transportation and International Air Transport Association (IATA) dangerous goods regulations. Facilities are responsible for consulting the IATA regulations for quantities of specific compounds that may be considered dangerous goods.

3.0 Field Documentation

3.1 Sample Naming

Sample labels will clearly identify the particular sample and will include the following:

- Facility name (location code) and sample ID
- Time and date sample was taken
- Sample preservation (if any)
- Analysis requested

Sample identification numbers will be assigned, when possible, prior to sample collection in accordance with the Chemours Corporate Environmental Database sample identifier coding system to facilitate loading of samples and results to the database.

Sample IDs must be unique to each site. The following requirements must be met:

- The complete sample ID must be less than or equal to 30 characters.
- No spaces or underscores can be used at the beginning or end of the sample ID.

3.1.1 Environmental Sample ID Scheme

The format for environmental sample IDs uses the following template:

Event-Location-Depth-Type

- Event: Always composed of 2 characters for the event code plus a 6-character date code.
- Location: Can be up to 10 characters.
- Depth: Optional; can be up to 5 characters.
- Type: Optional; codes can be combined up to four characters.

3.1.2 Blank Sample ID Scheme

The format for QC blank sample IDs uses the following template:

Type-MMDDYY-Code

- Type: Equipment Blank (EB); Field Blank (FB); Trip Blank (TB)
- Date: 6 characters; MMDDYY format
- Code: Optional; use if collecting more than one of each type on the same date. Add -2, -3, etc.

3.2 Logbooks and Forms

The sampling team will maintain a detailed field logbook. At the beginning of each day, the designated team member will start the daily log by entering the date and time, the locations to be sampled, weather conditions, field team members present, and any potential issues of concern. The project name, project number, and the location will be prominently written on the logbook cover. Each logbook page and all forms shall be initialed and dated by the person making the entry. Entries shall be legible. If errors are

made, the error is crossed out with a single line, initialed, and dated by the person making the correction.

Other information to be entered into the field logbook includes, but is not limited to, observations of field activities taking place, progress, summary of equipment preparation procedures and a description of any equipment problems (including corrective action), reference to standard operating procedures (SOPs), and explanations of any deviations from the work plan or SOPs. The field logbook will be sufficiently detailed to allow for reconstruction of the collection, handling, preparation, and analysis procedures performed on the samples.

3.2.1 Field Book – Sample Logs

In addition to the daily field logbook records, a detailed record describing sample collection will be logged on the Field Book. The project geologist, or designated representative, will be responsible for keeping a sample log to record information regarding each sample. The sample log may be maintained in the field logbook, and then transcribed onto the Field Book. The required information will include, but is not limited to, the following:

- Project number, facility location
- Sample location description
- Sample ID
- Depth
- Analyses requested
- Time, date, sampler name
- Equipment used to collect the sample
- Discussion of any sample and blank processing activity, and any sub-sampling activity

At the end of the field event, the field sampling team will deliver copies of all field logbook pages and the Field Book forms completed during the event to the project manager or his/her designee.

3.2.2 Equipment Calibration Forms

All field equipment will be subjected to a routine maintenance program before and after each use. The routine maintenance program for each piece of equipment will be in accordance with the manufacturer's operations and maintenance manual. All equipment will be cleaned and checked for integrity after each use.

Each piece of field equipment will have its own log sheet that contains the equipment identification number, information on maintenance procedures, and the date and nature of the last maintenance. Maintenance and calibration records must be traceable to the person using the instrument and to the specific instrument.

3.3 Field Sample Handling and Chain-of-Custody

A COC form will accompany the sample container from the initial sample container selection and preparation at the laboratory to sample collection and preservation in the field to the return of the samples to the laboratory. The COC form will trace the path of

each individual sample container by means of a unique identification number. When possible, sample designation/location numbers will be pre-printed by the laboratory on the COC form and bottle labels.

The laboratory coordinator will notify the laboratory of upcoming field sampling activities and the subsequent transfer of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

Personnel receiving the sample containers will verify the integrity of the seals on each cooler. The receiving personnel will break the seal, inspect the contents for breakage, and sign the COC form to certify receipt of the sample containers. A temporary seal then will be affixed to each cooler. Coolers with broken seals will be returned to the laboratory with the contents unused, assuming the cooler is intact.

Once sample containers are filled, they will be placed immediately in the cooler on ice to maintain the samples at approximately 4°C. The field sampler will indicate the sample designation/location number in the space provided on the COC form for each sample unless COC forms are preprinted. Date and time of sample collection will be entered by the field sampler. The COC forms will be signed and placed in the cooler. The samples will be shipped to the laboratory on the same day that they were collected and will be delivered to the laboratory no later than 72 hours after sample collection. The cooler with samples will be shipped to the laboratory using an overnight express service.

The “remarks” column of the COC form will be used to record specific considerations associated with sample acquisition such as sample type, container type, sample preservation methods, and analysis to be performed. The source of reagents, field blank water, and supplies will be documented on the COC form or the field notebook. The laboratory will maintain a file of the completed original forms. Copies will be submitted as part of the final analytical report. If samples are split and sent to different laboratories, each sample will receive a unique COC form.

3.4 Project Documents and Records

This worksheet is used to record information for all documents and records that will be generated for the project. It describes how information will be collected, verified, and stored. Its purpose is to support data completeness, data integrity, and ease of retrieval.

Sample Collection and Field Records			
Record	Generation	Verification	Storage location/archival
Field logbook or data collection sheets (Appendix D)	Field Task Leader (tbd)	Project Manager (Mark Whittington)	Project File
Chain-of-Custody Forms	Field Task Leader (tbd)	Project Manager Mark Whittington)	Project File
Air Bills	Field Task Leader (tbd)	Project Manager (Mark Whittington)	Project File
Deviations	Field Task Leader (tbd)	Project Manager (Mark Whittington)	Project File
Corrective Action Reports	Field Task Leader (tbd)	Project Manager (Mark Whittington)	Project File
Correspondence	Project Technical Adviser (tbd)	Project Manager (Mark Whittington)	Project File

Sample Collection and Field Records			
Resident Database/Spreadsheet	Project Technical Adviser (tbd)	Project Manager (Mark Whittington)	Project File
Monthly Status Reports	Project Technical Adviser (tbd)	Project Manager (Mark Whittington)	Project File

Project Assessments			
Record	Generation	Verification	Storage location/archival
Data verification checklists	Project Chemist (Kelly Rinehimer)	Project QA Officer (Michael Aucoin)	Project File
Data validation report	Project Chemist (Kelly Rinehimer) and Environmental Standards, Inc. (tbd)	Project QA Officer (Michael Aucoin)	Project File
Data usability assessment report	Project Chemist (Kelly Rinehimer)	Project QA Officer (Michael Aucoin)	Project File

Laboratory Records			
Record	Generation	Verification	Storage location/archival
Analytical Laboratory Data Packages	Laboratory	Project Chemist/AECOM Team	AECOM project files Laboratory maintains records in accordance with the QAM requirements.
Electronic Data Deliverables	Laboratory	Project Chemist/AECOM Team	AECOM project files Laboratory maintains records in accordance with the QAM requirements

4.0 Data Verification Procedures

This section documents procedures that will be used to verify project data. Data verification is a completeness check to confirm that all required activities were conducted, all specified records are present, and the contents of the records are complete.

Records Reviewed	Requirement Documents	Process Description	Responsible Person, Organization
Field logbook	QAPP	Verify that records are present and complete for each day of field activities. Verify that all planned samples including field QC samples were collected and that sample collection locations are documented. Verify that weather conditions were observed and recorded for each day of field activities. Verify that changes/exceptions are documented and were reported in accordance with requirements.	Daily - Project Manager At conclusion of field activities - Project QA Officer
Chain-of-custody forms	QAPP, Chain-of- Custody SOP	Verify the completeness of chain-of-custody records. Examine entries for consistency with the field logbook. Check that appropriate methods and sample preservation have been recorded. Verify that the required volume of sample has been collected and that sufficient sample volume is available for QC samples (e.g., MS/MSD). Verify that all required signatures and dates are present. Check for transcription errors.	Daily - Field Team Leader At conclusion of field activities - Project Chemist
Laboratory Deliverable	QAPP	Verify that the laboratory deliverable contains all records specified in the QAPP. Check sample receipt records to ensure sample condition upon receipt was noted, and any missing/broken sample containers were noted and reported according to plan. Compare the data package with the COCs to verify that results were provided for all collected samples. Review the narrative to ensure all QC exceptions are described. Check for evidence that any required notifications were provided to project personnel as specified in the QAPP. Verify that necessary signatures and dates are present.	Before release – Laboratory QAM Upon receipt - Project Chemist
Audit Reports, Corrective Action Reports	QAPP	Verify that all planned audits were conducted. Examine audit reports. For any deficiencies noted, verify that corrective action was implemented according to plan.	Project QA Officer

5.0 Data Validation Procedures

This section documents procedures that will be used to validate project data. Data validation is an analyte and sample-specific process for evaluating compliance with contract requirements, methods/SOPs, and MPC.

5.1 Analytical method sections

Table 1 above lists the planned referenced analyses, analytical method numbers, laboratory measurement techniques, and analytical hold times for samples. The analyses will be performed for all samples.

5.2 Data Verification: AECOM

Data verification is the process of verifying that qualitative and quantitative information generated relative to a given sample is complete and accurate.

All data will be provided to the Chemours contractor AECOM in a data package by the laboratory. The data package contains raw data and will be reviewed by the in-house Analytical Data Quality Management (ADQM) group for compliance with the laboratory SOP and usability according to a prepared checklist. Draft results and the supporting raw data will not be deleted or discarded. Comments from review of the data package will be provided to the laboratory who will generate a revised laboratory data package, if necessary. An electronic disk deliverable (EDD) will also be provided by the laboratory and uploaded to the Locus EIM™ database.

All data will be reviewed using the Data Verification Module (DVM). The DVM is an internal review process used to assist with the determination of data usability. The electronic data deliverables received from the laboratory are loaded into the Locus EIM™ database and processed through a series of data quality checks, which are a combination of software (Locus EIM™ database Data Verification Module (DVM)) and manual reviewer evaluations. The data is evaluated against the following data usability checks:

- Field and laboratory blank contamination
- EPA hold-time criteria (if available)
- Matrix spike (MS)/matrix spike duplicate (MSD) recoveries and the relative percent differences (RPDs) between these spikes
- Laboratory control sample (LCS)/control sample duplicate (LCSD) recoveries and the RPD between these spikes
- Surrogate spike recoveries for organic analyses
- RPD between field duplicate sample pairs
- RPD between laboratory replicates for inorganic analyses
- Difference / percent difference between total and dissolved sample pairs, if any.

The DVM applies the following data evaluation qualifiers to analysis results, as warranted:

Qualifier	Definition
R	Unusable result. Analyte may or may not be present in the sample.
B	Not detected substantially above the level reported in the laboratory or field
J	Analyte present. Reported value may not be accurate or precise.
UJ	Not detected. Reporting limit may not be accurate or precise.

The individual DVM narrative report for each lot entered into the EIM database will summarize which samples were qualified, the specific reasons for the qualification, and the potential bias in reported results.

In addition, laboratory results greater than the MDL but less than the RL are qualified J and should be considered to be estimated values.

The DVM review process described above will be performed on 100% of the data generated for the sampling event. The DVM review process will be supplemented by a manual review of the instrument- related QC results for calibration standards, blanks, and recoveries to elevate the overall review process to be consistent with Stage 2b of the EPA Guidance for Labelling Externally Validated Laboratory Analytical Data for Superfund Use (EPA-540-R-08-005, 2009).

5.3 Data Validation: Environmental Standards

Ten percent of the data points for EPA promulgated methods may be validated by a third-party reviewer, for compliance with the laboratory SOP and data usability. The NATIONAL FUNCTIONAL GUIDELINES for Organic Superfund Methods Data Review (November 2020)will be used as a guide for report formatting and application of qualifiers. Validation will take place concurrent with data reporting in order to expedite reporting of results. A formal report will be generated by the validator, which will include judgments on data usability and data qualifiers applied by the validator. The procedures that the Environmental Standards data reviewers will use to validate PFAS data for projects are described in the Data Validation SOP (Appendix B).

5.4 Data reporting

All raw data will be submitted to EPA in electronic form. This will include all raw instrument data files, the complete feature table with data processing details, the complete dataset with all the picked/annotated features, the annotations (accurate mass, formula predictions, IDs, scores, etc.), abundances, and the feature chromatograms. The feature table shall be in digital/machine readable form (csv/excel tables). It should include full description and export of data processing methods and software and all instrumental parameters.

Figures

Appendices

Appendix A

Field Sampling Log Sheet

Appendix B

Data Validation SOP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
FOUR PENN CENTER – 1600 JOHN F. KENNEDY BLVD.
PHILADELPHIA, PENNSYLVANIA 19103-2852

In the Matter of:	:	
The Chemours Company FC, LLC 1007 Market Street Wilmington, DE 19801 Respondent	:	**ADMINISTRATIVE ORDER ON CONSENT** Proceeding Under Section 309(a) of the Clean Water Act, 33 U.S.C. § 1319(a)
Facility located at: Washington Works 8480 Dupont Road Washington, WV 26181	:	EPA Docket No. CWA-03-2023-0025DN

CERTIFICATE OF SERVICE

I certify that the foregoing Administrative Order on Consent was filed with the EPA Region III Regional Hearing Clerk on the date that has been electronically stamped on the Administrative Order on Consent. I further certify that on the date set forth below, I caused to be served a true and correct copy of the foregoing Administrative Order on Consent to each of the following persons, in the manner specified below, at the following addresses:

Copies served via email and UPS to:

Joel Gross, Senior Counsel
Arnold and Porter
601 Massachusetts Ave., NW
Washington, DC 20001-3743
Joel.Gross@arnoldporter.com

Copies served via email to:

Pamela J. Lazos
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PAMELA LAZOS

Digitally signed by PAMELA LAZOS
Date: 2023.04.26 09:48:28 -04'00'

[*Digital Signature and Date*]
Pamela J. Lazos
Senior Assistant Regional Counsel
U.S. Environmental Protection Agency, Region III