

STATE OF NORTH CAROLINA  
COUNTY OF BLADEN

IN THE GENERAL COURT OF JUSTICE  
SUPERIOR COURT DIVISION

17 CVS 580

FILED  
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STATE OF NORTH CAROLINA, *ex rel.*, )  
MICHAEL S. REGAN, SECRETARY, )  
NORTH CAROLINA DEPARTMENT OF )  
ENVIRONMENTAL QUALITY, )

Plaintiff, )

CAPE FEAR RIVER WATCH, )

Plaintiff-Intervenor, )

v. )

THE CHEMOURS COMPANY FC, LLC,

Defendant.

**ADDENDUM TO CONSENT ORDER  
PARAGRAPH 12**

WHEREAS, on February 25, 2019, the Court entered a Consent Order in the above captioned matter;

WHEREAS, Paragraph 12 of the Consent Order provides that Chemours shall submit to DEQ and Cape Fear River Watch a plan demonstrating the maximum reductions in PFAS loading from the Fayetteville Works Facility (including loading from contaminated stormwater, non-process wastewater, and groundwater) to surface waters that are economically and technologically feasible, and can be achieved within a two-year period;

WHEREAS, Paragraph 12 of the Consent Order requires that the plan be supported by interim benchmarks to ensure continuous progress in reduction of PFAS loading and that, if significantly greater reductions can be achieved in a longer implementation period, Chemours may

propose, in addition, an implementation period of up to five years supported by interim benchmarks to ensure continuous progress in reduction of PFAS loading;

WHEREAS, Paragraph 12 of the Consent Order provides that DEQ and Cape Fear River Watch shall review the plan developed by Chemours, and the Parties shall work together in good faith to determine if the PFAS reduction targets identified by Chemours represent the maximum reductions that are economically and technologically feasible, and can be implemented over a two-year period (or longer as proposed in an alternate plan), or whether the Parties can identify and agree upon further reductions;

WHEREAS, Paragraph 12 of the Consent Order provides that if the Parties come to an agreement regarding additional PFAS reductions, within eight months after entry of the Consent Order, DEQ, Cape Fear River Watch and Chemours shall jointly move to amend this Consent Order to incorporate any agreed upon reductions as enforceable requirements of this Consent Order as well as stipulated penalties for non-compliance and that if DEQ, Cape Fear River Watch, and Chemours are unable to mutually agree upon additional PFAS reductions within eight months after entry of this Order: (i) the Parties may jointly stipulate to additional time in which to submit a joint motion to amend, or (ii) Cape Fear River Watch, DEQ, and Chemours may bring any dispute regarding the additional reductions before the Court for resolution.

WHEREAS, on August 26, 2019, Chemours submitted a “Cape Fear River PFAS Loading Reduction Plan” for the purpose of satisfying its commitments under Paragraph 12 of the Consent Order;

WHEREAS, DEQ and Cape Fear River Watch reviewed the PFAS Loading Reduction Plan and, on September 26, 2019 and October 23, 2019, sent letters to Chemours taking the

position that the Plan must be supplemented and revised in order to satisfy the requirements of Paragraph 12 of the Consent Order;

WHEREAS, on November 4, 2019, Chemours, without agreeing with the positions set forth in DEQ and Cape Fear River Watch's letters, submitted to DEQ and Cape Fear River Watch a "Cape Fear River PFAS Loading Reduction Plan – Supplemental Information Report" ("Supplemental Information Report") to address the matters identified by DEQ and Cape Fear River Watch in their September 26, 2019 letter;

WHEREAS, on December 19, 2019, DEQ and Cape Fear River Watch sent letters to Chemours requesting additional information regarding the Supplemental Information Report;

WHEREAS, on January 31, 2020, Chemours sent letters responding to DEQ's and Cape Fear River Watch's letters regarding the Supplemental Information Report;

WHEREAS, the Parties have jointly stipulated to additional time for amending the Consent Order;

WHEREAS, the Parties have reached agreement on a set of measures to reduce PFAS loading to surface waters and downstream water intakes that satisfy the requirements of Paragraph 12 of the Consent Order;

WHEREAS, the terms of this addendum are hereby incorporated into the terms of the Consent Order entered on February 25, 2019;

NOW THEREFORE, the parties agree and the Court orders as follows:

**PFAS REDUCTION MEASURES**

1. Measuring PFAS Loading to the Cape Fear River:

- a. *PFAS Mass Loading Measurements:* By August 31, 2020, Chemours shall submit a protocol for DEQ review and approval for measuring mass loading of PFAS to

the Cape Fear River from the Facility. The protocol shall adhere to the following minimum requirements:

- i. In-river sampling shall be conducted near the Tar Heel Ferry Road Bridge as shown on Attachment 1;
  1. Sampling shall consist of 24 hour composite samples collected twice per week;
  2. Additional sampling shall be conducted within 24 hours of rain events predicted two days before with at least a 70% likelihood to be of 1 ½ inches or greater in a 24 hour period. Such additional sampling shall be conducted twice per month for any month in which there are two or more such rain events; and
  3. Flow measurements as reported by the United States Geological Survey (USGS) river gauging station at the W.O. Huske Dam shall be referenced with contemporaneous sample collection.<sup>1</sup>
- ii. The protocol shall provide for a calculation to estimate the mass loading to the Cape Fear River for each of the PFAS listed in Attachment C to the Consent Order.
- iii. On a monthly basis, Chemours shall also take grab samples and record flow measurements to measure the mass loading for each of the PFAS listed in Attachment C to the Consent Order at Bladen Bluffs (from W.O. Huske Dam) and Kings Bluff (from Cape Fear River Lock & Dam #1).

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<sup>1</sup> Appropriate adjustments shall be made in consultation with DEQ for the distance between the sampling location and river gauging station.

The protocol shall provide for a sampling period of at least five years, and after each year Chemours may apply to DEQ for modification of the protocol, including with respect to sampling frequency.

- b. *Updating PFAS Loading Model:* Chemours shall provide DEQ and Cape Fear River Watch by August 31, 2020 with the documents and files used to develop and run the current PFAS loading model. Within seven (7) days of approval of the protocol submitted under Paragraph 1(a) above, Chemours shall commence sampling (including sampling per the protocol) sufficient to update all inputs into the PFAS loading model. Such sampling shall be conducted on a monthly basis for the period of the first year and thereafter on a quarterly basis for at least the next four years. In each of these years, at least one such sampling event shall be attempted during a rain event predicted two days before with at least a 70% likelihood to be of 0.5 inches or greater in a 24 hour period. On a quarterly basis starting September 30, 2020, Chemours shall provide updated PFAS loading model outputs to DEQ and Cape Fear River Watch analyzing the contribution of PFAS to the Cape Fear River from each pathway, where outputs for the previous quarter are provided within ninety (90) days of the end of the previous quarter.

- c. *Outfall 002 Trendline:*

- i. Starting no later than August 31, 2020, Chemours shall, each week for at least twelve consecutive weeks, take a 24-hour composite sample from Outfall 002 and analyze for the PFAS listed in Attachment C to the Consent Order. Chemours shall also conduct 24-hour composite sampling within 24 hours of any rain event predicted two days before with at least a 70%

likelihood to be of 1 inch or greater over a 24-hour period. Chemours shall record the flow through Outfall 002 for each sampling event.

- ii. By August 31, 2020, Chemours shall submit to DEQ for review and approval a protocol for establishing the mass loading from Outfall 002 to the Cape Fear River for the PFAS listed in Attachment C to the Consent Order (“Outfall 002 Trendline”).

2. Measures to Reduce PFAS Loading from Seeps: Chemours shall reduce PFAS mass loading to the Cape Fear River by completing the remediation actions at the four groundwater seeps referred to as Seep A, Seep B, Seep C, and Seep D (collectively, “Seeps A through D”) and depicted in Attachment 2<sup>2</sup> as set forth in the subparagraphs below:

- a. *Interim Seep Remediation Systems*: By August 31, 2020, Chemours shall submit an interim seep remediation systems plan (“Interim Plan”) for DEQ review which shall include the following three plans as set forth in more detail below: (1) the design basis for flow-through cells (“Design and Placement Plan”), (2) the proposed operation and maintenance plan for the flow-through cells (“Operation and Maintenance Plan”), and (3) a plan for DEQ approval to sample and measure the effectiveness of the system, including the intended sampling locations (“Sampling and Effectiveness Plan”). Chemours shall complete construction of flow-through cell systems on the schedule as set forth below. The systems shall be operated in accordance with the Interim Plan.

| Construction Completion Date for Flow-Through Cell System | Seep |
|-----------------------------------------------------------|------|
| November 16, 2020                                         | C    |
| February 22, 2021                                         | A    |

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<sup>2</sup> Although labeled as “seeps,” DEQ has identified that at least some of these surface water features are intermittent or perennial streams.

|  |                |   |
|--|----------------|---|
|  | March 15, 2021 | B |
|  | April 5, 2021  | D |

- i. *Design and Placement Plan:* At a minimum, the Design and Placement Plan in the Interim Plan shall detail how the design of the flow-through cells: (i) will prevent water from bypassing the flow-through cells during design flows and minimize bypassing during higher flows; (ii) has been optimized to maintain a hydraulic head sufficient for water to flow through the cells; and (iii) minimizes the possibility that the flow-through cells will get clogged with sediment, debris, or other material.<sup>3</sup> The plan shall also describe the locations (up- and down-gradient of flow-through cells) and instruments for measuring flow rates and for conducting PFAS sampling.
- ii. *Operation and Maintenance Plan:* At a minimum, the Operation and Maintenance Plan included in the Interim Plan shall: (1) provide for visual inspections of the flow-through cells on a weekly basis with photographs, and regular inspections after 0.5 inch or greater rain events with photographs taken as necessary; photographs shall document any flows that do not go through the treatment system as observed during the inspections; (2) provide detailed operation plans to prevent bypassing the flow-through cells for design flows and minimize bypassing under higher flows; and ensure, to the extent feasible, that the flow of water through the cells is

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<sup>3</sup> The flow-through cells shall be designed (and optimized once in service) toward meeting the objective of intercepting total base (i.e., during dry weather) flow from Seeps A through D, when combined with the Barrier Wall and Groundwater Extraction System, (“design flows”), and removing PFAS compounds (as measured by indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99%.

unimpeded, and, in particular, that sediment, debris, or other material is promptly removed, especially following rain events; (3) detail the method for regular monitoring of flow rate and flow volume to quantify the effectiveness of the flow-through cell design; (4) require measurements of any rainfall events; (5) detail the process for how operation of the flow-through cells will be optimized to achieve the remediation objective; (6) detail when and how flow-through cell components shall be replaced, including monitoring requirements and performance thresholds; and (7) provide a plan for repairing and replacing, if necessary, flow-through cell components following storm/flood events.

- iii. *Sampling and Effectiveness Plan:* The Sampling and Effectiveness Plan included in the Interim Plan shall propose a protocol for demonstrating the effectiveness of the seep remediation systems and, at a minimum, require influent and effluent sampling for the Table 3+ PFAS compounds as listed on Attachment 3, turbidity, TSS, DO, pH, conductivity, temperature, and any other appropriate parameters as determined by DEQ occur (a) at least twice per month if 14-day composite sampling (with sample aliquots taken every six hours) is used or (b) at least four times per month if 24-hour composite sampling is used, unless modified under Paragraph 2(a)(iv) below. Flow measurements shall be taken contemporaneously with sample collection. The Sampling and Effectiveness Plan shall also provide for additional sampling following 0.5 inch or greater rain events in a 24-hour period for a frequency and period sufficient to assess the performance of the



flow-through cells during and following storm events; such sampling shall not be used to determine compliance under Paragraphs 2(a)(vi) or 2(b)(i) below. Sample analysis must be conducted at a laboratory approved by DEQ. Chemours shall split samples with DEQ or Cape Fear River Watch upon request.

- iv. *Modification of Plans:* After six months of operation of the interim seep remediation systems at Seeps A through D, Chemours may apply to DEQ for modification of the Operation and Maintenance Plan and the Sampling and Effectiveness Plan as long as visual inspections, measuring of flow rate and flow volume, and influent and effluent sampling of Table 3+ PFAS compounds as listed on Attachment 3 occur at least twice a month. In its application, Chemours must demonstrate consistent performance of the interim seep remediation systems.
- v. *Reporting:* Following the commencement of operation of each flow-through cell system, every two (2) months, Chemours shall report to DEQ and Cape Fear River Watch results of all required monitoring and sampling, as well as information on flow, information on carbon usage, and an evaluation on the performance and removal effectiveness of each flow-through cell system. In case of an upset or other condition impeding the operation of the flow-through cells, Chemours shall notify DEQ, Cape Fear

River Watch, and downstream drinking water utilities in writing<sup>4</sup> within 24 hours of knowledge of such condition.

- vi. *Interim Effectiveness*: For each of Seeps A, B, C, and D, within four months after the construction of the flow-through cell system for such seep has been completed, Chemours shall submit a report to DEQ and Cape Fear River Watch demonstrating that the flow-through cell system intercepted total base flow (during dry weather flow) at each seep; and removed PFAS (as measured by influent and effluent concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 80% at each seep on a monthly average basis (the “Interim Effectiveness Demonstration”) for each of the second and third full calendar months of operation. DEQ shall determine whether Chemours has made the necessary demonstration for each seep within 30 days of receiving Chemours’ submittal for that particular seep. If DEQ determines that Chemours has made the Interim Effectiveness Demonstration, Chemours shall continue to adhere to the performance criteria set forth in this paragraph on an ongoing basis for the interim systems.

b. *Alternate Interim Seep Remediation System*:

- i. If (1) DEQ determines that Chemours has not made the Interim Effectiveness Demonstration for any one of Seeps A through D or (2) DEQ determines prior to March 31, 2022 that the flow-through cells at any one

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<sup>4</sup> Any written notice required by this Addendum may in accordance with Paragraph 46(a) of the Consent Order be made by electronic mail (e-mail) message.

of Seeps A through D fail to intercept total base flow (during dry weather flow), and remove PFAS (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 80% on a monthly average basis over either (a) both of any two (2) consecutive months or (b) any three months in a twelve month period, at that seep, Chemours shall (unless Chemours demonstrates and DEQ and Cape Fear River Watch agree that the failure to meet the 80% minimum removal efficiency was caused by an event under paragraph 32 of the Consent Order) complete installation of an alternate system for that seep that includes an ex situ capture and treatment system within eight months of this determination ("Alternate System"). Within three months of installation of the Alternate System, Chemours shall demonstrate to DEQ that the system captures total base flow (during dry weather flow) and removes PFAS compounds (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99% at that seep. The Alternate System shall continue to meet these requirements on an ongoing basis. Chemours shall continue to operate the flow-through cells according to the Interim Plan until the Alternate System is fully operational. The installation of the Alternate System shall be the exclusive remedy for failure to make the Interim Effectiveness Demonstration and no stipulated penalty will apply.

- ii. *Sampling:* After implementation, Chemours shall conduct influent and effluent sampling of the Alternate System pursuant to the NPDES permit

requirements for the Alternate System. Flow data shall be recorded at each seep as necessary in order to demonstrate that the Alternate System consistently captures total base flow (during dry weather flow). Sample analysis must be conducted at a laboratory approved by DEQ. Chemours shall split samples with DEQ or Cape Fear River Watch upon request.

- iii. *Reporting:* On a quarterly basis, Chemours shall report to DEQ and Cape Fear River Watch results of all sampling data, information on flow, as well as an evaluation of the performance of the Alternate System. In case of an upset or other condition impeding the operation of the Alternate System, Chemours shall notify DEQ, Cape Fear River Watch, and downstream drinking water utilities in writing within 24 hours of knowledge of such condition.

c. *Long-Term Seep Remediation:*

- i. *Long-Term Seep Remediation Objective:* By March 15, 2025, Chemours shall demonstrate to DEQ that the Barrier Wall and Groundwater Extraction System installed pursuant to Paragraph 3, and the seep remediation system(s) installed pursuant to Subparagraphs 2(a) or 2(b) as necessary, reduce the total annual mass loading of PFAS (as measured by indicator parameters GenX, PMPA, and PFMOAA) to the Cape Fear River from Seeps A through D as follows: (a) during dry weather, reduce total mass loading by at least 99%, (b) during dry weather and following rain events of 0.5 inches or less, reduce total mass loading by at least 95%, and (c) for any seep that daylights upgradient of the Barrier Wall, capture total dry

weather flow plus rain events up to 0.5 inches in a 24-hour period upgradient of the Barrier Wall and treat PFAS (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) with a removal efficiency of at least 99% (collectively, “Long-Term Seep Remediation Objective”).<sup>5</sup> After submitting the initial demonstration, Chemours shall repeat the demonstration on an annual basis at least for the first five years of operation of the Barrier Wall and Groundwater Extraction System.

- ii. *Long-Term Seep Remediation Plan:* By October 30, 2020, Chemours shall submit a plan for DEQ approval for calculating PFAS mass loading (as measured by indicator parameters GenX, PMPA, and PFMOAA) from each Seep A through D to the Cape Fear River using the data, including flow data and concentration data collected pursuant to this Addendum to the Consent Order (“Long-Term Loading Calculation Plan”). The Long-Term Loading Calculation Plan shall propose a methodology for demonstrating compliance with the Long-Term Seep Remediation Objective, including calculation of PFAS mass loading from each seep during dry weather and following rain events of 0.5 inches or less (a) for the time period prior to installation of the Barrier Wall (“Baselines”)<sup>6</sup> and (b) after installation of the Barrier Wall. Chemours shall continue to implement the Sampling and

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<sup>5</sup> The demonstrations made pursuant to subsections (a) and (b) of this paragraph shall be calculated using Baselines developed pursuant to paragraph 2(c)(ii).

<sup>6</sup> For clarity, these Baselines will be calculated using data obtained from flow that has not been treated by any interim seep remediation system.

Effectiveness Plan at each seep unless, and until, DEQ approves removal of the applicable seep remediation system pursuant to this paragraph. The Long-Term Loading Calculation Plan shall provide for exclusion of mass loading caused by river inundation.<sup>7</sup>

- iii. *Continued Operation of Seep Remediation Systems:* Until Chemours makes the initial demonstration that the Long-Term Seep Remediation Objective has been achieved, Chemours shall continue to operate and maintain at optimal efficiency all seep remediation systems installed pursuant Subparagraph 2(a) or 2(b). No seep remediation systems installed pursuant Subparagraph 2(a) or 2(b) shall be removed unless Chemours demonstrates to DEQ that the Long-Term Seep Remediation Objective will be maintained after removal, and DEQ approves removal of the system.
- iv. *Additional Measures:* If DEQ determines that Chemours has failed to make the initial, or any subsequent, demonstration of achieving the Long Term Seep Remediation Objective, Chemours shall, within two (2) months of DEQ's determination, submit for DEQ review and approval proposed additional remedial measures to be incorporated in the Corrective Action Plan and/or an NPDES permit and implemented upon a schedule approved by DEQ. These measures shall be sufficient to achieve the Long-Term Seep Remediation Objective, and may include the installation of an ex situ

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<sup>7</sup> The Long-Term Loading Calculation Plan shall include a method for demonstrating when river inundation occurs. River inundation to a particular seep shall mean that the hydraulic back pressure from the Cape Fear River exceeds the hydraulic head at the location of the interim seep remediation system.

capture and treatment system at certain seep(s). In addition to these additional remedial measures, if Chemours fails to demonstrate that total mass loading from Seeps A through D to the Cape Fear River has been reduced by at least 95% (including in rain events up to 0.5 inches in a 24-hour period) in any demonstration, Chemours shall pay the stipulated penalty specified in Paragraph 10 of this Addendum.

- v. *Reporting:* On a quarterly basis, Chemours shall report to DEQ and Cape Fear River Watch results of all sampling data, information on extraction, treatment, and flow, as well as an evaluation of the performance of the Barrier Wall, Groundwater Extraction System, and seep remediation system(s) installed pursuant to Subparagraphs 2(a) or 2(b) or compliance with the Long-Term Seep Remediation Objective following removal of a seep remediation system pursuant to Subparagraph 2(c). In case of an upset or other condition impeding the operation of the Barrier Wall, Groundwater Extraction System, and seep remediation system(s) installed pursuant to Subparagraphs 2(a) or 2(b) that may increase PFAS loading to the Cape Fear River, Chemours shall notify DEQ, Cape Fear River Watch, and downstream drinking water utilities in writing within 24 hours of knowledge of such condition.

- 3. Measures to Reduce PFAS Loading from Onsite Groundwater: Chemours shall complete the following measures to reduce PFAS loading from onsite groundwater.

- a. *Groundwater Extraction from Existing Monitoring Wells:* Following the implementation of the Old Outfall 002 treatment system pursuant to Consent Order

Paragraph 12(e) and by no later than November 30, 2020, Chemours shall commence pumping of groundwater from the seven existing Black Creek Aquifer monitoring wells depicted in Attachment 4 and conveyance of such groundwater by piping to the Old Outfall 002 treatment system for treatment and discharge.

b. *Installation of a Barrier Wall and Groundwater Extraction and Treatment System:*

Chemours shall proceed with the design and the installation of a barrier wall and groundwater extraction and treatment system to reduce PFAS loading from groundwater flow from under the Facility to the Cape Fear River and Willis Creek (the “Barrier Wall and Groundwater Extraction System”), in accordance with the following schedule:

| <u>Date</u>     | <u>Milestone</u>                                                                                                                                                                                                                                                                                                                               |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| August 15, 2021 | Submit a 60% design of the Barrier Wall and Groundwater Extraction System to DEQ for review and approval and submit complete applications for any necessary permits for the installation of a groundwater extraction system designed to intercept, capture and treat groundwater from the Facility to the Cape Fear River and to Willis Creek. |
| March 31, 2022  | Submit a 90% design of the Barrier Wall and Groundwater Extraction System to DEQ for review and approval.                                                                                                                                                                                                                                      |
| March 15, 2023  | Complete installation of, and commence operation of, the Barrier Wall and Groundwater Extraction System.                                                                                                                                                                                                                                       |

The Barrier Wall and Groundwater Extraction System shall include a barrier wall and extraction system as described in the following paragraphs.

- i. Chemours shall construct a barrier wall located between the facility and the Cape Fear River and Willis Creek that is designed and constructed to intercept the groundwater flow under the Facility in the area depicted on



Attachment 5 and generally consistent with the wall location and extent depicted on Attachment 5, that contributes to the Cape Fear River or Willis Creek. It is understood that the precise contours, locations, and structure of the barrier wall will be determined as part of the design, and will be subject to DEQ approval; and

- ii. Chemours shall construct an extraction system consisting of an adequate number of wells and/or interceptor trenches to pump groundwater at a rate and depth sufficient to prevent groundwater migration around, above, or under the barrier wall. The system shall be designed so that extracted groundwater shall be treated through a treatment system that removes PFAS compounds (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99%.
- iii. DEQ shall review the 60% design and the 90% design to determine whether such designs are consistent with the objectives of this Order, and shall use its best efforts to complete its review and notify Chemours whether each design is approved within 30 days after its respective submittal. If the design is not approved within 30 days, subsequent deadlines shall be extended by the time required for DEQ approval in excess of 30 days.
- iv. If Chemours determines that the Barrier Wall and Groundwater Extraction System is technically impracticable in light of geological and other site conditions that are unknown as of the date of this Agreement, Chemours shall propose by June 30, 2021 an alternate barrier or other containment system that reduces PFAS loading from groundwater flow from under the

Facility to the Cape Fear River and Willis Creek to the maximum extent possible, and that can be installed by March 15, 2023 (“alternative groundwater measures”). As part of the alternate barrier or other containment system, Chemours must meet the Long-Term Seep Remediation Objective as described in Paragraph 2(c) no later than June 30, 2022, including an ex situ capture and treatment system if necessary to meet this objective.

- v. To the extent the parties disagree about the technical practicability of the Barrier Wall and Groundwater Extraction System or the selection of any alternative groundwater measures, Chemours shall bear the burden of demonstrating to the Court that the Barrier Wall and Groundwater Extraction System is not technically practicable, and that its proposed alternative groundwater measures will reduce PFAS loading from groundwater flow from under the Facility to the Cape Fear River and Willis Creek to the maximum extent possible by March 15, 2023. Cape Fear River Watch and DEQ shall have the right to be heard in any such proceeding before the Court. Chemours shall not be relieved from any obligations in this paragraph except by agreement of the parties or court order.

- 4. Stormwater and Non-process Wastewater: Chemours shall complete the following measures to reduce PFAS loading from stormwater and non-process wastewater that discharges to the Cape Fear River through Outfall 002.

- a. *Monomers/LXM Capture and Treatment System to Reduce PFAS Loading from Stormwater:* By June 30, 2021, Chemours shall complete installation of, and

commence operation of, a system that captures and treats stormwater from the Monomers/IXM area at the Facility as such area is depicted on the map shown as Attachment 6.

- b. *Monomers/IXM Stormwater Sampling Plan:* By September 30, 2020, Chemours shall submit a stormwater sampling plan to DEQ for approval to quantify the effectiveness of the Monomers/IXM stormwater capture and treatment system in subparagraph 4(a).
- c. *Monomers/IXM Stormwater Reduction Target:* By September 30, 2021, Chemours shall submit a report to DEQ and Cape Fear River Watch demonstrating that the Monomers/IXM stormwater capture and treatment system consistently captures stormwater from the Monomers/IXM area in rain events up to one (1) inch within a 24-hour period and removes PFAS compounds (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99%. If Chemours does not make this demonstration, within thirty (30) days of receiving notice from DEQ, Chemours shall propose additional measures to be implemented upon a schedule approved by DEQ.
- d. *Additional measures to reduce PFAS loading:* Chemours shall complete the following additional measures to reduce PFAS loading to the Cape Fear River from stormwater and non-process wastewater in accordance with the following schedule:

| <u>Date</u>       | <u>Milestone</u>                                                                                                                    |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| July 1, 2020      | Submit to DEQ an industrial Stormwater Pollution Prevention Plan (SWPPP); Chemours shall implement the SWPPP upon submittal to DEQ. |
| November 30, 2020 | Complete investigation to determine whether DuPont non-contact cooling water is causing                                             |

|                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                      | groundwater containing PFAS to infiltrate into the outfall channel                                                                                                                                                                                                                                                                                                                                                                                           |
| December 31, 2020, or such other date as is proposed by Chemours and approved by DEQ | If DuPont non-contact cooling water is causing significant groundwater infiltration, either (i) complete re-routing of DuPont non-contact cooling water (NCCW) to prevent infiltration of NCCW into the perimeter of unlined ditches in order to reduce perched zone groundwater head, or (ii) take other appropriate action as approved by DEQ to address the infiltration.                                                                                 |
| January 31, 2021                                                                     | On an annual basis (i.e., once during each annual period) starting on January 31, 2021, Chemours shall inspect and remove accumulated sediment throughout the Non-Contact Cooling Water Channel of the Monomers area of the facility, and the Open Channel to Outfall 002.                                                                                                                                                                                   |
| April 30, 2021                                                                       | Complete decommissioning and grouting of the full length of the terracotta pipe depicted in Attachment 7.                                                                                                                                                                                                                                                                                                                                                    |
| May 31, 2021                                                                         | Complete investigation into significant remaining sources of PFAS loading into sampling locations 23A (manhole at the Terracotta Pipe) and 8 (wastewater treatment plant effluent), as identified in Chemours' Characterization of PFAS in Process and Non-Process Wastewater and Stormwater quarterly reports, and submit proposed remedial action to DEQ for approval. Chemours shall conduct such remedial action pursuant to a timeline approved by DEQ. |

5. Effect on Consent Order Paragraph 12: Upon entry of this Addendum, the obligations set forth herein shall supplant and replace the requirements of Paragraph 12 (a), (b), (c), (d) and (f) in the original Consent Order.

6. Extension of Deadlines: Chemours may request and DEQ, after consultation with Cape Fear River Watch, may grant one or more requests for extensions of up to three months each for any deadline specified in this Addendum based on COVID-19 related delays. With any request for extension, Chemours shall provide documentation of the specific cause of the interruption, the role

of COVID-19 in causing the delay, and the expected duration of the delay. Chemours shall undertake and document all reasonable measures to minimize the duration of the delay.

7. Permits: Chemours shall submit timely and complete applications and take all other actions necessary to obtain any necessary permits or authorizations to carry out the requirements of this Addendum in a timely manner. In the event that Chemours is unable to obtain a permit in adequate time to allow compliance with the deadlines stated in this Addendum, such noncompliance shall not be considered a violation of this Addendum subject to enforcement provided Chemours demonstrates to the reasonable satisfaction of DEQ and Cape Fear River Watch that it exercised best efforts to timely fulfill its permitting obligations. In addition, DEQ must undertake best efforts to expeditiously process any and all necessary permit applications.

8. No Limitation on Obligations in Corrective Action Plan: Nothing in this Addendum shall be construed to limit Chemours' obligations with respect to the Corrective Action Plan required pursuant to Paragraph 16 of the Consent Order. Notwithstanding the foregoing, the actions taken under this Addendum and the associated loading reductions shall be directed to, and included in, the reductions to surface water as required in Paragraph 16(d) of the Consent Order, and when the Corrective Action Plan is approved by DEQ, the parties shall confer as to whether any further modifications to Paragraph 12 of the Consent Order as amended herein are appropriate to conform to or in light of the requirements set forth in the approved Corrective Action Plan. If the parties agree that such modifications are appropriate, they shall be jointly presented to the Court for approval. If there is not agreement on any proposed modifications, any party may present the matter to the Court for resolution.

9. Quarterly Reporting: In the quarterly progress reports submitted pursuant to Paragraph 28 of the Consent Order, Chemours shall summarize the work and activities undertaken and completed pursuant to the requirements set forth in this Addendum.

### **STIPULATED PENALTIES**

10. Unless excused under Paragraph 32 of the Consent Order or as provided in this Addendum, Chemours shall pay, by certified check payable to the North Carolina Department of Environmental Quality, stipulated penalties according to the following schedule for failure to perform activities described in paragraphs 1-4:

|                                                                                                                                                                                                                                                                   |                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Failure to complete construction of any interim seep remediation system at any seep in accordance with the schedule in Paragraph 2(a) and 2(b), or to complete construction of the stormwater treatment system in accordance with the schedule in Paragraph 4(a). | \$5,000/day for the first fourteen days; \$10,000/day thereafter until installation is complete                                   |
| After installation of the Barrier Wall, failure to demonstrate the 95% PFAS mass loading reduction requirement in Paragraph 2(c).                                                                                                                                 | \$500,000 for failure to meet the initial demonstration; \$100,000 for failure to meet any of the four subsequent demonstrations. |
| Failure to meet the deadline for installing the Barrier Wall and Groundwater Extraction System in accordance with Paragraph 3(b).                                                                                                                                 | \$150,000 for failure to meet deadline; \$20,000/week until installation is complete                                              |
| Failure to meet the 99% removal efficiency required in Paragraph 2(c), 3(b)(ii), or 4(c).                                                                                                                                                                         | \$5,000 for the first four failures during any calendar year; \$10,000 for each failure thereafter                                |
| Failure to meet any other deadline or requirement, including failure to timely submit documents with all required components.                                                                                                                                     | \$1,000/day for the first seven days; \$2,000/day thereafter                                                                      |

11. Unless otherwise provided herein, the provisions of the Consent Order shall apply to this Addendum.

This the 12<sup>th</sup> day of October, 2020.

  
\_\_\_\_\_  
Douglas B. Sasser  
Superior Court Judge

CONSENTED TO BY:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: \_\_\_\_\_  
Michael S. Regan  
Secretary

By: \_\_\_\_\_  
Francisco Benzoni  
Special Deputy Attorney General

THE CHEMOURS COMPANY FC, LLC

By:  \_\_\_\_\_  
David Shelton  
Senior Vice President, General Counsel, and Corporate Secretary

By: \_\_\_\_\_  
John Savarese  
Counsel for Chemours

CAPE FEAR RIVER WATCH

By: \_\_\_\_\_  
Kemp Burdette  
Cape Fear Riverkeeper

By: \_\_\_\_\_  
Geoff Gisler  
Counsel for Cape Fear River Watch



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By: \_\_\_\_\_  
John Savarese  
Counsel for Chemours

CAPE FEAR RIVER WATCH

By: Kemp M Burdette  
Kemp Burdette  
Cape Fear Riverkeeper

By: Geoff R Gisler  
Geoff Gisler  
Counsel for Cape Fear River Watch

CONSENTED TO BY:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: Michael S. Regan 10-5-2020  
Michael S. Regan  
Secretary

By: Francisco Benzoni Date: 10-05-2020  
Francisco Benzoni  
Special Deputy Attorney General

THE CHEMOURS COMPANY FC, LLC

By: \_\_\_\_\_  
David Shelton  
Senior Vice President, General Counsel, and Corporate Secretary

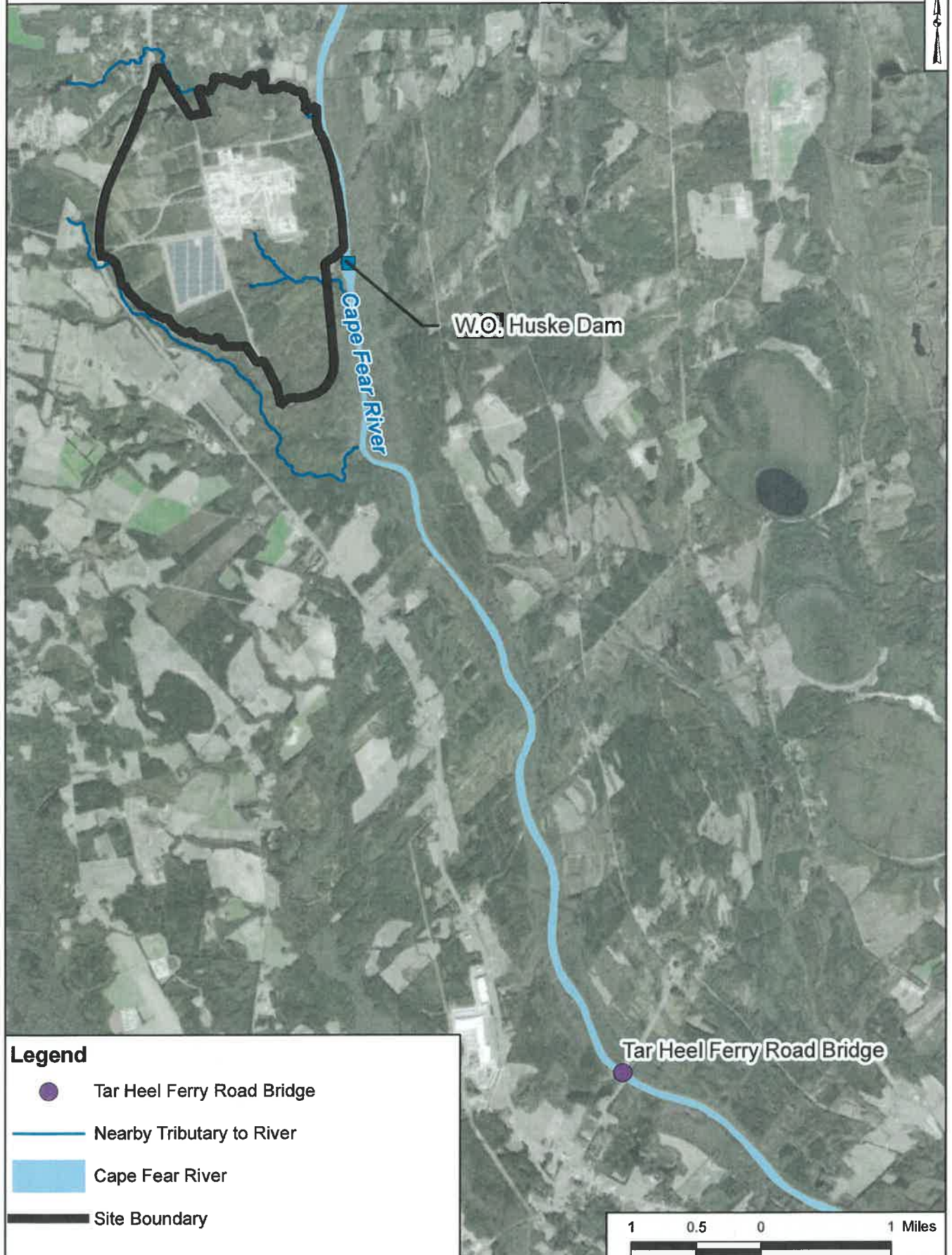
By: \_\_\_\_\_  
John Savarese  
Counsel for Chemours

CAPE FEAR RIVER WATCH

By: \_\_\_\_\_  
Kemp Burdette  
Cape Fear Riverkeeper

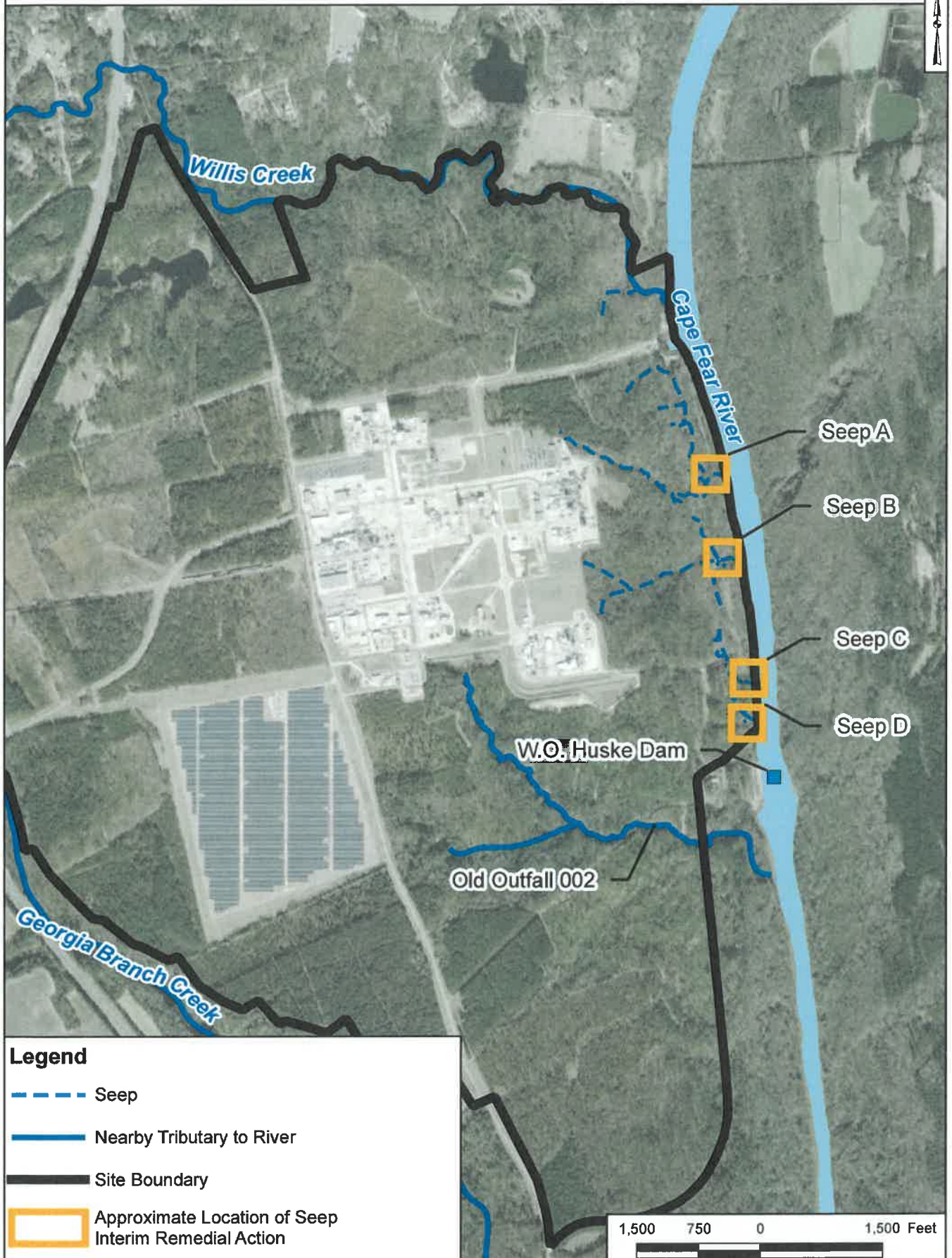
By: \_\_\_\_\_  
Geoff Gisler  
Counsel for Cape Fear River Watch

# Attachment 1: Cape Fear River Sampling Location at Tar Heel Ferry Road Bridge





## Attachment 2: Approximate Location of Seep Interim Remedial Actions



Attachment 3: Table 3+ SOP Compounds

| Common Name     | Chemical Name                                                                                                                                                              | CASN         | Chemical Formula                                               |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------|
| HFPO-DA         | Hexafluoropropylene oxide dimer acid                                                                                                                                       | 13252-13-6   | C <sub>6</sub> HF <sub>11</sub> O <sub>3</sub>                 |
| PFMOAA          | Perfluoro-2-methoxyacetic acid                                                                                                                                             | 674-13-5     | C <sub>3</sub> HF <sub>5</sub> O <sub>3</sub>                  |
| PF02HxA         | Perfluoro-3,5-dioxahexanoic acid                                                                                                                                           | 39492-88-1   | C <sub>4</sub> HF <sub>7</sub> O <sub>4</sub>                  |
| PF03OA          | Perfluoro-3,5,7-trioxaheptanoic acid                                                                                                                                       | 39492-89-2   | C <sub>5</sub> HF <sub>9</sub> O <sub>5</sub>                  |
| PF04DA          | Perfluoro-3,5,7,9-tetraoxadecanoic acid                                                                                                                                    | 39492-90-5   | C <sub>6</sub> HF <sub>11</sub> O <sub>6</sub>                 |
| PF05DA          | Perfluoro-3,5,7,9,11-pentaoadecanoic acid                                                                                                                                  | 39492-91-6   | C <sub>7</sub> HF <sub>13</sub> O <sub>7</sub>                 |
| PMPA            | Perfluoro-2-methoxypropionic acid                                                                                                                                          | 13140-29-9   | C <sub>4</sub> HF <sub>7</sub> O <sub>3</sub>                  |
| PEPA            | Perfluoro-2-ethoxypropionic acid                                                                                                                                           | 267239-61-2  | C <sub>5</sub> HF <sub>9</sub> O <sub>3</sub>                  |
| PS Acid         | Ethanesulfonic acid, 2-[[1-[difluoro[(1,2,2-trifluoroethenyl)oxy]methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-                                                   | 29311-67-9   | C <sub>7</sub> HF <sub>13</sub> O <sub>5</sub> S               |
| Hydro-PS Acid   | Ethanesulfonic acid, 2-[[1-[difluoro(1,2,2,2-tetrafluoroethoxy)methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-                                                     | 749836-20-2  | C <sub>7</sub> H <sub>2</sub> F <sub>14</sub> O <sub>5</sub> S |
| R-PSDA          | Pentanoic acid, 2,2,3,3,4,5,5-octafluoro-4-(1,1,2,2-tetrafluoro-2-sulfoethoxy)-                                                                                            | 2416366-18-0 | C <sub>7</sub> H <sub>2</sub> F <sub>12</sub> O <sub>6</sub> S |
| R-PSDCA         | Ethanesulfonic acid, 1,1,2,2-tetrafluoro-2-[1,2,2,3,3-pentafluoro-1-(trifluoromethyl)propoxy]-                                                                             | 2416366-21-5 | C <sub>6</sub> H <sub>2</sub> F <sub>12</sub> O <sub>4</sub> S |
| Hydrolyzed PSDA | Acetic acid, 2-fluoro-2-[1,1,2,2,3,3-hexafluoro-2-(1,1,2,2-tetrafluoro-2-sulfoethoxy)propoxy]-                                                                             | 2416366-19-1 | C <sub>7</sub> H <sub>3</sub> F <sub>11</sub> O <sub>7</sub> S |
| NVHOS           | 1,1,2,2,4,5,5-heptafluoro-3-oxapentanesulfonic acid; or 2-(1,2,2,2-ethoxy)tetrafluoroethanesulfonic acid; or 1-(1,2,2-tetrafluoro-2-sulfoethoxy)-1,2,2,2-tetrafluoroethane | 1132933-86-8 | C <sub>4</sub> H <sub>2</sub> F <sub>8</sub> O <sub>4</sub> S  |
| EVE Acid        | 2,2,3,3-tetrafluoro-3-[(1,1,1,2,2,3,3-hexafluoro-3-[(1,2,2-trifluoroethenyl)oxy]propan-2-yl)oxy]propionic acid                                                             | 69087-46-3   | C <sub>8</sub> HF <sub>13</sub> O <sub>4</sub>                 |
| Hydro-EVE Acid  | 2,2,3,3-tetrafluoro-3-[(1,1,1,2,2,3,3-hexafluoro-3-[(1,2,2,2-tetrafluoroethoxy)oxy]propan-2-yl)oxy]propionic acid                                                          | 773804-62-9  | C <sub>8</sub> H <sub>2</sub> F <sub>14</sub> O <sub>4</sub>   |
| R-EVE           | Pentanoic acid, 4-(2-carboxy-1,1,2,2-tetrafluoroethoxy)-2,2,3,3,4,5,5-octafluoro-                                                                                          | 2416366-22-6 | C <sub>8</sub> H <sub>2</sub> F <sub>12</sub> O <sub>5</sub>   |
| PES             | Perfluoro-2-ethoxyethanesulfonic acid                                                                                                                                      | 113507-82-7  | C <sub>4</sub> HF <sub>9</sub> O <sub>4</sub> S                |
| PFECA B         | Perfluoro-3,6-dioxahexanoic acid                                                                                                                                           | 151772-38-6  | C <sub>5</sub> HF <sub>9</sub> O <sub>4</sub>                  |
| PFECA-G         | Perfluoro-4-isopropoxybutanoic acid                                                                                                                                        | 801212-59-9  | C <sub>12</sub> H <sub>9</sub> F <sub>9</sub> O <sub>3</sub> S |

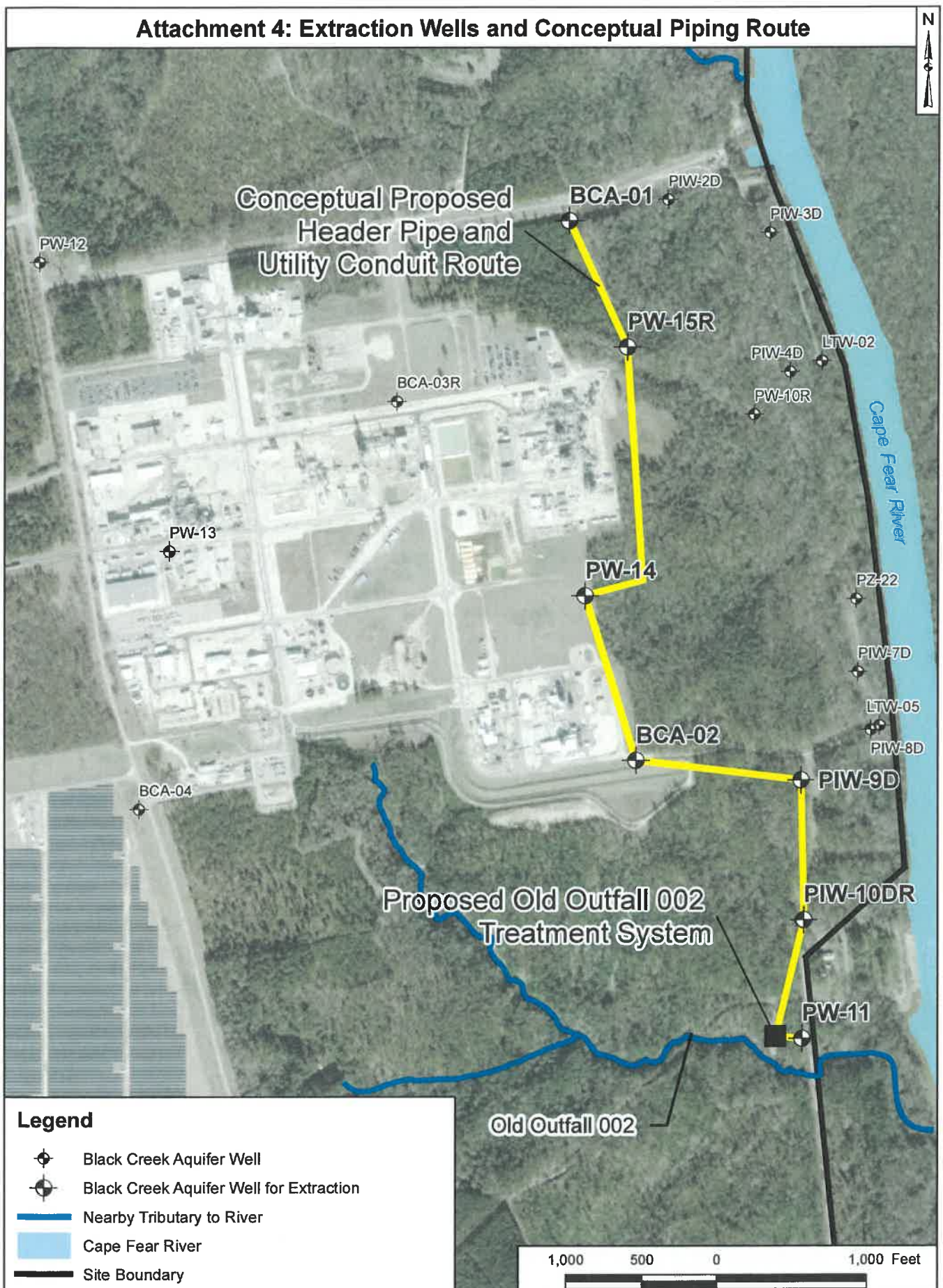
**Abbreviations:**

SOP - Standard Operating Procedure

CASN - Chemical Abstracts Service Number

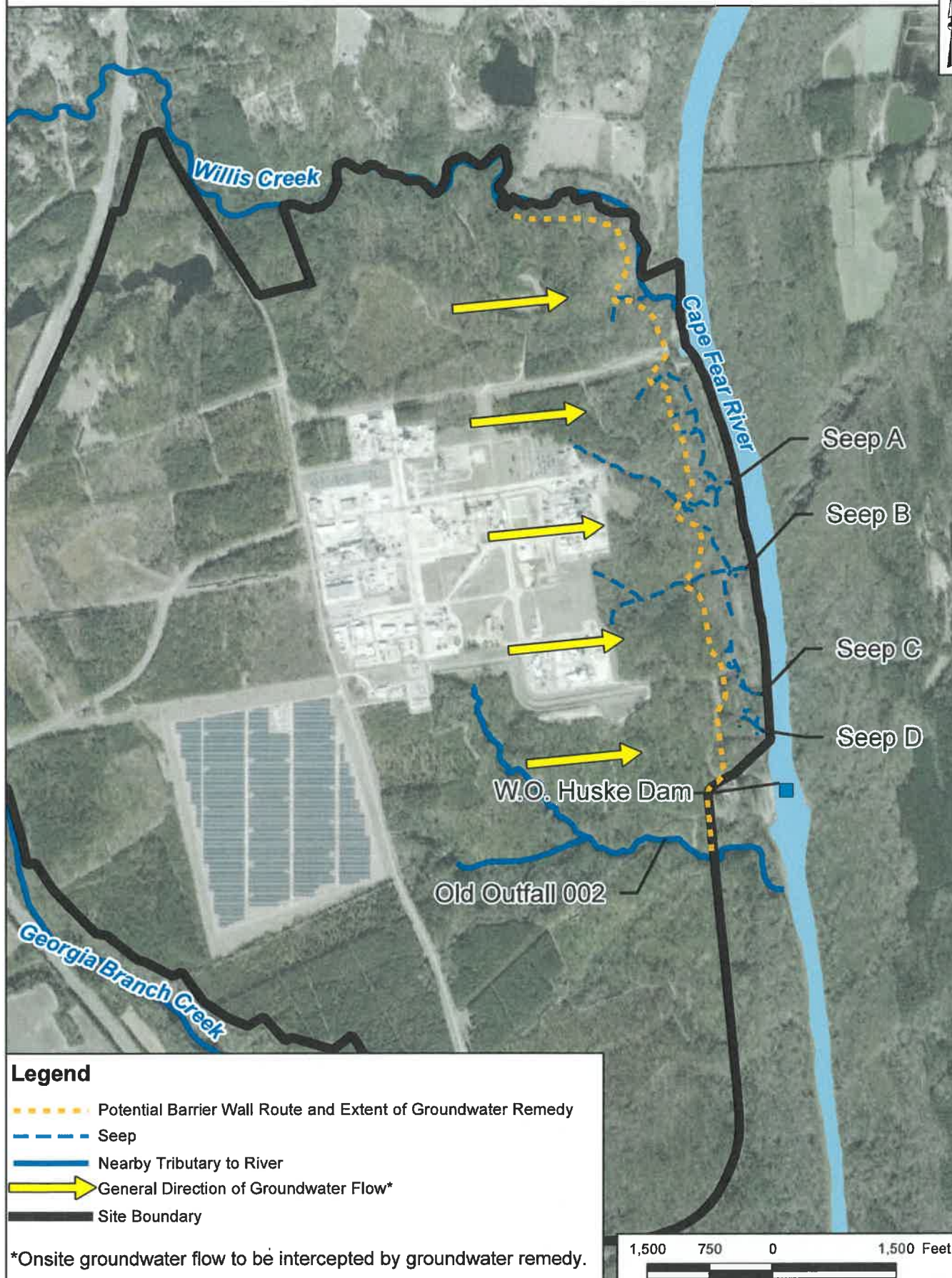


## Attachment 4: Extraction Wells and Conceptual Piping Route





## Attachment 5: Potential Route and Extent of Groundwater Remedy



### Legend

- Potential Barrier Wall Route and Extent of Groundwater Remedy
- - - Seep
- Nearby Tributary to River
- General Direction of Groundwater Flow\*
- Site Boundary

\*Onsite groundwater flow to be intercepted by groundwater remedy.

1,500 750 0 1,500 Feet



## Attachment 6: Stormwater Treatment System Capture in Monomers/IXM



### Legend



Drainage area in Monomers/IXM to  
stormwater treatment system\*

\*Drainage area shown is approximate and may vary slightly based  
on site drainage.

250 125 0 250 Feet

## Attachment 7: Location of Terracotta Pipe to be Decommissioned

