



Waste Management  
ENVIRONMENTAL QUALITY

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February 12, 2018

Mr Kevin Garon  
Project Director  
Chemours Corporate Remediation Group  
10483 Stream Lane  
Fort Mill, SC 29707

Re: Comments concerning the Chemours Plan to Install Granular Activated Carbon Treatment on Residential Drinking Water Wells

Dear Mr. Garon;

We have reviewed Attachment 2, Private Well Questionnaire, and Appendix 3, Operation and Maintenance Agreement of the referenced plan to provide comments for the upcoming Pilot Program. The Pilot Program will consist of the installation of the Granulated Active Carbon Treatment (GAC) System at four residents, identified by the NC Division of Waste Management (DWM), to gather more data on the efficacy of the GAC System for constituents identified in groundwater at and around the Chemours' Fayetteville facility.

Comments on Attachment 2 and Attachment 3 are attached. In addition, DWM has the following comments:

- 1) Chemours shall sample the Pilot Study wells no less than every other week. DWM shall be notified in advance of the date and time the sampling will occur. The Pilot Study shall be for a minimum of three months.
- 2) Chemours shall install the GAC system prior to (upstream of) any homeowner installed filter or water treatment system. The GAC System shall include an iron filter installed before the GAC System. In addition, DWM recommends the installation of a microbial filter prior to the GAC System. Chemours shall notify DWM of the installation at least 5 working days prior to the installation of the GAC systems.
- 3) Sampling points shall include raw water (prior to any filter), pre-GAC System, mid-GAC System, and post-GAC System.
- 4) Raw water shall be analyzed, one time, for iron, pH, total solids, and sulfate.
- 5) All sampling points shall be analyzed for all Method 537 target analytes and any additional PFAS added to the target analyte list to date in the on-site groundwater, private well waters, effluent, Cape Fear River and water treatment plant samples (see the attached Table). This is to include all additional PFAS in the target analyte lists as modified to date by USEPA NERL-RTP or USEPA-Athens laboratories or DEQ contract laboratories. These PFAS include Nafion Byproducts 1 and 2, and the other "additional PFAS" identified that have been reported as estimated concentrations relative to the GenX response. Additional as yet unidentified PFAS detected in future samples

associated with this or other Chemours facilities may also be required for analysis. DWM will notify Chemours of additional PFAS.

- 6) Chemours shall require expedited analysis for the Pilot System samples. The analysis shall be performed by a laboratory certified to perform Method 537.
- 7) Chemours must report the results to DWM as the results are received. In addition, Chemours shall provide a cumulative report on a monthly basis that must include, at a minimum, analytical results and the volume of water utilized. Chemours must submit a final report to DWM upon completion of the Pilot Study.
- 8) Chemours shall provide to each resident and to DWM a phone number to be used if repairs are needed to the GAC system.

Upon receipt and review of the final Pilot Study report DWM shall provide comments to Chemours on the full Plan to Install Granular Activated Carbon Treatment on Residential Drinking Water Wells.

If you have any questions concerning any of the comments above or any comments in the attachment please contact me at 919-707-8202 or at [bud.mccarty@ncdenr.gov](mailto:bud.mccarty@ncdenr.gov).

Sincerely



Bud McCarty, Head  
Facility Management Branch  
Hazardous Waste Section  
Division of Waste Management, NC DEQ

EC: Michael Scott  
Julie Woosley  
Dr. Sandy Mort  
Joe Ghiold  
Mark Wilkins

## Comments on the Chemours *Carbon Implementation Plan*

Specifically:

Comments for the Pilot Project

Attachment 2 -Private Well Questionnaire, and

Attachment 3 – O&M Agreement for the Carbon Implementation Pilot Study

### Attachment 2 – Residential PW Questionnaire

1. It is not likely that the homeowner will be able to accurately answer many of these questions. How will imprecise answers impact system installation, O&M, performance and analytical data evaluation?
2. Recommend that you ask about existing sampling locations, such as spigots at the well or other outside sampling points so that testing can be done before and after the filter without entering the home or requiring the owner to be present.
3. Recommend that you ask what type of water treatment system the home has, with check boxes for common types, plus an option for “other” and room to specify details.
4. Recommend that you ask about the number of residents in each home.

### Attachment 3 – O&M Agreement

#### General

1. Chemours should consider documenting any construction or physical modifications made to the home or associated structures required for installation.

#### Introduction

2. Identify that this is a Pilot Study to determine the efficacy of the proposed treatment system.
3. Text should refer to the GenX Health goal in units of “ng/L (or ppt, parts-per-trillion)”, the same as used in the published references to the health goal, and the same as used for laboratory reporting & for HRE’s.
4. Reconsider the statement regarding the health goal (not agreeing with it).
5. Edit to provide treatment systems for each home on a property served by an affected well, and options for secondary living spaces with water.

#### Condition 3

6. For the Pilot Project agreement remove paragraph 2 and 3.
7. State that sampling will occur every other week. State that the following samples will be collected; raw water, pre GAC filter, mid GAC filter, post GAC filter.
8. Chemours must identify in the condition what the sample will be analyzed for (see item 5 of the cover letter).

## For the Pilot Project

Provide additional information to each resident that includes:

9. This is a Pilot Project that will run for no less than 3 months to help determine the efficacy of the proposed interim treatment system.
10. A statement that discusses the uncertainties of this proposed treatment alternative, particularly as it relates to other non-GenX short-chain PFAS in the source water and how this pilot study will help to obtain additional information on this front.
11. A statement to clearly identify that the residents should continue to drink, cook with, brush teeth with, prepare baby formula with, and rinse garden produce with bottled water during the study.

PFAS Analyte	Abbreviation	Formula	Carbon-chain Length	CAS Number
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>				
Perfluorobutanoic acid	PFBA		4	375-22-4
Perfluoropentanoic acid	PFPeA		5	2706-90-3
Perfluorohexanoic acid	PFHxA		6	307-24-4
Perfluoroheptanoic acid	PFHpA		7	375-85-9
Perfluorooctanoic acid	PFOA		8	335-67-1
Perfluorononanoic acid	PFNA		9	375-95-1
Perfluorodecanoic acid	PFDA		10	335-76-2
Perfluoroundecanoic acid	PFUdA		11	2058-94-8
Perfluorododecanoic acid	PFDoA		12	307-55-1
Perfluorotridecanoic acid	PFTTrDA		13	72629-94-8
Perfluorotetradecanoic acid	PFTeDA		14	376-06-7
<b>Perfluoroalkyl sulfonic acids (PFASs)</b>				
Perfluorobutanesulfonate	PFBS		4	375-73-5
Perfluoropentanesulfonate	PFPeS		5	2706-91-4
Perfluorohexanesulfonate	PFHxS		6	355-46-4
Perfluoroheptanesulfonate	PFHpS		7	375-92-8
Perfluorooctanesulfonate	PFOS		8	1763-23-1
Perfluorononanesulfonate	PFNS		9	68259-12-1
Perfluorodecanesulfonate	PFDS		10	335-77-3
<b>Perfluoroalkyl ether carboxylic acids (PFECAs)</b>				
Perfluoro-1-methoxyacetic acid	PFMOAA		3	674-13-5
Perfluoro-3-methoxypropanoic acid	PFMOPrA		4	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMOBA		5	863090-89-5
Perfluoro-2-propoxypropanoic acid ("GenX")	PFPrOPrA		6	13252-13-6
Perfluoro(3,5-dioxahexanoic) acid	PFO2HxA		4	39492-88-1
Perfluoro(3,5,7-trioxaoctanoic) acid	PFO3OA		5	39492-89-2
Perfluoro(3,5,7,9-tetraoxadecanoic) acid	PFO4DA		10	39492-90-5
<b>Perfluoroalkyl ether sulfonic acids (PFESAs)</b>				
C <sub>7</sub> HF <sub>13</sub> O <sub>5</sub> S ("Nafion")	Nafion	C7HF13O5S	8	66796-30-3
Nafion Byproduct #1, Perfluoro-3,6-dioxa-4-methyl-7-octene-1-sulfonic acid	Nafion #1	C7HF13SO5	7	29311-67-9
Nafion Byproduct #2, Ehtanesulfonic acid-2-[1-(difluoro(1,2,2,2-tetrafluoroethoxy)methyl-1,2,2,2-tetrafluoroethoxy)]-1,1,2,2-tetrafluoro-	Nafion #2	C7H2F14SO5	7	749836-20-2
<b>Others</b>				
Perfluorooctanesulfonamide	PFOSA		8	754-91-6
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA		11	2355-31-9
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA		12	2991-50-6
Fluorotelomer sulfonate 4:2	4:2 FTS		6	757124-72-4
Fluorotelomer sulfonate 6:2	6:2 FTS		8	27619-97-2
Fluorotelomer sulfonate 8:2	8:2 FTS		10	39108-34-4

