Message

**From**: Poeske, Regina [Poeske.Regina@epa.gov]
**Sent**: 2/25/2019 1:37:00 PM
**To**: rogers, rick [rogers.rick@epa.gov]; Reinhart, Roger [Reinhart.Roger@epa.gov]
**Subject**: RE: Advanced Notification- Galloway/Lindstrom et al, GenX PFAS air and water transport Ohio River — comments requested by March 8

Great thanks.

Regina

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**From:** rogers, rick
**Sent:** Monday, February 25, 2019 8:29 AM
**To:** Poeske, Regina <Poeske.Regina@epa.gov>; Reinhart, Roger <Reinhart.Roger@epa.gov>
**Subject:** RE: Advanced Notification- Galloway/Lindstrom et al, GenX PFAS air and water transport Ohio River — comments requested by March 8

Thanks, Regina. I'd like to add to the comments Roger sent you earlier, so I'll send you something before the end of this week.

I'll bring this up with Cathy so she can offer a briefing to Cecil and Cos at this morning's RA staff meeting.

Rick Rogers, Associate Director
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**From:** Poeske, Regina
**Sent:** Monday, February 25, 2019 8:22 AM
**To:** rogers, rick <rogers.rick@epa.gov>; Reinhart, Roger <Reinhart.Roger@epa.gov>
**Subject:** FW: Advanced Notification- Galloway/Lindstrom et al, GenX PFAS air and water transport Ohio River — comments requested by March 8

Rick and Roger,

This is the formal request for comments on the ORD Ohio River Study. I will resend your comments but also wanted to let you know that R5 is going to formally brief their management up to the RA. Let me know if you want me to arrange anything.

Regina

Regina Poeske | Regional Science Liaison to the Office of Research and Development | USEPA Region III| 1650 Arch St, Philadelphia, PA 19104 | 215-814-2725 | poeske.regina@epa.gov

**From:** Braverman, Carole
**Sent:** Thursday, February 21, 2019 4:01 PM
**To:** ORD-OSP-RSL <ORDOSPRSL@epa.gov>; ORD-OSP-STL <ORDOSPSTL@epa.gov>; Harris, Kimberly <harris.kimberly@epa.gov>
**Subject:** FW: Advanced Notification- Galloway/Lindstrom et al, GenX PFAS air and water transport Ohio River — comments requested by March 8

Opportunity for internal review of pre-publication ORD manuscript related to PFAS. Comments due to me by March 8.

**From:** vanDrunick, Suzanne
**Sent:** Thursday, February 21, 2019 2:58 PM
**To:** Reiley, Mary <Reiley.Mary@epa.gov>; Braverman, Carole <braverman.carole@epa.gov>
**Cc:** Ohanian, Edward <Ohanian.Edward@epa.gov>; Williams, Joe <Williams.Joe@epa.gov>; Fleming, Megan <Fleming.Megan@epa.gov>
**Subject:** Advanced Notification- Galloway/Lindstrom et al, GenX PFAS air and water transport Ohio River — comments requested by March 8

Dear OW and Carole,
For advanced notification is a manuscript on GenX presence in Ohio and West Virginia most likely associated with a chemical manufacturing plant. The paper involves observations of GenX and PFOA in water and soil samples. The pattern of GenX distribution in particular implies the likelihood of air transport, for which little documentation currently exists in the literature.

R3 and R5 have reviewed the paper and are aware of the findings but it may be a good idea to send for final comments or at a minimum awareness.

Please send any comments by March 8.

Best regards
Suzanne

## Manuscript Title:

**HFPO-DA and PFOA in Surface Water and Soil Near a Fluoropolymer Production Facility in West Virginia**

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† Department of Molecular Genetics, The Ohio State University, Columbus, Ohio 43210, United States

‡ National Exposure Research Laboratory, U.S. EPA, Research Triangle Park, North Carolina 27711, United States§ Department of Civil, Environmental and Geodetic Engineering, The Ohio State University, Columbus, Ohio 43210, United States

**2. Background/Overview:**

Fluorochemical production facilities have been identified as major sources of poly- and perfluoroalkyl substances (PFASs) in the environment, but comparatively little work has been done to characterize the impacts these sources have in nearby communities. A further complication is the fact that many fluorochemical production companies have changed their formulation processes in recent years to achieve compliance with the USEPA's PFOA Stewardship Program, The new compounds that have been used as replacements for the long-chain materials tend to retain many of the physical/chemical/toxicological properties of the long-chain compounds they have displaced, but very little research has been conducted on these newer materials.

Perfluorooctanoic acid (PFOA) is a long-chain PFAS that was historically used as a solubilization aid in the production of the fluoropolymer polytetrafluoroethylene (PTFE or Teflon). PFOA was emitted into the environment from the DuPont (now Chemours) Washington Works fluoropolymer facility in Parkersburg, WV. Use of PFOA at this site was discontinued in 2013, and its replacement, hexafluoropropylene oxide-dimer acid or HFPO-DA (also known as GenX), is now being used as a process aid to produce PTFE fluoropolymer products. This manuscript details the presence of PFOA in surface water and soil in a large area surrounding the Washington Works facility while also documenting the discovery of the replacement compound, HFPO-DA (GenX), in the same media in this region.

**3. Relevancy to NWP research needs/priorities:**

[SSWR 6.02B] Characterization of sources of contaminants of emerging concern to surface water and groundwater – This manuscript provides information concerning legacy and new per and polyfluoroalkyl substances of significant concern to Regional Offices and the public.

**4. Name(s) of OW reviewer(s) of earlier drafts /OW co-authors, if any:**

This manuscript has been reviewed by staff in EPA Region 3 and Region 5 due to location of the study along the Ohio River. There are no Regional/Program Co-Authors. OW, OAR, R3 and R5 leadership were briefed on the work in November 2017.

**5. Major observations and results:**

Perfluorooctanoic acid (PFOA) was used as a fluoropolymer manufacturing aid at the Washington Works facility in Parkersburg, West Virginia from 1951 until 2013. HFPO-DA has also been used as a replacement process aid at this site since 2009. Historical releases of PFOA in this region have been partially documented, with this work being largely focused in communities downstream (southwest) on the Ohio River. This study was conducted to provide an update on the ongoing impacts from this plant and to attempt to better define the geographical area that remains impacted by historical and continuing emissions from this facility.

To help accomplish this task, 94 surface water samples and 13 soil samples were collected from areas mainly upstream and downwind (i.e. to the north and northeast) of this facility in 2016 and 2018.

PFOA was detected in every surface water sample collected, with concentrations exceeding 1000 ng/L at 13 sample sites within an 8 km radius of the plant.

HFPO-DA was found to be widely distributed in surface water with the highest levels (>100 ng/L) within a 6.4 km radius north of the plant.

One sample site, 28 km north of the plant, had PFOA at 143 ng/L and HFPO-DA at 42 ng/L.

Several surface water samples collected adjacent to landfills known to contain fluorochemical waste from the facility had PFOA concentrations ranging up to >1000 ng/L.

PFOA was quantifiable in all but one soil sample collected in 2016 and 2018 (n= 14), with PFOA elevated at 4.96 ng/g at the most distant sample site, 48 km northeast of the facility.

The highest soil levels of PFOA and HFPO-DA were found 4.0 km (26.9 and 3.20 ng/g, respectively) and 8.5 km (18.4 and 8.14 ng/g, respectively) to the north northeast of the facility.

**6. Potential implications of the findings:**

This study documents the widespread occurrence of PFOA and HFPO-DA in the surface water and soil in a large area surrounding this facility. The region of measurable impacts has yet to be fully delineated. The presence of HFPO-DA at a long distance from the facility indicates the likelihood of atmospheric transport since there (1) is no other known source of HFPO-DA in the area and (2) the location is upstream of the production facility making water transport unlikely.

**7. Findings advancing existing scientific knowledge:**

More complete characterization of the distribution of PFOA and discovery of a new PFAS compound (HFPO-DA, or GenX) in the vicinity of a major fluorochemical production facility. Further evidence of a significant potential for atmospheric transport of PFAS, which is currently an understudied issue.

**8. Publication information (journal, book chapter/book) and estimated timelines:**

To be submitted for consideration for publication in *Environmental Science and Technology.*