



The State of New Hampshire  
**Department of Environmental Services**

**Clark B. Freise, Assistant Commissioner**



June 22, 2017

Jennifer Orme-Zavaleta, PhD  
Director, National Exposure Research Laboratory  
USEPA Office of Research and Development  
109 TW Alexander Dr MC 305-01  
RTP, NC 27711

**Subject: New Hampshire Department of Environmental Services Request for Assistance Assessing Poly- and Perfluoroalkyl Substances**

Dear Dr. Orme-Zavaleta:

The New Hampshire Department of Environmental Services (NHDES) is requesting assistance for completing analyses of long and short-chain poly and perfluoroalkyl substances (PFAS) in industrial chemicals, groundwater, surface water, soil, sludge, air, process residuals and potentially food crops surrounding two sites where air emissions associated with processes that historically used PFAS-containing raw materials. These sites have historically released PFAS into the environment and have contaminated soil and water, including groundwater used as drinking water for tens of thousands of people in the state. NHDES is also concerned that ongoing air emissions of certain PFAS may be occurring with minimal air pollution controls being applied.

NHDES is currently using commercial laboratories to complete analyses that report results of 14 to 23 traditional PFAS compounds. NHDES has attempted to coordinate with a laboratory to analyze for a PFAS compound variant that was reported to have replaced PFOA at a facility that has ongoing air emissions containing PFAS. Despite analyzing over 1,000 samples from private and public drinking water wells in an area where groundwater has been contaminated with PFOA, this replacement compound has yet to be detected in water near this site. However, the replacement compound was detected in stack samples at the site.

Assistance from the United States Environmental Protection Agency (USEPA) is needed to test for environmental contaminants that are potentially being released to the air and impacting the environment. USEPA's assistance is needed to overcome technical barriers for completing this work to date including: 1) commercial laboratory analytical limitations for handling more complex sample matrices; 2) unknown nature of the compounds because they are proprietary, manufacturing byproducts or degradation compounds contained in raw materials; and 3) lack of expertise and experience associated with advanced fluorochemistry and fate and transport properties. USEPA could assist by analyzing samples using high resolution mass spectrometry with a comprehensive assessment of the spectral data using library searches.

NHDES will utilize this information to: 1) understand the multimedia environmental distribution of fluorinated compounds generated when emitting PFAS to the air; 2) ensure drinking water treatment systems and remediation systems being designed to remove PFOA and PFOS are able to also consider employing treatment that can remove other PFAS compounds and associated degradates, some which could be precursors to the formation of PFOA and PFOS. Granular activated carbon is the standard treatment technology for PFOA and PFOS, but is not as effective in removing some of the shorter chain PFAS compounds or precursors to PFOS and PFOA. This information is critical for ensuring drinking water is appropriately treated and that remediation systems removing PFOA and PFOS do not unknowingly redistribute other PFAS contaminants; 3) differentiate sources of contamination when and where there is the potential for multiple sources of contamination by identifying a signature of distribution of compounds for different sources of PFAS; 4) assess if conditions warrant the installation of treatment systems for air emissions to proactively prevent the contamination of the environment and drinking water with the newer alternative chemicals or precursor compounds; 5) prioritize what contaminant(s) need a risk assessment based on what is actually being measured in the environment, including drinking water.

We greatly appreciate your assistance on this matter. We look forward to our continued partnership in successfully addressing these emerging drinking water contaminants. Please do not hesitate to contact me ([Clark.Freise@des.nh.gov](mailto:Clark.Freise@des.nh.gov), (603)271-8806) or Brandon Kernen ([Brandon.Kernen@des.nh.gov](mailto:Brandon.Kernen@des.nh.gov), (603)271-0660) should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clark B. Freise', with a stylized flourish at the end.

Clark B. Freise

Assistant Commissioner

cc: Meghan Cassidy, USEPA Region 1  
Andy Lindstrom, USEPA ORD  
Michael Wimsatt, NHDES  
Eugene Forbes, NHDES  
Brandon Kernen, NHDES