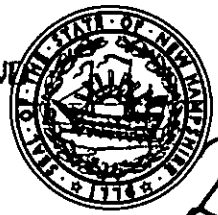




The State of New Hampshire JUN 28 '22 PM 4:05 RCU
Department of Environmental Services



Robert R. Scott, Commissioner

June 24, 2022

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, NH 03301

REQUESTED ACTION

Authorize Department of Environmental Services (NHDES) to enter into a **Retroactive, Sole Source** agreement with the U.S. Geological Survey (USGS), Pembroke, NH (VC# 175772-P001), in the amount of \$75,000 to study the occurrence and behavior of per- and poly-fluoroalkyl substances (PFAS) in soils in New Hampshire, effective as of July 1, 2022 through June 30, 2023, upon Governor and Council approval. Funding is 100% Emerging Contaminants Funds.

Funding is available in the following account.

	<u>FY 2023</u>
03-44-44-444010-8873-102-500731	\$75,000
Dept. Environmental Services, Emerging Contaminants, Contracts for Program Services	

EXPLANATION

The purpose of this agreement is to fund a confirmatory study to revisit and evaluate areas of elevated PFAS in shallow soils that were discovered during the recent USGS study conducted in 2021. The results of the original study showed 15 areas where PFAS concentrations were significantly higher than expected. The work will involve soil sampling and analysis and additional laboratory and field studies to confirm the elevated concentrations that were observed and evaluate risk to groundwater impact in these areas. NHDES would like to enter into a **Sole Source** agreement with USGS for this study because of their unique capabilities and previous extensive experience conducting statewide studies with the most recent being a comprehensive PFAS soil investigation that this work is intended to supplement. USGS's extensive knowledge of New Hampshire soils, geology, and aquifers, along with their high-quality assurance standards, make them uniquely qualified to continue with this study. In addition to these advantages, \$25,000 in project matching funds will be provided by USGS. The joint funding agreement documentation was not completed in time for the June 29th Governor & Council meeting, so NHDES is asking for **Retroactive** approval.

www.des.nh.gov

PO Box 95, 29 Hazen Drive, Concord, NH 03302-0095

Telephone: (603) 271-2905 Fax: (603) 271-2456 TDD Access: Relay NH 1-800-735-2964

The study is necessary to support NHDES's efforts to develop protective standards governing soil cleanup. Ultimately, such standards are vitally important to protecting groundwater and drinking water quality in New Hampshire. The study will result in an improved understanding of the results of the larger, comprehensive study looking at the occurrence and behavior of PFAS in New Hampshire soils and help to position NHDES to develop appropriate protective standards, thus advancing DES's mission to protect human health and the environment.

This agreement has been approved by the Department of Justice as to form, content, and execution. In the event that other funds are no longer available, General Funds will not be requested to support this contract.

We respectfully request your approval.



Robert R. Scott
Commissioner

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 600000093
Agreement #: 22LGJFANH000014
Project #:
TIN #: 02-6000618

Fixed Cost Agreement YES[X] NO[]

THIS AGREEMENT is entered into as of the July 1, 2022, by the U.S. GEOLOGICAL SURVEY, New England Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the New Hampshire Department of Environmental Services party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation a study named Confirmatory Sampling of Per- and Polyfluoroalkyl Substances (PFAS) in Selected Soils in New Hampshire, herein called the program. The USGS legal authority is 43 USC 36C, 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of \$0.00

- (a) \$25,000 by the party of the first part during the period July 1, 2022 to June 30, 2023
- (b) \$75,000 by the party of the second part during the period July 1, 2022 to June 30, 2023
- (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of \$0
Description of the USGS regional/national program:
- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties. The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (<https://www.usgs.gov/about/organization/science-support/science-quality-and-integrity/fundamental-science-practices>).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 600000093
Agreement #: 22LGJFANH000014
Project #:
TIN #: 02-6000618

9. Billing for this agreement will be rendered quarterly. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

USGS Technical Point of Contact

Name: Joseph Ayotte
Supervisory Hydrologist
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Pembroke, NH 03275-3718
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Customer Technical Point of Contact

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Remediation Bureau
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Concord, NH 03302-0095
Telephone: (603) 271-8801
Fax:
Email: Amy.Rousseau@des.nh.gov

USGS Billing Point of Contact

Name: Melissa Shaffer
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Address: 10 Bearfoot Road
Northboro, MA 01532
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Fax: (508) 490-5068
Email: mshaffer@usgs.gov

Customer Billing Point of Contact

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Fax:
Email: Amy.Rousseau@des.nh.gov

U.S. Geological Survey
United States
Department of Interior

New Hampshire
Department of
Environmental Services

Signature

JOHNATHAN BUMGARNER
By JOHNATHAN BUMGARNER Date: 05/10/2022
Name: Johnathan Bumgarner
Title: Director

Signatures

By [Signature] Date: 6/14/22
Name: Robert R. Scott
Title: Commissioner, NHDES

By _____ Date: _____
Name:
Title:

By _____ Date: _____
Name:
Title:

*Approved as to form,
Substance, and Execution
6/24/2022 [Signature]
Office of Attorney General*



Confirmatory Sampling of Per- and Polyfluoroalkyl Substances (PFAS) in Selected Soils in New Hampshire

U.S. Geological Survey, New England Water Science Center

May 25, 2022

Background

Per- and polyfluoroalkyl substances (PFAS) are a diverse class of thousands of compounds that have been produced since the 1940s and are frequently found in the environment. Exposure to some PFAS has been associated with adverse human health outcomes. Many PFAS are hydrophobic surfactants that are chemically, thermally, and biologically stable at ambient conditions, which allows for a range of surfactant and non-stick applications. As in many areas, PFAS have been released to the environment in New Hampshire through several pathways including industrial releases, commercial uses, waste management applications (e.g., wastewater effluent, biosolids application), and from the use of Class B firefighting foams, including aqueous film-forming foams (AFFF). There is a high level of public concern over PFAS in New Hampshire following discoveries of drinking water contamination at the former Pease Air Force Base in 2014 and in several southern New Hampshire towns in 2016, which prompted statewide investigations of PFAS impacts to drinking water quality and the environment. Throughout this text, PFAS refers to the targeted compounds measured by a New Hampshire Department of Environmental Services (NHDES) contract laboratory (Table 1).

Table 1. List of 36 targeted compounds analyzed by the NHDES contract laboratory

PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid

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PFDA	Perfluorodecanoic acid
PFUnA	Perfluoroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTrDA	Perfluorotridecanoic acid
PFTeDA	Perfluorotetradecanoic acid
PFHxDA	Perfluorohexadecanoic acid
PFODA	Perfluorooctadecanoic acid
PFBS	Perfluorobutanesulfonic acid
PFPeS	Perfluoropentanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFHpS	Perfluoroheptanesulfonic acid
PFOS	Perfluorooctanesulfonic acid
PFNS	Perfluorononanesulfonic acid
PFDS	Perfluorodecanesulfonic acid
PFDoS	Perfluorododecanesulfonic acid
4:2 FTS	1H,1H, 2H, 2H-Perfluorohexane sulfonic acid
6:2 FTS	1H,1H, 2H, 2H-Perfluorooctane sulfonic acid
8:2 FTS	1H,1H, 2H, 2H-Perfluorodecane sulfonic acid
10:2 FTS	1H,1H, 2H, 2H-Perfluorododecane sulfonic acid
PFOSA	Perfluorooctanesulfonamide
NMeFOSA	N-methyl perfluorooctanesulfonamide
NEtFOSA	N-ethyl perfluorooctanesulfonamide
NMeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid
NEtFOSAA	N-ethyl perfluorooctanesulfonamidoacetic acid
NMeFOSE	N-methyl perfluorooctanesulfonamidoethanol
NEtFOSE	N-ethyl perfluorooctanesulfonamidoethanol
9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
11Cl-PF3OUdS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
ADONA	4,8-Dioxa-3H-perfluorononanoic acid
HFPO-DA	Hexafluoropropylene oxide dimer acid

Problem

As adverse human health effects have been associated with exposure, New Hampshire has promulgated groundwater and drinking water quality standards for some PFAS. Additionally, several states in New England have set standards and/or guidance values for some PFAS in drinking water. New Hampshire also has established guidance values for direct contact with soil impacted by select PFAS. There is currently (2022) a need to set maximum allowable soil PFAS concentration(s) that are protective of human health due to the potential for leaching of some PFAS to groundwater that is used as a drinking water source. Soils can contain some PFAS from atmospheric input or due to discharges from local PFAS sources. Therefore, precipitation over areas with contaminated soils, in combination with leaching of PFAS from soils, can result in contaminated surface water runoff and infiltration of contaminated water to underlying aquifers.

Objectives and Scope

The primary objective of this study is to conduct confirmatory characterizations of shallow soil PFAS concentrations in New Hampshire at selected sites, because concentrations in some areas were elevated relative to other samples in a previous project undertaken with NHDES (proposal Per- and Polyfluoroalkyl Substances (PFAS) Partitioning to Soils and Biosolids in New Hampshire, 2020; Tokranov and others, 2021) in fiscal year (FY) 2021. These sites are to be selected by USGS and NHDES based on the results of this previous sample collection effort.

Approach

USGS will be responsible for securing site access, with support from NHDES for Department of Natural and Cultural Resources (DNCR) parcels. Delays in obtaining access due to timing and/or support from NHDES will affect the timeline of project completion. USGS personnel will prepare sampling equipment and sample sets and mobilize to 15 former sampling sites to collect confirmatory samples from the previously sampled 0 to 6 inch and 6 to 12 inch depth intervals. The numbers of the intended samples to be collected can be found in Table 2. Sample collection protocols will follow the original standard operating procedure (SOP) established in the sample collection effort in FY2021, which include a visual classification of soils samples and a cleaning protocol (DRAFT_2022_NHDES_DMP_Attachment1.docx).

At each confirmatory site, a secondary sample set at the 0 to 6 inch and 6 to 12 inch interval depths will be collected from an alternate location nearby. The distance from the

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original/confirmatory site to the secondary location will be determined by the USGS and NHDES, on a case-by-case basis, taking into account feasibility of collection and presence of possible sources. USGS will submit samples to an NHDES contracted laboratory for analyses of PFAS, percent moisture (percent solids) and total organic carbon (TOC). USGS will subcontract protein and soil pH analyses.

Table 2. Sample totals. [USGS to subcontract soil pH and protein content analyses; PFAS, percent moisture and total organic carbon will be submitted to NHDES contracted laboratory; protein analysis will be run based on prior sample results and feasibility; Environmental samples will be in solid phase whereas quality control samples will primarily be in aqueous phase.]						
Sample type	Depth interval (in)	Soil pH	Percent moisture	PFAS analysis	Total organic carbon	Protein content
Environmental	0-6	30	30	30	30	30
Duplicate/Triplicate	0-6	4	4	4	4	4
Environmental	6-12	30	30	30	30	0
Duplicate/Triplicate	6-12	4	4	4	4	0
Quality control (source solution blank, field equipment blank)	N/A	N/A	N/A	9	9	1
Totals		68	68	77	77	35

Relevance and Benefits

The results of this study serve to build upon a previous larger study. They will provide NHDES with reliable and impartial information that also confirms data from selected sites from the original study that can be used to evaluate the risk posed by PFAS contamination in soils. This project aligns with the following goals of the USGS Strategic Science Directions (Evenson and others, 2012):

“Advancing our understanding of processes that determine water availability”

“Anticipating and responding to water-related emergencies and conflicts”

While this proposal is focused on soils, this work has direct and intended applications to water quality. Currently (2022) there is substantial widespread concern from citizens, scientists, and regulators over PFAS in the environment. The data set from this study will contribute to national needs to better understand the occurrence, distribution, and transport of PFAS in the environment.

Quality Assurance/Quality Control

Quality control (QC) samples including blanks, duplicates and triplicate samples are identified in Table 2 sample totals. QC samples comprise roughly 20% of total sample counts. Outside labs contracted by NHDES will be and/or have been evaluated in accordance with the Office of Water Quality Technical Memorandum 2014.01.

Products

A USGS ScienceBase data release will be published after the collection, review, and approval of the data.

Timeline

Task	Timeline in Months (M1 = Month 1; etc.)						
	M1	M2	M3	M4	M5	M6	M7
Secure site access	x	x	x				
Mobilization and sampling		x	x	x			
Data Review				x	x	x	
Reporting						x	x

The above timeline begins when the Joint Funding Agreement is signed between NHDES and USGS. Additionally, laboratory turn-around time may impact the timeline for publication of a data release.

Personnel

Employee	FY22 Budget
GS-12 Hydrologist	160
GS-11 Hydrologist	240
GS-9 Hydrologist	600
Data Management	40
Total	1040

Budget Summary

The total cost of the project is \$100,000. The USGS share will be \$25,000 in Cooperative Matching Funds and the NHDES share will be \$75,000. NHDES will directly contract with laboratories for PFAS, moisture, and TOC analyses described herein.

References

1. Evenson, E. J.; Orndorff, R. C.; Blome, C. D.; Böhlke, J. K.; Hershberger, P. K.; Langenheim, V. E.; McCabe, G. J.; Morlock, S. E.; Reeves, H. W.; Verdin, J. P.; Weyers, H. S.; Wood, T. M. *Strategic directions for U.S. Geological Survey water science, 2012-2022 - Observing, understanding, predicting, and delivering water science to the Nation*; 2012-1066; Reston, VA, 2012.
2. Tokranov, A.K., Schlosser, K.E.A., Marts, J.M., Drouin, A.F., Santangelo, L.M., and Welch, S.M., 2021, Per- and polyfluoroalkyl substances (PFAS) in New Hampshire soils and biosolids: U.S. Geological Survey General Information Product 208, 2 p., <https://doi.org/10.3133/gip208>.