NHDES Residuals Management Section: PFAS Sampling Update



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Outline

Who is RMS?

What Laws and Rules do we follow and govern?

- 2018 Septage and Sludge Volumes
- 2017 present Sludge Quality Certificate (SQC) PFAS Sampling
- 2022 Collection System PFAS Sampling
 - **Education Outreach**





Residuals Management Section

NHDES

- Water Division
 - Wastewater Engineering Bureau

Residuals Management Section

Anthony Drouin <u>Administrator</u> *Sludge Quality Certification Permitting* Judith Sears-Houston <u>Permitting &</u> <u>Enforcement</u> <u>Engineer</u> Site and Facility Permitting Wade Pelham <u>Sludge & Septage</u> <u>Coordinator</u> *Training and*

Outreach

James Talvy Inspector Sludge & Septage Hauler Permitting



Applicable State Rules for Residuals Management Options



Land Application - Env-Wq 800/Env-Wq 1600/RSA 485-A

Solid Waste - Env-Sw 100 through 2100, RSA 149-M

Incineration - Env-A 600, 40 CFR Part 60, Subpart O

Federal Regulations - 40 CFR Part 503



2018 NH Sludge, Septage, and Leachate

- NH Biosolids Recycled to Land Application : ~40,000 wet tons
- NH Sludge that was disposed at a landfill : ~50,000 wet tons
- NH Sludge that was incinerated : ~17,500 wet tons

*Sludge managed to lagoon not accounted for **NH WWTF, no paper mill sludge accounted for

- Over 100,000,000 gallons of septage was managed in NH
- 6 Operating lined landfills in NH : ~100,000,000 gallons of leachate ~80,000,000 gallons managed at WWTFs within state ~20,000,000 gallons managed at WWTFs out of state



Department of Environmental Services

The State of New Hampshire

VIA E-MAIL AND US MAIL

May 10, 2019

Mr. Ken Noyes/Mr. Colin Cardi Winnipesaukee River Basin Pro P.O.Box 68 Franklin, NH 03235 E-mail: kenneth.noyes@des.nh.

Re: Efforts to Respond to E (PFAS) and Providing C

Dear, Mr. Ken Noyes/Mr. Colin

As you may have seen i as Per- and Polyfluoroalkyl Subs this, the New Hampshire Depar Groundwater Bureau (DWGB) v legislative session, to establish

- perfluorooctan
- perfluorooctan
- perfluorononar
- perfluorohexan .

To prepare for the regu (RMS) has investigated the pote letter is sent to explain what NH actions we are taking to enhance an updated SQC with additional for PFAS compounds annually, related to PFAS in the SQC9706 Fact Sheet and a Training Annot

In the past two years, N biosolids. In our research we have compounds in the majority of sl established direct contact limit national average concentrations

NHDES Drinking Water wells in the vicinity of fields with sludge/biosolids facilities. Thes





FICATION

es, Water Division (NHDES) ire Sludge Management Rules

astewater Treatment Plant

6, 2015



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NEIWPCC / NEBRA PFAS Sampling Guidance

NEBRA Guidance:

Sampling and Analysis of PFAS in Biosolids and Associated Media v.20

June 2017 (v. 1.0), updated January 2018 (v. 2.0).



Acknowledgements

This guidance was written and produced by Michael Rainey, M.S. (Northwood, NH) with review and editing by members of the NEBRA PFAS Advisory Group and staff. Special thanks to New England Interstate Water Pollution Control Commission (Lowell, MA) for reliance on their biosolids sampling guide and to Professor Linda S. Lee, Ph.D., Purdue University (West Lafayette, IN).



What is a sampling plan and why is it necessary?

- Sampling program vs. sampling plan
- "Sampling plan is a blueprint for how a sampling program will be executed."

- First step in implementing a sampling program
- **Ensures representative samples and data**

Ensures the goals of the sampling program are meet



Need for Guidance

Developed to assist Operators:

"How-To" guide to producing comprehensive sampling plans

Educate operators about biosolids sampling, analysis, and QA/QC

Help operators be better consumers of lab services

Help operators comply with biosolids management rules

Will assist Regulators:

Better confidence in the data submitted to demonstrate compliance



Guidance Goals & Objectives

• Must be <u>useable</u> and <u>useful</u> for operators

Worksheets with fill-in-the-blanks, for producing a comprehensive sampling plan



 Appended resources to provide examples and compliance information

• Linkage between worksheet and text to provide quick reference while developing the plan



The Wastewater Treatment Plant Operators Guide to Biosolids Sampling Plans

NEIWPCC



Document Organization

- Ten Chapters -

Introduction

•

- **Elements of a Sampling Plan**
- Goals/Objectives of Sampling Plan
- Description of Facility Generating Sludge/Biosolids
- Data Quality Objectives

- Selection and Description of Sampling Points
- Sample Collection Procedures
- Sample Handling Procedures
- Evaluation for Completeness
- Record-Keeping and Reporting



Elements of a Sampling Plan

(Chapter 2)

• Facility description

Goals

- Data quality objectives
- Sampling point selection and description
- Sample collection procedures
- Sample handling procedures
- Evaluation of completeness

Record-keeping and reporting procedures





Your Sampling Plan

- Goals (Chapter 3)
- Facility description (Chapter 4)
- Data quality objectives (Chapter 5 & Appendix D)
- Sampling point selection (Chapter 6)
- Sample collection procedures (Chapter 7 & Appendix H)
- Sample handling procedures (Chapter 8 & Appendices D,H, & J)
 - **Evaluation of completeness (Chapter 9)**
 - **Record-keeping and reporting procedures (Chapter 10)**





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Category	Prohibited Items	Allowed Items
Pumps and Tubing	Teflon [®] and other fluoropolymer containing materials, pipe thread seal tape	High-density polyethylene (HDPE), low density polyethylene (LDPE), or silicone tubing, peristaltic pump or stainless steel submersible pump
Decontamination	Decon 90	Alconox [®] or Liquinox [®] , potable water followed by deionized rinse.
Sample Storage and Preservation	LDPE or glass bottles, PTFE-or Teflon [®] -lined caps, chemical ice packs, aluminum foil	Laboratory-provided sample container <i>preferred</i> ; or, HDPE or polypropylene bottles, regular ice sealed in plastic (polyethylene) bags to prevent melt water contaminating samples, thin HDPE sheeting
Field Documentation	Waterproof/treated paper or field books, plastic clipboards, non-Sharpie® markers, Post-It® and other adhesive paper products	Plain Paper, <i>metal</i> clipboard, Sharpies [®] (allowable per EPA, but other markers are not), pens
Clothing	New or unwashed clothing, clothing or boots made of or with Gore-Tex [™] or other synthetic water resistant and/or stain resistant materials, coated Tyvek [®] material, anything washed with fabric softeners.	Well-laundered synthetic or 100% cotton material, previously laundered clothing (preferably previously washed greater than six times) without the use of fabric softeners. Steel-toed or other boots made with polyurethane and/or polyvinyl chloride (PVC). Uncoated Tyvek.
Personal Care Products (for day of sample collection)	Cosmetics, moisturizers, hand cream, some sunscreens, insect repellants, and other related products, dental floss and plaque removers	Suncreens: Alba Organics Natural Yes to Cucumbers Aubrey Organics Jason Natural Sun Block Kiss My Face Insect Repellents: Jason Natural Quit Bugging Me Repel Lemon Eucalyptus Herbal Armor California Baby Natural Bug Spray BabyGanics Sunscreen and Insect Repellents: Avon Skin So Soft Bug Guard-SPF 30
Food and Beverage	Pre-packaged food, fast food wrappers or containers, aluminum foil, non-stick cookware & containers	Bottled water or hydration drinks.



EQUIPMENT CHECKLIST - Biosolids / Residuals / Solids

1

1) Sample handling and collection

a. Nitrile gloves

b. Stainless steel bucket

c. 500 mL Polypropylene or HDPE container

d. Stainless steel trowel

2) Transporting and preservation

a. Sample containers 15 ml graduated polypropylene tubes

b. Sample cooler with ice

3) Sample ID and Documentation

a. Markers and pens

b. Sample container labels

c. Custody seals

d. Chain of custody/sample submittal form

e. Field notebook/ sample log/field data sheet

4) Cleaning equipment

a. Disposable towels

b. Soap

c. Scrub brush

d. Tap water

e. Deionized water

f. Methanol

g. Plastic wrap

5) Ensure that all equipment, supplies, and other materials assembled for sampling, including clothing worn by sampling staff, will not contaminate samples with PFAS extraneous to the residuals being sampled. See Appendix D-4 for materials that may contain PFAS and that should be avoided.



PPE and Sampling clothing











Sample equipment cleaning & sampling

- Rinse equipment with warm tap water to remove most solids.
- Using a brush and PFAS free lab detergent to scrub the equipment to remove all residues
- After scrubbing, rinse the equipment three times with tap water (make sure all detergent is removed).
- The tap water rinse should be followed by rinsing three times with PFAS free deionized water.
- To store, buckets, beakers and other containers can be inverted in a clean, dry location.
- Just prior to sampling, rinse the sample equipment three times in PFAS free deionized water. Take equipment blank rinsate samples to check if your cleaning process is preventing cross contamination.









2022 NHDES RMS SQC Class A Biosolids PFAS Investigation Data



2022 NHDES RMS SQC Class B Biosolids PFAS Investigation Data



2022 NHDES RMS SQC Short Paper Fiber PFAS Investigation Data



2022 NHDES RMS SQC Drinking Water Treatment Residuals PFAS Investigation Data

































WWTF Residential Community Collection System PFAS Total Oxidizable Precursor Assay



0.00

100.00 200.00 300.00

400.00





What's Next?









Thank you! Any Questions?

Anthony F. Drouin

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