



Maine WWTP Effluent PFAS Study

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Coordinator
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MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Protecting Maine's Air, Land and Water

“An Act to Prevent Further
Contamination of Waters of the
State with so-called Forever
Chemicals”

DEP P.L. 2021 Chapter 641

April 20, 2022

Sampling for perfluoroalkyl and polyfluoroalkyl substances.
Notwithstanding section 414-A or any other provision of law to the contrary, the *Department by written notification may require a person licensed by the department to discharge wastewater to groundwater or any waters of the State to sample the effluent discharged for perfluoroalkyl and polyfluoroalkyl substances and to report the sample data to the department.* Upon receipt of the written notification and as directed by the department, the person shall conduct the required sampling of the effluent for perfluoroalkyl and polyfluoroalkyl substances and report the sample data to the department.

As used in this subsection, "perfluoroalkyl and polyfluoroalkyl substances" has the same meaning as in Title 32, section 1732, subsection 5-A.



Additionally:

Land application of septage [including biosolids]; prohibitions.

Notwithstanding any provision of law to the contrary:

- A. The department may not issue a new license or permit authorizing a person to apply or spread septage at any location in the State; and
- B. A person licensed or permitted by the department to apply or spread septage at one or more locations in the State may not apply septage at a location authorized under that license or permit if the department provides to the person a written determination that, based on testing conducted at or in close proximity to the location, the department has determined that the concentration of perfluoroalkyl and polyfluoroalkyl substances in groundwater at that location or in drinking water sources in close proximity to that location exceeds the applicable drinking water standard for perfluoroalkyl and polyfluoroalkyl substances.



The Hammer Falls:

Prohibitions on land application of sludge and sale and distribution of compost and other agricultural products and materials containing sludge and septage. This subsection governs the land application of sludge and the sale and distribution of compost and other agricultural products and materials containing sludge and septage.

- A. Notwithstanding any provision of law to the contrary, except as provided in paragraph B, a person **may not**:
- (1) Apply to or spread on any land in the State:
 - (a) ***Sludge generated from a municipal, commercial or industrial wastewater treatment plant;***
 - (b) ***Compost material that included in its production sludge generated from a municipal, commercial or industrial wastewater treatment plant or septage;*** or
 - (c) ***Any other product or material*** that is intended for use as a fertilizer, soil amendment, topsoil replacement or mulch or for other similar agricultural purpose is derived from or contains sludge generated from a municipal, commercial or that industrial wastewater treatment plant or septage; or



The Hammer Falls:

(2) Sell or distribute in the State:

- (a) Compost material that included in its production sludge generated from a municipal, commercial or industrial wastewater treatment plant or septage; or
- (b) Any other product or material that is intended for use as a fertilizer, soil amendment, topsoil replacement or mulch or for other similar agricultural purpose that is derived from or contains sludge generated from a municipal, commercial or industrial wastewater treatment plant or septage.

Drinking Water PFAS Standards

The interim “Maine 6” Standard:

The cumulative total of the concentrations of **PFOA**, **PFOS**, **PFHxS**, **PFNA**, **PFHpA**, and **PFDA** may not exceed **20 ng/l** (ppt).

The recently proposed Federal Standard:

PFOA < or = **4 ng/l**

PFOS < or = **4 ng/l**

and the Hazard Index (all ng/l):

HFPO-DA (GenX) + **PFBS** + **PFHxS** + **PFNA** < or = **1.0**
10 **2000** **9** **10**



DEP DWQM Long Term Goal

The Department's intent is to manage Clean Water Act – regulated PFAS in MEPDES Permits the same as it would any other regulated toxic substance. Discharges will be addressed relative to Acute WQ, Chronic WQ, Human Health WQ (and fish tissue), and TMDL considerations.

To the best of our current understanding it is likely that EPA will be proposing quantitative Human Health Water Quality Criteria in some form for the same 6 PFAS entities as appear in the Proposed Federal Drinking Water Standard:

PFOA, PFOS, HFPO_DA (GenX), PFBS, PFHxS, PFNA

PFHpA and PFDA will remain on our radar in Maine for now.



The Study

Planning and project development started in earnest in April, 2022, though preparatory work was taking place by the beginning of the year. A scope of work developed, Federal funding was acquired, and an analytical lab selected (proximity, sample management capacity and a state-wide courier service were critical considerations).

EPA Method 537.1 M with isotope dilution was our method of choice as *determined at that time*. This provides data for 28 PFAS species, including the 6 (8) most relevant going forward. Grab sampling is used.

105 public and 19 private facilities were selected, representing a comprehensive cross-section of our direct, spray irrigation, in-ground, dischargers, including a few indirect dischargers.

We determined that facility personnel would do (or arrange for) their own sampling. Subsequently, in-person DEP training sessions were held in each of our 4 regional offices, some individual training took place, and relevant materials were made available from July – September, 2022.



The Study

We determined that DEP BRWM personnel would perform the quarterly monitoring well sampling at the public spray irrigation and in-ground facilities. That work commenced in September 2022, and will continue as needed through September, 2023.

Dischargers commenced once-a-month effluent sampling in October, 2022. *In general* this is intended to continue until each given facility has accumulated a total of 10 sets of data, though there are some exceptions. We elected to do this so that our Licensing Unit would have a robust set of data on which to base “reasonable potential to exceed” calculations if/when needed in the future.

Analytical data (Level 2 reports) received by DEP go through in-house technical QA/QC review before being added to our data base.

The analytical, courier, and data management costs for the public facilities are being paid for through our Federal grant. The private facilities must shoulder those same costs themselves.

The Data

We currently have at least some effluent data from all of our facilities, from October 2022 through as recently as April 2023. We have groundwater data from Q3 and Q4, 2022, and are starting to receive Q1, 2023. Current Departmental policy dictates that specific facility data will be generally available to the public through our DEP website, though that aspect of the project/study is still being finalized as we speak. That link ***should*** be available in May.

For this status summary I will provide average “Maine Sum of 6” results in a statistically generalized format, without specific reference to any given facility. ***Keep in mind that this data from our Study does not in any way indicate a specific facility’s compliance with their MEPDES permit.***



The Data

Public Wastewater Treatment Plant Effluent “Maine 6”, ng/l:

Maximum	980 (study maximum = 1650)
Average	55
Median	19
Minimum	5.7

Private Wastewater Treatment Plant Effluent “Maine 6”, ng/l:

Maximum	206 (study maximum = 330)
Average	40
Median	19
Minimum	5.0



The Data

Treatment plant groundwater Monitoring Well “Maine 6”, ng/l:

Maximum	25 (study maximum = 29)
Average	4.9
Median	1.4
Minimum	Non-Detect

Issues/Follow-on

Proposed Federal Standards vs. “Maine 6”. *We’ve got all the data*

Landfills, landfills, landfills.

Reporting Limit for the 537.1 M HFPO-DA (GenX) analysis.

Equivalency of EPA 537.1 M and EPA 1631?

Grab vs. composite sampling.

The Department is currently developing a second phase of this Study, which we anticipate will commence this fall. Our intent is to focus on a small selection (10 – 15) of the public facilities participating in the current phase and do a more detailed process, collection system, and industrial user analysis at each one.



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