Calculating the Annual Rate of PFAS Release to Maine's Navigable Waters, not reported in EPA Toxics Release Inventory (TRI) Reporting

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Abstract

In 2021, the Maine Legislature passed a law that required all facilities licensed to discharge wastewater to the navigable waters of the State of Maine to sample their effluent discharge for Polyfluoroalkyl and Perfluoroalkyl substances (PFAS) and report sample data to the Maine Department of Environmental Protection (DEP). This report uses the resulting data of flows and PFAS concentrations to determine the annual rate of PFAS discharge to Maine's Navigable Waters. None of the PFAS measured in this State evaluation was reported in EPA Toxics Release Inventory (TRI) reporting, presumably because it was not required to be reported as part of TRI. However, the rate of PFAS release to Maine's navigable waters (Maine's fresh water and tidal water environment) is significant in magnitude. Included are examples to show the magnitude of the discharge rate, and recommendations for ongoing monitoring and management of PFAS wastewater effluent discharge into Navigable Waters of Maine and all US states. This report does not include wastewater effluent discharged to subsurface waters via spray irrigation or subsurface disposal.

Definitions:

DE MINIMIS: referring to matters that are too small or insignificant for regulatory attention.

DW: Drinking Water

LICENSED FACILITY: a facility licensed by the MEDEP to discharge wastewater to Maine groundwater or surface water.

MCL: Maximum Contaminant Level (in drinking water)

MEDEP: Maine Department of Environmental Protection

NAVIGABLE WATERS OF THE US: Coastal or inland waterbodies (rivers, lakes, canals) subject to tidal ebb and flow, or those used – past, present, or future – for international/foreign commerce. In this report, this term is used synonymously with "Maine's Navigable Waters".

PFAS: Per- and polyfluoroalkyl substances are a group of synthetic organofluorine chemical compounds that have multiple fluorine atoms attached to an alkyl chain; 7 million such chemicals are listed in PubChem. Widespread use of PFAS began in 1938 with the invention of Teflon, a fluoropolymer coating that resists heat, oil, stains, grease, and water. They are used in a wide variety of products including waterproof fabric, yoga pants, carpets, shampoo, mobile phone screens, wall paint, furniture, adhesives, food packaging, firefighting foam, electrical insulation, and cosmetics. Many PFAS such as PFOS and PFOA pose health and environmental concerns because they are persistent organic pollutants, and are consequently often called "forever chemicals". (Wikipedia)

PFAS6: The State of Maine's interim drinking water standard for PFAS, See Appendix E

PFOS: Perfluorooctanesulfonic acid is a synthetic chemical used to make products resistant to water, grease, and stains, and is a persistent environmental pollutant.

POTW: Publicly Owned Treatment Works, or generally, publicly owned wastewater treatment facilities

PPB: Parts per billion

PPT: Parts per trillion

PWS: Public Water System

SPECIAL CHEMICALS OF CONCERN: A TRI chemical identification that limits the use of some de minimis exemptions from TRI reporting.

THE DEPARTMENT: The State of Maine Department of Environmental Protection.

TRI (TOXICS RELEASE INVENTORY): a federal EPA program requiring annual reporting of identified toxic substance quantities released to land, air, and water of the US.

WATERS OF THE STATE: means any and all surface and subsurface water that are contained within, flow through, or under, or border upon this State (Maine) or any portion of the State, including marginal and high seas (Maine Revised Statutes). Note: although this State definition includes "subsurface water", this report does not include wastewater effluent discharged to subsurface water.

Narrative

In 2021, the State of Maine Legislature passed (public law) P.L. 2021, Ch. 641 which required any person (or entity) licensed by the Department (Maine Department of Environmental Protection) to discharge wastewater to Waters of the State to sample the effluent discharge for Perfluoroalkyl and Polyfluoroalkyl substances and to report the sample data to the Department (Appendix A). In June of 2023, I contacted the MEDEP to obtain results of the sampling, if it was available. On 6/29/2023 I received an email from the ME DEP with an EXCEL file dated 6/27/23 that included the initial results of wastewater effluent sampling to date, and included flow data along with PFAS6 sample results (Appendix B).

In November of 2023, the Department released a final summary report: *"Maine Department of Environmental Protection, P.L. 2021, ch. 641,*

Wastewater Effluent Monitoring for Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) PFAS Sum of Six Report November 2023."

https://www.maine.gov/dep/spills/topics/pfas/PL2021%20ch641%20PFAS%20Sum%20of%206%20Report-%20November%202023_Final_11-21-23.pdf

The final summary report average PFAS6 values (link above) were slightly different than those included in the initial results provided on 6/27/23. Also, only the initial summary report of 6/27/23 (Appendix B) included average flow values; flow values were not included in the final report linked above. As a result, to calculate the Annual Rate of PFAS Release to Maine's Navigable Waters, not reported in EPA Toxics Release Inventory (TRI) reporting, flow rates from the 6/27/23 EXCEL file (Appendix B) and final PFAS6 sample results from the November 2023 Summary Report, linked above, were used (Appendix C).

Three of the fourteen commercial facilities that reported data closed by the time of this report and their data is not included in the rate calculation of this report; the flow of PFAS from these three closed facilities to Maine's Navigable Waters no longer exists.

Wastewater effluent discharges to subsurface water of the State are not included in this report.

With regard to determining how much PFAS it takes to "contaminate" water, the drinking water maximum contaminant level (MCL) is used in this report, even if wastewater effluent will not likely be water used for drinking, or as part of raw water treated for drinking purposes; in Maine there are very few public water system intakes downstream of wastewater effluent discharges. In addition, any water taken into a public water system must be treated to meet Federal and State drinking water regulations in order to be safe for drinking. Using the drinking water MCL is a measure used ubiquitously as a measure of water contamination level that is easily understood.

For the drinking water MCL used in this report, Maine's enforceable level of 20 ppt for PFAS6 is less stringent than the newly adopted (2025) federal MCL for PFAS. In 2025, the EPA adopted a new MCL for PFAS which includes 4 ppt for

PFOA and 4 ppt for PFOA, 10 ppt for PFHxS, PFNA, HFPO-DA (Gen-X) and a fraction (Hazard Index) of four other PFAS chemicals. Considering the use of Maine's PFAS6 data as a measure for evaluating wastewater effluent discharge, data available for this report does not include quantities of each of the six PFAS chemicals individually that are within the PFAS6 data; data only includes total PFAS6 values. Without knowing the quantity of each PFAS6 chemical in each sample, it is not possible to convert the Maine PFAS6 measurements to the newly adopted 2025 federal EPA MCL for PFAS. However, it is reasonable to conclude that if the Maine adopted drinking water standard of 20 ppt is used as a measure of water contamination, then measurements exceeding 20 ppt PFAS6 will very likely exceed the newly adopted federal EPA MCL for drinking water. Therefore, the Maine drinking water standard for PFAS6 of 20 ppt can be used throughout this study as "the drinking water MCL" to conservatively assess the amount of PFAS that exceeds the current federal drinking water MCL.

RESULTS

1. There were 124 public and commercial facilities licensed for wastewater discharge that provided data required by P.L. 2021 ch. 641 (link page 3, infra), including facilities discharging to subsurface water.
2. 105 licensed facilities discharged wastewater to Maine's Navigable Waters.
3. 14 of the 105 facilities were commercial (non-public)
4. Even after EPA law identified PFAS chemicals as "Special Chemicals of Concern" for TRI reporting for 2024, no commercial entities in Maine reported TRI releases of PFAS for 2024; even with TRI reporting, there are still significant releases of PFAS to the environment that are exempt from TRI reporting, one of which is the release of PFAS to the environment by a POTW. https://www.epa.gov/toxics-release-inventory-tri-program

5. In 2023, 55% of the total release of PFAS to Maine's Navigable Waters was attributed to only two commercial facilities (Appendix C), and those two facilities are now closed and no longer have wastewater discharge.
6. As of 2026, 11 commercial facilities with existing wastewater effluent discharges contribute 26 % of the total PFAS discharged to Maine's Navigable Waters. The remaining 91 facilities are mostly publicly owned treatment works (some may be privately owned) that contribute 74% of the PFAS discharged to Maine's Navigable Waters (Appendix C).
7. The average PFAS6 concentration of wastewater effluent discharged to Maine's Navigable Waters is 47.2 ppt, which is 136% higher in PFAS concentration than Maine's PFAS6 enforceable limit for drinking water of 20 ppt (Appendix C); the average PFAS concentration of wastewater effluent discharge to Maine's navigable waters is significantly higher in PFAS concentration than what is allowable for drinking purposes (Appendix C).

Annual Rate of PFAS Discharge to Maine Navigable Waters

Facility Type	PFAS Discharge (lbs/yr)	Percent of Total
11 Commercial Facilities	6.08	26%
91 Noncommercial Facilities (POTWs)	17.35	74%
Total	23.43	

(Appendix C)

On an annual basis as of 2026, the amount of PFAS (23.43 pounds) released into Maine's Navigable Waters is enough to contaminate (at minimum) 140,515,191,546 gallons of water beyond the current federal drinking water MCL **per year** (Appendix D).

How much is 140 billion gallons of PFAS contaminated drinking water?

A gallon of water fits into a cube that has 6-inch sides. If 140 billion 6" cubes (gallons) of PFAS contaminated water were lined up in a row, that line would circle the earth 546 times (Appendix D).

140 billion gallons of water would fill 212,902 Olympic sized swimming pools which, if lined up in a row, the line of pools would go from San Diego, California to Paris, France (Appendix D).

According to the US CDC, the average adult drinks 44 oz of water per day. With the US population of 331,900,000 people, the amount of PFAS discharged annually into Maine's Navigable Waters has the capacity to contaminate an amount of water equal to that consumed by the entire US population in 3.4 years. (Appendix D).

In actuality, the PFAS released into Maine's Navigable Waters has very little potential to contaminate the water of Public Water Systems that provide drinking water to the public; very few PWSs in Maine have raw water intakes that may be hydraulically connected to rivers that have licensed wastewater discharges entering the rivers. However, PFAS is persistent in the environment and may have long term environmental impacts that are not known at this time. As an example of how persistent PFAS is in the environment, using MEDEP data from Fairfield, Maine, land spreading of 40,027 cubic yards of PFAS contaminated wastewater treatment sludge took place between 1980 and 1994. In and around the year 2021, the MEDEP tested the soils of several land-spread fields in Fairfield, Maine for PFOS and obtained values of 159, 180, 242, 337, and 457 ppb. These levels may be high enough to initiate a "preliminary study" of these fields as potential superfund sites; the levels of PFAS in these fields is still very high after land spreading occurred between 27 and 41 years in the past. (Maine DEP) also (https://doi.org/10.31224/6397)

CONCLUSION

The amount of PFAS being discharged annually into Maine's Navigable Waters has enormous potential for water pollution. The annual discharge of PFAS into Maine's Navigable Waters is large enough to annually pollute 140 billion gallons of water beyond what is considered safe to drink.

It is very likely that many other states in the US have PFAS discharge rates to Navigable Waters of the US that far exceed Maine's rate of 23.43 pounds per year. In addition, other counties are likely to have PFAS discharge rates that far exceed the total rate of discharge to the Navigable Waters of the US.

Even if the PFAS discharged into Navigable Waters of the US ultimately ends up in the ocean, the long-term accumulation of PFAS in streams, rivers, and oceans is, at very least, concerning enough to warrant routine monitoring of PFAS discharges of all discharging facilities for as long as PFAS remains in use, plus many years. The national TRI program has limitations (de minimis exemptions) on what types of facilities must report; POTWS are not required to report in the TRI program, yet 74% of Maine's annual PFAS discharge to navigable water comes from POTWs.

RECOMMENDATIONS

In the US, every state should be required to routinely (every three years) measure PFAS levels in wastewater effluent discharge to Navigable Waters of the US; there should be national ongoing monitoring requirements. Since PFAS is a very persistent environmental toxin, ongoing monitoring is necessary to provide a baseline, and to support routine performance measurement of continuous improvement efforts made to reduce the amount of PFAS discharged to Navigable Waters of the US over time. Similarly, PFAS wastewater effluent discharge monitoring requirements should be adopted worldwide.

Appendix A: State of Maine Legislature P.L. 2021, Ch. 641

Appendix B: Initial Results of Wastewater Effluent Sampling for PFAS, Including Flows

Appendix C: EXCEL File with Data and Results

Appendix D: Calculations

Appendix E: Maine MCL and Federal MCL

Appendix A: State of Maine Legislature P.L. 2021, Ch. 641

LAWS

OF THE

STATE OF MAINE

AS PASSED BY THE

ONE HUNDRED AND THIRTIETH LEGISLATURE

SECOND SPECIAL SESSION
September 29, 2021

SECOND REGULAR SESSION
January 5, 2022 to May 9, 2022

THE GENERAL EFFECTIVE DATE FOR
SECOND SPECIAL SESSION
NON-EMERGENCY LAWS IS
DECEMBER 29, 2021

THE GENERAL EFFECTIVE DATE FOR
SECOND REGULAR SESSION
NON-EMERGENCY LAWS IS
AUGUST 8, 2022

PUBLISHED BY THE REVISOR OF STATUTES
IN ACCORDANCE WITH THE MAINE REVISED STATUTES ANNOTATED,
TITLE 3, SECTION 163-A, SUBSECTION 4.

Augusta, Maine
2022

fere or attempt to intentionally interfere with the exercise or enjoyment by any other person of rights secured by the United States Constitution or the laws of the United States or of rights secured by the Constitution of Maine or laws of the State by any of the following conduct:

A. Engaging in the physical obstruction of a building;

B. Making or causing repeated telephone calls to a person or a building, whether or not conversation ensues, with the intent to impede access to a person's or building's telephone lines or otherwise disrupt a person's or building's activities;

C. Activating a device or exposing a substance that releases noxious and offensive odors within a building; or

D. ~~After~~ During the posted hours of operating after having been ordered by a law enforcement officer to cease such noise, at any time after the order, intentionally making noise that can be heard within a building and with the further intent either:

(1) To jeopardize the health of persons receiving health services within the building; or

(2) To interfere with the safe and effective delivery of those services within the building.

Violation of this subsection is a Class E crime.

Sec. 3. 5 MRSA §4684-B, sub-§3 is enacted to read:

3. Knowing violation. It is a violation of this subsection for any person to knowingly enter into, remain in or create an obstruction in a medical safety zone during the posted hours of operation of the provider of a health service, with the following exceptions:

A. A person entering or leaving the building;

B. A person using the public sidewalk or street right-of-way adjacent to the building solely for the purpose of reaching a destination other than the building;

C. A law enforcement officer, firefighter, emergency medical services provider, employee of a construction company or a utility or employee of a public works department or other municipal service acting in the course of employment; or

D. An employee or agent of the health service or the operator of the building acting in the course of employment.

Violation of this subsection is a Class E crime.

Sec. 4. 5 MRSA §4684-B, sub-§4 is enacted to read:

4. Demarcation. At the request of the provider of a health service, a municipality shall mark the boundary of the medical safety zone for the building in which the provider of a health service operates by painting lines or placing temporary markers. The municipality shall mark the boundary not later than the 30th day after the date the municipality receives a request under this subsection. The provider of a health service shall post or cause to be posted at least one sign at the boundary of the medical safety zone that contains:

A. The following notice written in a clear and conspicuous manner: "HEALTH CARE FACILITY – NO STANDING IN THIS ZONE"; and

B. A reference to subsection 3.

See title page for effective date.

CHAPTER 641

H.P. 1417 - L.D. 1911

An Act To Prevent the Further Contamination of the Soils and Waters of the State with So-called Forever Chemicals

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 38 MRSA §413, sub-§12 is enacted to read:

12. 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.

Sec. 2. 38 MRSA §1304, sub-§20 is enacted to read:

20. Land application of septage; 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.

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

Sec. 3. 38 MRSA §1305, sub-§7, as enacted by PL 1983, c. 726, §2, is repealed.

Sec. 4. 38 MRSA §1306, sub-§2, as amended by PL 1985, c. 612, §19, is repealed.

Sec. 5. 38 MRSA §1306, sub-§7 is enacted to read:

7. 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 that is derived from or contains sludge generated from a municipal, commercial or industrial wastewater treatment plant or septage; or

(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.

B. The prohibitions in paragraph A do not apply to:

(1) The disposal or placement at a solid waste landfill of any of the materials that are prohibited from application, spreading, sale or distribution by this subsection;

(2) The land application of or the sale or distribution of compost material or other agricultural product or material derived from or containing residuals generated as a result of the processing or cultivation of food, food waste, crops or vegetative material, the brewing of malt liquor, the fermenting of wine or hard cider or the distilling of spirits, including, but not limited to, blueberries, apples, grapes, potatoes, seaweed, fish and seafood and spent grain or malt, provided that such residuals are not mixed with sludge from a municipal, commercial or industrial wastewater treatment plant, septage, sewage or sanitary wastewater prior to or during land application or the production of the compost material or other agricultural product or material; or

(3) The land application of or the sale or distribution of compost material or other agricultural product or material derived from or containing sludge resulting from the production of precipitated calcium carbonate.

Sec. 6. 38 MRSA §1310-B-1, sub-§2, ¶A, as enacted by PL 2021, c. 478, §1, is amended to read:

A. The fund ~~is funded by the fee under subsection 3 and any~~ may accept revenue from any source, public or private ~~funds~~, that may be available for carrying out the purposes of the fund. The department shall deposit with the Treasurer of State to the credit of the fund money in the fund not currently needed by the department to carry out the purposes of the fund, which may be invested as provided by law. Interest earned on investment of money under this paragraph must be credited to the fund.

Sec. 7. 38 MRSA §1310-B-1, sub-§3, as enacted by PL 2021, c. 478, §1, is repealed.

Sec. 8. 38 MRSA §1310-B-1, sub-§4, as enacted by PL 2021, c. 478, §1, is amended to read:

4. Rules. The board ~~shall~~ may adopt rules necessary for the administration of the fund and any underlying program or purpose under or funded by the fund ~~and for the assessment and collection of the fee under subsection 3~~. Rules adopted pursuant to this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

Sec. 9. PL 2021, c. 478, §2, sub-§4 is repealed.

Sec. 10. Department of Environmental Protection to develop plan to prohibit land application of septage; report. The Department of Environmental Protection shall study methods of and develop a plan for prohibiting the land application of septage in the State. The plan must include, but is not limited to, identification of the available capacity at wastewater treatment plants or other treatment or disposal facilities in the State or regionally to manage the septage that is currently land applied in the State, determination of the capacity anticipated to be necessary to manage that septage if land application is prohibited in the State, development of recommendations for supporting and funding the development of such additional management capacity if necessary and development of recommendations concerning a framework and appropriate time frame for prohibiting the land application of septage in the State.

On or before January 15, 2023, the department shall submit to the joint standing committee of the Legislature having jurisdiction over environment and natural resources matters a report containing its findings and recommendations, including any suggested legislation, resulting from the study under this section. After receiving the report, the joint standing committee may report out legislation to implement any such recommendations.

As used in this section, "septage" has the same meaning as in the Maine Revised Statutes, Title 38, section 1303-C, subsection 27.

Sec. 11. Appropriations and allocations. The following appropriations and allocations are made.

ENVIRONMENTAL PROTECTION, DEPARTMENT OF

Land Application Contaminant Monitoring Fund N385

Initiative: Provides deallocation as a result of the repeal of the septage and sludge handling fee.

OTHER SPECIAL REVENUE FUNDS	2021-22	2022-23
All Other	($1,799,500)	($3,599,500)
OTHER SPECIAL REVENUE FUNDS TOTAL	($1,799,500)	($3,599,500)

See title page for effective date.

CHAPTER 642

H.P. 1517 - L.D. 2035

An Act To Make Changes to the Laws Regarding Licensure of Certain Individuals from Other Jurisdictions

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 10 MRSA §8003, sub-§2-A, ¶O, as enacted by PL 2021, c. 167, §3, is amended to read:

O. To exercise discretionary authority, after consultation with the appropriate licensing board, commission or personnel administering a regulatory function of the office, to waive, on a case-by-case basis in situations of extreme and demonstrated hardship, documentation requirements for licensure submitted by applicants for licensure educated in or with relevant experience or licensure in other jurisdictions, including other states, United States territories, foreign nations and foreign administrative divisions, as long as the waiver does not reduce the requisite standards of proficiency for the licensed profession or occupation. The Director of the Office of Professional and Occupational Regulation may adopt rules to implement this paragraph. Rules adopted pursuant to this paragraph are routine technical rules pursuant to Title 5, chapter 375, subchapter 2-A;

Sec. 2. 10 MRSA §8003, sub-§2-A, ¶P, as enacted by PL 2021, c. 167, §4, is amended to read:

P. To exercise discretionary authority, after consultation with the appropriate licensing board, commission or personnel administering a regulatory function of the office, to waive, on a case-by-case basis in situations of extreme and demonstrated hardship, examination fees and license fees set pursuant to paragraph D for applicants for licensure educated in or with relevant experience or licensure in other jurisdictions, including other states, United States territories, foreign nations and foreign administrative divisions. The Director of the Office of Professional and Occupational Regulation may adopt rules to implement this paragraph. Rules adopted pursuant to this paragraph are routine technical rules pursuant to Title 5, chapter 375, subchapter 2-A;

Sec. 3. 10 MRSA §8003-H, first ¶, as enacted by PL 2021, c. 167, §10 and c. 289, §1, is amended to read:

~~The Office of Professional and Occupational Regulation, referred to in this section as "the office,"~~ Notwithstanding any provision of chapter 951 or Title 32 to the contrary that pertains to the regulatory functions of

Appendix B: Initial Results of Wastewater Effluent Sampling for PFAS, Including Flows

Facility Name	MEPDES #	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)
South Portland WRP	ME0100633	10/03/22	3.97	32.2	11/01/22	5.3887	37.8	12/01/22	8.2526	32.4	01/03/23	5.9515	36.3	02/01/23	8.037	32.1	03/01/23	5.1501	43.1
Southwest Harbor Water & Sewer District	ME0100641	10/12/22	0.108	16.3	11/15/22	0.247	17.1	12/13/22	0.248	18.9	01/12/23	0.135	14.3	02/13/23	0.199	12.3	03/13/23	0.16	13
Tate & Lyle Ingredients Americas LLC	ME0002216	10/18/22	0.0256	4.93	11/16/22	0.0387	Not Deteceted	12/15/22	0.0455	Not Detected	01/18/23	0.0359	9.69	02/15/23	0.0358	Not Detected	03/16/23	0.042	Not Detected
Thomaston Water Poll Cntrl Auth	ME0100668	10/04/22	0.152	49.5	11/02/22	0.828	34.3	12/05/22	0	31.3	01/05/23	0	30.9	02/03/23	0	46	03/03/23	0	39.8
Twin Rivers Paper Company LLC	ME0000159	10/25/22	11.85	115	11/11/22	13.17	9.6	12/26/22	10.3	29.7	01/31/23	10.4	14.6	02/22/23	11.1	215	03/31/23	9.51	7.78
Unity Utilities District	ME0101150	10/25/22	0.3408	33.4	10/27/22	0.3421	34.2	11/02/22	0.2368	33.4	11/03/22	0.3056	35.5	04/03/23	0.5454	34.3	04/05/23	0.5467	30.3
Verso Androscoggin LLC	ME0001937	10/11/22	9.5	29.2	11/17/22	9.3	75.2	12/14/22	9.7	61.7	01/18/23	7.8	59.6	02/22/23	5.1	186	03/16/23	10.6	85.9
Vinalhaven WWTP	ME0102491	10/26/22	0.018	11.8	11/01/22	0.018	17.2	12/02/22	0.023	10.8	01/04/23	0.015	12	02/01/23	0.016	14.7	03/01/23	0.008	13.2
Washburn Water And Sewer District	ME0101028	10/17/22	0.053	8.11	11/15/22	0.122	6.78	12/14/22	0.169	6.42	01/17/23	0.028	6.6	02/15/23	0.02	9.98	03/14/23	0.041	11
Wells Sanitary District	ME0100790	10/03/22	0.684	15.1	11/01/22	0.68	15.6	12/01/22	0.785	18.2	01/03/23	0.723	11.9	02/01/23	1.061	11.1	03/01/23	0.535	8.65
Wilton WWTP	ME0101915	11/07/22	0.239	8.35	12/06/22	0.292	7.25	01/09/23	0.308	12.9	01/09/23	0.308	12.9	02/07/23	0.298	10.9	03/08/23	0.282	6.9
Winter Harbor Utilities District	ME0100731	10/13/22	0.0153	12.3	11/15/22	0.0504	8.34	12/12/22	0.0503	5.36	01/12/23	0.0292	5.62	02/13/23	0.067	7.61	03/16/23	0.037	6.61
Wiscasset WWTP	ME0100757	10/04/22	0.148	280	11/02/22	0.158	39.8	12/02/22	0.441	16.1	01/04/23	0.267	22.7	02/02/23	0.295	18.6	03/02/23	0.218	21.5
Woodland Pulp LLC	ME0001872	10/14/22	27.06	Not Detected	11/14/22	24.4	Not Detected	12/14/23	23.3	10.6	01/18/23	23.1	15.5	02/14/23	20.8	8.52	03/15/23	21	8.31
Yarmouth WPCF	ME0100765	10/04/22	0.459	16.4	11/01/22	0.63	22	12/01/22	1.14	27.5	01/03/23	0.655	16.6	02/01/23	0.759	16.4	03/01/23	0.566	14.3
York Sewer District	ME0101222	10/03/22	0.896	18.8	11/01/22	1	15.9	12/01/22	1.29	18.4	01/03/23	1.29	13.1	02/01/23	1.86	12.3	03/01/23	0.84	14.3

Facility Name	MEPDES #	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)
ND OTM (Old Town Mill)	ME0002020	12/27/22	12.4	14.1	01/10/23	12	36.9	02/14/23	12.7	15.3	03/23/23	12.09	11						
ND Paper (Rumford Mill)	ME0002054	11/01/22	31.15	Not Detected	11/22/22	31.6	Not Deteceted	12/20/22	34.79	23.1	01/10/23	-	5.18	02/28/23	30.54	Not Detected	03/23/23	31.5	2.22
Newport Sanitary District	ME0100447	10/11/22	0.135	25	11/09/22	0.218	22.1	12/09/22	0.609	28.6	01/11/23	0.274	22.6	02/08/23	0.205	19.5	03/09/23	0.261	22.7
North Berwick Sanitary Dist	ME0101885	11/22/22	0.5827	50.4	11/30/22	0.6283	44.1	12/05/22	0.7324	50.1	12/12/22	0.7096	49.8	02/16/23	0.4854	33.1	02/22/23	0.4536	45.5
Norway WWTF	ME0100455	11/03/22	0.965	34.3	12/03/22	0.256	30.2	01/04/23	0.355	23	02/06/23	0.293	16.4	03/07/23	0.283	20.4	04/06/23	0.73	24.1
Ogunquit Sewer District	ME0100986	10/03/22	0.615	12.9	11/01/22	0.531	19.2	12/01/22	0.385	15.2	01/03/23	0.434	29.9	02/01/23	0.769	13.9	03/01/23	0.25	12.4
Old Orchard Beach WPCF	ME0101524	10/03/22	0.765	15.9	10/31/22	0.928	20.5	12/01/22	1.279	15.2	01/03/23	0.686	22.6	02/01/23	1.428	16	03/01/23	0.844	18.1
Old Town WWTP	ME0100471	10/07/22	0.8306	13.9	11/08/22	1.2596	17.3	12/07/22	2.585	15.6	01/10/23	1.6844	12.7	02/08/23	1.37	18.5	03/09/23	1.098	12.5
Orono WWTP	ME0100498	10/12/22	0.9	13	11/09/22	1.25	13.6	12/13/22	1.54	18.9	01/11/23	0.98	19.2	02/09/23	1.31	18	03/08/23	1.4	12.9
Oxford WWTP	ME0102873	10/05/22	0.0318	47.4	11/04/22	0.0416	42.1	12/06/22	0.0435	45.7	01/06/23	0.041	39.6	02/06/23	0.0466	42.8	03/07/23	0.0456	36.4
Paris Utility District	ME0100951	10/05/22	0.2453	13	11/03/22	0.2802	10.4	12/05/22	0.4324	6.32	01/05/23	0.4271	9.01	02/06/23	0.3056	17.4	03/06/23	0.3129	5.6
Penobscot Indian Nation	ME0101311	10/10/22	0.041	8.14	11/08/22	0.043	8.66	12/07/22	0.063	7.14	01/06/23	0.048	10.6	02/07/23	0.055	10	03/07/23	0.046	8.17
Pittsfield WWTP	ME0100528	10/11/22	0.2094	22.3	11/09/22	0.8586	21.8	12/07/22	1.2748	21.5	01/11/23	0.9077	19.3	02/09/23	0.6853	14.7	03/09/23	0.7206	18.1
Portland Water District (Westbrk/ Gorh.)	ME0100846	10/04/22	2.38	23	11/01/22	2.81	28.3	12/01/22	5.19	28	01/03/23	2.9	24.6	02/01/23	4.27	23.9	03/01/23	2.96	28.7
Portland Wtr Dist (Cape Elizabeth)	ME0102121	10/03/22	0.148	23.7	11/01/22	0.26	18.1	12/01/22	0.345	16.7	01/03/23	0.286	17.3	02/01/23	0.578	15.5	03/01/23	0.23	13.8
Portland Wtr Dist (Peaks Island)	ME0102237	10/04/22	0.054	13	11/01/22	0.084	13.6	12/01/22	0.106	11.1	01/03/23	0.095	10.2	02/01/23	0.151	9.36	03/01/23	0.0631	8.41
Portland Wtr District (East End)	ME0102075	10/03/22	8.26	21	11/01/22	13.37	26.6	12/01/22	30.03	30.5	01/03/23	11.61	20.6	02/01/23	20.24	26.5	03/01/23	12.6	21
Portsmouth Naval Shipyard	MEP250307; ME0000868	10/06/22	0.212	13.8	11/14/23	0.151	23	12/08/23	0.278	49.9	01/05/23	0.216	28.6	02/02/23	0.211	35	03/17/23	0.275	35.1
Presque Isle Utilities District	ME0100561	10/17/22	2.5429	11.9	11/15/22	4.5415	14	12/15/22	3.4054	11.9	01/17/23	2.2519	10.2	02/15/23	1.7697	12.8	03/16/23	2.2845	12.4
Raytheon Technologies Corp	ME0022861	10/10/22	0.0406	9.77	11/07/22	0.0415	11.9	12/05/22	0.043	12	01/23/23	0.046	11.5	02/20/23	0.0404	11.9	03/20/23	0.0408	15.5
Rockland WWTP	ME0100595	10/05/22	1.082	61.8	11/02/22	1.082	45	12/05/22	3.518	40.2	01/05/23	2.579	67.3	02/02/23	2.67	74.6	03/03/23	2.483	74.7
Rumford-Mexico Sewer District	ME0100552	10/06/22	0.55	5.31	11/07/22	0.65	9.2	12/07/22	1.03	6.37	01/09/23	1.38	6.65	02/07/23	0.91	8	03/07/23	0.91	4.37
Sabattus Sanitary District	ME0101842	10/06/22	0.071	15.1	11/04/22	0.087	15.9	12/06/22	0.137	13.6	01/06/23	0.106	13.7	02/06/23	0.089	14.6	03/07/23	0.104	11.2
Saco Water Resource Recovery Dept	ME0101117	10/03/22	1.351	17.8	11/01/22	1.804	15.2	12/01/22	4.122	20	01/03/23	2.338	37.7	02/01/23	3.404	18.7	03/01/23	1.989	15.2
Sanford Sewerage District	ME0100617	10/03/22	1.191	24.4	11/01/22	1.605	27.9	12/01/22	1.914	27.7	01/03/23	2.029	35.6	02/01/23	3.404	47.3	03/01/23	2.744	66.6
SAPPI (Hinkley)	ME0021521	10/13/22	33.72	Not Detected	11/17/22	33.19	Not Deteceted	12/15/23	32.51	Not Detected	01/17/23	27.54	16.1	02/16/23	27.58	22.6	03/15/23	30.91	24.5
SAPPI (Westbrook)	ME0002321	10/12/22	0.265	79.7	11/17/22	0.506	126	12/15/23	0.386	228	01/17/23	0.537	263	02/17/23	0.433	128	03/15/23	0.893	206
Scarborough Sanitary District	ME0102059	10/03/22	1.18	60.6	11/02/22	1.34	87.4	12/02/22	1.83	66.2	01/04/23	1.46	72.1	02/02/23	1.89	52.2	03/02/23	1.31	65.8
Skowhegan WWTP (Main Plant)	ME0100625	10/10/22	0.245	16.1	11/08/22	0.503	20.1	12/08/22	1.873	14.1	01/10/23	0.746	15.3	02/08/23	0.476	14.8	03/09/23	0.723	13.1
South Berwick Sewer District	ME0100820	09/30/22	0.24	21.7	10/31/22	0.207	13.4	12/01/22	0.326	18.2	01/03/23	0.344	15	02/01/23	0.531	17.9	03/01/23	0.307	15

Facility Name	MEPDES #	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)
Fort Kent WWTF	ME0102369	10/17/22	0.455	31.6	11/14/22	0.413	35.4	12/10/22	0.348	32.9	01/17/23	0.228	23.2	02/15/23	0.204	12.2	03/16/23	0.217	15.1
Freeport Sewer District	ME0101036	10/03/22	0.36	14	11/01/22	0.302	13.7	12/01/22	0.52	17.4	01/03/23	0.282	16.8	02/01/23	0.375	13.9	03/01/23	0.33	13.8
Gardiner WWTF	ME0101702	10/06/22	0.907	15.5	11/04/22	1.078	14.9	12/06/22	1.668	11.5	01/06/23	1.762	10.7	02/06/23	1.478	12.9	03/06/23	1.21	12.3
General Alum New England Corp.	ME0001830	10/31/22	0.03	8.07	11/21/22	0.03	4.63	12/14/22	0.03	3.4	01/20/23	0.08	2.82	02/13/23	0.02	6.02	03/16/23	0.06	4.86
Great Salt Bay Sanitary District	ME0101516	10/20/22	0.0172	27.7	11/02/22	0.1265	24.1	12/05/22	0.1975	21.4	01/05/23	0.1248	20.3	02/02/23	0.131	16.1	03/08/23	0.1218	16.9
Greater Augusta Utility District	ME0100013	10/05/22	3.272	25.5	11/03/22	4.461	36.7	12/06/22	7.43	91.4	01/06/23	7.58	42.1	02/06/23	5.57	20.9	03/07/23	6.95	20
Guilford-Sangerville Sanitary District	ME0102032	11/09/22	0.354	67.3	12/11/22	0.195	58.4	12/19/22	0.262	49.3	01/14/23	0.207	50.3	01/25/23	0.191	38.8	02/10/23	0.263	41.2
Hartland WWTF	ME0101443	10/10/22	0.041	1200	11/08/22	0.1	1140	12/08/22	0.159	726	01/11/23	0.101	649	02/09/23	0.1	593	03/10/23	0.156	660
Houlton Water Company	ME0101290	10/17/22	0.947	17.3	11/14/22	3.17	16.7	12/14/22	1.96	12.6	01/16/23	1.22	11.5	02/14/23	0.82	9.38	03/15/23	1.2	13.5
Jackman Utility District	ME0100978	11/08/22	0.3393	21.5	11/22/22	0.2807	16.8	12/06/22	0.2886	27.8	12/12/22	0.3001	18.3	12/19/22	0.3478	25.1	01/10/23	0.3235	26.3
Kennebec Sanitary Treatment District	ME0100854	10/05/22	5.034	129	11/03/22	5.412	217	12/06/22	7.5	128	01/06/23	7.69	160	02/06/23	6.267	173	03/07/23	6.586	127
Kennebunk Sewer District	ME0100935	10/03/22	0.565	18.7	11/01/22	0.596	13.7	12/01/22	0.8349	13.4	01/03/23	0.7268	13.3	02/01/23	1.1204	11.1	03/01/23	0.57	13.9
Kennebunkport WWTF	ME0101184	10/03/22	0.269	13.2	11/10/22	0.272	15.6	12/01/22	0.42	15.3	01/03/23	0.274	16.4	02/01/23	0.458	12.5	03/01/23	0.188	16.4
Kittery WWTF	ME0100285	10/03/22	0.782	15.4	11/01/22	0.838	15.3	12/01/22	1.239	17.7	01/03/23	1.013	15.2	02/01/23	1.376	16.6	03/01/23	0.8335	11
Lewiston Auburn WPCA	ME0101478	10/06/22	9.92	21.4	11/04/22	8.7	24.5	12/05/22	11.9	19.3	01/05/23	12	26.4	02/06/23	8.4	21.8	03/06/23	9.8	17.8
Limerick Sewer District	ME0100871	10/13/22	0.11	23.4	11/15/22	0.11	15.4	12/01/22	0.045	19	01/25/23	0.118	14.8	02/22/23	0.109	12.4	03/28/23	0.108	12.8
Limestone Water & Sewer District	ME0102849	10/17/22	0.423	131	11/15/22	1.367	172	12/15/22	1.156	139	01/17/23	0.526	149	02/15/23	0.352	99.8	03/16/23	0.374	195
Lincoln Sanitary District	ME0101796	10/11/22	0.289	7.43	11/07/22	0.569	8.84	12/06/22	0.85	6.1	01/09/23	0.63	6.81	02/07/23	0.482	9.02	03/08/23	0.488	5.95
Lisbon WWTP	ME0100307	10/05/22	0.4246	15.9	11/03/22	0.6108	15.5	12/05/22	0.9288	15.2	01/05/23	0.826	24.4	02/03/23	0.7535	30.8	03/06/23	0.7339	19.3
Livermore Falls WWTP	ME0100315	10/05/22	0.357	12.5	11/07/22	0.452	14.4	12/06/22	0.807	11.6	01/09/23	0.772	12.8	02/20/23	0.705	14.1	03/28/23	0.909	12.2
Machias WWPT	ME0100323	10/13/22	0.114	21.9	11/14/22	0.424	14.2	12/13/22	0.186	21.2	01/18/23	0.47	24.6	02/14/23	0.174	15.1	03/15/23	0.208	12.6
Maine Central	ME0036803	10/31/22	0.0141	13.8	11/22/22	0.0226	3.06	12/15/22	0.007	8.45	01/18/23	0.0183	13.8	02/13/23	-	7.18	03/16/23	-	7.66
Mars Hill Utility District	ME0101079	10/24/22	0.6064	36	11/08/22	0.6515	51.3	11/28/22	0.1629	104	12/06/22	0.1855	47.5	12/19/22	0.2022	19.3	02/22/23	0.2219	18.4
Mechanic Falls Sanitary District	ME0100391	10/06/22	0.073	16.5	11/04/22	0.125	14.3	12/06/22	0.3	12.3	01/06/23	0.263	12.2	02/06/23	0.225	13.1	03/06/23	0.233	13.3
Milbridge WWTP	ME0100404	10/13/22	0.0163	21.7	11/16/22	0.059	39.7	12/11/22	0.088	34.3	01/12/23	0.026	27.9	02/11/23	0.072	40.7	03/16/23	0.047	22
Millinocket WWTP	ME0100803	10/07/22	0.361	16.1	11/08/22	0.691	20.7	12/08/22	1.826	14.8	01/10/23	0.665	13.8	02/08/23	0.512	11.3	03/09/23	0.46	42.2
Milo Water District	ME0100439	10/12/22	0.075	15.1	12/15/22	0.262	7.77	01/12/23	0.19	7.31	01/25/23	0.187	7.49	02/10/23	0.194	8.02	03/09/23	0.181	5.94
Mount Desert Island (Northeast Hbr)	ME0101346	10/13/22	0.153	82	11/16/22	0.254	46.5	12/13/22	0.282	29.4	01/12/23	0.1835	34.8	02/13/23	0.283	27.3	03/17/23	0.428	22.9
Mount Desert Island (Seal Harbor)	ME0102555	10/13/22	0.054	15.3	11/16/22	0.96	23.9	12/13/22	0.1215	11.6	01/12/23	0.0585	12.6	02/13/23	0.0985	13.7	03/17/23	0.1385	9.48
Mount Desert Island (Somesville)	ME0102547	10/13/22	0.02	23.4	11/16/22	0.032	22	12/13/22	0.0307	19.6	01/12/23	0.0232	13.7	02/13/23	0.0264	19.4	03/17/23	0.034	17.3

		Sample 1			Sample 2			Sample 3			Sample 4			Sample 5			Sample 6		
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Anson-Madison Sanitary District	ME0101389	10/25/22	1	1100	11/15/22	1	679	12/14/22	0.8	558	01/10/23	1	1330	02/08/23	0.8	526	03/10/23	0.8	894
Ashland Water & Sewer District	ME0101087	10/16/22	0.351	27.9	11/14/22	0.429	37.6	12/15/22	0.263	23.5	01/17/23	0.194	20.2	02/14/23	0.051	13.1	03/14/23	0.048	14.1
Bangor WWTP	ME0100781	10/12/22	4.49	138	11/08/22	5.77	132	12/06/22	12.41	201	01/09/23	7.36	162	02/08/23	6.66	137	03/08/23	9.38	123
Bar Harbor WWTP (Hulls Cove)	ME0102466	10/12/22	0.054	6.12	11/15/22	0.095	8.41	12/13/22	0.041	7.09	01/12/23	0.025	3.61	02/13/23	0.038	5.28	03/16/23	0.138	5.06
Bar Harbor WWTP (Main Plant)	ME0101214	10/12/22	0.86	9.26	11/15/22	1.59	18.7	12/13/22	1.06	15.6	01/12/23	0.069	16	02/13/23	0.91	16.6	03/16/23	0.138	16.6
Bath Iron Works Corporation	MEP250296; ME0001732	10/27/22	ot captur	37.5	11/03/22	0.1187	23.5	12/19/22	0.0111	16.3	01/30/23	0.0666	71.3	02/21/23	0.0139	11.11	03/28/23	0.0644	30.2
Bath WPCF	ME0100021	10/05/22	0.6832	33.2	11/02/22	1.32	60.3	12/05/22	2.92	62.2	01/04/23	2.13	57.7	02/02/23	3.52	48.6	03/02/23	1.67	44.1
Belfast WWTP	ME0101532	10/05/22	0.4442	17.6	11/03/22	0.5404	17.8	12/05/22	1.0656	15.8	01/05/23	0.7992	18.4	02/02/23	0.758	13.5	03/02/23	0.588	15.7
Berwick Sewer District	ME0101397	10/03/22	0.192	26.7	11/01/22	0.188	18.7	12/01/22	0.286	17.9	01/03/23	0.373	15.2	02/01/23	0.458	13.3	03/01/23	0.286	11
Biddeford WWTP	ME0100048	09/30/22	1.41	11.1	10/31/22	1.855	14.3	11/30/22	2.319	11.6	01/03/23	2.2953	25.5	02/01/23	3.5097	12.1	02/27/23	2.0066	10.2
Blue Hill WWTP	ME0101231	10/13/22	0.0387	29.7	11/16/22	0.074	33.4	12/13/22	0.0594	37.8	01/13/23	0.0466	31.8	02/13/23	0.0509	34.5	03/17/23	0.0677	31.9
Boothbay Harbor Sewer District	ME0100064	10/04/22	0.26	22.2	11/02/22	0.187	25.8	12/05/22	0.264	20.8	01/04/23	0.219	17.1	02/02/23	0.316	20.4	03/03/23	0.217	12.3
Brewer WPCF	ME0100072	10/07/22	1.439	49	11/07/22	1.785	27.2	12/06/22	3.081	19.9	01/09/23	2.046	18.7	02/07/23	1.835	23.3	03/09/23	2.253	24
Brunswick Graham Road Landfill	ME0102113	10/21/22	0.041	227	10/28/22	0.048	196	11/18/22	0.045	207	12/02/22	0.093	206	12/09/22	0.039	232	12/15/22	0.002	239
Brunswick Sewer District	ME0100102	10/05/22	1.99	26	11/03/22	2.259	30	12/05/22	2.8528	45.6	01/05/23	2.8495	34.4	02/02/23	3.5006	32.4	03/09/23	2.9533	30.5
Bucksport Mill, LLC	ME0002160	10/05/22	0.0285	38.8	11/16/22	0.1564	284	12/15/22	0.1169	190	01/05/23	0.1138	198	02/08/23	0.1247	161	03/01/23	0.1998	111
Bucksport WWTF	ME0100111	10/12/22	0.294	21.6	11/15/22	0.8097	32.9	12/12/22	0.433	26.7	01/13/23	0.3	20.7	02/13/23	0.3041	22.9	03/17/23	0.3983	21.9
Calais WWTP	ME0100129	10/13/22	0.32	24.3	11/14/22	1.06	10.9	12/14/22	0.64	11.8	01/18/23	0.72	15.4	02/14/23	0.43	11.3	03/15/23	0.66	10.1
Camden WWTP	ME0100137	10/04/22	0.48	68.7	11/03/22	0.773	63.8	12/05/22	1.65	55.1	01/05/23	1.075	101	02/03/23	1.345	101	03/06/23	1.017	100
Canton WWTP	ME0102067	11/02/22	0.103	16.3	11/04/22	0.33	16.8	11/07/22	0.312	17.5	11/10/22	0.336	14.3	02/20/23	0.375	14.1	02/22/23	0.373	15.8
Caribou Utilities District	ME0100145	10/17/22	0.86	55.4	11/14/22	1.45	59.4	12/14/22	2.4	66.5	01/17/23	1.11	52.4	02/15/23	0.7	37.6	03/14/23	0.96	66.3
Castine WWTP	ME0101192	10/13/22	0.037	22.9	11/28/22	0.075	39	12/13/22	0.069	41.5	01/13/23	0.065	49.6	02/13/23	0.066	47.3	03/17/23	0.081	38.7
Clinton Water District	ME0101699	12/05/22	0.333	27.7	12/22/22	0.154	26.1	12/30/22	0.269	31	01/06/23	0.168	30.6	01/26/23	0.156	35.7	02/16/23	0.064	31.2
Dover Foxcroft WWTP	ME0100501	10/11/22	0.76	43.6	10/26/22	0.644	42.6	12/12/22	0.594	41.1	12/19/22	0.714	32.2	01/11/23	0.213	23.6	01/25/23	0.201	28.5
East Millinocket WWTP	ME0102881	10/10/22	0.241	58.4	11/07/22	0.516	87.3	12/08/22	1.85	79.7	01/09/23	0.475	73.2	02/07/23	0.495	65.7	03/09/23	0.477	7.67
Ellsworth WWTP (Main Plant)	ME0102865	10/13/22	0.487	29.2	11/15/22	1.044	21.2	12/12/22	0.871	17	01/12/23	0.608	32.6	02/12/23	0.889	22.2	03/16/23	0.775	15.2
Falmouth WWTF	ME0100218	10/04/22	0.722	18.5	11/02/22	0.986	21.9	12/02/22	1.555	29.8	01/04/23	0.965	23.5	02/02/23	1.222	25.1	03/02/23	0.89	16.2
Farmington WWTP	ME0101249	10/06/22	0.0393	5.71	11/07/22	0.449	9.42	12/06/22	0.55	7.5	01/09/23	0.579	10.8	02/07/23	0.484	9.57	03/06/23	0.485	8.5
Fort Fairfield Utilities Dist	ME0100226	10/17/22	0.133	26.4	11/15/22	0.697	54.3	12/14/22	0.553	22.5	01/17/23	0.24	20	02/15/23	0.241	17.7	03/15/23	0.305	19.5

Appendix C: EXCEL File with Data and Results

		Sample 1			Sample 2			Sample 3			Sample 4			Sample 5			Sample 6		
Facility Name	**MEPDES #**	**Date Collected**	**Flow (MGD)**	**PFAS Sum of 6 (PPT)**	**Date Collected**	**Flow (MGD)**	**PFAS Sum of 6 (PPT)**	**Date Collected**	**Flow (MGD)**	**PFAS Sum of 6 (PPT)**	**Date Collected**	**Flow (MGD)**	**PFAS Sum of 6 (PPT)**	**Date Collected**	**Flow (MGD)**	**PFAS Sum of 6 (PPT)**	**Date Collected**	**Flow (MGD)**	**PFAS Sum of 6 (PPT)**
Verso Androscoggin LLC	ME0001937	10/11/22	9.5	29.2	11/17/22	9.3	75.2	12/14/22	9.7	61.7	01/18/23	7.8	59.6	02/22/23	5.1	186	03/16/23	10.6	85.9
ND OTM (Old Town Mill)	ME0002020	12/27/22	12.4	14.1	01/10/23	12	36.9	02/14/23	12.7	15.3	03/23/23	12.09	11						
Bucksport Mill, LLC	ME0002160	10/05/22	0.0285	38.8	11/16/22	0.1564	284	12/15/22	0.1169	190	01/05/23	0.1138	198	02/08/23	0.1247	161	03/01/23	0.1998	111
Twin Rivers Paper Company LLC	ME0000159	10/25/22	11.85	115	11/11/22	13.17	9.6	12/26/22	10.3	29.7	01/31/23	10.4	14.6	02/22/23	11.1	215	03/31/23	9.51	7.78
Woodland Pulp LLC	ME0001872	10/14/22	27.06	Not Detected	11/14/22	24.4	Not Detected	12/14/23	23.3	10.6	01/18/23	23.1	15.5	02/14/23	20.8	8.52	03/15/23	21	8.31
SAPPI (Hinkley)	ME0021521	10/13/22	33.72	Not Detected	11/17/22	33.19	Not Deteceted	12/15/23	32.51	Not Detected	01/17/23	27.54	16.1	02/16/23	27.58	22.6	03/15/23	30.91	24.5
ND Paper (Rumford Mill)	ME0002054	11/01/22	31.15	Not Detected	11/22/22	31.6	Not Deteceted	12/20/22	34.79	23.1	01/10/23	-	5.18	02/28/23	30.54	Not Detected	03/23/23	31.5	2.22
SAPPI (Westbrook)	ME0002321	10/12/22	0.265	79.7	11/17/22	0.506	126	12/15/23	0.386	228	01/17/23	0.537	263	02/17/23	0.433	128	03/15/23	0.893	206
Portsmouth Naval Shipyard	MEP250307; ME0000868	10/06/22	0.212	13.8	11/14/23	0.151	23	12/08/23	0.278	49.9	01/05/23	0.216	28.6	02/02/23	0.211	35	03/17/23	0.275	35.1
Bath Iron Works Corporation	MEP250296; ME0001732	10/27/22	pt captur	37.5	11/03/22	0.1187	23.5	12/19/22	0.0111	16.3	01/30/23	0.0666	71.3	02/21/23	0.0139	11.11	03/28/23	0.0644	30.2
Raytheon Technologies Corp	ME0022861	10/10/22	0.0406	9.77	11/07/22	0.0415	11.9	12/05/22	0.043	12	01/23/23	0.046	11.5	02/20/23	0.0404	11.9	03/20/23	0.0408	15.5
General Alum New England Corp.	ME0001830	10/31/22	0.03	8.07	11/21/22	0.03	4.63	12/14/22	0.03	3.4	01/20/23	0.08	2.82	02/13/23	0.02	6.02	03/16/23	0.06	4.86
Maine Central PAM-AM CSX	ME0036803	10/31/22	0.0141	13.8	11/22/22	0.0226	3.06	12/15/22	0.007	8.45	01/18/23	0.0183	13.8	02/13/23	-	7.18	03/16/23	-	7.66
Tate & Lyle Ingredients Americas LLC	ME0002216	10/18/22	0.0256	4.93	11/16/22	0.0387	Not Deteceted	12/15/22	0.0455	Not Detected	01/18/23	0.0359	9.69	02/15/23	0.0358	Not Detected	03/16/23	0.042	Not Detected
Bangor WWTP	ME0100781	10/12/22	4.49	138	11/08/22	5.77	132	12/06/22	12.41	201	01/09/23	7.36	162	02/08/23	6.66	137	03/08/23	9.38	123
Kennebec Sanitary Treatment District	ME0100854	10/05/22	5.034	129	11/03/22	5.412	217	12/06/22	7.5	128	01/06/23	7.69	160	02/06/23	6.267	173	03/07/23	6.586	127
Anson-Madison Sanitary District	ME0101389	10/25/22	1	1100	11/15/22	1	679	12/14/22	0.8	558	01/10/23	1	1330	02/08/23	0.8	526	03/10/23	0.8	894
Portland Wtr District (East End)	ME0102075	10/03/22	8.26	21	11/01/22	13.37	26.6	12/01/22	30.03	30.5	01/03/23	11.61	20.6	02/01/23	20.24	26.5	03/01/23	12.6	21
Lewiston Auburn WPCA	ME0101478	10/06/22	9.92	21.4	11/04/22	8.7	24.5	12/05/22	11.9	19.3	01/05/23	12	26.4	02/06/23	8.4	21.8	03/06/23	9.8	17.8
Greater Augusta Utility District	ME0100013	10/05/22	3.272	25.5	11/03/22	4.461	36.7	12/06/22	7.43	91.4	01/06/23	7.58	42.1	02/06/23	5.57	20.9	03/07/23	6.95	20
South Portland WRP	ME0100633	10/03/22	3.97	32.2	11/01/22	5.3887	37.8	12/01/22	8.2526	32.4	01/03/23	5.9515	36.3	02/01/23	8.037	32.1	03/01/23	5.1501	43.1
Rockland WWTP	ME0100595	10/05/22	1.082	61.8	11/02/22	1.082	45	12/05/22	3.518	40.2	01/05/23	2.579	67.3	02/02/23	2.67	74.6	03/03/23	2.483	74.7
Portland Water District (Westbrk/ Gorh.)	ME0100846	10/04/22	2.38	23	11/01/22	2.81	28.3	12/01/22	5.19	28	01/03/23	2.9	24.6	02/01/23	4.27	23.9	03/01/23	2.96	28.7
Limestone Water & Sewer District	ME0102849	10/17/22	0.423	131	11/15/22	1.367	172	12/15/22	1.156	139	01/17/23	0.526	149	02/15/23	0.352	99.8	03/16/23	0.374	195
Bath WPCF	ME0100021	10/05/22	0.6832	33.2	11/02/22	1.32	60.3	12/05/22	2.92	62.2	01/04/23	2.13	57.7	02/02/23	3.52	48.6	03/02/23	1.67	44.1
Scarborough Sanitary District	ME0102059	10/03/22	1.18	60.6	11/02/22	1.34	87.4	12/02/22	1.83	66.2	01/04/23	1.46	72.1	02/02/23	1.89	52.2	03/02/23	1.31	65.8
Brunswick Sewer District	ME0100102	10/05/22	1.99	26	11/03/22	2.259	30	12/05/22	2.8528	45.6	01/05/23	2.8495	34.4	02/02/23	3.5006	32.4	03/09/23	2.9533	30.5
Hartland WWTF	ME0101443	10/10/22	0.041	1200	11/08/22	0.1	1140	12/08/22	0.159	726	01/11/23	0.101	649	02/09/23	0.1	593	03/10/23	0.156	660
Camden WWTP	ME0100137	10/04/22	0.48	68.7	11/03/22	0.773	63.8	12/05/22	1.65	55.1	01/05/23	1.075	101	02/03/23	1.345	101	03/06/23	1.017	100
Sanford Sewerage District	ME0100617	10/03/22	1.191	24.4	11/01/22	1.605	27.9	12/01/22	1.914	27.7	01/03/23	2.029	35.6	02/01/23	3.404	47.3	03/01/23	2.744	66.6

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Facility Name	MEPDES #	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)
Caribou Utilities District	ME0100145	10/17/22	0.86	55.4	11/14/22	1.45	59.4	12/14/22	2.4	66.5	01/17/23	1.11	52.4	02/15/23	0.7	37.6	03/14/23	0.96	66.3
Presque Isle Utilities District	ME0100561	10/17/22	2.5429	11.9	11/15/22	4.5415	14	12/15/22	3.4054	11.9	01/17/23	2.2519	10.2	02/15/23	1.7697	12.8	03/16/23	2.2845	12.4
Saco Water Resource Recovery Dept	ME0101117	10/03/22	1.351	17.8	11/01/22	1.804	15.2	12/01/22	4.122	20	01/03/23	2.338	37.7	02/01/23	3.404	18.7	03/01/23	1.989	15.2
Brewer WPCF	ME0100072	10/07/22	1.439	49	11/07/22	1.785	27.2	12/06/22	3.081	19.9	01/09/23	2.046	18.7	02/07/23	1.835	23.3	03/09/23	2.253	24
East Millinocket WWTP	ME0102881	10/10/22	0.241	58.4	11/07/22	0.516	87.3	12/08/22	1.85	79.7	01/09/23	0.475	73.2	02/07/23	0.495	65.7	03/09/23	0.477	7.67
Biddeford WWTP	ME0100048	09/30/22	1.41	11.1	10/31/22	1.855	14.3	11/30/22	2.319	11.6	01/03/23	2.2953	25.5	02/01/23	3.5097	12.1	02/27/23	2.0066	10.2
Falmouth WWTF	ME0100218	10/04/22	0.722	18.5	11/02/22	0.986	21.9	12/02/22	1.555	29.8	01/04/23	0.965	23.5	02/02/23	1.222	25.1	03/02/23	0.89	16.2
Old Town WWTP	ME0100471	10/07/22	0.8306	13.9	11/08/22	1.2596	17.3	12/07/22	2.585	15.6	01/10/23	1.6844	12.7	02/08/23	1.37	18.5	03/09/23	1.098	12.5
North Berwick Sanitary Dist	ME0101885	11/22/22	0.5827	50.4	11/30/22	0.6283	44.1	12/05/22	0.7324	50.1	12/12/22	0.7096	49.8	02/16/23	0.4854	33.1	02/22/23	0.4536	45.5
Houlton Water Company	ME0101290	10/17/22	0.947	17.3	11/14/22	3.17	16.7	12/14/22	1.96	12.6	01/16/23	1.22	11.5	02/14/23	0.82	9.38	03/15/23	1.2	13.5
Orono WWTP	ME0100498	10/12/22	0.9	13	11/09/22	1.25	13.6	12/13/22	1.54	18.9	01/11/23	0.98	19.2	02/09/23	1.31	18	03/08/23	1.4	12.9
Gardiner WWTF	ME0101702	10/06/22	0.907	15.5	11/04/22	1.078	14.9	12/06/22	1.668	11.5	01/06/23	1.762	10.7	02/06/23	1.478	12.9	03/06/23	1.21	12.3
York Sewer District	ME0101222	10/03/22	0.896	18.8	11/01/22	1	15.9	12/01/22	1.29	18.4	01/03/23	1.29	13.1	02/01/23	1.86	12.3	03/01/23	0.84	14.3
Old Orchard Beach WPCF	ME0101524	10/03/22	0.765	15.9	10/31/22	0.928	20.5	12/01/22	1.279	15.2	01/03/23	0.686	22.6	02/01/23	1.428	16	03/01/23	0.844	18.1
Ellsworth WWTP (Main Plant)	ME0102865	10/13/22	0.487	29.2	11/15/22	1.044	21.2	12/12/22	0.871	17	01/12/23	0.608	32.6	02/12/23	0.889	22.2	03/16/23	0.775	15.2
Kittery WWTF	ME0100285	10/03/22	0.782	15.4	11/01/22	0.838	15.3	12/01/22	1.239	17.7	01/03/23	1.013	15.2	02/01/23	1.376	16.6	03/01/23	0.8335	11
Dover Foxcroft WWTP	ME0100501	10/11/22	0.76	43.6	10/26/22	0.644	42.6	12/12/22	0.594	41.1	12/19/22	0.714	32.2	01/11/23	0.213	23.6	01/25/23	0.201	28.5
Lisbon WWTP	ME0100307	10/05/22	0.4246	15.9	11/03/22	0.6108	15.5	12/05/22	0.9288	15.2	01/05/23	0.826	24.4	02/03/23	0.7535	30.8	03/06/23	0.7339	19.3
Pittsfield WWTP	ME0100528	10/11/22	0.2094	22.3	11/09/22	0.8586	21.8	12/07/22	1.2748	21.5	01/11/23	0.9077	19.3	02/09/23	0.6853	14.7	03/09/23	0.7206	18.1
Yarmouth WPCF	ME0100765	10/04/22	0.459	16.4	11/01/22	0.63	22	12/01/22	1.14	27.5	01/03/23	0.655	16.6	02/01/23	0.759	16.4	03/01/23	0.566	14.3
Wiscasset WWTP	ME0100757	10/04/22	0.148	280	11/02/22	0.158	39.8	12/02/22	0.441	16.1	01/04/23	0.267	22.7	02/02/23	0.295	18.6	03/02/23	0.218	21.5
Belfast WWTP	ME0101532	10/05/22	0.4442	17.6	11/03/22	0.5404	17.8	12/05/22	1.0656	15.8	01/05/23	0.7992	18.4	02/02/23	0.758	13.5	03/02/23	0.588	15.7
Unity Utilities District	ME0101150	10/25/22	0.3408	33.4	10/27/22	0.3421	34.2	11/02/22	0.2368	33.4	11/03/22	0.3056	35.5	04/03/23	0.5454	34.3	04/05/23	0.5467	30.3
Millinocket WWTP	ME0100803	10/07/22	0.361	16.1	11/08/22	0.691	20.7	12/08/22	1.826	14.8	01/10/23	0.665	13.8	02/08/23	0.512	11.3	03/09/23	0.46	42.2
Skowhegan WWTP (Main Plant)	ME0100625	10/10/22	0.245	16.1	11/08/22	0.503	20.1	12/08/22	1.873	14.1	01/10/23	0.746	15.3	02/08/23	0.476	14.8	03/09/23	0.723	13.1
Mars Hill Utility District	ME0101079	10/24/22	0.6064	36	11/08/22	0.6515	51.3	11/28/22	0.1629	104	12/06/22	0.1855	47.5	12/19/22	0.2022	19.3	02/22/23	0.2219	18.4
Guilford-Sangerville Sanitary District	ME0102032	11/09/22	0.354	67.3	12/11/22	0.195	58.4	12/19/22	0.262	49.3	01/14/23	0.207	50.3	01/25/23	0.191	38.8	02/10/23	0.263	41.2
Norway WWTF	ME0100455	11/03/22	0.965	34.3	12/03/22	0.256	30.2	01/04/23	0.355	23	02/06/23	0.293	16.4	03/07/23	0.283	20.4	04/06/23	0.73	24.1
Brunswick Graham Road Landfill	ME0102113	10/21/22	0.041	227	10/28/22	0.048	196	11/18/22	0.045	207	12/02/22	0.093	206	12/09/22	0.039	232	12/15/22	0.002	239
Bar Harbor WWTP (Main Plant)	ME0101214	10/12/22	0.86	9.26	11/15/22	1.59	18.7	12/13/22	1.06	15.6	01/12/23	0.069	16	02/13/23	0.91	16.6	03/16/23	0.138	16.6
Wells Sanitary District	ME0100790	10/03/22	0.684	15.1	11/01/22	0.68	15.6	12/01/22	0.785	18.2	01/03/23	0.723	11.9	02/01/23	1.061	11.1	03/01/23	0.535	8.65

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Facility Name	MEPDES #	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)
Kennebunk Sewer District	ME0100935	10/03/22	0.565	18.7	11/01/22	0.596	13.7	12/01/22	0.8349	13.4	01/03/23	0.7268	13.3	02/01/23	1.1204	11.1	03/01/23	0.57	13.9
Bucksport WWTF	ME0100111	10/12/22	0.294	21.6	11/15/22	0.8097	32.9	12/12/22	0.433	26.7	01/13/23	0.3	20.7	02/13/23	0.3041	22.9	03/17/23	0.3983	21.9
Fort Fairfield Utilities Dist	ME0100226	10/17/22	0.133	26.4	11/15/22	0.697	54.3	12/14/22	0.553	22.5	01/17/23	0.24	20	02/15/23	0.241	17.7	03/15/23	0.305	19.5
Mount Desert Island (Northeast Hbr)	ME0101346	10/13/22	0.153	82	11/16/22	0.254	46.5	12/13/22	0.282	29.4	01/12/23	0.1835	34.8	02/13/23	0.283	27.3	03/17/23	0.428	22.9
Livermore Falls WWTP	ME0100315	10/05/22	0.357	12.5	11/07/22	0.452	14.4	12/06/22	0.807	11.6	01/09/23	0.772	12.8	02/20/23	0.705	14.1	03/28/23	0.909	12.2
Ogunquit Sewer District	ME0100986	10/03/22	0.615	12.9	11/01/22	0.531	19.2	12/01/22	0.385	15.2	01/03/23	0.434	29.9	02/01/23	0.769	13.9	03/01/23	0.25	12.4
Calais WWTP	ME0100129	10/13/22	0.32	24.3	11/14/22	1.06	10.9	12/14/22	0.64	11.8	01/18/23	0.72	15.4	02/14/23	0.43	11.3	03/15/23	0.66	10.1
Rumford-Mexico Sewer District	ME0100552	10/06/22	0.55	5.31	11/07/22	0.65	9.2	12/07/22	1.03	6.37	01/09/23	1.38	6.65	02/07/23	0.91	8	03/07/23	0.91	4.37
Newport Sanitary District	ME0100447	10/11/22	0.135	25	11/09/22	0.218	22.1	12/09/22	0.609	28.6	01/11/23	0.274	22.6	02/08/23	0.205	19.5	03/09/23	0.261	22.7
Fort Kent WWTF	ME0102369	10/17/22	0.455	31.6	11/14/22	0.413	35.4	12/10/22	0.348	32.9	01/17/23	0.228	23.2	02/15/23	0.204	12.2	03/16/23	0.217	15.1
Jackman Utility District	ME0100978	11/08/22	0.3393	21.5	11/22/22	0.2807	16.8	12/06/22	0.2886	27.8	12/12/22	0.3001	18.3	12/19/22	0.3478	25.1	01/10/23	0.3235	26.3
Freeport Sewer District	ME0101036	10/03/22	0.36	14	11/01/22	0.302	13.7	12/01/22	0.52	17.4	01/03/23	0.282	16.8	02/01/23	0.375	13.9	03/01/23	0.33	13.8
Thomaston Water Poll Cntrl Auth	ME0100668	10/04/22	0.152	49.5	11/02/22	0.828	34.3	12/05/22	0	31.3	01/05/23	0	30.9	02/03/23	0	46	03/03/23	0	39.8
Kennebunkport WWTF	ME0101184	10/03/22	0.269	13.2	11/10/22	0.272	15.6	12/01/22	0.42	15.3	01/03/23	0.274	16.4	02/01/23	0.458	12.5	03/01/23	0.188	16.4
Portland Wtr Dist (Cape Elizabeth)	ME0102121	10/03/22	0.148	23.7	11/01/22	0.26	18.1	12/01/22	0.345	16.7	01/03/23	0.286	17.3	02/01/23	0.578	15.5	03/01/23	0.23	13.8
Clinton Water District	ME0101699	12/05/22	0.333	27.7	12/22/22	0.154	26.1	12/30/22	0.269	31	01/06/23	0.168	30.6	01/26/23	0.156	35.7	02/16/23	0.064	31.2
South Berwick Sewer District	ME0100820	09/30/22	0.24	21.7	10/31/22	0.207	13.4	12/01/22	0.326	18.2	01/03/23	0.344	15	02/01/23	0.531	17.9	03/01/23	0.307	15
Paris Utility District	ME0100951	10/05/22	0.2453	13	11/03/22	0.2802	10.4	12/05/22	0.4324	6.32	01/05/23	0.4271	9.01	02/06/23	0.3056	17.4	03/06/23	0.3129	5.6
Berwick Sewer District	ME0101397	10/03/22	0.192	26.7	11/01/22	0.188	18.7	12/01/22	0.286	17.9	01/03/23	0.373	15.2	02/01/23	0.458	13.3	03/01/23	0.286	11
Machias WWPT	ME0100323	10/13/22	0.114	21.9	11/14/22	0.424	14.2	12/13/22	0.186	21.2	01/18/23	0.47	24.6	02/14/23	0.174	15.1	03/15/23	0.208	12.6
Boothbay Harbor Sewer District	ME0100064	10/04/22	0.26	22.2	11/02/22	0.187	25.8	12/05/22	0.264	20.8	01/04/23	0.219	17.1	02/02/23	0.316	20.4	03/03/23	0.217	12.3
Ashland Water & Sewer District	ME0101087	10/16/22	0.351	27.9	11/14/22	0.429	37.6	12/15/22	0.263	23.5	01/17/23	0.194	20.2	02/14/23	0.051	13.1	03/14/23	0.048	14.1
Canton WWTP	ME0102067	11/02/22	0.103	16.3	11/04/22	0.33	16.8	11/07/22	0.312	17.5	11/10/22	0.336	14.3	02/20/23	0.375	14.1	02/22/23	0.373	15.8
Farmington WWTP	ME0101249	10/06/22	0.0393	5.71	11/07/22	0.449	9.42	12/06/22	0.55	7.5	01/09/23	0.579	10.8	02/07/23	0.484	9.57	03/06/23	0.485	8.5
Lincoln Sanitary District	ME0101796	10/11/22	0.289	7.43	11/07/22	0.569	8.84	12/06/22	0.85	6.1	01/09/23	0.63	6.81	02/07/23	0.482	9.02	03/08/23	0.488	5.95
Mount Desert Island (Seal Harbor)	ME0102555	10/13/22	0.054	15.3	11/16/22	0.96	23.9	12/13/22	0.1215	11.6	01/12/23	0.0585	12.6	02/13/23	0.0985	13.7	03/17/23	0.1385	9.48
Southwest Harbor Water & Sewer District	ME0100641	10/12/22	0.108	16.3	11/15/22	0.247	17.1	12/13/22	0.248	18.9	01/12/23	0.135	14.3	02/13/23	0.199	12.3	03/13/23	0.16	13
Mechanic Falls Sanitary District	ME0100391	10/06/22	0.073	16.5	11/04/22	0.125	14.3	12/06/22	0.3	12.3	01/06/23	0.263	12.2	02/06/23	0.225	13.1	03/06/23	0.233	13.3
Wilton WWTP	ME0101915	11/07/22	0.239	8.35	12/06/22	0.292	7.25	01/09/23	0.308	12.9	01/09/23	0.308	12.9	02/07/23	0.298	10.9	03/08/23	0.282	6.9
Castine WWTP	ME0101192	10/13/22	0.037	22.9	11/28/22	0.075	39	12/13/22	0.069	41.5	01/13/23	0.065	49.6	02/13/23	0.066	47.3	03/17/23	0.081	38.7
Great Salt Bay Sanitary District	ME0101516	10/20/22	0.0172	27.7	11/02/22	0.1265	24.1	12/05/22	0.1975	21.4	01/05/23	0.1248	20.3	02/02/23	0.131	16.1	03/08/23	0.1218	16.9

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Facility Name	MEPDES #	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)	Date Collected	Flow (MGD)	PFAS Sum of 6 (PPT)
Blue Hill WWTP	ME0101231	10/13/22	0.0387	29.7	11/16/22	0.074	33.4	12/13/22	0.0594	37.8	01/13/23	0.0466	31.8	02/13/23	0.0509	34.5	03/17/23	0.0677	31.9
Limerick Sewer District	ME0100871	10/13/22	0.11	23.4	11/15/22	0.11	15.4	12/01/22	0.045	19	01/25/23	0.118	14.8	02/22/23	0.109	12.4	03/28/23	0.108	12.8
Oxford WWTP	ME0102873	10/05/22	0.0318	47.4	11/04/22	0.0416	42.1	12/06/22	0.0435	45.7	01/06/23	0.041	39.6	02/06/23	0.0466	42.8	03/07/23	0.0456	36.4
Milbridge WWTP	ME0100404	10/13/22	0.0163	21.7	11/16/22	0.059	39.7	12/11/22	0.088	34.3	01/12/23	0.026	27.9	02/11/23	0.072	40.7	03/16/23	0.047	22
Sabattus Sanitary District	ME0101842	10/06/22	0.071	15.1	11/04/22	0.087	15.9	12/06/22	0.137	13.6	01/06/23	0.106	13.7	02/06/23	0.089	14.6	03/07/23	0.104	11.2
Milo Water District	ME0100439	10/12/22	0.075	15.1	12/15/22	0.262	7.77	01/12/23	0.19	7.31	01/25/23	0.187	7.49	02/10/23	0.194	8.02	03/09/23	0.181	5.94
Portland Wtr Dist (Peaks Island)	ME0102237	10/04/22	0.054	13	11/01/22	0.084	13.6	12/01/22	0.106	11.1	01/03/23	0.095	10.2	02/01/23	0.151	9.36	03/01/23	0.0631	8.41
Winter Harbor Utilities District	ME0100731	10/13/22	0.0153	12.3	11/15/22	0.0504	8.34	12/12/22	0.0503	5.36	01/12/23	0.0292	5.62	02/13/23	0.067	7.61	03/16/23	0.037	6.61
Washburn Water And Sewer District	ME0101028	10/17/22	0.053	8.11	11/15/22	0.122	6.78	12/14/22	0.169	6.42	01/17/23	0.028	6.6	02/15/23	0.02	9.98	03/14/23	0.041	11
Mount Desert Island (Somesville)	ME0102547	10/13/22	0.02	23.4	11/16/22	0.032	22	12/13/22	0.0307	19.6	01/12/23	0.0232	13.7	02/13/23	0.0264	19.4	03/17/23	0.034	17.3
Bar Harbor WWTP (Hulls Cove)	ME0102466	10/12/22	0.054	6.12	11/15/22	0.095	8.41	12/13/22	0.041	7.09	01/12/23	0.025	3.61	02/13/23	0.038	5.28	03/16/23	0.138	5.06
Penobscot Indian Nation	ME0101311	10/10/22	0.041	8.14	11/08/22	0.043	8.66	12/07/22	0.063	7.14	01/06/23	0.048	10.6	02/07/23	0.055	10	03/07/23	0.046	8.17
Vinalhaven WWTP	ME0102491	10/26/22	0.018	11.8	11/01/22	0.018	17.2	12/02/22	0.023	10.8	01/04/23	0.015	12	02/01/23	0.016	14.7	03/01/23	0.008	13.2

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Facility Name	MEPDES #	Average Effluent PFAS (Maine PFAS6) (PPT) from this table data 6-27-23	Average Flow Rate (MGD)	Final Average Effluent PFAS (Maine PFAS6) (PPT) from 11-21 -23 Final DEP Summary Report	Pounds PFAS6 Per year disposed of in Maine Waters (lbs/yr)	Commercial Entity	Closed?
Verso Androscoggin LLC	ME0001937	82.9	8.67	769.3	20.288537	X	Closed
ND OTM (Old Town Mill)	ME0002020	19.3	12.30	237.3	8.880092	X	Closed
Bucksport Mill, LLC	ME0002160	163.8	0.12	156.4	0.058701	X	Closed
Twin Rivers Paper Company LLC	ME0000159	65.3	11.06	56.5	1.900685	X	
Woodland Pulp LLC	ME0001872	7.2	23.28	24.5	1.735361	X	
SAPPI (Hinkley)	ME0021521	10.5	30.91	16.7	1.570706	X	
ND Paper (Rumford Mill)	ME0002054	5.1	31.92	5.9	0.573012	X	
SAPPI (Westbrook)	ME0002321	171.8	0.50	180.9	0.277075	X	
Portsmouth Naval Shipyard	MEP250307; ME0000868	30.9	0.22	26.2	0.017846	X	
Bath Iron Works Corporation	MEP250296; ME0001732	31.7	0.05	30.6	0.004262	X	
Raytheon Technologies Corp	ME0022861	12.1	0.04	12.6	0.001612	X	
General Alum New England Corp.	ME0001830	5.0	0.04	4.7	0.000596	X	
Maine Central PAM-AM CSX	ME0036803	9.0	0.01	11.4	0.000358	X	
Tate & Lyle Ingredients Americas LLC	ME0002216	2.4	0.04	3.1	0.000351	X	
Bangor WWTP	ME0100781	148.8	7.68	141.2	3.299169		
Kennebec Sanitary Treatment District	ME0100854	155.7	6.41	156.3	3.051035		
Anson-Madison Sanitary District	ME0101389	847.8	0.90	813.4	2.227663		
Portland Wtr District (East End)	ME0102075	24.4	16.02	25.8	1.257592		
Lewiston Auburn WPCA	ME0101478	21.9	10.12	22.6	0.695972		
Greater Augusta Utility District	ME0100013	39.4	5.88	38.2	0.683179		
South Portland WRP	ME0100633	35.7	6.12	35.4	0.659798		
Rockland WWTP	ME0100595	60.6	2.24	58.6	0.398664		
Portland Water District (Westbrk/ Gorh.)	ME0100846	26.1	3.42	31.9	0.331824		
Limestone Water & Sewer District	ME0102849	147.6	0.70	153.4	0.326602		
Bath WPCF	ME0100021	51.0	2.04	50.9	0.316057		
Scarborough Sanitary District	ME0102059	67.4	1.50	63.3	0.289255		
Brunswick Sewer District	ME0100102	33.2	2.73	34.2	0.284550		
Hartland WWTF	ME0101443	828.0	0.11	836.1	0.278596		
Camden WWTP	ME0100137	81.6	1.06	82.4	0.264953		
Sanford Sewerage District	ME0100617	38.3	2.15	37.9	0.247710		

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Facility Name	MEPDES #	Average Effluent PFAS (Maine PFAS6) (PPT) from this table data 6-27-23	Average Flow Rate (MGD)	Final Average Effluent PFAS (Maine PFAS6) (PPT) from 11-21 -23 Final DEP Summary Report	Pounds PFAS6 Per year disposed of in Maine Waters (lbs/yr)	Commercial Entity	Closed?
Caribou Utilities District	ME0100145	56.3	1.25	51.8	0.196509		
Presque Isle Utilities District	ME0100561	12.2	2.80	18.3	0.155885		
Saco Water Resource Recovery Dept	ME0101117	20.8	2.50	20.2	0.153754		
Brewer WPCF	ME0100072	27.0	2.07	24.0	0.151408		
East Millinocket WWTP	ME0102881	62.0	0.68	58.7	0.120691		
Biddeford WWTP	ME0100048	14.1	2.23	15.0	0.101907		
Falmouth WWTF	ME0100218	22.5	1.06	26.0	0.083602		
Old Town WWTP	ME0100471	15.1	1.47	17.1	0.076558		
North Berwick Sanitary Dist	ME0101885	45.5	0.60	39.4	0.071777		
Houlton Water Company	ME0101290	13.5	1.55	14.1	0.066626		
Orono WWTP	ME0100498	15.9	1.23	16.6	0.062132		
Gardiner WWTF	ME0101702	13.0	1.35	14.4	0.059178		
York Sewer District	ME0101222	15.5	1.20	16.2	0.058959		
Old Orchard Beach WPCF	ME0101524	18.1	0.99	19.0	0.057143		
Ellsworth WWTP (Main Plant)	ME0102865	22.9	0.78	23.5	0.055707		
Kittery WWTF	ME0100285	15.2	1.01	17.9	0.055209		
Dover Foxcroft WWTP	ME0100501	35.3	0.52	32.2	0.051050		
Lisbon WWTP	ME0100307	20.2	0.71	22.7	0.049247		
Pittsfield WWTP	ME0100528	19.6	0.78	19.0	0.044869		
Yarmouth WPCF	ME0100765	18.9	0.70	21.0	0.044828		
Wiscasset WWTP	ME0100757	66.5	0.25	54.7	0.042362		
Belfast WWTP	ME0101532	16.5	0.70	18.5	0.039364		
Unity Utilities District	ME0101150	33.5	0.39	33.2	0.039020		
Millinocket WWTP	ME0100803	19.8	0.75	16.6	0.038012		
Skowhegan WWTP (Main Plant)	ME0100625	15.6	0.76	16.4	0.037978		
Mars Hill Utility District	ME0101079	46.1	0.34	36.4	0.037483		
Guilford-Sangerville Sanitary District	ME0102032	50.9	0.25	49.6	0.037029		
Norway WWTF	ME0100455	24.7	0.48	24.2	0.035372		
Brunswick Graham Road Landfill	ME0102113	217.8	0.04	250.4	0.034035		
Bar Harbor WWTP (Main Plant)	ME0101214	15.5	0.77	14.5	0.034027		
Wells Sanitary District	ME0100790	13.4	0.74	14.5	0.032857		

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Facility Name	MEPDES #	Average Effluent PFAS (Maine PFAS6) (PPT) from this table data 6-27-23	Average Flow Rate (MGD)	Final Average Effluent PFAS (Maine PFAS6) (PPT) from 11-21 -23 Final DEP Summary Report	Pounds PFAS6 Per year disposed of in Maine Waters (lbs/yr)	Commercial Entity	Closed?
Kennebunk Sewer District	ME0100935	14.0	0.74	14.6	0.032678		
Bucksport WWTF	ME0100111	24.5	0.42	24.3	0.031292		
Fort Fairfield Utilities Dist	ME0100226	26.7	0.36	26.9	0.029591		
Mount Desert Island (Northeast Hbr)	ME0101346	40.5	0.26	36.4	0.029233		
Livermore Falls WWTP	ME0100315	12.9	0.67	14.1	0.028619		
Ogunquit Sewer District	ME0100986	17.3	0.50	17.0	0.025728		
Calais WWTP	ME0100129	14.0	0.64	13.0	0.025252		
Rumford-Mexico Sewer District	ME0100552	6.7	0.91	7.8	0.021481		
Newport Sanitary District	ME0100447	23.4	0.28	24.2	0.020889		
Fort Kent WWTF	ME0102369	25.1	0.31	22.0	0.020809		
Jackman Utility District	ME0100978	22.6	0.31	21.2	0.020214		
Freeport Sewer District	ME0101036	14.9	0.36	18.2	0.020021		
Thomaston Water Poll Cntrl Auth	ME0100668	38.6	0.16	39.4	0.019583		
Kennebunkport WWTF	ME0101184	14.9	0.31	19.6	0.018698		
Portland Wtr Dist (Cape Elizabeth)	ME0102121	17.5	0.31	19.0	0.017798		
Clinton Water District	ME0101699	30.4	0.19	30.1	0.017464		
South Berwick Sewer District	ME0100820	16.9	0.33	16.8	0.016657		
Paris Utility District	ME0100951	10.3	0.33	15.9	0.016156		
Berwick Sewer District	ME0101397	17.1	0.30	17.8	0.016096		
Machias WWPT	ME0100323	18.3	0.26	18.3	0.014600		
Boothbay Harbor Sewer District	ME0100064	19.8	0.24	19.6	0.014543		
Ashland Water & Sewer District	ME0101087	22.7	0.22	21.3	0.014432		
Canton WWTP	ME0102067	15.8	0.30	15.0	0.013914		
Farmington WWTP	ME0101249	8.6	0.43	9.6	0.012592		
Lincoln Sanitary District	ME0101796	7.4	0.55	7.5	0.012583		
Mount Desert Island (Seal Harbor)	ME0102555	14.4	0.24	15.3	0.011104		
Southwest Harbor Water & Sewer District	ME0100641	15.3	0.18	16.4	0.009124		
Mechanic Falls Sanitary District	ME0100391	13.6	0.20	13.8	0.008532		
Wilton WWTP	ME0101915	9.9	0.29	9.4	0.008233		
Castine WWTP	ME0101192	39.8	0.07	40.9	0.008152		
Great Salt Bay Sanitary District	ME0101516	21.1	0.12	20.5	0.007473		

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Facility Name	**MEPDES #**	**Average Effluent PFAS (Maine PFAS6) (PPT) from this table data 6-27-23**	Average Flow Rate (MGD)	Final Average Effluent PFAS (Maine PFAS6) (PPT) from 11-21 -23 Final DEP Summary Report	Pounds PFAS6 Per year disposed of in Maine Waters (lbs/yr)	Commercial Entity	Closed?
Blue Hill WWTP	ME0101231	33.2	0.06	34.7	0.005937		
Limerick Sewer District	ME0100871	16.3	0.10	17.8	0.005417		
Oxford WWTP	ME0102873	42.3	0.04	39.5	0.005010		
Milbridge WWTP	ME0100404	31.1	0.05	31.8	0.004972		
Sabattus Sanitary District	ME0101842	14.0	0.10	16.5	0.004971		
Milo Water District	ME0100439	8.6	0.18	8.7	0.004805		
Portland Wtr Dist (Peaks Island)	ME0102237	10.9	0.09	14.6	0.004096		
Winter Harbor Utilities District	ME0100731	7.6	0.04	15.7	0.001984		
Washburn Water And Sewer District	ME0101028	8.1	0.07	7.5	0.001647		
Mount Desert Island (Somesville)	ME0102547	19.2	0.03	19.5	0.001644		
Bar Harbor WWTP (Hulls Cove)	ME0102466	5.9	0.07	6.6	0.001309		
Penobscot Indian Nation	ME0101311	8.8	0.05	8.7	0.001306		
Vinalhaven WWTP	ME0102491	13.3	0.02	14.2	0.000706		
			Totals =	**47.2**	**52.65**		

	Pounds/year	
Percent shown below	23.43	Facilities not closed
74%	17.34	Non commercial facilities not closed
26%	6.08	Commercial facilities not closed

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Appendix D: Calculations

Annual PFAS Release to Maine's Navigable Waters.

~~7/1/23~~
Nathan Saunders
Updated 2/24/26.

Several months ago I was made aware that with new legislation on PFAS in 2022, that the Maine DEP was requiring Maine facilities with an effluent discharge license to test for PFAS and report numbers to the DEP. I contacted the DEP a couple weeks ago to ask for data on SAPPI (Hinkley), and the Kennebec Sanitary Treatment District (KTSD), for which Huhtamaki provides 40% of their wastewater. I also asked for the discharge flow permitted for each of these facilities. I received the following data back:

KTSD: 148.7 ppt (Maine PFAS6) and 12.7 MGD permitted discharge

SAPPI (Hinkley): 16.3 ppt (PFAS6) and 46.5 MGD permitted discharge

I used the following calculation to determine the lbs./yr of PFAS6 discharged per year in to the Kennebec River.

Note: PFAS water laboratory results are given in ng/L and ng/L = parts per trillion (ppt)

KTSD

$$148.7\ ppt = (148.7)\ ng/L \times \frac{1\ gram}{(1{,}000{,}000{,}000)\ ng} \times \frac{(3.785)\ L}{gal} = 5.628\times10^{-7}\ g/gal$$

$$(5.628\times10^{-7})\ g/gal \times (12{,}700{,}000)\ gal/day \times (365)\ day/yr \times \frac{lb}{(454)\ g} = 5.74\ lbs/yr$$

SAPPI, similarly, = 2.3 lbs/yr

⟹

I shared these calculations with the DEP who confirmed this method of calculating lbs/yr PFAS6 discharge.

I then asked if data was available for all facilities in Maine and within a couple days received the spread sheet attached to this email, which I worked on to calculate the total lbs/yr PFAS6 discharged into Maine waters. The data from the DEP was for 105 facilities with measurements of PFAS6 and flow rates taken for 6 months. The DEP and I agreed that using average, measured flow rates was more realistic than using maximum permitted flow rates. When a facility had "not detected" as a PFAS value, I used a Ø and included the Ø in the average. When a flow rate was not recorded on a given month, I averaged just the flow rates that were given for that facility.

The spread sheet calculations show that the total lbs/yr of PFAS6 discharged into Maine waters by 105 facilities is 23.43 lbs/yr.

What does this mean? Continuing...

$$(23.43)\ \text{lbs/yr} \times \frac{(454)\ g}{1\text{ lbs}} = 10{,}637\ g/yr.$$

convert to ng

$$(10{,}637)\ g/yr \times (1{,}000{,}000{,}000)\ ng/g = 10{,}637{,}000{,}000{,}000\ ng/yr \Rightarrow$$

The enforceable maximum PFAS6 level in Maine drinking water 20 ng/L. How many liters of water can be contaminated at the level of 20 ng/L with 10,637,000,000,000 ng of PFAS6?

$$(10,637,000,000,000)\,ng \times \frac{L}{20\,ng} = 531,850,000,000\,L$$

converted to gallons.

$$(531,850,000,000)\,L \times \frac{gal}{(3.785)\,L} = 140,515,191,546\,gal$$ *

From the US CDC, the average adult drinks 44 oz of drinking water per day (not including children with lower consumption per day will make the final numbers conservative).

$$(44\,oz) \times \frac{gal}{128\,oz} = (.34375)\,gal/day \times \frac{(365)\,days}{yr} = 125\,gal/person/yr.$$

DW consummed/person/yr.

* How many peoples annual amount of water consummed can be contaminated by 23.43 lbs of PFAS6?

$$*140,515,191,546\,gal \times \frac{1}{(125)\,gal/person/yr} = 1,124,121,532\,peoples$$

DW per year can be contaminated by 23.43 lbs PFAS6.

How many people in the US = 331.9 million

How many people in Maine = 1,372,000 ⇒

For the entire population of the U.S., 24.89 lbs of PFAS6, the amount discharged into Maine waters each year, will contaminate all of the water consummed by the US population for how many years?

$$\frac{(1,124,121,532)\text{ people whose annual water consummed is}}{(331,900,000)\text{ people (US Population}} \frac{\text{contaminated by } 23.43 \text{ lbs PFAS6 per yr.}}{} = 3.4 \text{ years}$$

** Therefore, the 23.43 lbs of PFAS6 discharged into Maines waters annually is enough to contaminate the amount the water consummed by the entire US population for 3.4 years

Similarly for Maine

$$\frac{1,124,121,532}{1,372,000\text{ (Maine Population)}} = 819 \text{ years}$$

*** Therefore, the 23.43 lbs of PFAS6 discharged into Maine Waters annually is enough to contaminate the amount the water consummed by the entire State of Maine population for 819 years

Notes:

1. The US EPA and Maine do not have any PFAS effluent discharge regulations (limits) for any Maine facility that is discharging PFAS into Maine Waters.

2. These calculations only cover the amount of PFAS discharged into Maine waters; the amount of PFAS discharged onto Maines' land and into Maines air will not be known until EPA Toxics Release Inventory data provides these numbers, and all 172 PFAS chemicals listed for reporting in the EPA TRI reporting are changed to be identified as "Special Chemicals of Concern" that have No Di minimis reporting thresholds.

Nathan S. Saunders P.E

P.S. The numbers I have shared here are based on PFAS effluent concentrations sampled in 2023. The likelyhood that PFAS effluent concentrations and amounts over the past 40-50 year were greater is very high! Three large paper mills in Maine have closed down in the last 3 years that added 29.22 lbs PFAS/yr or 125% increase in total PFAS disposed of in Maine Waters each year, and concentrations of PFAS used in the past were also likely to have been much higher.

52.65 - 23.43 = 29.22

29.22 / 23.43 × 100 = 125%

In 2023 74 % of the total release of PFAS to Maines Navigable Waters was attributed to only two commercial facilities, both of which have closed since then

$$\begin{array}{r} 20.29 \text{ lbs/yr} \\ + \ 8.88 \text{ lbs/yr} \\ \hline 29.17 \text{ lbs/yr} \end{array} \longrightarrow \frac{29.17}{52.65} \times 100 = 55\%$$

52.65 ← All facilities 2023

After the closing of these two facilities, the remaining 11 commercial facilities contribute $\frac{6.08 \text{ lbs/yr}}{23.43 \text{ lbs/yr}} \times 100 = 26\%$

23.43 lbs/yr ← All facilites after closed plant PFAS contribution was removed

The remaining 91 non-commercial facilities (most being POTWs) contribute $\frac{17.34 \text{ lbs/yr}}{23.43 \text{ lbs/yr}} \times 100 = 74\%$

---

1 gallon = .13368 ft^3

What length of the sides of a cube have a volume of .13368 ft^3?

- all sides of the cube as the same, $x = y = z$, or cube volume = x^3
- so, a cube that holds one gallon volume has sides of:

$$x^3 = .13368 \text{ ft}^3$$

$$x = \sqrt[3]{.13368} = .5113 \text{ ft} \quad \text{or} \quad (.5113)\text{ft}\,(12)\frac{\text{inches}}{\text{ft}} = 6.14 \text{ inches.}$$

If 140 billion cubes of water holding one gallon each were lined up next to each other to go around the earth, how many times around the earth would these lined up cubes go?

The number of gallons of water that PFAS discharged annually to Maines Navigable Waters has the capacity to contaminate beyond the EPA maximum contaminant level (MCL) for drinking water is 140,515,191,546 gal/year.

Since each one gallon cube has a length of .5113 feet, the total length of 140,515,191,546 cubes is

$$140,515,191,546 \times .5113 \text{ ft} = 71,845,417,437 \text{ ft}$$

The circumference of the earth is

$$(24,901)\text{miles} \times \frac{(5280)\text{ft}}{\text{mi}} = 131,477,280 \text{ ft}$$

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$$\frac{71,845,417,437 \text{ ft}}{131,477,280 \text{ ft}} = 546 \text{ times.}$$

The 140 billion gallons of water that are contaminated beyond drinkable level by the PFAS discharged into Maines Navigable Waters each year, if lined up in one-gallon cubes, would circumnavigate the globe 546 times.

An olympic swimming pool holds 660,000 (Wiki) gallons of water. How many olympic sized swimming pools will 140 billion gallons of water fill up?

$$\frac{140,515,191,546 \text{ gallons}}{660,000 \text{ gal/O.Pool}} = 212,902$$

Olympic pool = 50m x 25m, minimum depth = 2 meters.

Pools lined up end to end: 212,902 x 50m = 10,645,100m ⇒

$(10,645,100)\,m \times \frac{\text{mile}}{(1609.33)\,m} = (6,615)\,\text{miles} \times \frac{(1)\,\text{earth circumference}}{24,901\,\text{miles}} = .27$ times

distance from Sandiego to Paris France = 6600miles

So, the number of Olympic sized swimming pools that could be filled up with water contaminated by PFAS discharged annually to Maine's Navigable Waters when lined up would extend from Sandiego, CA to Paris, France.

Appendix E: Maine MCL and Federal MCL

Briefing for the Joint Standing Committee on the Environment and Natural resources

January 31, 2022

Melanie Loyzim, Commissioner
Susanne Miller, Director Bureau of Remediation & Waste Management
Brian Kavanah, Director Bureau of Water Quality

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Protecting Maine's Air, Land and Water

Current PFAS Standards

MAINE PFAS SCREENING LEVELS

June 2021

Soil Remedial Action Guidelines (mg/kg)

Compound	Leaching to Groundwater	Residential	Commercial Worker	Park User	Recreator Sediment	Construction Worker
PFBS	7.1	1,700	22,000	4,900	5,700	51,000
PFOS	0.0036	1.7	22	4.9	5.7	5.1
PFOA	0.0017	1.7	22	4.9	5.7	5.1

Soil Beneficial Use (ng/g, dry weight)

Compound	Beneficial Use
PFBS	1,900
PFOS	5.2
PFOA	2.5

Recreational Angler RAGs (mg/kg wet weight)

Compound	Fish Tissue
PFBS	52
PFOS	0.052
PFOA	0.052

Interim Drinking Water Standard (ng/l or ppt)

Compound	Residential
PFOS + PFOA + PFHpA + PFNA + PFHxS + PFDA	20

Milk (ng/l or ppt)

Compound	Action Level
PFOS	210

Beef (ng/g)

Compound	Action Level
PFOS	3.4

Dairy - PFOS Crop-Specific Soil Screening Levels (ng/g dry weight)

	Soil to Hay to Milk Screening Level	Soil to Corn-Silage to Milk Screening Level	Soil to Hay and Corn-Silage to Milk Screening Level
Grass-Based Farm	6.8	120.0	6.4
Average Maine Farm	13.8	54.8	11.0

Helpful Conversions: 0.000001 parts = 0.001 ppb = 1 ppt

Parts Per Million (ppm)	Parts Per Billion (ppb)	Parts Per Trillion (ppt)
1 milligram/kilogram (mg/kg) = 1 ppm	1 microgram/kilogram (ug/kg) = 1 ppb	1 nanogram/kilogram (ng/kg) = 1 ppt
1 milligram/liter (mg/l) = 1 ppm	1 microgram/liter (µg/l) = 1 ppb	1 nanogram/liter (ng/l) = 1 ppt
1 microgram/gram (ug/g) = 1 ppm	1 nanogram/gram (ng/g) = 1 ppb	1 picogram/gram (pg/g) = 1 ppt

[1] Maine Department of Environmental Protection (Maine DEP), *Maine Remedial Action Guidelines (RAGs) for Contaminated Sites*, effective May 1, 2021.
[2] Maine DEP, *Maine Solid Waste Management Rules: Beneficial Use of Solid Wastes*, 06-096 C.M.R. ch. 418, Appendix A, last amended July 3, 2018.
[3] Maine DEP, *Maine RAGs for Contaminated Sites*, effective May 1, 2021.
[4] Resolve 2021, ch. 82, *Resolve, To Protect Consumers of Public Drinking Water by Establishing Maximum Contaminant Levels for Certain Substances and Contaminants*, Emergency, effective June 21, 2021.
[5] Maine Center for Disease Control and Prevention (CDC), *Action levels for PFOS in cow's milk*, Memorandum to Rachael Eisen, Maine Department of Agriculture, Conservation and Forestry (DACF), from Andrew Smith, SM, SCD and Thomas Simones, PhD, Maine CDC, March 28, 2017.
[6] Maine CDC, *Action levels for PFOS in beef for use in determining whether beef at a farm is adulterated*, Memorandum to Nancy McBrady, Maine DACF, from Andrew Smith, SM, ScD and Thomas Simones, PhD, Maine CDC, August 4, 2020.
[7] Maine CDC, *Derivation of PFOS soil screening levels for a soil-to-fodder-to-cow's milk agronomic pathway*, September 16, 2020.

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

EPA Strategic Roadmap for PFAS

released in October 2021

EPA's Health Advisory

PFOA, PFOS or PFOA+PFOS

= 70 ppt

Maine's Interim Drinking Water Std

= 20 ppt

for the sum of six PFAS:

PFOA, PFOS, PFNA, PFDA, PFHpA, and PFxHS

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EPA

Fact Sheet

Understanding the Final PFAS National Primary Drinking Water Regulation
Hazard Index Maximum Contaminant Level

What is a Hazard Index Maximum Contaminant Level?

Decades of research show mixtures of different chemicals can have additive health effects, even if the individual chemicals are each present at lower levels. This means that low levels of multiple PFAS that individually would not likely result in adverse health effects may pose health concerns when combined in a mixture. The Hazard Index is a long-established approach that EPA regularly uses, for example in the Superfund program, to determine the health concerns associated with exposure to chemical mixtures. EPA's Hazard Index Maximum Contaminant Level (MCL) is set at 1 and applies to any mixture containing two or more of PFNA, PFHxS, PFBS, and HFPO-DA (known as "GenX chemicals). These PFAS can often be found together in different mixtures and research shows that exposure to mixtures of these chemicals may have additive health impacts.

How do I calculate the Hazard Index?

The Hazard Index is made up of a sum of fractions. Each fraction compares the level of each PFAS measured in the water to the highest level below which there is no risk of health effects. EPA is currently developing an online calculator to assist water systems in determining their Hazard Index result. The online calculator will perform the calculation explained in this fact sheet.

Step 1. Divide the measured concentration of Gen X by its health-based value of 10 ppt.

Step 2. Divide the measured concentration of PFBS by its health- based value of 2000 ppt.

Step 3. Divide the measured concentration of PFNA by its health-based value of 10 ppt.

Step 4. Divide the measured concentration of PFHxS by its health-based value of 10 ppt.

Step 5. Add the ratios from steps 1, 2, 3 and 4 together.

Equation:

$$\text{Hazard Index (1 unitless)} = \left(\frac{[\text{HFPO} - \text{DA}_{\text{ppt}}]}{[10\ \text{ppt}]}\right) + \left(\frac{[\text{PFBS}_{\text{ppt}}]}{[2000\ \text{ppt}]}\right) + \left(\frac{[\text{PFNA}_{\text{ppt}}]}{[10\ \text{ppt}]}\right) + \left(\frac{[\text{PFHxS}_{\text{ppt}}]}{[10\ \text{ppt}]}\right)$$

Step 6. Compliance with the Hazard Index MCL is determined by a running annual average. To determine the running annual average, repeat

steps 1-5 for each quarterly sample collected in the past year and calculate the average of these quarterly Hazard Index results.

Step 7. If the running annual average Hazard Index is greater than the MCL of 1, it is a violation of the Hazard Index MCL (see Table for example).

Chemical	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	Sample	Q1 Formula	Sample	Q2 Formula	Sample	Q3 Formula	Sample	Q4 Formula
HFPO-DA (ppt)	5 ppt	5 ppt/10 ppt = 0.5	5 ppt	5 ppt/10 ppt = 0.5	Not detected	0 ppt/10 ppt = 0	Not detected	0 ppt/10 ppt = 0
PFBS (ppt)	5 ppt	5 ppt/2000 ppt = 0.0025	5 ppt	5 ppt/2000 ppt = 0.0025	Not detected	0 ppt/2000 ppt= 0	5 ppt	5 ppt/2000 ppt = 0.0025
PFNA (ppt)	Not detected	0 ppt/10 ppt = 0	Not detected	0 ppt/10 ppt = 0	4 ppt	4 ppt /10 ppt = 0.4	Not detected	0 ppt/10 ppt = 0
PFHxS (ppt)	3 ppt	3 ppt/10 ppt = 0.3	Not detected	0 ppt/10 ppt = 0	4 ppt	4 ppt /10 ppt = 0.4	6 ppt	6 ppt/10 ppt = 0.6
Hazard Index (unitless)	0.5 + 0.0025 + 0 + 0.3 = 0.8025		0.5 + 0.0025 + 0 + 0 = 0.5025		0 + 0 + 0.4 + 0.4 = 0.8		0 + 0.0025 + 0 + 0.6 = 0.6025	
	Running Annual Average = $\left(\frac{0.8025 + 0.5025 + 0.8 + 0.6025}{4}\right)$ = 0.6769 = 0.7							
	The Hazard Index Running Annual Average result is 0.7 (rounded to one significant digit). Because this result does not exceed 1, the water system has not exceeded the MCL. Therefore, no violation of the Hazard Index MCL has occurred.							

epa.gov/pfas-npdwr_fact-sheet_hazard-index_
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