STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

WASTE MANAGEMENT DISPOSAL SERVICES OF MAINE, INC. CROSSROADS LANDFILL PHASE 14 EXPANSION NORRIDGEWOCK SOMERSET COUNTY, MAINE #S-010735-WD-YB-N	)	LICENSEE'S RESPONSE TO APPELLANT'S PROPOSED SUPPLEMENTAL AND OTHER NON-RECORD EVIDENCE

Licensee Waste Management Disposal Services of Maine, Inc. ("WMDSM" or "Licensee") hereby responds to the non-record material proposed or otherwise referenced and relied on by Conservation Law Foundation ("CLF") in its appeal of the solid waste license approval for WMDSM's Phase 14 project (the "Order"). As discussed below, the non-record material included in CLF's appeal does not meet the Board's test for supplemental evidence and therefore is not admissible. Additionally, all portions of the appeal that rely on the non-record material should be stricken.

BACKGROUND

The licensing record before the Maine Department of Environmental Protection (the "Department" or "DEP") is comprehensive and reflects a robust process in which members of the public, including CLF, were afforded ample opportunity to submit evidence and make arguments concerning WMDSM's proposed Phase 14 project (the "Project"). The Project review process began in 2018, when WMDSM submitted its required Preliminary Information Report ("PIR") on the feasibility of the site, which was reviewed and accepted by the DEP.[1] WMDSM

[1] Order at 7.

subsequently submitted its application for and obtained a positive finding of public benefit for the Project.[2] The public benefit determination process included public notice, a public meeting in August 2018, and the opportunity to comment on the DEP draft public benefit determination. This process provided CLF the opportunity to provide comments and raise many of the same issues that are the subject of CLF's appeal.[3] CLF did not participate in the public benefit determination process.[4]

Prior to submitting its solid waste application for the Project, WMDSM held a public informational meeting during September 2019 in the Town of Norridgewock and provided public notice of its application.[5]

The solid waste application was accepted for processing in November 2019, and the draft Order was issued in April 2021. Over the course of the intervening almost 18 months, the Department and its technical team reviewed the application, commented on various aspects of the Project, and requested and received responsive information from WMDSM. The Department maintained a public website and uploaded information to the website on a regular basis. The Department also held a public adjudicatory hearing during October 2020 on the Project. It provided public notice of the opportunity for members of the public to participate as intervenors. CLF opted not to do so. The Town of Norridgewock (the "Town") was an intervenor in the public hearing but did not present any witnesses or submit pre-filed testimony. The hearing was publicly noticed in the newspaper and notice was sent to interested persons, including CLF. All procedural orders associated with the public hearing were also sent to the interested persons,

[2] Order at 7.
[3] 38 M.R.S. § 1310-AA.2; Order at 45-49 (describing provisions of public benefit determination).
[4] August 30, 2018 Transcript In Re Informational Meeting for Proposed Expansion of the Crossroads Landfill, Phase 14, Waste Management Disposal Services of Maine, Inc.
[5] Order at 8-9.

including CLF. Because of COVID 19, the hearing was held virtually. At no point prior to the hearing did CLF object to the virtual format. Additionally, to facilitate public participation, the Town provided space for members of the public who may have lacked the technology to participate remotely to testify from the Town office.[6]

CLF testified during the public session of the public hearing[7] and, on the last day for submission of public comment, submitted more than 30 pages of written comments.[8] The comments include generalized concerns regarding per- and polyfluoroalkyl substances ("PFAS") in landfills and discharges to the Kennebec River from adjacent treatment plants.[9] CLF now seeks to supplement the record on appeal with a portion of the 2019-2020 Surface Water Ambient Toxics Monitoring Program report ("2019-2020 SWAT Report"), that includes data on PFAS in fish species in the Kennebec River.[10] Although not identified as non-record evidence, CLF's appeal also references and makes arguments based on additional non-record evidence.

DISCUSSION

In order to supplement the record on appeal to the Board a party must show that:

> the evidence offered is relevant and material and that: (a) the person seeking to supplement the record has shown due diligence in bringing the evidence to the attention of the Department at the earliest possible time; or (b) the evidence is newly discovered and could not, by the exercise of reasonable diligence, have been discovered in time to be presented earlier in the licensing process.[11]

Accordingly, for non-record evidence to be admissible on appeal, the evidence must be both relevant and material and unavailable during the Department's application review process.

[6] Order at 6-12 (describing the review and public hearing process).
[7] October 1, 2020 Public Hearing Transcript ("Transcript") at 49:7-58:11.
[8] October 13, 2020 Comments Submitted by CLF on the Phase 14 Project ("CLF Comments").
[9] CLF Comments at 17-18, 24-25.
[10] Appeal at 10-11.
[11] 06-096 CMR Ch. 2 § 24(B)(5).

The purpose of the Board's supplemental evidence rule is to make sure that information regarding a project application is brought to the Department's attention during its review of a proposed project. The Department has time, resources, and technical expertise that are not normally available to the Board in an appeal of a licensing decision. State statute and Department rules structure the project review process to take advantage of the Department's resources and expertise and appellants are not permitted to sidestep that process and submit new information on appeal absent a compelling showing that the proposed evidence is not only relevant but could not, through the exercise of reasonable diligence, have been submitted during the review process. None of the supplemental or other extra-record evidence identified or relied on by CLF satisfies this test.

A. The SWAT Report

Maine's SWAT monitoring program began in 1993.[12] The Department administers the program, which monitors lakes, rivers, streams, marine, and estuarine waters of the State on an ongoing basis,[13] and maintains a website on data collected through the program.[14] The Commissioner must prepare a five-year conceptual work plan in addition to annual work plans that are reviewed by a standing technical advisory group.[15] On an annual basis, the Department is to prepare, present, and publish a report on the monitoring program.[16] The 2019-2020 SWAT Report specifically provides the findings of the 2019 and 2020 annual work plans.[17]

1. The Information Could Have Been Submitted During the Licensing Proceeding

CLF asserts that the 2019-2020 SWAT Report was newly discovered and could not have

[12] *See* 38 M.R.S. § 420-B.
[13] *Id.*
[14] A screen shot of the relevant Department website is provided as Exhibit A for reference.
[15] 38 M.R.S. § 420-B at B.1.
[16] *Id.* at B.4.
[17] 2019-2020 SWAT Report, p.3.

been submitted during the licensing proceeding.[18] Although the particular report referenced by CLF may not have been published until June 2, 2021, all environmental sampling data is publicly available through the Department's website.[19] The underlying data for the 2019-2020 SWAT Report has been available on the Department's website since August 2020, almost a year prior to publication of the report and several months prior to public hearing on this application.[20] Moreover, there are reports from prior years that include data from the Kennebec River and that were also available on the Department's website in early 2020.[21] Additionally, the Department maintains a website of all its reports, including prior SWAT reports.[22]

Finally, the seminal report on PFAS in Maine was published in January 2020 by Governor Mills' PFAS Task Force.[23] That report specifically discusses issues addressed by the 2019-2020 SWAT Report and provides a citation to prior SWAT reports.[24] CLF participated in and submitted comments to the Governor's Task Force on the draft report[25] and published comments on the final report.[26] Thus, CLF has been involved in PFAS issues in the State and has been or should have been aware of the data in the 2019-2020 SWAT Report as well as prior SWAT reports.

[18] Appeal at 11.
[19] A screen shot of the relevant Department website is provided as Exhibit B for reference.
[20] A screen shot of the archived web page from August 7, 2020 is attached as Exhibit C for reference. The SWAT PFAS data that was available on that date is accessible through the link "Maine PFAS data (2007-2020) at the top right of the Department's archived webpage. The pages with results on the Kennebec River relied on by CLF are included with Exhibit C.
[21] A screen shot of the archived web page from February 2020 is attached as Exhibit D for reference. The data from the archived website that relates to the Kennebec River is included with Exhibit D.
[22] A screen shot of the Department website is provided as Exhibit E for reference.
[23] Managing PFAS in Maine – Final Report from the Maine PFAS Task Force, January 2020. The report is attached as Exhibit F for reference.
[24] Managing PFAS in Maine – Final Report from the Maine PFAS Task Force, January 2020, p. 8.
[25] December 6, 2019 Comments Submitted by CLF to the Maine PFAS Task Force. These comments are attached as Exhibit G for reference.
[26] January 8, 2020 Blog Post by CLF on the Final PFAS Task Force Report. This post is attached as Exhibit H for reference.

If CLF believed that water quality in the Kennebec River was relevant it could have raised the issue and cited to a myriad of water quality data that exists, but it did not. If it thought fish data from the Kennebec was relevant to the licensing process, it could have obtained the data through a simple internet search and submitted it during the nearly 18-month review of the Application. CLF could have presented the 2016 fish sampling data from the Kennebec River, which it did not do, and it could have presented the underlying data from the 2019-2020 SWAT Report, which it did not do. Had it done so, WMDSM could have responded and introduced relevant evidence to the extent necessary to address the topic. CLF cannot introduce new evidence on appeal simply because the most recent report in a series of reports was published after the close of the public record where, as here, the underlying data as well as similar data from prior years was available and could have been introduced during the licensing proceeding.

2. The SWAT Report is not Relevant to Any Licensing Criteria

Additionally, the SWAT Report is not relevant to application of applicable licensing criteria in this proceeding. CLF has identified generalized concerns about PFAS in the environment. WMDSM shares those concerns. There is nothing in the SWAT Report, however, or CLF's arguments based on that report that suggests let alone demonstrates that leachate from the Crossroads Facility is causing harmful levels of PFAS in fish species in the Kennebec River.[27] To the contrary, CLF's arguments all pertain to generalized concerns with licensed discharges from wastewater treatment plants and the regulations governing those discharges.[28]

[27] In fact, the SWAT Report notes that the measured PFAS levels were "well below" any action levels. 2019-2020 SWAT Report, p. 102.
[28] Appeal at 24-26.

These arguments constitute a collateral attack on those licensed discharges and this proceeding cannot be used as a forum for challenging those licensed discharges.[29]

Finally, to the extent that there are generalized concerns with PFAS in leachate, as noted by the Department in the Order, the Department will be requiring testing of landfill leachate for PFAS statewide.[30]

B. Other Non-Record Evidence

In addition to the 2019-2020 SWAT Report, CLF's appeal is replete with references to reports and data that are not in the licensing record. For example, CLF references and makes arguments based on (i) data concerning drought conditions in Maine,[31] and (ii) the specifics of a permit issued for the Turnkey Landfill in New Hampshire.[32] The information is not part of the licensing record before the DEP. To the extent CLF believes the documents and information meet the test for supplemental evidence, it was required but failed (i) to identify and clearly label the evidence as supplemental evidence, or (ii) to make any showing that it meets the test for supplemental evidence.[33] Because CLF failed to follow the process for seeking to supplement the record on appeal, the information should be stricken on that basis alone.

Moreover, neither category meets the test for supplemental evidence. The Turnkey permit was issued in 2018; CLF appealed that permit and was certainly aware of its existence during the DEP licensing proceeding.[34] Similarly, the drought data referenced by CLF is readily available

[29] *E.g.*, *Sold, Inc. v. Town of Gorham*, 2005 ME 24, ¶ 10, 868 A.2d 172, 176 (one statute cannot be used to challenge a permit issued under a separate and distinct statutory scheme); *Town of Boothbay v. Jenness*, 2003 ME 50, ¶ 25, 822 A.2d 1169, 1177 (party precluded from collaterally attacking prior permitting decision in separate proceeding).
[30] Order at 13.
[31] Appeal at 17 and fn.55.
[32] Appeal at 20 and fn.70-73, and 26 and fn. 89-90.
[33] 06-096 C.M.R. Ch. 2, § 24.B (appellant must identify supplemental evidence and address criteria for its inclusion).
[34] *Appeal of Conservation L. Found.*, No. 2020-0049, 2021 WL 357535 (N.H. Feb. 2, 2021).

public data for the period 2017 to date. CLF admits that both topics were "raised repeatedly" during the licensing proceeding.[35] If, as CLF claims, the topics were relevant, then it could have introduced the specific evidence, which it concedes was "publicly available," during the licensing process and not, for the first time, on appeal.[36]

CLF cannot sidestep the requirement to submit evidence during the licensing process and submit new information on appeal absent a compelling showing that it could not have been submitted earlier. Here, CLF could not, had it attempted to do so, make such a showing. Accordingly, WMDSM requests that the portions of the appeal that reference and rely on the Turnkey permit and the drought data be stricken.

CONCLUSION

As discussed above, the non-record evidence proposed and otherwise relied on by CLF does not meet the test for supplemental evidence and should be rejected. Likewise, the portions of the appeal that rely on such non-record evidence should be stricken. Attached as Attachment 1 are portions of the CLF appeal that WMDSM request be stricken because they rely on non-record evidence.

Dated: July 13, 2021

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[35] July 8, 2021 CLF Response to Notice of Receipt of Appeal and Deadline for Comment on Proposed Supplemental Evidence at 3-5.
[36] *Id.* at 4.

ATTACHMENT 1

June 10, 2021

Mark C. Draper, Chair
Board of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

RE: Notice of Appeal and Request for Public Hearing – Waste Management Disposal Services of Maine, Inc. Crossroads Landfill Phase 14 Expansion #S-010735-WD-YB-N (Approval with Conditions).

Dear Chair Draper:

By this letter, Conservation Law Foundation ("CLF") submits this Notice of Appeal of the above-referenced licensing decision ("License") for the Phase 14 Expansion of the Crossroads Landfill Facility ("Phase 14") issued by the Department of Environmental Protection ("DEP" or the "Department") on May 11, 2021, to Waste Management Disposal Services of Maine, Inc. ("WMDSM"), and in support thereof, provides the following information in accordance with the requirements of 38 M.R.S.A. § 341-D, and 06-096 CMR Ch. 2, § 24.

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BACKGROUND

WMDSM owns and operates a 993-acre parcel known as the Crossroads Facility. The Crossroads Facility consists of several components such as a recycling transport center, a community transfer station, a tire beneficial reuse processing facility, a woodwaste recycling program, a landfill gas energy plant, and three separate landfills ("Crossroads Facility").

I. Permitting Process

On October 28, 2019, WMDSM filed an application with the Department to construct and operate a new, fourth landfill at the Crossroads Facility, which it calls Phase 14.[1] Phase 14 would be a 7.75 million cubic yard landfill on 48.6 acres.[2] Over the course of the landfill's life, it would accept an estimated 7.5 million tons of waste.[3] This development would extend the life of landfilling activities at the Crossroads Facility by approximately 17 years.[4]

The Department held two virtual public hearings on WMDSM's application on October 1, 2020.[5] At the afternoon session, WMDSM summarized their pre-filed exhibits, presented testimony, and were questioned by Department staff.[6] At the evening session, the Department took testimony from the public.[7] Thirteen persons testified during the evening session. Prior to the close of the administrative record, the Department received 35 written comments.[8] This included substantive comments from CLF opposing the application.

On April 23, 2021, the Department published a draft license approving Phase 14.[9] A total of 87 written comments, including comments from CLF, were received on the draft license prior

[1] Phase 14 Expansion License, p. 9.
[2] *Id.*
[3] *Id.*
[4] *Id.* at 6.
[5] *Id.* at 11.
[6] *Id.*
[7] *Id.*
[8] *Id.*
[9] *Id.* at 12.

to the end of the comment deadline on May 4, 2021.[10] CLF's comments reemphasized our previous concerns regarding the use of a single-liner system, the incompatibility of the project with Maine's Solid Waste Hierarchy, risk of groundwater and surface water contamination, the inadequate Fire Prevention Plan, and the lack standards and performance targets for the composting facility. On May 11, the Department published a final license authorizing the construction and operation of the Phase 14 Expansion.[11]

II. Phase 14 – The New Landfill

Despite characterizing Phase 14 as a "landfill expansion," the proposed development is not contiguous to any of the three existing landfills at the Crossroads Facility. In fact, Phase 14 is about a half-mile away from the operation portion of the first landfill.[12] The new landfill would allow 7.75 million cubic yards, or 7.65 million tons, of waste to be buried.[13] This capacity is expected to allow for continued landfilling operations at the Crossroads facility for 17 years.[14] However, there is no guarantee or promise that Phase 14 will provide 17 additional years of capacity. WMDSM did not suggest, and the Department has not required, a cap on the number of tons that can be buried annually. Thus, the entire 7.65 million tons of capacity could be used by WMDSM as quickly as practicable. In fact, if WMDSM buries waste at the rate it did in 2019 (more than 550,00 tons per year including alternative daily cover), the new landfill would be full

[10] *Id.*
[11] *Id.*
[12] Permit Application, Volume I, General Information, p. 2, 9. Although the Department's Solid Waste Management Rules prohibit the development of any commercial landfill expansion unless the new facility is contiguous with the existing facility, (06-096 CMR Ch. 400, § 2) the authorizing statute was amended in 2012 to allow for the development of a commercial landfill expansion so long as the new facility is located on property owned by the licensee prior to 1989 (38 M.R.S.A. § 1310-X). It is unclear and confusing why the Department's Rules, though revised in 2015, are not consistent with the statutory changes made in 2012. Even more worrisome is that the statutory changes made in 2012 undermine Maine's ban on the licensing of new commercial landfills, despite that ban being reemphasized as recently as the 2019 Maine Materials Management Plan.[12]
[13] Phase 14 Expansion License, p. 3.
[14] *Id.* at 6.

in just 14 years.[15] Additionally, the Department has not required any meaningful conditions to preserve the capacity of the landfill for Maine generated waste. Thus, the entire 7.65 million tons could consist entirely of waste that originates from out-of-state sources. In 2019, a third of what was buried at the Crossroads Facility was from out-of-state.[16]

III. Waste Management at Phase 14

The waste approved to be buried at the new landfill will be toxic. The approved waste consists of residential, commercial, municipal solid waste, construction and demolition debris, special waste, and materials or waste used as alternate daily cover. Much of this waste would not be accepted at other New England landfills.

Special Wastes: The Crossroads Facility is approved to accept special waste for disposal. Special waste includes municipal incinerator ash, wastewater treatment plant sludge, contaminated media, light industrial solid waste, and asbestos-containing waste.

Incinerator Ash: The solid waste incineration process produces two types of ash: fly ash from air pollution control equipment, and bottom ash, which is the non-combustible residue remaining after combustion. Fly ash has high concentrations of toxic compounds such as dioxins (recognized carcinogens), lead (known to inhibit child development), mercury (known for impacts to central nervous system and kidneys), as well as other compounds like polychlorinated biphenyls ("PCBs"), polychlorinated naphthalenes ("PCNs"), cadmium, and arsenic.

Asbestos Containing Waste: Asbestos-containing waste is especially dangerous, as asbestos can cause a variety of significant health issues, including scarring of the lung tissue and certain types of cancer.

[15] 2019 Annual Report, Crossroads Landfill, Norridgewock, Maine, February 2020, Appendix A, Wastes Managed Within On-Site Secure Landfill
[16] *Id.*

Construction and Demolition Debris ("CDD"): CDD is a varied waste stream that includes concrete, asphalt, wood, gypsum, and asphalt shingles generated from the construction, renovation, and demolition of buildings, roads, bridges, and dams. CDD often has toxic solvents, adhesives, pigments, and coatings present. Some of these chemicals include ethyl benzene, methylene chloride, and toluene. Mercury is often a persistent element in CDD.

Utility Poles: The Crossroads Facility manages utility poles which it processes into a soil like material for use as alternative daily cover ("ADC").[17] Utility poles are particularly toxic, as they are treated with dangerous pesticides and wood preservatives. The chemicals that treat the wood are often banned for other uses.

Contaminants of Emerging Concern at Landfills: In addition, the Crossroads Facility likely accepts waste sources that contain contaminants of emerging concern such as Per- and Polyfluoroalkyl Substances ("PFAS"). Landfills have been burying PFAS-containing waste for over sixty years.[18] PFAS are used in a wide variety of consumer products including electronics, microwave popcorn bags, carpet, upholstery, nonstick cookware, dental floss, and textiles.[19] WMDSM maintains contracts with Sappi North America (for up to 400,000 gallons per day), and the Anson-Madison Sanitary District (for up to 56,000 gallons per day) for the offsite management of leachate.[20] Both Sappi and the Anson-Madison Sanitary District discharge effluent into the Kennebec River. The Department is not requiring WMDSM to pretreat leachate

[17] Waste Management Disposal Services of Maine, Inc. Crossroads Facility Phase 14 Solid Waste Permit Application, Volume I, Appendix 8A: Fugitive Particulate Control Plan, p. 2.
[18] A. H. Huset, M. A. Barlaz, D. F. Barofsky, & J. A. Field. Quantitative determination of fluorochemicals in municipal landfill leachates, 82 Chemosphere 1380–1386 (2011).
[19] National Center for Environmental Health, An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances and Interim Guidance for Clinicians Responding to Patient Exposure Concerns, Center for Disease Control (June 7, 2017), https://www.atsdr.cdc.gov/pfc/docs/pfas_clinician_fact_sheet_508.pdf; Johnsie R. Lang, B. McKay Allred, Jennifer A. Field, James W. Levis, and Morton A. Barlaz, National Estimate of Per- and Polyfluoroalkyl Substance (PFAS)
[20] Phase 14 Expansion License, p. 35.

onsite, a practice WMDSM currently implements at its Turnkey Landfill in Rochester, New Hampshire. Discharges of PFAS containing effluent are a significant concern. CLF and other commenters raised this concern throughout the public comment period.

Despite the toxicity and dangerous nature of the waste approved to be buried at the new landfill, the Department is only requiring WMDSM to utilize a single composite liner system for Phase 14.[21] This decision goes against the well-established industry standard of utilizing a dual composite liner system to better protect against eventual leachate leakage. In fact, Maine is the only state in New England that would approve a landfill authorized to accept these forms of waste with only a single liner.[22] Moreover, WMDSM has utilized a dual composite liner system for all previous phases of landfill development at the Crossroads Facility.

DISCUSSION

I. Request for Relief

CLF requests that the Board of Environmental Protection (the "Board") reverse the Commissioner's decision and rule that the License as drafted is unlawful, unsupported by substantial evidence on the whole record, and/or arbitrary, capricious, or characterized by an abuse of discretion.[23] Therefore, CLF requests the Board rule that Phase 14 of the Crossroads Facility cannot proceed under the License as drafted.

Specifically, CLF objects to the following findings and requests that the Board exercise its *de novo* review of the record in this matter to reverse these findings:[24]

[21] Phase 14 Expansion License, p. 14.
[22] See, U.S. Environmental Protection Agency, 1988, Federal Register, v. 53, no. 168, August 30, 1988, p. 33345, and Flawed Technology of Subtitle D Landfilling of Municipal Solid Waste, G. Fred Lee & Associates, p. 6. (Updated Jan. 2015).
[23] 5 M.R.S.A. § 11007(C).
[24] 38 M.R.S. § 341-D(4) states that "the board is not bound by the commissioner's findings of fact or conclusions of law but may adopt, modify or reverse findings of fact or conclusions of law established by the commissioner."

- Findings 18 and 19 – that Phase 14 meets the requirements of Maine's Solid Waste Management Hierarchy and Recycling Laws;
- Finding 15 – that Phase 14 will not pose an unreasonable risk of discharge to a significant groundwater aquifer;
- Finding 11(D) – that the Emergency Action Plan and Fire Prevention Plan procedures proposed by WMDSM are adequate to minimize the risk of fire as required by state law and regulation;
- Finding 26(A) – that the use of a single composite liner system meets the engineering and design standards; and
- Finding 12 – that the leachate management systems for Phase 14 will not unreasonably affect surface water quality.

Alternatively, should the Board not reverse the Commissioner's decision, CLF requests that the Board modify the License to include the following:

- Require WMDSM to provide recycling and composting services to all 55 communities from which it currently accepts waste;
- Require WMDSM to set specific targets for the composting facility;
- Require WMDSM to submit a plan detailing how it will collect and manage compostable waste;
- Require the Department to set a maximum fill rate for waste each year to preserve the life of the landfill for Maine generated waste;
- Require the Department to include enforcement mechanism on the condition that WMDSM "prioritize disposal of Maine generated solid waste," such as capping the amount of out-of-state waste WMDSM can bury in Phase 14 per year or reserving a specific amount of capacity for Maine generated waste;
- Require WMDSM to perform additional hydrogeological testing during non-drought conditions;
- Require WMDSM to develop a more robust Fire Prevention Plan;
- Require WMDSM to utilize a double liner system for Phase 14 as it has in all other Landfills at the Crossroads Facility, at its Turnkey Landfill in New Hampshire, and as would be required by all other New England states;
- Require WMDSM to utilize an electrical leak detection system for the entirety of Phase 14's operations; and
- Require WMDSM to pretreat leachate given the toxic nature of the waste it handles at the Crossroads Facility, and the likelihood of PFAS in the leachate.

II. Evidence Demonstrating CLF's Standing as an Aggrieved Party.

CLF has organizational standing to pursue this appeal and does so on behalf of its members. CLF is a non-profit member-supported organization incorporated under the laws of

Massachusetts with offices at 53 Exchange Street, Suite 200, Portland, in Cumberland County, Maine. CLF is a regional organization founded in 1966 with approximately 5,100 members, including approximately 388 members in Maine, and it is dedicated to the conservation and wise management and development of Maine and New England's natural resources.

CLF works to protect New England's environment for the benefit of all people, using the law, science, and the market to create solutions that preserve natural resources, build healthy communities, and sustain a vibrant economy. Through its Zero Waste Project, CLF aims to improve waste diversion, recycling, and composting programs and protect communities and our environment from polluting waste management practices such as incineration and landfilling.

A final decision by the Department may be appealed to the Board by those "who have standing as aggrieved persons."[25] An aggrieved person is any person who "may suffer particularized injury as the result of a licensing decision."[26] The Board will interpret the term "aggrieved person … consistent with Maine state court decisions that address judicial requirements for appeals of final agency action."[27] The requirement of a particularized injury is met when "the judgement adversely and directly affects the party's property, pecuniary or personal rights."[28] An association has standing to bring a suit on behalf of its members when "its members would otherwise have standing to sue in their own interest, the interests are germane to the organization's purpose, and neither the claim asserted, nor the relief requested requires participation of individual members in the lawsuit."[29]

[25] 06-096 CMR Ch. 2, § 24.
[26] 06-096 CMR Ch. 2, § 1(B).
[27] *Id.*
[28] Anderson v. Swanson, 534 A.2d 1286, 1288 (Me.1987).
[29] Friends of the Earth, Inc. v. Laidlaw Environmental Services. Inc., 528 U.S. 167, 180, (2000).

CLF has members who own property, reside, recreate, and/or work near the Crossroads Facility who will suffer particularized injuries as a result of the License decision. One member passes the Crossroads Facility twice a day on his commute to and from work, and frequently experiences noxious odor. He has expressed concern over the health impacts the landfill odor and gas may be causing him. This member also frequently kayaks in the Kennebec River, downstream of where leachate is discharged from the Anson-Madison Sanitary District. This member is concerned over the impact the leachate has on the water quality of the Kennebec River and is hesitant to continue kayaking in the river.

Another member is a citizen of the Odanak Abenaki First Nation and is Indigenous to the Kennebec River watershed. This member canoes on the Kennebec as her ancestors have done for generations. This member also enjoys swimming and eating fish harvested from the Kennebec. Moreover, this member and her family use the river regularly and participate in ceremonies near the river multiple times a year. This member is concerned about the impact Phase 14 will have on the Kennebec River and the overall water quality and air quality of the region.

Two additional CLF members live within approximately two miles of the Crossroads Facility. These members are concerned that Phase 14 will contaminate the aquifer which supplies their drinking water. Given their proximity to the Crossroads Facility, they are also concerned about the risk of fire. One of these members is an avid gardener who is concerned about the impact groundwater contamination will have on her ability to eat and grow her own food. The other member is an avid fisherman and is concerned about the impact eating fish from the Kennebec River, where WMDSM's leachate is discharged, may have on his health.

Another CLF member lives near the Crossroads Facility and is concerned about the destruction of wetlands and how this would impact the North Pond watershed. This member

recreates and enjoys the North Pond year-round and has developed a deep connection to the lake through her work as a Master Gardener. She fears the disruption of the watershed by Phase 14 will irrevocably harm the North Pond, undoing the seven-year process she undertook to achieve LakeSmart Certification for the area.

III. Request for Supplemental Evidence

CLF requests to introduce a portion of the 2019-2020 Surface Water Ambient Toxic Monitoring Program Final Report (the "2019-2020 SWAT Report") as supplemental evidence. The portion CLF requests to introduce relates to findings of a study on PFAS in fish from the Kennebec River above and below industrial treatment plants. This portion is included in this Notice of Appeal as Exhibit 2.

Maine regulations allow for supplemental evidence to be submitted at the discretion of the Board.[30] The Board may allow the record to be supplemented where it finds that the evidence offered is relevant and material and that (1) the appellant has shown due diligence to bring the evidence to the attention of the Department at the earliest possible time, or (2) the evidence is newly discovered and could not, by the exercise of reasonable diligence, have been discovered in time to be presented earlier in the licensing process.[31]

The 2019-2020 SWAT Report is relevant and material to this appeal. The report contains findings related to PFAS concentrations in fish in the Kennebec River. WMDSM is proposing to maintain contracts with Sappi North America and the Anson-Madison Sanitary District for offsite leachate management. Under the contracts, Sappi North America may accept up to 400,000 gallons of leachate per day, and the Anson-Madison Sanitary District may accept up to

[30] 06-096 CMR Ch. 2, § 24(D).
[31] 06-096 CMR Ch. 2, § 24(D)(2).

56,000 gallons per day.[32] Both facilities discharge treated effluent directly into the Kennebec River. The findings of this report are material to CLF's concerns over the impact Phase 14 will have on the water quality of the Kennebec. Specifically, the discharge of leachate which contains PFAS. The results of the report show that perfluorooctane sulfonate ("PFOS"), the most commonly prevalent form of PFAS, were elevated below industrial sources on the Kennebec River. PFOS were elevated in portions of the river below both the Sappi North America facility and the Anson-Madison Sanitary District.

The 2019-2020 SWAT Report is newly discovered and could not have been discovered through the exercise of reasonable diligence earlier in the licensing process. The 2019-2020 SWAT Report was published on June 2, 2021, after the Department had already issued the License for Phase 14. Therefore, the report could not have been referenced or introduce earlier in the process.

Given that the 2019-2020 SWAT Report meets the requirements of 06-096 CMR Ch. 2, § 24(D), CLF requests the Board introduce the report as supplemental evidence to the record.

IV. Concise Statement of Relief Sought and Basis for the Objections and Challenges.

As stated above, CLF requests that the Board reverse the Commissioner's decision and rule that the License as drafted is unlawful, unsupported by substantial evidence on the whole record, and/or is arbitrary, capricious, or characterized by an abuse of discretion.[33] Therefore, Phase 14 cannot proceed under the license as drafted. Specifically, CLF objects to the following findings.

[32] *Id.*
[33] 5 M.R.S.A. § 11007(C).

A. CLF Objects to Findings 18 and 19 – That the Proposed Phase 14 Expansion Meets the Requirements of the Solid Waste Management Hierarchy and Recycling Laws.

The decision to approve the Phase 14 Expansion of the Crossroads Facility undermines the requirements of Maine's Solid Waste Management Hierarchy, State Recycling Goals, and their implementing regulations.

The Department may only issue the License if the "purpose and practices of the solid waste facility [are] consistent with the State's solid waste management hierarchy set forth in 38 M.R.S.A. §2101."[34] 38 M.R.S.A. §2101 provides that it is the policy of the State to actively promote and encourage waste reduction measures and maximization of waste diversion efforts.[35] To carry out this policy, 38 M.R.S.A. §2101, requires the state to plan for and implement an integrated approach to solid waste management which must be based on the following order of priority: (a) reduction of waste generated at the source, including both amount and toxicity of the waste, (b) reuse of waste; (c) recycling of waste; (d) composting of biodegradable waste; (e) waste processing that reduces the volume of waste needing landfill disposal, including incineration; and (f) land disposal of waste.[36] 38 M.R.S.A. § 2132, established the goal of recycling or composting 50% of the municipal solid waste tonnage generated within Maine each year. According to the most recent data from the Department, Maine's recycling rate is 37.81%.[37]

As a threshold matter, building a new landfill does not incentivize reduction, prioritize reuse, develop recycling or composting programs as required by 38 M.R.S.A. §2101, or help the

[34] 06-096 C.M.R. ch. 400, § 4(N)(1)
[35] *Id.*
[36] 38 M.R.S.A. § 2101.
[37] Department of Environmental Protection, Maine Solid Waste Generation and Disposal Capacity Report for Calendar Years 2018 & 2019, p. 2. (January 2021). Available at https://www.nrcm.org/wp-content/uploads/2021/02/DEPwastereport2021.pdf

state in achieving its recycling and composting goals. In fact, the more cubic yards of landfill capacity there is in Maine, the more likely it is that waste will be buried.

As described in the License, WMDSM will continue to accept waste in the same quantity and from the same sources as they have during previous phases. The License will allow WMDSM to bury 7.65 million tons of waste over the course of the expansion.[38] The Department has taken little action to prove that this capacity is needed and that WMDSM will be taking action to reduce, reuse, recycling, or compost waste as required by law. As written, the License requires that WMDSM:

- May not dispose of marketable recyclables in Phase 14.[39] While CLF strongly supports this condition, it is unclear how the Department will enforce compliance. The Department cannot condition the approval of a solid waste facility on an unenforceable condition.

- "Prioritize disposal of Maine generated solid waste.[40] While CLF strongly supports the intention behind this condition, as currently drafted it is unreasonably ambiguous and will not ensure capacity is reserved for Maine generated waste. This condition contains no enforcement mechanisms or oversight. In fact, the entire 7.65 million tons of waste could all come from out-of-state sources. In 2019, a third of what was buried at Crossroads Landfill was from out-of-state sources.[41]

Moreover, the License as drafted does not contain a maximum fill rate for waste each year, which would preserve the life of the landfill. Without a maximum fill rate, WMDSM could fill the entire 7.65 million tons of capacity as quickly as possible. In fact, if WMDSM buries waste at the rate it did in 2019 (more than 550,000 tons, including alternative daily cover)[42], Phase 14 would be filled within 14 years.

[38] Phase 14 Expansion License, p. 6.
[39] Phase 14 Expansion License, p. 48.
[40] Phase 14 Expansion License, p. 48.
[41] 2019 Annual Report, Crossroads Landfill, Norridgewock, Maine, February 2020, Appendix A, Wastes Managed Within On-Site Secure Landfill. (Hereinafter, "2019 Annual Report").
[42] *Id.*

According to the License, WMDSM accepts waste from 55 Maine communities but only provides recycling service to 21 communities. Not only is WMDSM handling the recycling of very few Maine residents, but it is also not diverting much tonnage from those to whom it does offer recycling, and much of the diversion that is occurring is not recycling.[43] In 2019, WMDSM only handled a total of 2,986 tons of single stream recyclables, non-tire metal recycling, and cardboard, including the recyclables collected at the Airport Transfer Station.[44] In other words, in 2019 WMDSM only collected about 1.5% as much weight in recyclables as compared to the weight of municipal solid waste it buried at Crossroads Facility. Such a small percentage is not moving Maine anywhere near the goal of recycling and composting 50% of municipal solid waste. Additionally, WMDSM's other programs are also very limited. WMDSM only provides battery, E-waste, tire reuse, and hazardous material drop off for 9 communities, once a year.

The License indicates that WMDSM "intends to develop a composting operation at the Crossroads Landfill Facility to serve nearby communities and commercial entities"[45] and that the composting program must be implemented before the commencement of operations in the Phase 14 Expansion.[46] While CLF supports the development of a composting facility, the License as drafted provides few, if any, details about this program. Moreover, the License contains no metrics for success, deadlines for milestones, diversion targets, or information on how WMDSM will separate compostable waste from waste destined for landfilling.[47] Essentially, the License contains nothing other than a promise that a facility will be built. It provides no real

[43] In 2019 WMDSM handled 62,179 tons of whole and shredded tires. While some (about 1,600 tons) of the components, like rims, were recycled, more than 56,000 tons were reclaimed for fuel, not recycled. 2019 Annual Report, Appendix B and C.
[44] 2019 Annual Report, Appendix B and C.
[45] Phase 14 Expansion License, p. 44.
[46] Phase 14 Expansion License, p. 90.
[47] Waste Management Disposal Services of Maine, Inc., Crossroads Facility, Phase 14 Secure Landfill, Determination of Public Benefit Application, July 3, 2018, p. 34.

accountability of any sort. This is inadequate and it will not ensure the diversion of materials to the maximum extent practical as required by 38 M.R.S.A. §2101.

For these reasons, CLF strongly objects to Findings 18 and 19 of the License, and based on the record, the Department could not have reasonably found that WMDSM will meet the requirements of Maine's Solid Waste Management Hierarchy, State Recycling Goals, and their implementing regulations. Therefore, CLF requests that the Board reverse this finding and deny the License. In the alternative, CLF requests that the Board modify the license to require:

(1) WMDSM to provide recycling and composting services to all 55 communities from which it currently accepts waste;
(2) WMDSM to expand its battery, E-waste, tire reuse, and hazardous material drop off program to increase the number of participating communities and increase the availability of these services;
(3) WMDSM to set specific targets for the composting facility;
(4) WMDSM to submit a plan detailing how it will collect and manage compostable waste;
(5) The Department to set a maximum fill rate for waste each year to preserve the life of the landfill for Maine generated waste; and,
(6) The Department to include enforcement mechanisms on the condition that WMDSM "prioritize disposal of Maine generated solid waste," such as capping the amount of out-of-state waste WMDSM can bury in Phase 14 per year or reserving a specific amount of capacity for Maine generated waste.

B. <u>CLF Objects to Finding 15 – That the Phase 14 Expansion Will Not Pose an Unreasonable Risk of Discharge to a Significant Groundwater Aquifer.</u>

The Department may not issue a license for a solid waste disposal facility when it finds that the proposed facility poses an unreasonable threat to the quality of a significant sand and gravel aquifer,[48] or poses an unreasonable risk of discharge to a significant ground water aquifer.[49] Based on the evidence provided, the Department cannot conclude that Phase 14 meets these standards.

[48] 38 M.R.S. § 1310-N(2-A).
[49] 38 M.R.S. § 1310-N(2-F)(E).

The Department relied on a Geological and Hydrological Assessment Report prepared by Golder Associates to reach its conclusion for Finding 15.[50] According to the that assessment, "there is no hydraulic connection between groundwater in the Phase 14 area and the significant sand and gravel aquifers because groundwater flow in all hydro-stratigraphic units in the Phase 14 area is primarily to the south-southwest" and "not toward the aquifers."[51] CLF contests this conclusion.

During the application process, the Department correctly questioned the placement of the location of the water monitoring wells, stating that because of the planned locations for the wells, WMDSM would fail to detect a release.[52] The Department requested additional sampling of bedrock wells.[53] In response to the Department's concerns, WMDSM conducted a groundwater pumping test to assess hydraulic conductivity and connectivity across various geologic strata. The pumping test was performed in July 2020 and documented in a Supplemental Geologic and Hydrogeologic report dated July 31, 2020. During the pumping test, a bedrock well was pumped at a continuous rate of 1 gallon per minute (gpm) for a period of 72 hours. Groundwater level elevations in wells screened in bedrock, till and clay were continuously monitored prior to, during and after the pumping test.

The results of the pumping test revealed hydraulic connection in each of the hydrogeologic units, bedrock, till and clay, to an estimated distance of at least 1,500 feet from the bedrock well.[54] This indicates a hydrogeologic regime that is deeply integrated and highly

[50] See, Phase 14 Expansion License, p. 39-40.
[51] See, Phase 14 Expansion License, p. 39.
[52] Maine Department of Environmental Protection Comments. (June 22, 2020). For Exhibits if needed. 17(b) and 29.
[53] *Id.* for Exhibit – point 29.
[54] Supplemental Geologic and Hydrogeologic Report, Crossroads Landfill, Norridgewock, Maine. Golder. July 31, 2020.

sensitive to small system changes. The impacts from the construction and operation of an almost 50-acre landfill on this delicate system were not adequately addressed or quantified by WMDSM.

Furthermore, Golder Associate's assessment of hydrology was completed in 2017 and 2019, with limited testing in 2020, all periods of significant recorded drought in Kennebec County, Maine. According to data from the U.S. Drought Monitor, produced by the National Drought Mitigation Center, National Oceanic and Atmospheric Association, and U.S. Department of Agriculture, Kennebec County experienced significant levels of drought between 2017 and 2021.[55] In 2017, Kennebec County experienced drought effects ranging from Moderate Drought to Severe Drought, to Exceptional Drought.[56] Periods of Abnormally Dry Weather and Moderate Drought continued throughout 2018 and 2019.[57] Conditions of Significant Drought returned in 2020.[58] Testing during such conditions would likely not provide an accurate understanding of the hydraulic connectivity below the proposed landfill during normal or high water table conditions.

Given the Department's previous concerns, the results of the July 2020 pumping tests, and the fact that all hydrologic testing was performed in periods of significant recorded drought, Finding 15 is unsupported by substantial evidence on the whole record, and/or arbitrary, capricious, or characterized by an abuse of discretion. As such, CLF requests that the Board reverse this finding and deny the License, as the Department cannot reasonably conclude that Phase 14 meets the requirements of 38 M.R.S. § 1310-N(2-A), and 38 M.R.S. § 1310-N(2-F)(E).

[55] U.S. Drought Monitor, Historical Conditions for Kennebec County 2000 – Present. Available at https://www.drought.gov/states/maine/county/kennebec
[56] *Id.*
[57] *Id.*
[58] *Id.*

In the alternative, the Board should – at a minimum – require WMDSM to perform additional testing during non-drought conditions to better evaluate the impact Phase 14 will have on groundwater resources.

C. CLF Objects to Finding 26(A) – Liner System Requirements

WMDSM is proposing to design a single-composite liner system over an in-situ and prepared clay footprint.[59] The thickness of the clay layer ranges from 2 feet to 18 feet thick.[60] In an effort to create a "homogenous low-permeability layer," WMDSM is proposing to excavate, scarify, and recompact areas of the clay.[61] All landfill liners ultimately fail to contain hazardous leachate, therefore it was unreasonable for the Department to require only a single liner.[62]

In 1991, the United States Environmental Protection Agency promulgated regulations for landfilling municipal solid waste ("MSW") as part of the Resource Conservation Recovery Act ("RCRA"), Subtitle D. Originally Subtitle D required a single composite (plastic sheeting and compacted clay/geosynthetic) liner, but it was eventually amended by many states to require two liner systems for all new landfill cells. In fact, the Department is the only state agency in New England that would permit a single composite liner over a layer of clay for the development of a new landfill.[63]

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[59] Phase 14 Expansion License, p. 14.
[60] Phase 14 Expansion License, p. 52.
[61] Phase 14 Expansion License, p. 62.
[62] *See,* U.S. Environmental Protection Agency, 1988, Federal Register, v. 53, no. 168, August 30, 1988, p. 33345, and Flawed Technology of Subtitle D Landfilling of Municipal Solid Waste, G. Fred Lee & Associates, p. 6. (Updated Jan. 2015).
[63] *State of Connecticut*, Title 22a Section 22a-209-14 (1) and (1)(C)(i) "The liner system shall be a dual synthetic liner system," https://eregulations.ct.gov/eRegsPortal/Browse/getDocument?guid={F0DC9F57-0100-C7B7-BF07-DE0E453778A8}; *Commonwealth of Massachusetts*, "Double composite liner" required at 310 CMR 19.110(4)(a) https://www.mass.gov/doc/310-cmr-19000-solid-waste-management-facility-regulations/download; *State of New Hampshire*, Chapter 800, 805.05 (b), where the number of liner systems required depends on the waste to be contained there, and Env-Sw 805.12 required that MSW landfills "shall be designed as double-lined facilities" as shall incinerator ash landfills (805.13), and landfills accepting "other solid waste types" (805.15). Construction and Demolition Debris landfills are only required to have a single liner system in New Hampshire,

A significant justification for only utilizing a single liner is the presence of compacted clay at the site of the new landfill. However, the use of compacted clay as a liner has not been shown to be effective in long-term prevention of landfill leachate leaks. A 2003 study evaluated the integrity of a geomembrane-compacted clay composite liner system to contain landfill leachate for 14 years.[64] Field observations of the geomembrane revealed many defects, including holes, patches, and cracks.[65] Physical, chemical, and mechanical tests conducted on samples collected from five different locations of the liner suggest that samples continuously exposed to sunlight or high temperatures experienced the greatest degradation.[66] Contaminant modeling of the liner suggests that the geomembrane liner most likely stopped being effective as a contaminant barrier to ionic species sometime between 0 and 4 years after the installation.[67]

While all landfills are dangerous, two liner systems on top of the clay layer would be more protective, and thus reasonable. In fact, at the Crossroads Facility itself, Phases 7, 9 (constructed 2001), 10 (constructed 1995), 11 (constructed 1998), and 12 (constructed 2002) are all double composite lined landfill cells.[68] Only the very old landfill cells, and the cells constructed on top of other lined cells, have single liner systems at Crossroads Facility.[69]

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https://www.des.nh.gov/organization/commissioner/legal/rules/documents/env-sw800.pdf; *State of Rhode Island*, "Double composite liner" required at 250-RICR-140-05-2 A.1. https://rules.sos.ri.gov/regulations/part/250-140-05-2; *State of Vermont*, Section 6-606 Disposal Facilities (b)(2)(E)"All liner systems installed after February 7, 1989 shall be of double liner construction."
https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/SWRule.final_.pdf

[64] Rowe, R. K.; Sangam, H. P. and Lake, C. B., "Evaluation of an HDPE Geomembrane after 14 Years as a Leachate Lagoon Liner," Can. J. Geotech./Rev. Can. Geotech. 40(3): 536-550 (2003)

[65] *Id.*

[66] *Id.*

[67] *Id.*

[68] Phase 14 Solid Waste Permit Application – Volume V of VI: Site Operations Manual, Section III Leachate Management Plan, p. 4-8. https://www.maine.gov/dep/ftp/projects/crossroads-phase14/application/Ph14%20SW%20PermitApp_Vol.%20V%20Operations%20Manual.pdf

[69] *Id.*

Additionally, Waste Management, the parent company of WMDSM, is currently in the process of expanding the Turnkey Landfill in Rochester, New Hampshire. In their application, Waste Management confirmed that the expansion of the Turnkey Landfill will utilize a dual liner system.[70] In fact, Waste Management decided to utilize a double-liner system to assure that solid waste management activities "are conducted in a manner protective of human health and the environment."[71] When approving the expansion of the Turnkey Landfill, the New Hampshire Department of Environmental Services found that the expansion "will not result in adverse impacts to the environment or natural resources of the State, public health or safety because the facility will be constructed with a double liner system to protect groundwater resources."[72] Additionally, Waste Management stated in its application for the Turnkey Expansion that the dual liner system "serves as a leak detection system."[73] Similar to the Crossroads Facility, the Turnkey Landfill accepts MSW and CDD. However, the Turnkey Landfill accepts much less special waste than the Crossroads Facility.

Moreover, the leak detection measures in the License are inadequate. As proposed, Phase 14 will lack any ongoing electrical leak detection system. The license only requires leak detection prior to Phase 14 becoming operational.[74] Once waste materials are placed in the landfill, there will be no leak detection system in place.

[70] Waste Management of New Hampshire – Standard Permit Expansion TLR-III South, Permit No. DES-SW-SP-95-001, p. 4, (June 11, 2018).
[71] *Id.* at 26.
[72] *Id.* at 28-29.
[73] Waste Management of New Hampshire, Standard Permit Application for Solid Waste Management Facility – Volume 1: Sections 1-VI, p. 247 (May 2017).
[74] Golder Associates, Response to September 9, 2020, MEDEP Comments Phase 14 Solid Waste Permit Application # S-010735-WD-YB-N, p. 2. (September 23, 2020). "WMDSM agrees to perform electric leak detection survey testing for each cell of the Phase 14 liner system. The testing will be performed in general accordance with ASTM D 7007 after construction of the liner and leachate collection system and before waste placement in each cell."

Throughout the application process, the Department expressed concern with the lack of adequate leak detection measures. In their February 14, 2020 comments on the application, the Department questioned the absence of a liner leak detection system and whether the project could meet the requirements of 06-096 C.M.R. 401 without this system.[75] On March 31, 2020, WMDSM responded by stating that the proposal meets the requirements even without a liner leakage detection system.[76] The Department found this response to be "inadequate" and stated that the current measures "can't guarantee rapid transport [of leachate] will not occur across an aquitard."[77] WMDSM responded to these comments by noting that it will continue to discuss this issue with the Department.[78] On September 23, 2020, WMDSM agreed to utilize a electric leak detection system to survey each cell prior to beginning waste disposal operations.[79]

While this is a step in the right direction, the Department should have required WMDSM to perform ongoing leak detection throughout operations of Phase 14. A variety of leak detection systems are available and in use by the industry to monitor the liners for leaks after the landfill is in operation. Systems using electro-chemical sensing units for liner leak detection and location are able to monitor the liner 24/7 and notify the operator of leaks immediately. The decision to only utilize a leak detection system prior to operations will not provide for continued protection of the surrounding environment. To protect against risk of groundwater contamination by leachate, a leak detection system needs to be active through the life of the landfill.

[75] Maine Department of Environmental Protection, Comments on WMDSM Crossroads Landfill Proposed Phase 14, Volume 1, p. 5. (February 14, 2020).
[76] Internal Memorandum from Kathleen E. Tarbuck to Linda J. Butler: Waste Management Disposal Services of Maine, Phase 14 Expansion Application, Volume IV Engineering Review, p. 1. (April 24, 2020).
[77] Maine Department of Environmental Protection, Follow-Up Comments on WMDSM Crossroads Landfill Proposed Phase 14, Volume 1, p. 5. (April 13, 2020).
[78] Geosyntec Consultants, Response to MEDEP Comments Phase 14 Solid Waste Permit Application, p. 1 (May 27, 2020.)
[79] Golder Associates, Response to September 9, 2020, MEDEP Comments Phase 14 Solid Waste Permit Application # S-010735-WD-YB-N, p. 2. (September 23, 2020).

Given WMDSM's own statements about the effectiveness of the double-liner system, and the well-established understanding that the all liner systems will eventually break down and discharge polluting leachate, the Department's decision to only require a single-composite liner system – as well as the decision to not require continued use of an electric leak detection system is unreasonable, and unsupported by substantial evidence on the whole record. As such the Board should reverse this finding and rule that WMDSM has failed to meet the engineering design requirements for a proposed landfill. In the alternative, the Board should require:

- WMDSM to utilize a double liner system for Phase 14 as it has in all other Landfills at the Crossroads Facility, and at its Turnkey Landfill in New Hampshire.
- WMDSM to utilize an electrical leak detection system throughout the entire life of Phase 14.

D. CLF Objects to Finding 11(D) – That the Emergency Action Plan and Fire Prevention Plan Procedures Proposed by WMDSM Are Adequate to Minimize the Risk of Fire as Required by State law and Rules.

Maine regulation 06-096 C.M.R. ch. 401, § 4(C)(15) requires that an operator take suitable measures for the prevention and control of fires at the facility site by complying with *at least* the following requirements: (a) arrange with a nearby fire department to provide emergency services when called, (b) provide sufficient on-site equipment for minor fires, (c) maintain a soil stockpile sufficient to suppress small fires; and (d) observe the current applicable fire safety rules of the Maine Forest Service.[80] This regulation sets the minimum requirements for fire prevention plans and procedures. However, given the frequency of previous fires at the Crossroads Facility, the Department should have required WMDSM to implement additional protective measures.

WMDSM experienced two fires at the Crossroads Landfill facility in the three years prior to the submission of the proposed Phase 14 application.[81] Two acres of the northeast corner of

[80] 06-096 C.M.R. ch. 401, § 4(C)(15). Emphasis added.
[81] Phase 14 Expansion License, p. 34.

the Crossroads landfill caught fire in the summer of 2018. According to local reports, construction and demolition debris chips used as cover on a portion of the Crossroads landfill spontaneously combusted, requiring response from multiple departments and State helicopters, resulting in the injury of several local firefighters, and a plume of toxic smoke from the smoldering landfill for weeks. In the summer of 2020, there was another fire at the Crossroads landfill, reportedly in the same section of the landfill where the 2018 fire happened. WMDSM did not notify neighbors of this fire. According to both the Department and WMDSM, both fires were ignited by hot embers contained within inadequately quenched biomass ash received at the facility.[82]

The only additional fire prevention measure required by the Department outside of the minimum standards set in 06-096 C.M.R. ch. 401, § 4(C)(15), is for the "establishment of a hot load area."[83] The License does not include any additionally requirements to prevent fire. This is unacceptable. Drenching a large load of hot ash derived from burning biomass does not guarantee that a fire will not occur, especially if it later comes in contact with dry chips and waste piles. Moreover, placing the hot load on a concrete pad does not guarantee that sparks and debris will not become airborne and potentially ignite a nearby waste pile.

Additionally, expansion of the gas piping, processing, and storage infrastructure also increases the risk of explosions if fire spreads, and ongoing underground fires may damage liners and pipelines. Moreover, the Fire Prevention Plan does not address the increased volume of materials that will come with an increase in landfill size, including hot loads of ash and combustible construction and demolition debris waste. Increased gas generation will also increase the chance of fires occurring within the landfill.

[82] *Id.*
[83] *Id.*

Landfill fires are especially dangerous as they can emit harmful fumes from the wide array of materials contained in the landfill. This includes carbon monoxide, hydrogen sulfide, and volatile organics.[84] Particulate matter in the smoke from landfill fires can also exacerbate respiratory and other health complications in those responding to the fire.[85] Prevention is critical to managing landfill fires, and steps need to be taken at the outset of any new development of the landfill to best protect against both surface fires and subsurface fires.

The lack of an effective Fire Prevention Plan constitutes a hazard to the health of the communities around the landfill and an increased risk of air contamination. Given the previous fires at the facility, the Department should have required WMDSM to provide additional protections, including but not limited to, temperature monitoring of piles, isolation of potential ignition sources from combustible materials, and staff trainings. Therefore, CLF urges the Board to reverse this finding, and rule that the Fire Prevention Plan as drafted fails to adequately minimize the risk of fire as required by state law and regulation.

E. CLF Objects to Finding 12 – That the Leachate Management Systems for the Proposed Phase 14 Expansion Will Not Unreasonably Affect Surface Water Quality.

WMDSM proposed to continue to contract for the transportation of leachate to off-site wastewater treatment plants ("WWTP").[86] WMDSM maintains contracts with Sappi North America for up to 400,000 gallons per day and the Anson-Madison Sanitary District for up to 56,000 gallons per day.[87] Both facilities discharge treated effluent directly into the Kennebec River.

[84] Racheal Zimlich, Prevention is Key in Managing Landfill Fires, Waste Dive. (September 15, 2015). Available at https://www.waste360.com/nuisances/prevention-key-managing-landfill-fires.
[85] *Id.*
[86] Phase 14 Expansion License, p. 35.
[87] *Id.*

WWTPs generally are not required or equipped to remove all types of leachate contaminants from wastewater prior to discharge into surface waters. Sewage treatment is primarily focused on reducing wastewater discharges of so-called conventional pollutants: oil, grease, organics like nitrogen and phosphorous, total suspended solids, and settleable matter. U.S. Environmental Protection Agency National Pollution Discharge Elimination System discharge permits for a municipal wastewater treatment facility do not require monitoring or set limits for the long list of contaminants in leachate—PFAS, PBDEs, and other chemicals of concern—that have been found to be highly toxic to humans and other species, and persistent in the environment. According to a U.S. Geological Survey study, many leachate contaminants are therefore present after leachate is processed by a municipal wastewater treatment plant.[88]

PFAS are a significant concern throughout Maine and in the Kennebec River. PFAS are group of more than 4,000 chemicals identified as emerging contaminants which have been found to be toxic to human and ecological health at very low part-per-trillion levels. The leachate from the Crossroads Landfill likely contains high levels of PFAS as MWDSM accepts WWTP sludge for landfilling at the Crossroads Facility. WWTP sludge has been identified as a leading contributor of PFAS into the environment. As there are no NPDES permitting criteria for PFAS from either landfill leachate or municipal WWTP effluent, PFAS-containing waste disposed of at the Crossroads Facility and released into its leachate will threaten the water quality of the Kennebec River – a river the State of Maine has spent nearly 50 years resuscitating – and pose significant threats to the people and ecosystems who rely upon it.

[88] J.R. Masoner, D. W. Kolpin, E. T. Furlong, I. M. Cozzarelli, I.M., & J. L. Gray, J.L., Landfill leachate as a mirror of today's disposable society: Pharmaceuticals and other contaminants of emerging concern in final leachate from landfills in the conterminous United States, 35 Environmental Toxicology and Chemistry 906-918 (2015).

According to the 2019-2020 SWAT report, elevated levels of PFOS, the most commonly detected PFAS, were found in fish downstream from both Sappi North American and the Anson-Madison Sanitary District. Additionally, PFOA were found in smallmouth bass at 28 ng/g in the Kennebec River at Waterville, which is also downstream from both points of discharge.

Leachate is currently not pretreated at the Crossroads Facility, nor did WMDSM or the Department discuss requiring pretreatment. However, Waste Management is required to pretreat leachate at the Turnkey Landfill in New Hampshire. Waste Management operates an on-site leachate treatment plan at the Turnkey facility.[89] This on-site facility includes biological and chemical treatment which occurs in a Sequencing Membrane Batch Reactor and physical treatment by reverse osmosis membrane separation process to remove inorganic and organic constituents.[90] At a minimum, the Department should have required WMDSM to pretreat leachate given the toxic nature of the waste it handles at the Crossroads Facility, and the likelihood of PFAS in the leachate.

V. Request for a Public Hearing

As part of its *de novo* review of the Department's Licensing decision, the Board is authorized to conduct a public hearing, and CLF requests that the board do so.[91] A hearing is warranted based on the significance of this project and the need for the public to be offered an opportunity to voice their concerns on the project. No public hearing was held after the draft license was published. However, there was clear public interest in the project, with 87 written

[89] Waste Management of New Hampshire – Standard Permit Expansion TLR-III South, Permit No. DES-SW-SP-95-001, p. 26, (June 11, 2018).
[90] Waste Management of New Hampshire – Facility Operating Plan: TRL-III Refuse Disposal Facility, p. 13 (May 2017).
[91] See, 06-096 CMR Ch. 2, § 7(B), and 06-096 CMR Ch. 2 § 24(B)(4).

comments being submitted in a little over a week before the close of the deadline.[92] A significant portion of these comments address the same concerns CLF is raising in this appeal. Namely, impacts to groundwater and surface water, concerns over the adequacy of the fire prevention plan, the lack of safeguards to ensure capacity for Maine generated waste, impacts to the Kennebec River, PFAS pollution, and the incompatibility of the proposal with Maine's solid waste management laws and goals.

Moreover, much of the licensing decision process, including the public hearing on the application, occurred during the time the State has been in a Civil Emergency as a result of the ongoing COVID-19 pandemic. Thus, members of the public had only a limited ability to meaningfully participate. The Public Hearing on this license was held on October 1, 2020, with no publicity, other than the required listing in the Public Notices section of one semi-local paper. To participate in the hearing, people were required to participate using Zoom with a video feed. If speakers did not have the bandwidth/technology to join the hearing via video in Zoom, the Town of Norridgewock offered the option that people could call in advance and get approved to come in to the (small) town office and participate using the town internet connection. Due to this lack of opportunity for meaningful public participation throughout the permitting process by those at risk of harm from the proposed landfill operations, a public hearing is needed.

Additionally, as the 2019-2020 SWAT Report was previously not publicly accessible but has a significant bearing on the Licensing decision, a public hearing would allow for additional public comment on the impacts WMDSM's proposed leachate management practices will have on the Kennebec River and wildlife.

[92] Phase 14 Expansion License, p. 12.

VI. Conclusion and Remedy Sought.

CLF strongly urges the Board to accept this appeal and perform a *de novo* review of the Department's Licensing decision. Additionally, we urge the Board to both supplement the record with the recent 2019-2020 SWAT Report and conduct a public hearing as part of this appeal. For the reasons stated above, CLF requests that the Board rule that the License as drafted is unlawful, unsupported by substantial evidence on the whole record, and/or arbitrary, capricious, or characterized by an abuse of discretion. The Board should reverse the Department's decision and find that Phase 14 cannot proceed under the License as drafted.

Alternatively, should the Board not reverse the Department's Licensing decision, CLF requests that the Board modify the License to require:

- WMDSM to provide recycling and composting services to all 55 communities from which it currently accepts waste;
- WMDSM to expand its battery, E-waste, tire reuse and hazardous material drop off program to increase the number of participating communities and increase the availability of the service;
- WMDSM to set specific and enforceable targets for the proposed composting facility;
- WMDSM to submit a plan detailing how it will collect and manage compostable waste;
- The Department to set a maximum fill rate for waste each year in order to preserve the life of the landfill for Maine generated waste;
- The Department to include enforcement mechanism on the condition that WMDSM "prioritize disposal of Maine generated solid waste," such as capping the amount of out-of-state waste WMDSM can bury in Phase 14 per year or reserving a specific amount of capacity for Maine generated waste;
- WMDSM to perform additional testing during non-drought conditions;
- WMDSM to develop a more robust Fire Prevention Plan;
- WMDSM to utilize a double liner system for Phase 14 as it has elsewhere at the Crossroads Facility, at its Turnkey Landfill in New Hampshire, and as would be required by all other New England state;
- WMDSM to utilize an electrical leak detection system for the entirety of Phase 14's operations; and
- WMDSM to pretreat leachate given the toxic nature of the waste it handles at the Crossroads Facility, and the likelihood of PFAS in the leachate.

Thank you for your time and consideration of this Appeal.

SIGANTURE PAGES

June 10, 2021

_____ _____

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Date

SIGANTURE PAGES

Peter W. Blair 06/10/2021

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Date

EXHIBIT A

Surface Water Ambient Toxics Monitoring Program (SWAT)

Contact: Questions may be directed to authors of each study or to Tom Danielson, 207-441-7430

Maine's Surface Water Ambient Toxics (SWAT) monitoring program was established in 1993. Its goal is to determine the nature, scope, and severity of toxic contamination in the surface waters and fisheries of the State. SWAT monitors tissue, sediment, and the water column in all waters of the State. This includes monitoring the health of organisms that may indicate toxic conditions. The program collects data to understand the risks to human and environmental health posed by these toxic contaminants.

SWAT data is available through EGAD.

Surface Water Ambient Toxics (SWAT) Monitoring Program Report

2017-2018 SWAT Report (PDF)

Show 10 entries Search:

Waterbody	Town
Androscoggin River	Bethel
Androscoggin River	Brunswick
Androscoggin River	Mexico
Aunt Hannah Brook	Dixfield
Bear River	Newry
Bird Brook	Norway
Bobbin Mill Brook	Auburn
Bond Brook	Augusta
Bond Brook	Augusta
Bond Brook - Unnamed Trib	Augusta

Showing 1 to 10 of 84 entries Previous 1 2 3 4 5 … 9 Next

Past Reports

2015-2016 SWAT Report (PDF)

- Individual Station reports 2015-2016 (zip file)

2014 SWAT Report (PDF)

- Individual Station reports 2014 (.zip file)

2013SWAT Report (PDF)

- Individual Station reports 2013 (.zip file)

2012 SWAT Report (PDF)

- Individual Station reports 2012 (.zip file)

2011 SWAT Report (PDF)

- Individual Station reports 2011 (.zip file)

EXHIBIT B

Contacts
Emergency Spill Response
Resources and Publications
Programs
Monitoring and Reporting
Laws
Rules

Per- and Polyfluoroalkyl Substances (PFAS)

Updates

Managing PFAS in Maine, Final Report from the Maine PFAS Task Force. January 2020

Fairfield-Area PFAS Investigation

Maine PFAS Mapper (new URL), please direct any feedback to pfas.dep@maine.gov

PFAS Briefing for the Committee on Environment and Natural Resources February 8, 2021 (off-site video, briefing begins at approximately 47:50)

Letter to EPA February 1, 2021

PFAS Screening Levels June 2021

November 12, 2020 - Maine sludge and bioash spreading information (Excel), please note the file contains links that will not work. Please direct any feedback to pfas.dep@maine.gov

August 14, 2019 Emergency Sludge Dewatering State Wastewater Infrastructure Planning and Construction Grants Available

June 10, 2019 letters from the Northeast Committee on the Environment to US Committee on Environment and Public Works and Congressional PFAS Task Force.

On March 22, 2019, the Department notified sludge/biosolids program licensees and related composting facilities of a new requirement to test for PFOA, PFOS, and PFBS. Upcoming deadlines include submission of an updated Sampling and Analytical Work Plan by April 12, 2019, and initial sampling to be conducted by May 7, 2019.

- March 22, 2019 memo re: Requirement to analyze for PFAS compounds. Includes sampling protocol and list of approved laboratories for PFAS analysis. (pdf)
- Per- and Polyfluoroalkyl Substances (PFAS) Laboratory Recommendations follow-up memo (pdf)

DEP Announces Testing of All Sludge Materials Before Land Application

Governor Mills Signs Executive Order Establishing Task Force Charged with Studying Effects of PFAS Prevalence in Maine

Maine PFAS data (2007-2020) as of October 26, 2020. For questions regarding this data, please email pfas.dep@maine.gov

What is it?

The chemicals perfluorooctanoic acid or PFOA, and perfluorooctanesulfonate or PFOS are man-made chemicals that became widely used in household products and industrial settings as early as the 1950's. PFOA and PFOS are sometimes referenced in a group of similar chemicals called per- and polyfluoroalkyl substances (PFAS). Both PFOA and PFOS were historically used in firefighting foams due to their effectiveness at quickly extinguishing petroleum based fires. Because they have a unique ability to repel oil, grease, water and heat,

More Information

DACF, Agriculture, Food and Rural Resources PFAS

EXHIBIT C

Contacts
Emergency Spill Response
Resources and Publications
Programs
Monitoring and Reporting
Laws
Rules

Per- and Polyfluoroalkyl Substances (PFAS)

Updates

Managing PFAS in Maine, Final Report from the Maine PFAS Task Force, January 2020

February 2020 Maine PFAS Mapper (Under Development), please direct any feedback to pfas.dep@maine.gov

September 6, 2019 - Maine sludge and bioash spreading information (Excel), please note the file contains links that will not work. Please direct any feedback to pfas.dep@maine.gov

Maine PFAS data (2007-2020) as of June 2, 2020. For questions regarding this data, please email pfas.dep@maine.gov

August 14, 2019 Emergency Sludge Dewatering State Wastewater Infrastructure Planning and Construction Grants Available

June 10, 2019 letters from the Northeast Committee on the Environment to US Committee on Environment and Public Works and Congressional PFAS Task Force.

On March 22, 2019, the Department notified sludge/biosolids program licensees and related composting facilities of a new requirement to test for PFOA, PFOS, and PFBS. Upcoming deadlines include submission of an updated Sampling and Analytical Work Plan by April 12, 2019, and initial sampling to be conducted by May 7, 2019.

- March 22, 2019 memo re: Requirement to analyze for PFAS compounds. Includes sampling protocol and list of approved laboratories for PFAS analysis. (pdf)
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More Information

MAINE PFAS DATA (2007 - 2020)

EGAD Data Disclaimer:

EGAD (Environmental and Geographic Analysis Database) is a public information resource provided by the Maine Department of Environmental Protection (DEP). The State of Maine and InforME make every effort to ensure that published information is accurate and current. Neither the State of Maine, nor any agency, officer, or employee of the State of Maine warrants the accuracy, reliability or timeliness of any information published on the Maine.gov website, nor endorses any products or services linked from this system and shall not be held liable for any losses caused by reliance on the accuracy, reliability or timeliness of such information. Portions of the information are subject to revisions, corrections, and updates. Any person or entity that relies on any information obtained from this system does so at their own risk.

Data in the EGAD system go through various levels of quality assurance/quality control procedures before being accepted by the DEP to meet project requirements. However, the DEP makes no guarantee as to the accuracy, reliability, timeliness or completeness of the data. To ensure data authenticity, original laboratory analytical reports and field sheets should be consulted. Please note that the following data is an abbreviated dataset and does not include all associated data quality information. For fish data, only the wet weight basis data is included. Original laboratory analytical reports or the DEP should be consulted to obtain sample results relating to dry or lipid weight basis. Screening levels for fish are based on a wet weight basis. As an aid to data interpretation, EGAD supplemental materials such as the data dictionary and LUP tables should be consulted. The DEP does not assume any responsibility for the nature in which EGAD data are used, either in their raw form or in the form of derived products. When using EGAD data, the following citation should be provided: Maine Department of Environmental Protection, EGAD (Environmental Geographic Analysis Database), http://www.maine.gov/dep/maps-data/egad/.

These data were extracted on June 2, 2020 and do not include any recently reviewed or currently pending electronic data deliverables as of June 2, 2020. Please note the following abbreviations on the PFAS data table: RL = Reporting Limit, and TS = Treatment Status (T = treated, N = not treated, NA = not applicable, U = unknown, Blank = not reported/unknown).

Sample Type Key:

SAMPLE TYPE	DESCRIPTION	SAMPLE TYPE	DESCRIPTION
BC	BEDROCK CHIPS	SA	SAWDUST
BM	BUILDING MATERIAL	SD	SEDIMENT
CO	COMPOST	SF	SKINLESS FILET
DW	DRINKING WATER	SL	SOIL
FA	FLY ASH	SOF	SKIN-ON FILET
GW	GROUNDWATER	SPG	SEPTAGE
L	LEACHATE	SR	STORM WATER RUNOFF
MA	MANURE	SU	SLUDGE
MLK	MILK	SW	SURFACE WATER
N	NEAT SAMPLE	V	VEGETATION
O	OFFAL	WH	WHOLE
POL	POLYMER	WS	WHOLE WITHOUT SKIN
PO	PORE WATER	WW	WASTE WATER

MAINE PFAS DATA (2007 - 2020)

Lab Qualifier Key:

B	COMPOUND IS FOUND IN THE ASSOCIATED METHOD BLANK (ORGANIC) OR THE REPORTED VALUE WAS LESS THAN THE REPORTING LIMIT BUT GREATER THAN OR EQUAL TO THE INSTRUMENT DETECTION LIMIT (INORGANIC).
B*	COMPOUND IS FOUND IN THE ASSOCIATED METHOD BLANK (ORGANIC) OR THE REPORTED VALUE WAS LESS THAN THE REPORTING LIMIT BUT GREATER THAN OR EQUAL TO THE INSTRUMENT DETECTION LIMIT (INORGANIC) AND QC RESULTS ARE NOT WITHIN CONTROL LIMITS.
D	SAMPLE RESULT THAT REQUIRED DILUTION.
E	REPORTED VALUE IS ESTIMATED DUE TO PRESENCE OF INTERFERENCE (INORGANIC) OR COMPOUND EXCEEDED UPPER LEVEL OF CALIBRATION RANGE (ORGANIC).
J	ASSOCIATED VALUE IS ESTIMATED - MAY BE DUE TO FACTORS SUCH AS HOLDING TIME VIOLATIONS, BLANK CONTAMINATION, ETC.
J*	ASSOCIATED VALUE IS ESTIMATED AND QC RESULTS NOT WITHIN CONTROL LIMITS.
JB	ASSOCIATED VALUE IS AN ESTIMATE, COMPOUND IS FOUND IN THE ASSOCIATED METHOD BLANK.
LQV	LAB QUALIFIED, UNDEFINED. DATA SUBSEQUENTLY VALIDATED.
U	NOT DETECTED ABOVE THE ASSOCIATED QUANTITATION LIMIT.
UJ	NOT DETECTED ABOVE THE ASSOCIATED QUANTITATION LIMIT AND ESTIMATED DUE TO VARIOUS QC DEVIATIONS, INCLUDING ELEVATED OR ESTIMATED QUANTITATION LIMIT.
*	QC RESULTS NOT WITHIN CONTROL LIMITS.

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFTRIA		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFDA		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFHXA		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFHXS		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFHPA		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFDOA		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFUNDA		NG/L	U	5	T
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFOA + PFOS		NG/L	U	5	T
HOULTON WATER CO	137444	5/1/2019	SU	PFOA	2.8	NG/G	J	4.6	NA
HOULTON WATER CO	137444	5/1/2019	SU	PFBS		NG/G	U	4.6	NA
HOULTON WATER CO	137444	5/1/2019	SU	PFOS	45	NG/G		6.9	NA
HOULTON WATER CO	137444	5/1/2019	SU	PFOA + PFOS	47.8	NG/G	J	4.6	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFOA	11.4	NG/G		1.2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFOA	13.3	NG/G		2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFBS	1.11	NG/G	J	1.2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFBS	1.01	NG/G	J	2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFOS	28.9	NG/G		1.2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFOS	33.1	NG/G		2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFOA + PFOS	40.3	NG/G		1.2	NA
HOULTON WATER CO	137444	6/10/2019	SU	PFOA + PFOS	46.4	NG/G		2	NA
HOULTON WATER CO	137903	7/15/2019	DW	PFOA		NG/L	U	1.87	N
HOULTON WATER CO	137903	7/15/2019	DW	PFHXS		NG/L	U	1.87	N
HOULTON WATER CO	137903	7/15/2019	DW	PFHPA		NG/L	U	1.87	N
HOULTON WATER CO	137903	7/15/2019	DW	PFNA		NG/L	U	1.87	N
HOULTON WATER CO	137903	7/15/2019	DW	PFOS		NG/L	U	1.87	N
HOULTON WATER CO	137903	7/15/2019	DW	PFOA + PFOS		NG/L	U	1.87	N
HOULTON WATER CO	137903	7/15/2019	DW	PFHPA + PFXHS + PFOA + PFNA + PFOS		NG/L	U	1.87	N
HOULTON WATER CO	137928	7/15/2019	DW	PFOA		NG/L	U	1.89	N
HOULTON WATER CO	137928	7/15/2019	DW	PFHXS		NG/L	U	1.89	N
HOULTON WATER CO	137928	7/15/2019	DW	PFHPA		NG/L	U	1.89	N
HOULTON WATER CO	137928	7/15/2019	DW	PFNA		NG/L	U	1.89	N
HOULTON WATER CO	137928	7/15/2019	DW	PFOS		NG/L	U	1.89	N
HOULTON WATER CO	137928	7/15/2019	DW	PFOA + PFOS		NG/L	U	1.89	N
HOULTON WATER CO	137928	7/15/2019	DW	PFHPA + PFXHS + PFOA + PFNA + PFOS		NG/L	U	1.89	N
HOULTON WATER COMPANY	137903	7/15/2019	DW	PFBS		NG/L	U	1.87	N
HOULTON WATER COMPANY	137928	7/15/2019	DW	PFBS		NG/L	U	1.89	N
INTERSTATE SEPTIC SYSTEMS, INC	137090	4/26/2019	CO	PFBS	1.74	NG/G		0.814	NA
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFOA		NG/G	U	0.479	NA
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFBS		NG/G	U	364	NA
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFOS		NG/G	U	0.996	NA
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFOA + PFOS		NG/G	U	0.479	NA
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFOA		NG/G	U	0.505	NA
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFBS		NG/G	U	383	NA
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFOS		NG/G	U	1.05	NA
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFOA + PFOS		NG/G	U	0.505	NA
ISS COMPOST SITE	137090	4/26/2019	CO	PFOA	7.04	NG/G		0.814	NA
ISS COMPOST SITE	137090	4/26/2019	CO	PFOS	10.1	NG/G		0.814	NA
ISS COMPOST SITE	137090	4/26/2019	CO	PFOA + PFOS	17.14	NG/G		0.814	NA
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOSA		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOSA	0.7096	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOSA	0.3081	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOSA	0.3041	NG/G		0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSE		NG/G	U	1.415	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSE		NG/G	U	1.435	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSE		NG/G	U	1.429	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSE		NG/G	U	1.351	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MeFOSAA		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MeFOSAA		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MeFOSAA		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MeFOSAA		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSAA		NG/G	U	0.3774	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSAA		NG/G	U	0.3828	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSAA		NG/G	U	0.381	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-EtFOSAA		NG/G	U	0.3604	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-ETFOSA		NG/G	U	0.4717	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-ETFOSA		NG/G	U	0.4785	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-ETFOSA		NG/G	U	0.4762	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-ETFOSA		NG/G	U	0.4505	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	HFPO-DA		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	HFPO-DA		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	HFPO-DA		NG/G	U	0.7619	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	HFPO-DA		NG/G	U	0.7207	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSE		NG/G	U	1.887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSE		NG/G	U	1.914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSE		NG/G	U	1.905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSE		NG/G	U	1.802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSA		NG/G	U	0.217	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSA		NG/G	U	0.2201	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSA		NG/G	U	0.2191	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	N-MEFOSA		NG/G	U	0.2072	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBA		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBA		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBA		NG/G	U	0.7619	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBA		NG/G	U	0.7207	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPEA		NG/G	U	0.3774	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPEA		NG/G	U	0.3828	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPEA		NG/G	U	0.381	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPEA		NG/G	U	0.3604	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBS		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBS		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBS		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFBS		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOA		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOA	0.2437	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOA		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOA		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOS	4.191	NG/G		0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOS	3.923	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOS	7.893	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFOS	7.168	NG/G		0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNA	0.4196	NG/G		0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNA	0.3769	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNA		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNA		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDA	0.6744	NG/G		0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDA	0.5318	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDA	0.7743	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDA	0.5543	NG/G		0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXA		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXA		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXA		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXA		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXS		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXS		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXS		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHXS		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPA		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPA		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPA		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPA		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDS		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDS		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDS		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDS		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPS		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPS		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPS		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFHPS		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOA	0.2983	NG/G		0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOA	0.3537	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOA	0.7508	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOA	0.4925	NG/G		0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPES		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPES		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPES		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFPES		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFUNDA	0.6237	NG/G		0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFUNDA	0.5961	NG/G		0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFUNDA	1.24	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFUNDA	1.061	NG/G		0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOS		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOS		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOS		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFDOS		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTEA		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTEA		NG/G	UJ	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTEA	0.621	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTEA		NG/G	UJ	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	4:2 FTS		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	4:2 FTS		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	4:2 FTS		NG/G	U	0.7619	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	4:2 FTS		NG/G	U	0.7207	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	6:2 FTS		NG/G	U	1.359	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	6:2 FTS		NG/G	U	1.378	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	6:2 FTS		NG/G	U	1.371	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	6:2 FTS		NG/G	U	1.297	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNS		NG/G	U	0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNS		NG/G	U	0.1914	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNS		NG/G	U	0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFNS		NG/G	U	0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	8:2 FTS		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	8:2 FTS		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	8:2 FTS		NG/G	U	0.7619	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	8:2 FTS		NG/G	U	0.7207	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTRDA	0.3593	NG/G		0.1887	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTRDA	0.5304	NG/G		0.1914	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTRDA	1.065	NG/G		0.1905	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	PFTRDA	0.6713	NG/G		0.1802	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	ADONA		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	ADONA		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	ADONA		NG/G	U	0.7619	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	ADONA		NG/G	U	0.7207	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	11CL-PF3OUDS		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	11CL-PF3OUDS		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	11CL-PF3OUDS		NG/G	U	0.7619	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	11CL-PF3OUDS		NG/G	U	0.7207	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	9CL-PF3ONS		NG/G	U	0.7547	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	9CL-PF3ONS		NG/G	U	0.7656	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	9CL-PF3ONS		NG/G	U	0.7619	
KENNEBEC RIVER - KFF	65481	7/8/2019	SF	9CL-PF3ONS		NG/G	U	0.7207	
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.5634	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.5882	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.553	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.543	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.939	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.9804	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.9217	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.905	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS	6.436	NG/G		2.18	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS	7.54	NG/G		0.9804	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS	1.087	NG/G		0.9217	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS		NG/G	U	0.905	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA	0.622	NG/G		0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA	1.064	NG/G		0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.939	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.9804	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.9217	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.905	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA	0.5368	NG/G		0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA	0.8056	NG/G		0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA	0.6835	NG/G		0.4695	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA	1.014	NG/G		0.4902	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA		NG/G	U	0.4608	NA
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA		NG/G	U	0.4525	NA
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOSA	0.6123	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOSA	0.6409	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOSA	0.2068	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOSA	0.3092	NG/G		0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSE		NG/G	U	1.485	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSE		NG/G	U	1.471	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSE		NG/G	U	1.485	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSE		NG/G	U	1.442	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MeFOSAA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MeFOSAA		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MeFOSAA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MeFOSAA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSAA		NG/G	U	0.396	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSAA		NG/G	U	0.3922	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSAA		NG/G	U	0.396	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-EtFOSAA		NG/G	U	0.3846	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-ETFOSA		NG/G	U	0.4951	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-ETFOSA		NG/G	U	0.4902	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-ETFOSA		NG/G	U	0.4951	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-ETFOSA		NG/G	U	0.4808	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	HFPO-DA		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	HFPO-DA		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	HFPO-DA		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	HFPO-DA		NG/G	U	0.7692	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSE		NG/G	U	1.98	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSE		NG/G	U	1.961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSE		NG/G	U	1.98	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSE		NG/G	U	1.923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSA		NG/G	U	0.2277	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSA		NG/G	U	0.2255	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSA		NG/G	U	0.2277	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	N-MEFOSA		NG/G	U	0.2212	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBA		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBA		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBA		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBA		NG/G	U	0.7692	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPEA		NG/G	U	0.396	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPEA		NG/G	U	0.3922	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPEA		NG/G	U	0.396	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPEA		NG/G	U	0.3846	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBS		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFBS		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOA		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOS	6.032	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOS	6.575	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOS	0.8874	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFOS	0.792	NG/G		0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNA		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDA	0.7698	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDA	0.7194	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXA		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXS		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHXS		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPA		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPA		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDS		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDS		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPS		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFHPS		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOA	0.6224	NG/G	J	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOA	0.5242	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOA		NG/G	UJ	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOA	0.2093	NG/G		0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPES		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPES		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPES		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFPES		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFUNDA	1.317	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFUNDA	1.032	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFUNDA	0.2495	NG/G		0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFUNDA	0.311	NG/G		0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOS		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFDOS		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTEA	0.2973	NG/G	EMPC	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTEA	0.3055	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTEA		NG/G	UJ	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTEA		NG/G	UJ	0.1923	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	4:2 FTS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	4:2 FTS		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	4:2 FTS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	4:2 FTS		NG/G	U	0.7692	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	6:2 FTS		NG/G	U	1.426	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	6:2 FTS		NG/G	U	1.412	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	6:2 FTS		NG/G	U	1.426	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	6:2 FTS		NG/G	U	1.385	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNS		NG/G	U	0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNS		NG/G	U	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFNS		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	8:2 FTS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	8:2 FTS		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	8:2 FTS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	8:2 FTS		NG/G	U	0.7692	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTRDA	0.4135	NG/G	T	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTRDA	0.5618	NG/G		0.1961	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTRDA		NG/G	UT	0.198	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	PFTRDA		NG/G	U	0.1923	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	ADONA		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	ADONA		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	ADONA		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	ADONA		NG/G	U	0.7692	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	11CL-PF3OUDS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	11CL-PF3OUDS		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	11CL-PF3OUDS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	11CL-PF3OUDS		NG/G	U	0.7692	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	9CL-PF3ONS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	9CL-PF3ONS		NG/G	U	0.7843	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	9CL-PF3ONS		NG/G	U	0.7921	
KENNEBEC RIVER - KGD	65482	6/11/2019	SF	9CL-PF3ONS		NG/G	U	0.7692	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOSA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOSA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOSA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOSA		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOSA		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSE		NG/G	U	1.449	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSE		NG/G	U	1.463	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSE		NG/G	U	1.435	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSE		NG/G	U	1.456	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSE		NG/G	U	1.395	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MeFOSAA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MeFOSAA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MeFOSAA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MeFOSAA		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MeFOSAA		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSAA		NG/G	U	0.3884	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSAA		NG/G	U	0.3865	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSAA		NG/G	U	0.3902	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSAA		NG/G	U	0.3828	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-EtFOSAA		NG/G	U	0.3721	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-ETFOSA		NG/G	U	0.4854	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-ETFOSA		NG/G	U	0.4831	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-ETFOSA		NG/G	U	0.4878	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-ETFOSA		NG/G	U	0.4785	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-ETFOSA		NG/G	U	0.4651	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	HFPO-DA		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	HFPO-DA		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	HFPO-DA_A		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	HFPO-DA		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	HFPO-DA		NG/G	U	0.7442	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSE		NG/G	U	1.932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSE		NG/G	U	1.951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSE		NG/G	U	1.914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSE		NG/G	U	1.942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSE		NG/G	U	1.861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSA		NG/G	U	0.2233	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSA		NG/G	U	0.2222	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSA		NG/G	U	0.2244	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSA		NG/G	U	0.2201	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	N-MEFOSA		NG/G	U	0.214	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBA		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBA		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBA		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBA		NG/G	U	0.7442	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBA		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPEA		NG/G	U	0.3865	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPEA		NG/G	U	0.3902	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPEA		NG/G	U	0.3828	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPEA		NG/G	U	0.3721	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPEA		NG/G	U	0.3884	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBS		NG/G	U	0.1942	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBS		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBS		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBS		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFBS		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOA		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOA		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOS	1.521	NG/G		0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOS	0.7873	NG/G		0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOS	0.6645	NG/G		0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOS	0.6909	NG/G		0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFOS	1.59	NG/G		0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNA	0.2208	NG/G		0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNA	0.253	NG/G		0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNA		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDA	0.1993	NG/G		0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDA	0.2003	NG/G		0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXA		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXA		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXS		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXS		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXS		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXS		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHXS		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPA		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPA		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPA		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDS		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDS		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDS		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDS		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDS		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPS		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPS		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPS		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPS		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFHPS		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOA	0.3441	NG/G		0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOA		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOA		NG/G	UJ	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOA	0.3583	NG/G		0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPES		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPES		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPES		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPES		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFPES		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFUNDA	1.09	NG/G		0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFUNDA	0.4653	NG/G		0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFUNDA	0.5141	NG/G		0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFUNDA	0.4977	NG/G		0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFUNDA	0.726	NG/G		0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOS		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOS		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOS		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOS		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFDOS		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTEA	0.2422	NG/G		0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTEA		NG/G	UJ	0.1997	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTEA		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTEA		NG/G	UJ	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTEA	0.269	NG/G		0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	4:2 FTS		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	4:2 FTS		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	4:2 FTS		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	4:2 FTS		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	4:2 FTS		NG/G	U	0.7442	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	6:2 FTS		NG/G	U	1.398	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	6:2 FTS		NG/G	U	1.391	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	6:2 FTS		NG/G	U	1.405	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	6:2 FTS		NG/G	U	1.378	

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CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	6:2 FTS		NG/G	U	1.34	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNS		NG/G	U	0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNS		NG/G	U	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNS		NG/G	U	0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNS		NG/G	U	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFNS		NG/G	U	0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	8:2 FTS		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	8:2 FTS		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	8:2 FTS		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	8:2 FTS		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	8:2 FTS		NG/G	U	0.7442	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTRDA	0.7299	NG/G		0.1942	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTRDA		NG/G	UT	0.1932	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTRDA	0.3816	NG/G		0.1951	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTRDA_A		NG/G	UT	0.1914	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	PFTRDA	0.6713	NG/G		0.1861	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	ADONA		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	ADONA		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	ADONA		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	ADONA		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	ADONA		NG/G	U	0.7442	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	11CL-PF3OUDS		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	11CL-PF3OUDS		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	11CL-PF3OUDS		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	11CL-PF3OUDS		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	11CL-PF3OUDS		NG/G	U	0.7442	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	9CL-PF3ONS		NG/G	U	0.773	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	9CL-PF3ONS		NG/G	U	0.7805	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	9CL-PF3ONS		NG/G	U	0.7656	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	9CL-PF3ONS		NG/G	U	0.7767	
KENNEBEC RIVER - KMD	65484	6/14/2019	SF	9CL-PF3ONS		NG/G	U	0.7442	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFOSA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFOSA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-EtFOSE		NG/G	U	1.5	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-EtFOSE		NG/G	U	1.463	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-MeFOSAA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-MeFOSAA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-EtFOSAA		NG/G	U	0.4	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-EtFOSAA		NG/G	U	0.3902	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-ETFOSA		NG/G	U	0.5	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-ETFOSA		NG/G	U	0.4878	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	HFPO-DA		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	HFPO-DA		NG/G	U	0.7805	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-MEFOSE		NG/G	U	2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-MEFOSE		NG/G	U	1.951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-MEFOSA		NG/G	U	0.23	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	N-MEFOSA		NG/G	U	0.2244	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFBA		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFBA		NG/G	U	0.7805	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFPEA		NG/G	U	0.4	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFPEA		NG/G	U	0.3902	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFBS		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFBS		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFOA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFOA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFOS	1.979	NG/G		0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFOS	1.566	NG/G		0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFNA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFNA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDA	0.3143	NG/G		0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHXA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHXA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHXS		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHXS		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHPA		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHPA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDS		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDS		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHPS		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFHPS		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDOA	0.2966	NG/G		0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDOA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFPES		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFPES		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFUNDA	0.7454	NG/G		0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFUNDA	0.6446	NG/G		0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDOS		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFDOS		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFTEA	0.2198	NG/G	EMPC	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFTEA		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	4:2 FTS		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	4:2 FTS		NG/G	U	0.7805	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	6:2 FTS		NG/G	U	1.44	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	6:2 FTS		NG/G	U	1.405	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFNS		NG/G	U	0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFNS		NG/G	U	0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	8:2 FTS		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	8:2 FTS		NG/G	U	0.7805	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFTRDA	0.5646	NG/G		0.2	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	PFTRDA	0.4246	NG/G		0.1951	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	ADONA		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	ADONA		NG/G	U	0.7805	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	11CL-PF3OUDS		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	11CL-PF3OUDS		NG/G	U	0.7805	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	9CL-PF3ONS		NG/G	U	0.8	
KENNEBEC RIVER - KNW	65487	6/18/2019	SF	9CL-PF3ONS		NG/G	U	0.7805	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFOSA	0.3199	NG/G		0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFOSA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-EtFOSE		NG/G	U	1.422	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-EtFOSE		NG/G	U	1.429	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-MeFOSAA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-MeFOSAA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-EtFOSAA		NG/G	U	0.3792	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-EtFOSAA		NG/G	U	0.381	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-ETFOSA		NG/G	U	0.4739	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-ETFOSA		NG/G	U	0.4762	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	HFPO-DA		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	HFPO-DA		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-MEFOSE		NG/G	U	1.896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-MEFOSE		NG/G	U	1.905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-MEFOSA		NG/G	U	0.218	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	N-MEFOSA		NG/G	U	0.2191	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFBA		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFBA		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFPEA		NG/G	U	0.381	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFPEA		NG/G	U	0.3792	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFBS		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFBS		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFOA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFOA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFOS	1.078	NG/G		0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFOS	1.169	NG/G		0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFNA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFNA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHXA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHXA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHXS		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHXS		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHPA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHPA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDS		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDS		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHPS		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFHPS		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDOA	0.2792	NG/G		0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDOA	0.2376	NG/G		0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFPES		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFPES		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFUNDA	0.3425	NG/G		0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFUNDA	0.4391	NG/G		0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDOS		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFDOS		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFTEA		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFTEA		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	4:2 FTS		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	4:2 FTS		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	6:2 FTS		NG/G	U	1.365	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	6:2 FTS	5.175	NG/G		1.371	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFNS		NG/G	U	0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFNS		NG/G	U	0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	8:2 FTS		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	8:2 FTS		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFTRDA	0.4775	NG/G		0.1896	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	PFTRDA	0.348	NG/G		0.1905	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	ADONA		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	ADONA		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	11CL-PF3OUDS		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	11CL-PF3OUDS		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	9CL-PF3ONS		NG/G	U	0.7583	
KENNEBEC RIVER - KSD	65494	6/11/2019	SF	9CL-PF3ONS		NG/G	U	0.7619	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFOSA	0.4012	NG/G		0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFOSA	0.3243	NG/G		0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-EtFOSE		NG/G	U	1.442	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-EtFOSE		NG/G	U	1.471	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-MeFOSAA		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-MeFOSAA		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-EtFOSAA		NG/G	U	0.3846	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-EtFOSAA		NG/G	U	0.3922	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-ETFOSA		NG/G	U	0.4808	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-ETFOSA		NG/G	U	0.4902	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	HFPO-DA		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	HFPO-DA		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-MEFOSE		NG/G	U	1.923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-MEFOSE		NG/G	U	1.961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-MEFOSA		NG/G	U	0.2212	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	N-MEFOSA		NG/G	U	0.2255	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFBA		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFBA		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFPEA		NG/G	U	0.3846	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFPEA		NG/G	U	0.3922	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFBS		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFBS		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFOA		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFOA		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFOS	7.337	NG/G		0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFOS	6.237	NG/G		0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFNA		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFNA		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDA	0.8281	NG/G		0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDA	0.5989	NG/G		0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHXA		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHXA		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHXS		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHXS		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHPA		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHPA		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDS		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDS		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHPS		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFHPS		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDOA	0.6078	NG/G		0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDOA	0.3075	NG/G		0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFPES		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFPES		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFUNDA	1.102	NG/G		0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFUNDA	0.9597	NG/G		0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDOS		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFDOS		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFTEA		NG/G	UJ	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFTEA	0.3534	NG/G	EMPC	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	4:2 FTS		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	4:2 FTS		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	6:2 FTS		NG/G	U	1.385	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	6:2 FTS		NG/G	U	1.412	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFNS		NG/G	U	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFNS		NG/G	U	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	8:2 FTS		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	8:2 FTS		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFTRDA	0.3313	NG/G	T	0.1923	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	PFTRDA	0.2256	NG/G	T	0.1961	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	ADONA		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	ADONA		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	11CL-PF3OUDS		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	11CL-PF3OUDS		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	9CL-PF3ONS		NG/G	U	0.7692	
KENNEBEC RIVER - KSD	65494	7/3/2019	SF	9CL-PF3ONS		NG/G	U	0.7843	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFOSA	0.2819	NG/G		0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	N-EtFOSE		NG/G	U	1.409	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	N-MeFOSAA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	N-EtFOSAA		NG/G	U	0.3756	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	N-ETFOSA		NG/G	U	0.4695	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	HFPO-DA_A		NG/G	U	0.7512	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	N-MEFOSE		NG/G	U	1.878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	N-MEFOSA		NG/G	U	0.216	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFBA		NG/G	U	0.7512	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFPEA		NG/G	U	0.3756	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFBS		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFOA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFOS	1.344	NG/G		0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFNA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFDA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFHXA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFHXS		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFHPA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFDS		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFHPS		NG/G	U	0.1878	

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFDOA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFPES		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFUNDA		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFDOS		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFTEA	0.2261	NG/G	EMPC	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	4:2 FTS		NG/G	U	0.7512	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	6:2 FTS		NG/G	U	1.352	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFNS		NG/G	U	0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	8:2 FTS		NG/G	U	0.7512	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	PFTRDA_A	0.5489	NG/G		0.1878	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	ADONA		NG/G	U	0.7512	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	11CL-PF3OUDS		NG/G	U	0.7512	
KENNEBEC RIVER - KSD	65494	7/9/2019	SF	9CL-PF3ONS		NG/G	U	0.7512	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFOSA		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFOSA	0.2396	NG/G		0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-EtFOSE		NG/G	U	1.442	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-EtFOSE		NG/G	U	1.471	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-MeFOSAA		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-MeFOSAA		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-EtFOSAA		NG/G	U	0.3846	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-EtFOSAA		NG/G	U	0.3922	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-ETFOSA		NG/G	U	0.4808	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-ETFOSA		NG/G	U	0.4902	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	HFPO-DA		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	HFPO-DA		NG/G	U	0.7843	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-MEFOSE		NG/G	U	1.923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-MEFOSE		NG/G	U	1.961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-MEFOSA		NG/G	U	0.2212	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	N-MEFOSA		NG/G	U	0.2255	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFBA		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFBA		NG/G	U	0.7843	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFPEA		NG/G	U	0.3846	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFPEA		NG/G	U	0.3922	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFBS		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFBS		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFOA		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFOA		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFOS	2.68	NG/G		0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFOS	2.487	NG/G		0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFNA		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFNA		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDA	0.4194	NG/G		0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDA	0.4658	NG/G		0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHXA		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHXA		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHXS		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHXS		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHPA		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHPA		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDS		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDS		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHPS		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFHPS		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDOA	0.4082	NG/G		0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDOA	0.3457	NG/G		0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFPES		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFPES		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFUNDA	1.067	NG/G		0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFUNDA	1.007	NG/G		0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDOS		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFDOS		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFTEA	0.2778	NG/G	J	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFTEA		NG/G	UJ	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	4:2 FTS		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	4:2 FTS		NG/G	U	0.7843	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	6:2 FTS		NG/G	U	1.385	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	6:2 FTS		NG/G	U	1.412	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFNS		NG/G	U	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFNS		NG/G	U	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	8:2 FTS		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	8:2 FTS		NG/G	U	0.7843	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFTRDA	0.5883	NG/G	T	0.1923	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	PFTRDA	0.3984	NG/G	T	0.1961	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	ADONA		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	ADONA		NG/G	U	0.7843	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	11CL-PF3OUDS		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	11CL-PF3OUDS		NG/G	U	0.7843	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	9CL-PF3ONS		NG/G	U	0.7692	
KENNEBEC RIVER - KSK	65495	6/24/2019	SF	9CL-PF3ONS		NG/G	U	0.7843	
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFOSA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFBA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFPEA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFBS		NG/G	U	12.26	NA

MAINE PFAS DATA (2007-2020)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL	TS
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFOA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFOS	28.3	NG/G		12.26	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFNA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFDA	9.3	NG/G		6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFHXA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFHXS		NG/G	U	12.26	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFHPA		NG/G	U	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFDOA	3.7	NG/G	J	6.13	NA
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFUNDA	6.9	NG/G		6.13	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFOSA	0.59	NG/G	J	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFBA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFPEA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFBS		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFOA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFOS	32.2	NG/G		1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFNA	0.69	NG/G	J	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFDA	4.78	NG/G		1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFHXA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFHXS		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFHPA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFDOA	2.66	NG/G		1	NA
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFUNDA	3.82	NG/G		1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFOSA	0.348	NG/G	J	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFBA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFPEA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFBS		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFOA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFOS	33.5	NG/G		1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFNA	0.51	NG/G	J	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFDA	3.83	NG/G		1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFHXA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFHXS		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFHPA		NG/G	U	1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFDOA	1.74	NG/G		1	NA
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFUNDA	3.12	NG/G		1	NA
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFOA	5.6	NG/G		2.9	NA
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFBS		NG/G	U	2.9	NA
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFOS	77	NG/G		4.3	NA
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFOA + PFOS	82.6	NG/G		2.9	NA
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFOA		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFHXS		NG/L	U	30	T
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFBS		NG/L	U	90	T
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFHPA		NG/L	U	10	T
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFNA		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFOS		NG/L	U	40	T
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFOA + PFOS		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFOA		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFHXS		NG/L	U	30	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFBS		NG/L	U	90	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFHPA		NG/L	U	10	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFNA		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFOS		NG/L	U	40	T
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFOA + PFOS		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFOA		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFHXS		NG/L	U	30	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFBS		NG/L	U	90	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFHPA		NG/L	U	10	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFNA		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFOS		NG/L	U	40	T
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFOA + PFOS		NG/L	U	20	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFOA	3.2	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFBS		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFHPA	2.9	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFNA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFOS		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFHXS		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFOA + PFOS	3.2	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFHXA	2.08	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFHXA	2.2	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFDOA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFDOA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFOA	2.9	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFOA	2.87	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFDA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFDA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFBS		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFBS		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFHPA	2.93	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFHPA	2.9	NG/L		2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFNA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFNA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFTEA		NG/L	U	2	T
KENNEBEC WATER DISTRICT	135762	8/15/2019	DW	PFTEA		NG/L	U	2	T

EXHIBIT D

Contacts
Emergency Spill Response
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Per- and Polyfluoroalkyl Substances (PFAS)

Updates

Managing PFAS in Maine, Final Report from the Maine PFAS Task Force, January 2020

December 2, 2019 Maine PFAS Mapper (Under Development), please direct any feedback to pfas.dep@maine.gov

September 6, 2019 - Maine sludge and bioash spreading information (Excel), please note the file contains links that will not work. Please direct any feedback to pfas.dep@maine.gov

Maine PFAS data (2007-2019) as of October 22, 2019. For questions regarding this data, please email pfas.dep@maine.gov

August 14, 2019 Emergency Sludge Dewatering State Wastewater Infrastructure Planning and Construction Grants Available

June 10, 2019 letters from the Northeast Committee on the Environment to US Committee on Environment and Public Works and Congressional PFAS Task Force.

On March 22, 2019, the Department notified sludge/biosolids program licensees and related composting facilities of a new requirement to test for PFOA, PFOS, and PFBS. Upcoming deadlines include submission of an updated Sampling and Analytical Work Plan by April 12, 2019, and initial sampling to be conducted by May 7, 2019.

- March 22, 2019 memo re: Requirement to analyze for PFAS compounds. Includes sampling protocol and list of approved laboratories for PFAS analysis. (pdf)
- Per- and Polyfluoroalkyl Substances (PFAS) Laboratory Recommendations follow-up memo (pdf)

DEP Announces Testing of All Sludge Materials Before Land Application

Governor Mills Signs Executive Order Establishing Task Force Charged with Studying Effects of PFAS Prevalence in Maine

What is it?

The chemicals perfluorooctanoic acid or PFOA, and perfluorooctanesulfonate or PFOS are man-made chemicals that became widely used in household products and industrial settings as early as the 1950's. PFOA and PFOS are sometimes referenced in a group of similar

More Information

MAINE PFAS DATA (2007 - 2019)

EGAD Data Disclaimer:

EGAD (Environmental and Geographic Analysis Database) is a public information resource provided by the Maine Department of Environmental Protection (DEP). The State of Maine and InforME make every effort to ensure that published information is accurate and current. Neither the State of Maine, nor any agency, officer, or employee of the State of Maine warrants the accuracy, reliability or timeliness of any information published on the Maine.gov website, nor endorses any products or services linked from this system and shall not be held liable for any losses caused by reliance on the accuracy, reliability or timeliness of such information. Portions of the information are subject to revisions, corrections, and updates. Any person or entity that relies on any information obtained from this system does so at their own risk.

Data in the EGAD system go through various levels of quality assurance/quality control procedures before being accepted by the DEP to meet project requirements. However, the DEP makes no guarantee as to the accuracy, reliability, timeliness or completeness of the data. To ensure data authenticity, original laboratory analytical reports and field sheets should be consulted. Please note that the following data is an abbreviated dataset and does not include all associated data quality information. For fish data, only the wet weight basis data is included. Original laboratory analytical reports or the DEP should be consulted to obtain sample results relating to dry or lipid weight basis. Screening levels for fish are based on a wet weight basis. As an aid to data interpretation, EGAD supplemental materials such as the data dictionary and LUP tables should be consulted. The DEP does not assume any responsibility for the nature in which EGAD data are used, either in their raw form or in the form of derived products. When using EGAD data, the following citation should be provided: Maine Department of Environmental Protection, EGAD (Environmental Geographic Analysis Database), http://www.maine.gov/dep/maps-data/egad/.

This data was extracted on September 23, 2019 and does not include any recently reviewed or currently pending electronic data deliverables as of September 23, 2019.

Sample Type Key:

SAMPLE TYPE	DESCRIPTION	SAMPLE TYPE	DESCRIPTION
BC	BEDROCK CHIPS	SA	SAWDUST
BM	BUILDING MATERIAL	SD	SEDIMENT
CO	COMPOST	SF	SKINLESS FILET
DW	DRINKING WATER	SL	SOIL
FA	FLY ASH	SOF	SKIN-ON FILET
GW	GROUNDWATER	SR	STORM WATER RUNOFF
L	LEACHATE	SU	SLUDGE
MA	MANURE	SW	SURFACE WATER
MLK	MILK	V	VEGETATION
N	NEAT SAMPLE	WH	WHOLE
O	OFFAL	WS	WHOLE WITHOUT SKIN
PO	PORE WATER	WW	WASTE WATER

MAINE PFAS DATA (2007 - 2019)

Lab Qualifier Key:

B	COMPOUND IS FOUND IN THE ASSOCIATED METHOD BLANK (ORGANIC) OR THE REPORTED VALUE WAS LESS THAN THE REPORTING LIMIT BUT GREATER THAN OR EQUAL TO THE INSTRUMENT DETECTION LIMIT (INORGANIC).
B*	COMPOUND IS FOUND IN THE ASSOCIATED METHOD BLANK (ORGANIC) OR THE REPORTED VALUE WAS LESS THAN THE REPORTING LIMIT BUT GREATER THAN OR EQUAL TO THE INSTRUMENT DETECTION LIMIT (INORGANIC) AND QC RESULTS ARE NOT WITHIN CONTROL LIMITS.
D	SAMPLE RESULT THAT REQUIRED DILUTION.
E	REPORTED VALUE IS ESTIMATED DUE TO PRESENCE OF INTERFERENCE (INORGANIC) OR COMPOUND EXCEEDED UPPER LEVEL OF CALIBRATION RANGE (ORGANIC).
J	ASSOCIATED VALUE IS ESTIMATED - MAY BE DUE TO FACTORS SUCH AS HOLDING TIME VIOLATIONS, BLANK CONTAMINATION, ETC.
J*	ASSOCIATED VALUE IS ESTIMATED AND QC RESULTS NOT WITHIN CONTROL LIMITS.
JB	ASSOCIATED VALUE IS AN ESTIMATE, COMPOUND IS FOUND IN THE ASSOCIATED METHOD BLANK.
LQV	LAB QUALIFIED, UNDEFINED. DATA SUBSEQUENTLY VALIDATED.
U	NOT DETECTED ABOVE THE ASSOCIATED QUANTITATION LIMIT.
UJ	NOT DETECTED ABOVE THE ASSOCIATED QUANTITATION LIMIT AND ESTIMATED DUE TO VARIOUS QC DEVIATIONS, INCLUDING ELEVATED OR ESTIMATED QUANTITATION LIMIT.
*	QC RESULTS NOT WITHIN CONTROL LIMITS.

MAINE PFAS DATA (2007-2019)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL
HAWK RIDGE FARM	135786	6/12/2018	CO	PFPEA	34	NG/G		7
HAWK RIDGE FARM	135786	6/12/2018	CO	PFBS	3.5	NG/G		0.35
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFHPA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFHXS		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	N-MeFOSAA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFNA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFOA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFOA + PFOS		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFDA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFOS		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFUNDA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFTEA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFDOA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFTRIA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFHXA		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	PFBS		NG/L	U	5
HIDDEN VALLEY VILLAGE	132020	11/7/2017	DW	N-EtFOSAA		NG/L	U	5
HOULTON WATER CO	137444	6/10/2019	SU	PFOA + PFOS	46.4	NG/G		2
HOULTON WATER CO	137444	6/10/2019	SU	PFOA	13.3	NG/G		2
HOULTON WATER CO	137444	6/10/2019	SU	PFOS	33.1	NG/G		2
HOULTON WATER CO	137444	6/10/2019	SU	PFBS	1.01	NG/G	J	2
HOULTON WATER CO	137444	5/1/2019	SU	PFOS	45	NG/G		6.9
HOULTON WATER CO	137444	5/1/2019	SU	PFOA	2.8	NG/G	J	4.6
HOULTON WATER CO	137444	5/1/2019	SU	PFBS		NG/G	U	4.6
HOULTON WATER CO	137444	5/1/2019	SU	PFOA + PFOS	47.8	NG/G	J	4.6
HOULTON WATER CO	137444	6/10/2019	SU	PFOA	11.4	NG/G		1.2
HOULTON WATER CO	137444	6/10/2019	SU	PFBS	1.11	NG/G	J	1.2
HOULTON WATER CO	137444	6/10/2019	SU	PFOA + PFOS	40.3	NG/G		1.2
HOULTON WATER CO	137444	6/10/2019	SU	PFOS	28.9	NG/G		1.2
HOULTON WATER CO	137903	7/15/2019	DW	PFNA		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFHXS		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFBS		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFOS		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFOA + PFOS		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFOA		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFHPA + PFXHS + PFOA + PFNA + PFOS		NG/L	U	1.87
HOULTON WATER CO	137903	7/15/2019	DW	PFHPA		NG/L	U	1.87
HOULTON WATER CO	137928	7/15/2019	DW	PFOA		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFHPA + PFXHS + PFOA + PFNA + PFOS		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFHPA		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFNA		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFHXS		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFBS		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFOS		NG/L	U	1.89
HOULTON WATER CO	137928	7/15/2019	DW	PFOA + PFOS		NG/L	U	1.89
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFBS		NG/G	U	364
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFOA		NG/G	U	0.479
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFOS		NG/G	U	0.996
IRVING PULP AND PAPER LIMITED	137572	6/2/2019	SU	PFOA + PFOS		NG/G	U	0.479
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFBS		NG/G	U	383
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFOA		NG/G	U	0.505
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFOS		NG/G	U	1.05
IRVING PULP AND PAPER LIMITED	137573	6/2/2019	FA	PFOA + PFOS		NG/G	U	0.505
ISS COMPOST SITE	137090	4/26/2019	CO	PFOA	7.04	NG/G		0.814
ISS COMPOST SITE	137090	4/26/2019	CO	PFBS	1.74	NG/G		0.814
ISS COMPOST SITE	137090	4/26/2019	CO	PFOA + PFOS	17.14	NG/G		0.814
ISS COMPOST SITE	137090	4/26/2019	CO	PFOS	10.1	NG/G		0.814
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.939
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA	0.6835	NG/G		0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS	6.436	NG/G		2.18
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.939
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA	0.5368	NG/G		0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA	0.622	NG/G		0.4695
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.5634
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA	1.064	NG/G		0.4902

MAINE PFAS DATA (2007-2019)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.5882
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.9804
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA	1.014	NG/G		0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS	7.54	NG/G		0.9804
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.9804
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA	0.8056	NG/G		0.4902
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.553
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.9217
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS	1.087	NG/G		0.9217
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4608
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.9217
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFNA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXS		NG/G	U	0.905
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHPA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDOA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFPEA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFDA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOSA		NG/G	U	0.543
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFBS		NG/G	U	0.905
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFHXA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFUNDA		NG/G	U	0.4525
KENNEBEC RIVER - KGD	65482	8/24/2015	SF	PFOS		NG/G	U	0.905
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFHPA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFDOA	3.7	NG/G	J	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFOA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFBS		NG/G	U	12.26
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFBA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFNA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFHXS		NG/G	U	12.26
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFPEA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFDA	9.3	NG/G		6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFOSA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFHXA		NG/G	U	6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFUNDA	6.9	NG/G		6.13
KENNEBEC RIVER-FW08ME026-NRSA	136975	9/15/2008	SOF	PFOS	28.3	NG/G		12.26
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFOA		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFBS		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFBA		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFNA	0.69	NG/G	J	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFHXS		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFPEA		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFDA	4.78	NG/G		1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFOSA	0.59	NG/G	J	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFHXA		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFUNDA	3.82	NG/G		1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFOS	32.2	NG/G		1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFHPA		NG/G	U	1
KENNEBEC RIVER-MER9-0907-NRSA	136991	9/22/2014	SOF	PFDOA	2.66	NG/G		1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFPEA		NG/G	U	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFDA	3.83	NG/G		1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFOSA	0.348	NG/G	J	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFHXA		NG/G	U	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFUNDA	3.12	NG/G		1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFOS	33.5	NG/G		1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFHPA		NG/G	U	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFDOA	1.74	NG/G		1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFOA		NG/G	U	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFBS		NG/G	U	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFBA		NG/G	U	1

MAINE PFAS DATA (2007-2019)

CURRENT SITE NAME	SAMPLE POINT SEQ	SAMPLE DATE	SAMPLE TYPE	PARAMETER	CONCENTRATION	UNITS	LAB QUALIFIER	RL
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFNA	0.51	NG/G	J	1
KENNEBEC RIVER-MER9-0908-NRSA	136993	9/22/2014	SOF	PFHXS		NG/G	U	1
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFOS	77	NG/G		4.3
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFOA	5.6	NG/G		2.9
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFBS		NG/G	U	2.9
KENNEBEC SANITARY DISTRICT	137101	5/6/2019	SU	PFOA + PFOS	82.6	NG/G		2.9
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFOA	3.2	NG/L		2
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFHPA	2.9	NG/L		2
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFNA		NG/L	U	2
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFBS		NG/L	U	2
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFHXS		NG/L	U	2
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFOA + PFOS	3.2	NG/L		2
KENNEBEC WATER DISTRICT	135762	5/15/2019	DW	PFOS		NG/L	U	2
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFOA		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFHPA		NG/L	U	10
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFNA		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFHXS		NG/L	U	30
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFBS		NG/L	U	90
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFOS		NG/L	U	40
KENNEBEC WATER DISTRICT	135762	1/15/2015	DW	PFOA + PFOS		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFBS		NG/L	U	90
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFOS		NG/L	U	40
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFOA + PFOS		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFOA		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFHPA		NG/L	U	10
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFNA		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	10/16/2015	DW	PFHXS		NG/L	U	30
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFOS		NG/L	U	40
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFOA + PFOS		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFOA		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFHPA		NG/L	U	10
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFNA		NG/L	U	20
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFHXS		NG/L	U	30
KENNEBEC WATER DISTRICT	135762	4/6/2015	DW	PFBS		NG/L	U	90
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFNA		NG/L	U	2
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFBS		NG/L	U	2
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFHXS		NG/L	U	2
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFOA + PFOS	3.8	NG/L		2
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFOS		NG/L	U	2
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFOA	3.8	NG/L		2
KENNEBEC WATER DISTRICT	137667	5/15/2019	DW	PFHPA	3.3	NG/L		2
KENNEBUNK SD	121798	8/22/2017	WW	PFHXS		NG/L	U	4.14
KENNEBUNK SD	121798	8/22/2017	WW	PFOA + PFOS	13.1	NG/L		4.14
KENNEBUNK SD	121798	8/22/2017	WW	PFOA	13.1	NG/L		4.14
KENNEBUNK SD	121798	8/22/2017	WW	PFOS		NG/L	U	4.14
KENNEBUNK SD	121798	8/22/2017	WW	PFHPA		NG/L	U	4.14
KENNEBUNK SD	121798	8/22/2017	WW	PFNA		NG/L	U	4.14
KENNEBUNK SD	121798	8/22/2017	WW	PFBS	5.33	NG/L		4.14
KENNEBUNK SD	121798	5/3/2019	WW	PFOA	5.52	NG/L		4.11
KENNEBUNK SD	121798	5/3/2019	WW	PFOS	2.91	NG/L	J	4.11
KENNEBUNK SD	121798	5/3/2019	WW	PFBS		NG/L	U	2.06
KENNEBUNK SD	121798	5/3/2019	WW	PFOA + PFOS	8.43	NG/L	J	4.11
KENNEBUNK SD	137136	8/22/2017	WW	PFOA		NG/L	U	4.21
KENNEBUNK SD	137136	8/22/2017	WW	PFOS	12.7	NG/L		4.21
KENNEBUNK SD	137136	8/22/2017	WW	PFHPA		NG/L	U	4.21
KENNEBUNK SD	137136	8/22/2017	WW	PFNA		NG/L	U	4.21
KENNEBUNK SD	137136	8/22/2017	WW	PFBS		NG/L	U	4.21
KENNEBUNK SD	137136	8/22/2017	WW	PFHXS		NG/L	U	4.21
KENNEBUNK SD	137136	8/22/2017	WW	PFOA + PFOS	12.7	NG/L		4.21
KENNEBUNK SD	137136	5/3/2019	WW	PFOA	1.62	NG/L	J	4.02
KENNEBUNK SD	137136	5/3/2019	WW	PFOS	16.6	NG/L		4.02
KENNEBUNK SD	137136	5/3/2019	WW	PFBS		NG/L	U	2.01
KENNEBUNK SD	137136	5/3/2019	WW	PFOA + PFOS	18.22	NG/L	J	4.02
KENNEBUNK SD	137137	8/22/2017	WW	PFOS		NG/L	U	4.19
KENNEBUNK SD	137137	8/22/2017	WW	PFHPA		NG/L	U	4.19
KENNEBUNK SD	137137	8/22/2017	WW	PFNA		NG/L	U	4.19
KENNEBUNK SD	137137	8/22/2017	WW	PFBS		NG/L	U	4.19
KENNEBUNK SD	137137	8/22/2017	WW	PFHXS		NG/L	U	4.19
KENNEBUNK SD	137137	8/22/2017	WW	PFOA + PFOS		NG/L	U	4.19
KENNEBUNK SD	137137	8/22/2017	WW	PFOA		NG/L	U	4.19
KENNEBUNK SD	137137	5/3/2019	WW	PFOS	13.4	NG/L		4.62
KENNEBUNK SD	137137	5/3/2019	WW	PFBS		NG/L	U	2.31
KENNEBUNK SD	137137	5/3/2019	WW	PFOA + PFOS	17.55	NG/L	J	4.62
KENNEBUNK SD	137137	5/3/2019	WW	PFOA	4.15	NG/L	J	4.62

EXHIBIT E

Assistance
Commissioner's Office
Permits, Licenses, Certifications
Maps and Data
Programs
Rulemaking and Comment Opportunity
Compliance and Enforcement
Publications and Resources
Newsroom

Department Reports

The files below are posted in Adobe Acrobat Reader and Microsoft Word. Adobe Reader files require the free Adobe Reader software.

To receive copies of attachments to reports listed below not available on our website, please contact Mike Karagiannes, (207) 287-7024.

2021

1/1/2021 Measurement and Control of Emissions from Aboveground Petroleum Storage Tanks [PDF]
1/1/2021 Maine Solid Waste Generation And Disposal Capacity Report for Calendar Years 2018 & 2019 [PDF]
1/15/2021 Pending and Anticipated Water Quality Certification Applications for Hydropower Projects [PDF]
2/15/2021 Annual Product Stewardship Report 2021 [PDF]
3/10/2021 Regional Greenhouse Gas Initiative (RGGI) Annual Report [PDF]
4/30/2021 Biennial Report of the Clean-up and Response Fund Review Board 2019/2020 [PDF]
6/2/2021 Surface Water Ambient Toxics Monitoring Program 2019/2020 [PDF]
6/30/2021 Maine Combined Sewer Overflow 2020 Status Report [PDF]

2020

1/13/2020 Eighth Biennial Report on Progress toward Greenhouse Gas Reduction Goals [PDF]
1/15/2020 Pending and Anticipated Water Quality Certification Applications for Hydropower Projects [PDF]
1/15/2020 Air Emissions from Marine Vessels [PDF]
1/16/2020 Maine's Bottle Bill Program [PDF]
2/18/2020 Annual Product Stewardship Report 2020 [PDF]
3/12/2020 Regional Greenhouse Gas Initiative (RGGI) Annual Report [PDF]
6/1/2020 Maine Combined Sewer Overflow 2019 Status Report [PDF]

2019

1/15/2019 Pending and Anticipated Water Quality Certification Applications for Hydropower Projects [PDF]
1/29/2019 Food Scraps Composting Pilot Program Report [PDF]
1/31/2019 Maine Materials Management Plan: State Solid Waste Management and Recycling Plan 2019 Update [PDF]
1/31/2019 Annual Product Stewardship Report 2019 [PDF]
2/15/2019 Maine Solid Waste Generation And Disposal Capacity Report for Calendar Year 2017 [PDF]
3/12/2019 Regional Greenhouse Gas Initiative (RGGI) Annual Report [PDF]
4/30/2019 Maine Combined Sewer Overflow 2018 Status Report [PDF]

EXHIBIT F

Managing PFAS in Maine

Final Report from the Maine PFAS Task Force

January 2020

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PFAS Task Force Members

Meredith Tipton
Chair

Amanda Beal, Commissioner
Department of Agriculture, Conservation and Forestry

Michael Belliveau
Environmental Health Strategy Center

Andre Brousseau
Certified Wastewater Treatment Plant Operator

Major General Doug Farnham
D*epartment of Defense, Veterans and Emergency Management*

Lani Graham
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Charles Kraske
Pulp and Paper Industry

Norm Labbe
Public Drinking Water Professionals

Jeanne Lambrew, Commissioner
Department of Health and Human Services

Jeff McBurnie
Biosolids and Residuals Management Professionals

Jerry Reid, Commissioner
Department of Environmental Protection

Guiding Principles

In March 2019, Governor Janet Mills created the Maine PFAS Task Force by Executive Order (Appendix A) to review the extent of PFAS contamination in Maine and provide recommendations about how we can protect Maine residents from exposure.

The Maine PFAS Task Force reviewed information from a variety of sources, including results of sampling submitted by DEP-licensed facilities and sampling conducted by State of Maine agencies, as well as various health studies, and solicited input from stakeholders and other members of the public.

The varied viewpoints of Task Force members strengthened discussions about priorities for State action. These diverse perspectives helped us deliver more comprehensive recommendations that center around a shared set of priorities.

Summary of Recommendations

To be most protective of Maine citizens, now and in the future, we believe the following are of greatest importance:

1. **Providing safe drinking water;**
2. **Protecting our food supply;**
3. **Identifying and investigating PFAS contaminants in the environment;**
4. **Identifying and reducing uses of PFAS;**
5. **Managing waste and waste residuals responsibly;**
6. **Improving public education about PFAS;**
7. **Promoting federal action; and**
8. **Funding for state agencies to investigate, respond to and reduce exposure of Maine citizens to PFAS.**

Our recommendations reflect a commitment to determine where PFAS contaminants exist in Maine and put in place strategic responses to protect people from exposure. It is important to recognize that some of the actions recommended will require additional public processes and funding to develop and implement the specific related tasks. The following report details recommendations the Task Force has identified that fulfill the Governor's charge.

PFAS Background

What is PFAS?

"PFAS" (per- and poly-fluoroalkyl substances) are a large group of synthetic fluorinated chemicals. There are over 4,000 compounds that have been identified as PFAS to-date. This family of chemicals take a long time to break down in the environment due to the extremely strong bond between fluorine and carbon. Because of this strong bond, which resists break-down, the use of the entire PFAS family should be viewed with great caution.

The two most commonly used PFAS were PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonate). These two compounds were used in households across the country in the non-stick, grease resistant convenience items of the 20th century. PFOA and PFOS were widely used in and are still used in firefighting foam (Class B Aqueous Film Forming Foam (AFFF)) used to quickly extinguish petroleum-based fires.

Chemical manufacturers in the U.S. phased out production of PFOA and PFOS in the early 2000's, but they were replaced with a wide variety of other PFAS. PFOA and PFOS are also still present in imported products, and other PFAS break down in the environment into more stable and extremely persistent degradation byproducts.

A wide variety of PFAS, many still unidentified as manufacturers claim their formulations to be proprietary information, are now used in consumer products that are stain, oil, heat, and water resistant, such as clothing, furniture fabric, food packaging, carpets, cookware, outdoor recreational items, and electronics. Because these chemicals are used so widely in consumer products, they are also present in our wastewater in septic tanks and in treatment plants.

The scientific understanding of how PFAS impacts people and the environment is still developing, and for thousands of PFAS compounds much remains unknown. Laboratories can still only accurately analyze for a small subset of PFAS.

State governments typically rely on the federal government to certify analytical methods for environmental contaminants. At the time the Task Force convened, the U.S. EPA had only formally certified one method for analysis of 18 PFAS in drinking water (Method 537.1, Document #EPA/600/R-18/352 (2018)), although other methods for groundwater, wastewater and soils have been accepted by the U.S. EPA and Department of Defense for remediation site cleanup decisions.

Other states have wide-ranging levels of industrial activity and methods for managing wastes, which have resulted in varying levels of PFAS contaminants within their borders.

In the absence of federal action these other states have developed a variety of standards and screening levels based on their own scientific assessments of the risks to human health.

Human exposure to PFAS continues to be widespread because this chemistry is used in hundreds of products for a variety of applications. Manufacturers may not report their uses of PFAS so it is difficult to limit exposures. International studies have been supported by Maine-specific sampling to indicate that PFAS are present in our environment, and that the highest concentrations of PFAS exist in environmental media such as soil and groundwater in areas where materials containing PFAS were utilized or disposed. In 2019, Maine is similar to other states trying to manage a shifting landscape while keeping pace with changes in our knowledge of this emerging contaminant and protecting human health with limited resources and authority.

Human Exposure Concerns

Scientists are still learning about the potential health effects from exposure to PFAS chemicals. Four specific PFAS chemicals - PFOA, PFOS, PFHxS and PFNA - have been studied more extensively than other PFAS. According to the U.S. Agency for Toxic Substances and Disease Registry (ATSDR), studies in humans with PFAS exposure have shown that these chemicals may:[1]

- increase cholesterol levels;
- decrease how well the body responds to vaccines;
- increase the risk of thyroid disease;
- decrease fertility in women;
- increase the risk of high blood pressure or pre-eclampsia in pregnant women;
- lower infant birth weights; however, the decrease in birth weight is small and may not affect the infant's health; and
- increase risk of kidney cancer or testicular cancer.[2]

Studies with laboratory animals exposed to high doses of one or more of these PFAS have shown changes in liver, thyroid, pancreatic function, and hormone levels. [3] In animal

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[1] U.S. Department of Health and Human Services, Agency for Toxic Substance and Disease Registry (ATSDR). *Perfluoroalkyls - ToxFAQs™* (2018). Retrieved from https://www.atsdr.cdc.gov/toxfaqs/tfacts200.pdf.

[2] U.S. Department of Health and Human Services, Agency for Toxic Substance and Disease Registry (ATSDR). PFAS An Overview of the Science and Guidance for Clinicians on Per- and Polyfluoroalkyl Substances (PFAS). (2019). Retrieved from https://www.atsdr.cdc.gov/pfas/docs/ATSDR_PFAS_ClinicalGuidance_12202019.pdf.

[3] U.S. Department of Health and Human Services, Agency for Toxic Substance and Disease Registry (ATSDR). *Per- and Polyfluoroalkyl Substances (PFAS) and Your Health. What are the health effects?* (2018). Retrieved from https://www.atsdr.cdc.gov/pfas/health-effects.html.

studies, exposure to PFOA and PFOS have shown increases in testicular, liver and pancreatic tumors.[4]

Nearly everyone is exposed to PFAS chemicals. By measuring PFAS in blood serum it is possible to estimate the amount of PFAS that have entered people's bodies. Because some PFAS persist in our bodies for years, the levels in our blood serum at any time reflects exposure to these chemicals over the preceding several years. U.S. Centers for Disease Control and Prevention (CDC) scientists have measured at least 12 PFAS in the blood serum of participants who have taken part in the National Health and Nutrition Examination Survey (NHANES) since 1999.[5] Four PFAS (PFOS, PFOA, PFHxS and PFNA) have been found in the blood serum of nearly all the people tested, indicating widespread exposure to these PFAS in the U.S. population. Notably, since 1999 the measured levels of PFOS and PFOA in the blood serum of NHANES participants have decreased by about 80 percent. The exposure pathway or pathways responsible for this decline remains unclear, though the timing does coincide with the declining manufacture and use of these two chemicals in the U.S.

For most people, diet is thought to be the primary source of exposure to PFAS.[6] The major types of dietary exposure to PFAS include ingesting food and water contaminated with PFAS, and eating food packaged in materials containing PFAS. Hand-to-mouth transfer from dust in households containing products treated with PFAS-containing stain protectants, such as carpets, is thought to be an important exposure pathway for infants and toddlers. Dermal exposure from water is thought to be a minor exposure pathway, and therefore bathing is not considered of concern.

Across the country, much of the early attention to PFAS has been in response to contaminated drinking water supplies. Community drinking water supplies and residential wells have been contaminated by releases at chemical manufacturing facilities, as well as past use of AFFF at closed military bases and fire training areas. Sizable population exposures to contaminated water have been reported in Colorado, Michigan, Minnesota, New York, New Hampshire, Pennsylvania, and Vermont.

More recent testing has shown drinking water may be contaminated by many different sources, such as landfills, waste residuals and septage spreading sites, air emissions from

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[4] U.S. Department of Health and Human Services, Agency for Toxic Substance and Disease Registry (ATSDR). *Perfluoroalkyls - ToxFAQs*™ (2018). Retrieved from https://www.atsdr.cdc.gov/toxfaqs/tfacts200.pdf.

[5] U.S. Center for Disease Control and Prevention. *National Report on Human Exposure to Environmental Chemicals*. https://www.cdc.gov/exposurereport/index.html.

[6] Egeghy & Lorber. Journal of Exposure Science and Environmental Epidemiology. (2011). 21,150–168.

manufacturing facilities, and the discharge of AFFF for firefighting.

In 2016, the U.S. Environmental Protection Agency (EPA) issued a final Lifetime Health Advisory (LHA) informing state health agencies with regulatory authority over public water systems that, due to its adverse health effects, members of the public should not drink water where PFOA and PFOS individually or combined are measured above 70 parts per trillion (ppt). EPA Health Advisories are intended as informational resources for administrators of public water systems and agencies responsible for their oversight. Health Advisories are not regulations and do not represent legally enforceable standards.[7]

Since the release of EPA's 2016 PFOA/PFOS health advisory, the ATSDR and several states have reviewed the toxicity information available for PFOA and PFOS (and some agencies have also reviewed information on PFHxS and PFNA) and proposed or developed their own toxicity values. Despite looking at mostly the same toxicity information as EPA, nearly all of these agencies, including ATSDR, have adopted or proposed toxicity values as much as 10-fold lower with differences largely a consequence of divergent views on which animal studies and which toxic effects to rely on, as well as divergent views on the appropriate application of uncertainty factors.

Absent a federal drinking water standard (called a Maximum Contaminant Level or MCL), some states confronting significant community water contamination problems have proposed or adopted their own drinking water standards. These state specific standards are lower than EPA's Health Advisory, a consequence of both the aforementioned lower toxicity values but also differences in the modeling of exposure and differences in how background exposure is considered. EPA's Health Advisory is based on water consumption by a lactating woman, to be consistent with a toxicity value based on developmental toxicity resulting from in utero exposure. Some states have instead modeled water consumption by the formula-fed infant, conservatively assuming the infant has similar sensitivity to PFAS as the developing fetus. Recently a few states have modeled transgenerational exposure to PFAS in water that considers both exposure in utero from water consumption during pregnancy followed by exposure to the infant from breast feeding. While most states continue to rely on EPA's Health Advisory for making risk management decisions on water contamination (including Maine), a national consensus regarding appropriate guidelines for PFAS in water has not been achieved. Moreover, toxicity data is lacking for most PFAS. The on-going lowering of levels of

[7] U.S. Environmental Protection Agency. *Fact Sheet PFOA & PFOS Drinking Water Health Advisories* (November 2016). EPA 800-F-16-003. https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf.

contamination considered safe for human health is consistent with the past history of advancing research into the health impacts of other contaminants with adverse health effects.

Across the country, as well as here in Maine, PFOA, PFOS, and other PFAS are also being detected in soils, sediment, surface water, air, sludge, septage, compost, fish, milk and some foods. With these discoveries, new exposure pathways become apparent, such as soil-to-groundwater and soil-to-plant. Yet models and data for some of these exposure pathways are limited, posing challenges for developing guidelines for these media. It is also becoming apparent that trace levels of PFAS can be found in soils and freshwater fish in locations with no known release of PFAS, indicating a possible role for atmospheric transport and deposition.[8]

PFAS in Maine

PFAS was first discovered in groundwater in Maine at former military installations. Those sites were already known to contain other contaminants and surrounding areas are served by public water systems. The potential for more widespread PFAS impacts in Maine was not realized until PFAS was discovered in the Kennebunk, Kennebunkport, Wells Water District supply well, which led to the discovery of PFAS in a nearby dairy farm well, milk, hay and soil. This one incident raised a series of questions about the soil-to-groundwater pathway, agronomic exposure pathways, and whether this was an isolated or more common occurrence. Since that time, many State of Maine agencies have become involved in efforts to investigate, respond to, and reduce exposure of Maine citizens to PFAS.

Maine DEP, the Maine Department of Agriculture, Conservation and Forestry (DACF), and the Maine Center for Disease Control and Prevention (Maine CDC) continue to investigate sites and materials for possible PFAS compounds, including:

- Public water systems near potential sources of PFAS;
- Groundwater, surface water, and private water supplies around Maine DEP cleanup sites, landfills, residuals land application sites, and Superfund sites;
- Retail milk supply;
- Vegetation (corn and hay) associated with agricultural feed for the dairy industry;
- Sludge and other residuals; and
- Fish tissue.

[8] Zhu W., Roakes H., Zemba S.G., Badireddy A. "PFAS Background In Vermont Shallow Soils". (February 2019). Retrieved from https://anrweb.vt.gov/PubDocs/DEC/PFOA/Soil-Background/PFAS-Background-Vermont-Shallow-Soils-03-24-19.pdf.

Maine Department of Environmental Protection

As of October 2019, the Maine DEP had more than 30,000 records for 28 different PFAS at 245 locations across the State. Records in the Department's database include locations associated with former military sites, closed unlined landfills, Superfund sites, uncontrolled sites, residual land application sites and compost facilities processing residuals, drinking water (both public and private), wastewater, and the DEP's Surface Water Ambient Toxics (SWAT) program. A summary of these records can be found in Appendix C.

The DEP began testing for PFAS in fish tissue in 2013 near former military installations. DEP collected samples in subsequent years downstream of wastewater treatment plant outfalls, near known contaminated sites, and from some lakes and ponds. Sampling of brook trout and smallmouth bass in waters adjacent to the former Loring Air Force Base – specifically Durepo Reservoir and Limestone Stream – found levels of PFOS above Maine CDC's recently updated fish tissue action levels (34.1 ug/kg for protection of sensitive populations, 79.0 ug/kg for protection of the general population). However, measured PFOS levels were not high enough to warrant an advisory due to the existing and more restrictive statewide advisories on consumption of these fish species due to the presence of methylmercury.[9] All other fish data tested by DEP's SWAT Program for PFOA, PFOS and PFBS have been below the recreational angler fish tissue screening levels recommended by Maine CDC, with one exception. PFOS levels found in fish from Estes Lake, Mousam River had reported levels for white perch as high as 42.9 ug/kg, wet weight. Additional information is available online in DEP's biennial SWAT program reports.[10]

The DEP follows a step-out approach to site investigation – if contaminants are found above screening levels at a sampling point DEP evaluates environmental pathways for those contaminants and conducts testing at nearby locations where impacts may also be predicted. For example, DEP may investigate contamination along a bedrock fracture where groundwater is predicted to travel to drinking water wells. DEP's Remedial Action Guidelines, developed in collaboration with Maine CDC and that rely on EPA toxicity values for PFAS, recommend treatment or replacement of drinking water supplies where PFOA and PFOS exceed 70 ppt. As a matter of practice, DEP also recommends treatment or replacement of drinking water supplies when the sum of all measured PFAS exceed 400 ppt. As a result of this approach, carbon filtration drinking water treatment systems

[9] Maine Center for Disease Control interdepartmental memorandum to DEP on "PFOS fish tissue levels in Durepo Reservoir and Limestone Stream –April 26, 2018.

[10] Maine Department of Environmental Protection. *Surface Water Ambient Toxics Monitoring Program Report*. Retrieved from https://www.maine.gov/dep/publications/reports/index.html

for PFAS have been installed on four private supplies near closed, unlined municipal landfills and three more are pending installation.

In 2018, the Legislature and Board of Environmental Protection approved adoption of DEP's Chapter 418 rule, *Beneficial Use of Solid Wastes*, containing screening levels for PFOA, PFOS and PFBS in waste materials. In 2019, the DEP required testing of wastewater treatment plant and papermill residuals prior to land spreading as well as testing of finished compost produced from these same types of residuals. Results indicated:

- 65% of the residuals samples tested in 2019 exceeded the screening level for PFOA and 93% exceeded for PFOS;
- 89% of finished compost samples exceeded the screening level for PFOA and 74% exceeded for PFOS;
- There were no exceedances of PFBS screening levels for any of the residuals, compost and soils tested; and
- None of the papermill residuals tested exceeded any of the PFAS screening levels.

Appendix D contains a summary of this data.

The DEP's rules currently allow residuals to be agronomically utilized if the levels of contaminants in the residuals will not cause concentrations of those contaminants in the soil to exceed the Chapter 418 screening levels. This is predicted using pollutant loading rate calculations described in DEP's Chapter 419, *Agronomic Utilization of Residuals*. In 2019, approximately 27% of the licensed land application sites had some level of site-specific testing performed. It is important to note that a licensed site may consist of several fields, not all fields may be used in a given year, and acreage may vary significantly (therefore site-specific soil test results should not be viewed in the absence of this information). With that understanding, of the fields tested in 2019, 19% of soils exceeded the screening levels for PFOA and 57% exceeded for PFOS. As a result of this, many fields licensed for land spreading could not be used in 2019 and thousands of cubic yards of residuals were disposed at landfills. Although the finished compost results generally exceeded the Chapter 418 screening levels, loading rate calculations using site-specific soils or background soils testing predicted that use of compost would not cause soils to exceed the screening levels if applied as recommended.

Maine DEP, DACF, and Maine CDC are continuing efforts to refine modeling assumptions used to derive health-based limits for PFAS in water, soil, and certain foods (e.g., milk) to ensure that decisions are made based on the best available science. Work is on-going or underway to:

- Assess all available historic records to determine extent of residuals spreading activities on farmland and determine appropriate next steps;
- Sample corn stalks growing on farm fields with extensive land spreading history that will be harvested for silage feedstock;
- Further evaluate the extent to which PFAS compounds transfer from soil to silage corn to animals and ultimately into the food supply; and
- Communicate with other states and agencies to evaluate toxicological data that is the foundation of DEP's and Maine CDC's modeling work.

All environmental sampling data is publicly available through Maine DEP's website in several formats, including:

- An interactive mapping tool that includes a visual map, the ability to search for sites, and all supporting data in a downloadable format;
- For residuals land application sites, a table that includes information for all licensed sites; and
- A copy of all PFAS test results for all site types included in Maine DEP's database.

Recognizing the financial burden PFAS has placed on some of Maine's wastewater treatment facilities, in 2019 Maine DEP:

- Offered emergency dewatering grants to certain facilities that did not have a way to dispose of low-solids content wastewater sludge that cannot be land applied due to high PFAS levels, and
- Offered planning grants to assist these same facilities in planning for future wastewater sludge disposal.

Maine CDC Drinking Water Program

Just under half (49%) of Maine's citizens are served water by Community Water Systems, which are regulated under the federal Safe Drinking Water Act administered through Maine CDC's Drinking Water Program (DWP) – the remaining 51% obtain their drinking water from residential wells that are not subject to federal or state regulation or testing requirements. There is limited data on the presence of PFAS in residential wells, and PFAS is just one of the contaminants that might be found in residential well water. Maine's relatively unique reliance on residential wells will pose additional challenges as the PFAS problem is addressed.

Maine has approximately 378 regulated Community Water Systems (public water systems that serve people in their homes on a year-round basis). All municipal water systems are classified as Community Water Systems. Community Water Systems must test for approximately 87 synthetic and natural contaminants on a regular basis and take necessary steps to reduce detected contaminant levels to below drinking water standards established by EPA, known as Maximum Contaminant Levels (MCLs). Maine also has 375 Non-Transient Non-Community systems (these include schools, daycares and businesses); 1,151 Transient systems (these include restaurants and campgrounds); and 54 regulated bottled water sources.

Public water systems are not required to monitor for or treat PFAS in drinking water. However, several public water systems (those serving a population of more than 10,000) have been sampled for PFAS in Maine through an EPA-coordinated sampling program from 2013-2015 (through UCMR-3, the Unregulated Contaminant Monitoring Rule, Phase 3) and two sampling rounds coordinated by the Maine CDC Drinking Water Program in 2017 and 2019. The 2017 and 2019 sampling rounds used a targeted selection approach to include only public water systems that were close to potential sources of PFAS impacts. These programs were part of a data gathering effort to help evaluate the presence of PFAS in Maine's public water systems to inform future decisions on possible regulation of these chemicals as drinking water contaminants. The combined sampling efforts have resulted in analysis of drinking water samples for PFAS concentration in a total of 53 public water systems in Maine, mostly Community Water Systems. These systems represent more than 65% of the population served by Community Water Systems.

The following table presents a summary of all PFAS detections in the 53 tested public water systems.

Table 1 – PFAS Detections in Maine Public Water Systems[1]

Public Water System	Population Served	Year Sampled	PFOS	PFOA	PFHxS	PFHxA	PFBS	PFNA	NEtFOSAA	PFHpA
Kennebunk, Kennebunkport & Wells Water District	34,250	2013-2015 (EPA UCMR)	50	---	---	---	---	---	---	---
Sanford Water District [2]	N/A	2013-2015 (EPA UCMR)	290	---	110	---	---	---	---	---
Houlton Mobile Home Park	140	2017 (Maine CDC)	70.6	---	62.0	14.2	16.2	---	---	---

AOS98 Princeton Elementary School	169	2017 (Maine CDC)	---	---	8.7	---	5.0	---	---	---
Princeton Water District	75	2017 (Maine CDC)	---	---	---	5.1	---	---	---	---
Trenton Elementary School	165	2017 (Maine CDC)	7.4	16.6	---	---	---	9.9	---	---
Estes Lake Mobile Home Park	172	2019 (Maine CDC)	2.2	---	---	---	---	---	---	---
Pine Ridge Hunton Brook Association	298	2019 (Maine CDC)	---	3.6	---	---	---	---	---	---
Charter Oaks Mobile Home Village	105	2019 (Maine CDC)	---	3.0	---	2.4	---	---	---	---
The Pines at Arundel	105	2019 (Maine CDC)	---	2.7	---	2.2	---	---	---	---
Mexico Water District	2,425	2019 (Maine CDC)	---	---	---	---	---	---	2.1	---
AOS98 Georgetown Central School	98	2019 (Maine CDC)	---	3.1	---	---	12.1	---	---	---
Fayette Central School	105	2019 (Maine CDC)	---	2.1	---	------	---	---	---	---
Pejepscot School in Topsham	31	2019 (Maine CDC)	5.2	5.1	3.2	3.7	2.1	---	---	---
Lisbon Water Department	6,150	2019 (Maine CDC)	---	10.2	5.7	4.5	3.3	---	---	2.7

(1) All results expressed in nanogram per liter or parts per trillion (ppt).

(2) The Sanford Water District well is not used as a public drinking water source.

Maine CDC has advised public water systems testing for PFAS to use EPA's Health Advisory to guide decisions on whether to install filtration to reduce PFAS levels. The current Health Advisory for drinking water is a combined concentration of 70 ppt for two PFAS compounds, perfluorooctanoic acid (PFOA) and perfluoro octane sulfonate (PFOS). As shown in the table above, only one active public water supply was found to have combined PFOA and PFOS above the health advisory of 70 ppt. This is a small community system in Houlton (Houlton Mobile Home Park) serving approximately 140 people. This system is currently providing bottled water to their customers while considering

installation of a treatment system and/or replacement of the water source. In addition, one public water supply in southern Maine (Kennebunk, Kennebunkport & Wells Water District) serving a population of approximately 34,250 elected to install a treatment system for PFAS in one of their well sources, although PFAS levels in the well averaged about 50 ppt. The Sanford Water District well with reportable concentrations of PFAS has been abandoned for several years and is not used as a public drinking water source.

In Maine's most recent PFAS sampling round conducted in 2019, 17 of the 36 public water systems included in the program declined to participate, in several cases stating that they wished to wait until testing was required rather than participating in the voluntary sampling program. Based on this result, it will be necessary to create a requirement for Community Water Systems to sample for PFAS to assess potential risks to all of Maine's citizens that receive their water from Community Water Systems.

Maine Department of Agriculture, Conservation and Forestry

DACF is responsible for ensuring the safety of Maine's food supply while providing support to farmers and food producers through a host of programs and resources. To date, DACF has concentrated its efforts on investigating potential contamination of PFAS in retail milk; however, it anticipates this scope to expand upon further data collection and assessment, additional scientific study, and the establishment of recognized PFAS standards for food.

In late 2016, PFAS chemicals were found to be present at levels up to 1,420 ppt in the milk of a Maine dairy farm that had historically applied municipal wastewater and papermill residuals to its fields. These results exceeded the Action Threshold of 210 ppt for milk that was developed by the Maine CDC to determine when milk is considered adulterated.

To explore the safety of Maine's current overall milk supply, DACF completed a state-wide retail milk survey in June 2019. The survey focused on Maine-produced, fluid pasteurized milk that was: 1) bottled in-state; or 2) was bottled out of state but sold in Maine. Twenty-six samples were taken throughout the state to ensure broad geographic representation. All results were below the laboratory reporting level of 50 ppt.

At the same time DACF tested milk from three commercial dairy farms, two with an extensive history of municipal wastewater and/or paper mill residual applications and whose soil samples exceeded DEP's screening levels for PFOA and/or PFOS. The third farm was near the farm that had tested high for PFOS in 2016. The results from all three farms were also below the laboratory's reporting level of 50 ppt.

Table 2 - PFAS Retail Milk Testing Results May/June 2019, Vista Labs (ND= Not Detected)
Samples of Maine milk processed either: 1) in-state or 2) out-of-state (but sold in Maine)

Sample Number	Sample Date	State in Which Sample Containing ME Milk was Processed	PFOS Results with Laboratory Reporting Limit at 50 ng/L	PFOA Results with Laboratory Reporting Limit at 50 ng/L	PFOS or PFOA Concentration Detected below the Laboratory Reporting Limit but Above the Laboratory Method Detection Limit at 20.2 ng/L PFOS and 16.3 ng/L PFOA
#2	5/30/2019	NY	ND	ND	PFOA, 24.7 ng/L *
#4	5/30/2019	ME	ND	ND	ND
#6	5/30/2019	ME	ND	ND	ND
#1	5/29/2019	NY	ND	ND	ND
#9	5/31/2019	ME	ND	ND	PFOS, 44.7 ng/L *† **NOTE**: Sample retested on 7/12/2019. **Results were ND**.
#11	5/31/2019	ME	ND	ND	ND
#16	5/31/2019	ME	ND	ND	ND
#17	5/31/2019	MA	ND	ND	ND
#21	5/31/2019	ME	ND	ND	ND
#7	5/31/2019	MA	ND	ND	ND
#8	5/31/2019	ME	ND	ND	PFOS, 27.4 ng/L *†
#13	5/31/2019	ME	ND	ND	PFOS, 24.9 ng/L *†
#15	5/31/2019	MA	ND	ND	ND
#25	6/03/2019	ME	ND	ND	ND
#29	6/03/2019	ME	ND	ND	ND
#22	6/03/2019	ME	ND	ND	ND
#23	6/01/2019	NH	ND	ND	ND
#28	6/03/2019	ME	ND	ND	PFOS, 27.7 ng/L *
#31	6/03/2019	ME	ND	ND	PFOS, 24.6 ng/L *†
#24	6/03/2019	ME	ND	ND	ND
#26	6/03/2019	MA	ND	ND	ND
#27	6/03/2019	ME	ND	ND	ND
#32	6/04/2019	ME	ND	ND	ND
#34	6/04/2019	ME	ND	ND	ND
#35	6/04/2019	ME	ND	ND	ND
#36	6/04/2019	MA	ND	ND	ND

* Result qualified by the laboratory as detected below the laboratory reporting limit.
† Results further qualified by the laboratory as not meeting laboratory analytical criterion.

Table 3 - Farm Test Results April/May 2019, Vista Labs (ND = Not Detected)

Farm	Sample Date	PFOS Results with Laboratory Reporting Limit at 50 ng/L	PFOA Results with Laboratory Reporting Limit at 50 ng/L	PFOS or PFOA Concentration Detected below the Laboratory Reporting Limit but Above the Laboratory Method Detection Limit at 20.2 ng/L PFOS and 16.3 ng/L PFOA
#1	4/29/2019	ND	ND	ND
#2	5/2/2019	ND	ND	ND
#3	5/29/2019	ND	ND	PFOA, 28.1 ng/L *

* Result qualified by the laboratory as detected below the laboratory reporting limit.

Future testing of milk and other agricultural products will occur based on additional factors, including the careful review of historic records, assessment of emerging science (including improved testing methods), and with the establishment of PFAS thresholds for other foods. DACF is in the process of assessing historical records of where licensed residuals may have been applied on Maine farmland. These records must be thoroughly vetted to fully understand past spreading activities (residual type(s), location(s), amount(s), and date(s)), the crops or livestock produced, soil characteristics, and other relevant data to assess potential risk and next steps.

DACF will work closely with any farmer whose products may be found to be adulterated by PFAS, with the goal of identifying mitigation strategies that could allow them to continue farming and producing safe agricultural products. DACF, in collaboration with DEP and DHHS, is prepared to help identify on-farm sources of PFAS contamination, design elimination strategies, and conduct ongoing testing and monitoring. DACF will further advocate for additional sources of funding to assist farmers who face financial hardship from lost production caused by PFAS contamination.

Maine Emergency Management Agency

The Maine Emergency Management Agency (MEMA) implements the Toxics Release Inventory (TRI) reports for the State. At the current time PFAS is not a TRI chemical but recommendations to the EPA have been sent on behalf of Maine to include PFAS on the chemical list.

The AFFF working group was formed to establish a comprehensive inventory of Class B AFFF firefighting foam throughout Maine and to make recommendations to the Governor's PFAS Task Force regarding the future use of Class B AFFF. The AFFF workgroup included the State Fire Marshal and representation from Maine DEP, MEMA,

Maine Fire Chief's Association, Professional Firefighters of Maine, Maine Department of Labor, Maine Fire Service Institute, Bangor International Jetport, Portland International Jetport, Sappi Fine Paper, Maine State Police, Irving Oil, Citgo Oil, Global Partners LP, Gulf Oil, State Emergency Response Commission, and the Maine Air National Guard. A formal letter of request from the State Fire Marshal along with a survey was developed and sent to all Maine fire departments and industry partners to collect Class B AFFF information on behalf of the Task Force. Additionally, working group members developed and emailed a Class B AFFF infographic to all fire service organizations and industry partners in the state. Out of 305 fire departments in the State only 60 responses were received and out of 20 industry partners only 8 were received. Response to these surveys has been disappointing, even after multiple requests, but there is no regulatory mechanism that requires fire departments to respond to these surveys. Maine DEP, MEMA and the State Fire Marshal's office will continue to encourage organizations to respond to these surveys and manage survey data for future use to ensure accurate information is available once an appropriate takeback and replacement program is established.

The AFFF workgroup submitted their recommendations to the Task Force at their October 29, 2019 meeting. Those recommendations are included in Appendix E.

Financial Impacts

PFAS has already had a significant financial impact in Maine and is likely to impose an even greater cost as Maine moves forward to remediate the current contamination and reduce future contamination. Unfortunately, due to the accumulating evidence about adverse health effects, there are significant risks to delaying action. A recent European study reported that the cost of adverse health effects related to PFAS could be much higher than those of clean-up.[11] And that is just considering the financial aspects and not the individual experiences. While it is impossible to establish clear financial estimates of the possible health costs of PFAS for Maine people, it is certainly a cautionary note, and worth keeping in mind as we consider the importance of taking action.

Looking at what we can estimate for Maine based on experience, it is useful to divide the picture into several sections— Municipalities, State Government Agencies, Other States, and Individual Mainers.

[11]Nordic Council of Ministers. Nordic Working Group for Chemicals, Environment, and Health. *The Cost of Inaction, A socioeconomic analysis of environmental and health impacts linked to exposure to PFAS.* (2019). Publication number 2019:516.

Municipalities

The Kennebunk, Kennebunkport and Wells Water District spent approximately $1.5 million to install a water treatment system for the removal of PFAS. Municipalities spent hundreds of thousands of dollars more than they had budgeted for in 2019 to test for PFAS and to send wastewater sludge to landfills instead of using it as a soil amendment.

Another financial problem for municipalities is likely to be the replacement of AFFF at local fire departments unless manufacturers can be required to take back the product. An unknown number of fire departments still have stocks of AFFF on hand that they have been using to fight certain types of fires. As it is known that PFAS free foam is available for firefighting, it is recommended that AFFF stocks be taken back and replaced with alternatives. This will be an expensive effort for some departments.

State Government Agencies

State of Maine agencies redirected numerous staff from other priority projects to investigation, data analysis, scientific review, regulatory and policy development, and other tasks focused specifically on PFAS impacts in Maine. This kind of redirection of staff cannot proceed without putting other important agency work at risk. For that reason, it will be important to add staff at relevant agencies to address this crisis, rather than "borrowing" from other established responsibilities.

To-date, the DEP estimates that more than $200,000 has been devoted to PFAS work; Maine CDC's Drinking Water Program estimates the program has spent $24,180 on sampling and analysis, and by the end of 2019 its estimated that $1,794,173 from the Drinking Water State Revolving Fund will have been used for the installation of PFAS drinking water treatment systems. DACF estimates that staff time, sampling, and laboratory fees in 2019 totaled approximately $40,000.

Other States

Other states have already spent millions of dollars for investigation of PFAS contamination. For example, Michigan's initial PFAS response has been estimated to cost $50 million, which included sampling all public water systems and private water supplies serving schools and daycares. Michigan's Legislature recently authorized an annual appropriation of $15 million to address emerging contaminants. Vermont's investigation of contamination from an industrial fabric coating facility involved sampling over 600 residential drinking water wells, the extension of a municipal water line, legal expenses, and utilized more than a dozen full-time employees from four different Vermont state agencies, all at an estimated cost of $60 million. Identifying and preventing exposure of

Maine citizens to PFAS contaminants in Maine has the potential to impose an unsustainable burden on state and private resources.

Individual Maine Families

Private property owners who want to test their drinking water or other materials may do so at their own cost by working directly with laboratories and environmental professionals. Analyzing one drinking water sample may cost a homeowner up to $400 and take several weeks to obtain results. Installation of a carbon filtration system to treat PFAS in a residential well costs approximately $3,000 to $5,000 and such systems will have annual maintenance costs of $1,000 to $2,000.

The potential impacts to farms can be severe. One Maine farm to date has completely ceased dairy operations and suffered enormous financial consequences. Further, by eliminating the use of waste residual land application, farms may incur the additional expense of purchasing alternative fertilizers.

Recommendations

1. **Providing safe drinking water;**
2. **Protecting our food supply;**
3. **Identifying and investigating PFAS contaminants in the environment;**
4. **Identifying and reducing uses of PFAS;**
5. **Managing waste responsibly;**
6. **Improving public education about PFAS;**
7. **Promoting federal action; and**
8. **Funding for state agencies to investigate, respond to and reduce exposure of Maine citizens to PFAS.**

Providing Safe Drinking Water

The Task Force unanimously recommends that all Community Water Systems (currently 378) and all schools and daycare facilities that are regulated as Non-Transient Non-Community water systems (approximately 223) should be required to test for PFAS using certified analytical methods. Members also support legislation and rulemaking necessary to implement this recommendation.

One Task Force member recommends ultimately requiring all public water systems (more than 1,900) to conduct testing (this includes transient water systems, defined as any entity that serves water to 25 people or more for 60 days or more in a year as a non-primary source of drinking water, such as campgrounds and other seasonal uses). A majority of Task Force members recommend that all public water systems not required to test should consider conducting voluntary PFAS testing.

Task Force members disagreed about the level of PFAS in drinking water that should require treatment or the use of an alternative drinking water supply. A majority (8) of Task Force members recommend using U.S. EPA health advisory levels as a threshold for action by public water systems. Two members recommend setting Maine-specific thresholds for action in light of the U.S. DHHS, ATSDR draft recommendations, and such action by other states.

The Task Force unanimously recommends that DEP and Maine CDC's DWP consider applying the EPA health advisory level to the sum of at least PFHxS, PFNA, PFHpA, PFOA, and PFOS when detected in drinking water.

The Task Force unanimously recommends that customers of public water systems should be notified of PFAS detections in drinking water at an appropriate level to be determined through the legislative and rulemaking process.

In the absence of federal regulation, legislation would be needed to establish a drinking water testing and notification requirement for PFAS in Maine.

The Task Force also recommends that private drinking water should be tested for PFAS in areas where groundwater is likely to have been impacted by PFAS at unsafe levels, such as: 1) manufacturing locations that utilized PFAS; 2) unlined landfills; 3) areas where Class B AFFF has been discharged or stored; and 4) residuals land spreading sites. The Task Force recommends that the Legislature consider funding for educational outreach and financial assistance to expand testing and treatment of all residential well water to reduce exposure to PFAS.

The Task Force recommends that the State should evaluate the advisability of developing State laboratory capacity to offer testing for PFAS to private well owners, recognizing that this proposal will require significant upfront instrument and infrastructure costs.

One Task Force member recommended that the State should require PFAS testing of private wells at the time of real estate transfers.

Protecting our Food Supply

The Task Force recommends that the State protect foods produced in Maine from PFAS adulteration through restrictions on PFAS uses, restrictions on the agronomic utilization and land application of PFAS-containing residuals, investigation and remediation of PFAS contamination, and greatly expanded testing of agricultural produce and products grown and/or raised in soils where residuals have been agronomically utilized.

Some members also recommend testing fish caught near sites where PFAS contaminants have been found. Members disagreed about whether fish consumption advisories should be issued where testing finds PFAS levels in fish tissue above Maine CDC's recommended fish tissue screening levels when the resulting advisories would be no more restrictive than the existing statewide fish consumption advisory already in place for mercury contamination.

Identifying and Reducing Uses of PFAS

A majority of Task Force members (8) recommend that the State require manufacturers to report the intentional use of PFAS of concern in consumer products, and to require the use of safer alternatives when they are available. The State should also discourage non-essential uses of PFAS in Maine by requiring those uses to be phased out. Legislation should be introduced to require this where authority does not already exist. One member recommends requiring manufacturers to report the use of PFOA and PFOS, specifically, when they are intentionally added to consumer products.

One Task Force member recommends that existing authorities granted to DEP and wastewater treatment plant operators should be used to the greatest extent possible to identify and control commercial or industrial PFAS discharges to sewer systems.

Task Force members disagreed about whether reporting requirements and restrictions on PFAS uses should apply to the entire family of PFAS compounds, or to individual PFAS due to differences in toxicity. Some members recommended utilizing federal review and approval processes to determine which PFAS should be allowed in food contact products, and recommended aligning with federal requirements for reporting to the Toxics Release Inventory (TRI).

The Task Force unanimously supports the recommendations of the Firefighting Foam workgroup (included in Appendix E) with the addition that existing alternatives to fluorinated foam have already been shown to be effective for many scenarios and should be rapidly deployed everywhere appropriate. This includes recommending legislation to require fire service organizations to report discharges of Class B AFFF to the environment, and legislation requiring all fire departments to report the locations of all known past fire training activities that utilized AFFF or other PFAS containing material.

The Firefighting Foam workgroup also recommends legislation to establish a Class B AFFF take back and replacement program. One Task Force member recommends the Legislature establish such a program once an alternative that meets performance requirements is readily available at a reasonable cost.

A majority (8) of Task Force members recommend that State procurement guidelines should discourage the purchase of PFAS-containing products.

One member recommends that releases of PFAS should be subject to DEP permitting and reporting requirements like other compounds designated as hazardous matter. This would potentially include requirements for wastewater discharge licenses, air emissions licenses, and waste handling licenses. Other members disagreed with imposing these

requirements due to the limited availability of analytical methods and toxicity data for individual PFAS.

Investigating PFAS Contaminants in the Environment

A majority (9) of the Task Force strongly recommends the State accelerate its ongoing efforts to identify prioritized locations and to sample groundwater, surface water and soil for PFAS, analyze sampling results for patterns, and refine models of PFAS fate and transport. The highest priority should be to identify and eliminate current human exposures that have the potential to exceed health-based guidelines for drinking water and screening levels for food products. The highest priority locations for sampling should include locations where Class B AFFF has been discharged, near unlined landfills, and where waste residuals were spread on fields that produce crops for human consumption or feed.

Task Force members also recommend testing for PFAS in groundwater near manufacturing facilities that currently or historically used PFAS, landfills, airports, wastewater disposal systems (e.g. leach fields), and other locations where PFAS may be present.

A majority (9) of Task Force members support legislation introduced by DEP to amend Maine's Uncontrolled Sites law to include pollutants or contaminants, which would give the State authority to require the removal and treatment of PFAS when they are a danger to public health (LR 3002). One Task Force member recommends limiting this to only specific PFAS with published toxicity values and certified analytical methods, while others recommend including the entire family of compounds.

A majority (8) of Task Force members recommend that the State continue to rely on federal agencies to establish toxicity values that are the basis for health risk levels of PFAS. A minority (2) of members recommend that the State should establish specific health risk levels for all PFAS compounds where sufficient data exists based on best available science.

The Task Force unanimously agreed that Maine CDC should continue to work toward finalizing its agronomic uptake model for PFAS to inform screening values.

A majority (9) of Task Force members agreed that, to protect both drinking water supplies and our natural environment, Maine DEP consider establishing an air deposition sampling program for a suite of PFAS.

Managing Waste and Waste Residuals Responsibly

A majority (9) of the Task Force recommends that DEP require regular testing of all wastewater residuals for PFAS prior to land spreading or commercial distribution in Maine. This should include industrial residuals, wastewater treatment plant sludge and septage. The Task Force unanimously agreed to recommend that this testing frequency be modified as appropriate for individual generators when concentrations diminish over time.

Two Task Force members recommended prohibiting any land spreading of residuals and general distribution of compost derived from residuals containing PFAS in excess of the screening level. However, members also recognize that agronomic utilization of residuals has environmental benefits, including improvements to soil health, nutrient recycling and carbon sequestration. The recommendation to reduce uses of PFAS is expected to reduce concentrations of PFAS in residuals so that utilization can resume.

The Task Force unanimously recommends that the Maine DEP investigate the availability of treatment and disposal technologies that minimize the potential for environmental PFAS contamination. Preference should be given to technologies with the demonstrated capacity to safely destroy PFAS. Additionally, the State should promote the development of infrastructure, on the scale necessary to meet the needs of the State, to manage PFAS-contaminated wastes safely and in a cost-effective manner.

Public Education

Maine citizens, physicians, government officials and other professionals must have access to information regarding PFAS to guide their own decision making. The Task Force recommends that the State develop or identify educational materials at the appropriate literacy level for their intended audience, to be provided through a variety of forums such as webpages, social media, training events, and fairs. Those audiences should include healthcare providers, farmers, drinking water and wastewater utility customers, fire-fighters, educators and students, and residential well owners. Different materials should be developed for the general public and for persons at potentially higher risk due to occupational exposures. Materials should be based on the best available scientific information.

Federal Action

The Maine PFAS Task Force recommends that the State advocate for the federal government to take prompt action to reduce harmful exposures of citizens to PFAS due to the widespread nature of PFAS uses and potential exposures. These actions should include:

a) Source Reduction

The federal government should require manufacturers to reduce and eliminate the use of PFAS in non-essential applications, with particular focus on those uses with the highest potential for human exposure. Manufacturers (domestic and foreign) of consumer products should be required to report their use of PFAS compounds in products sold in the United States.

The Federal Aviation Administration and the Department of Defense should be encouraged to specify effective foams that do not contain PFAS.

The U.S. Occupational Safety and Health Administration and National Institute for Occupational Safety and Health should adopt exposure limits for workers exposed to PFAS. These limits should also apply to firefighters and other emergency personnel supporting emergency response activities.

Two members recommend that EPA should end the approval of new PFAS under the New Chemicals Review program of the Toxic Substances Control Act.

Members unanimously recommend adding PFAS to the hazardous substance list under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), with some exceptions for entities such as water and wastewater utilities.

b) Drinking Water

The EPA should establish a Maximum Contaminant Level for PFAS in drinking water, and the FDA should apply that same standard to bottled water.

c) Food Supply

Members unanimously recommend that the FDA establish PFAS adulteration levels for foods and regulatory limits for food packaging in order to minimize dietary exposures to all PFAS.

Three members recommend that FDA revoke authorization for PFAS in all food contact materials.

The majority (8) of members recommend that FDA expand its published testing methodologies for PFAS in food; and two members recommend that FDA include all measurable PFAS in its Total Diet Studies.

The U.S. Department of Agriculture should establish additional sources of funding support for farmers impacted by PFAS contamination, similar to the Farm Service Agency's Dairy Indemnity Payment Program.

d) Waste Management

ATSDR should finalize toxicity values for PFAS commonly found in environmental samples.

The EPA should publish and update Regional Screening Levels to include additional screening level guidelines as toxicity levels become available.

The EPA should certify additional laboratory methods to measure PFAS in various media (groundwater, wastewater, soils and other solids, ambient air).

A majority (9) of members recommend that EPA support states in addressing PFAS in residuals and support the development of agronomic models of PFAS uptake from residual treated soils and soil-to-groundwater modeling.

e) Research

The federal government must invest further in research into PFAS health effects, environmental fate and transport, treatment and destruction technologies.

f) Funding

The federal government should provide grant funding to state agencies to support their efforts to protect citizens from exposure to unsafe levels of PFAS.

Funding for State Actions

The State is expending significant funds to investigate and control PFAS exposures for Maine citizens, and Task Force members recognize that substantial additional funding will be needed to implement the actions recommended in this report. Municipalities, drinking water and wastewater utility districts, farmers, businesses, property owners and other Maine citizens are also bearing direct and indirect costs from PFAS contamination.

State Funding

The Task Force recommends that funding from appropriate State accounts should be utilized, to the extent it is available, to fund sampling of drinking water systems, and to fund the investigation of PFAS contamination that threatens Maine's citizens. The Task Force recommends an increase in funding for state agencies to support this work.

State agencies must also be adequately staffed to conduct the work necessary to implement any and all of the Task Force's recommendations, which will cost millions of dollars in the coming years.

Bond Initiative

The Task Force recommends that the State introduce a bond initiative to raise money for the costs for PFAS sampling, analysis, remediation, and drinking water treatment.

Damage Claims

Many municipalities and states across the country are engaged in litigation against companies that manufactured PFAS-containing products, including claims for financial compensation. The Task Force recommends that the Maine Attorney General fully consider available legal avenues to apply the costs of PFAS contamination in Maine to appropriate responsible parties who supplied products that are harmful to human health and the environment.

A majority (8) of Task Force members recommend that the Legislature consider revising the statute of limitations for private claims to be within six years of discovery of PFAS contamination on private property.

Conclusion

These recommendations reflect a commitment to determine where PFAS contaminants exist in Maine due to current and historic activities, and to put in place a strategy to protect people from exposure. Through our deliberations and review of data, we concluded that there are risks of exposure to PFAS in Maine that require our attention. We believe that these recommendations exemplify the sincerity of our work and the seriousness of this issue.

Managing PFAS in Maine

Final Report from the Maine PFAS Task Force
January 2020

Appendices

APPENDIX A

OFFICE OF
THE GOVERNOR

NO. S FY 19.QO
DATE March6,2019

**AN ORDER TO STUDY THE THREATS OF
PFAS CONTAMINATION TO PUBLIC HEALTH AND THE ENVIRONMENT**

WHEREAS, Perfluoroalkyl and Polyfluoroalkyl (PFAS) are chemicals that are not naturally occurring, are stable and persistent in the environment, bioaccumulative, toxic at low concentrations, and easily transferred to groundwater and other media; and

WHEREAS, the use of PFAS in thousands of commercial and industrial applications, processes, and products has resulted in detectable concentrations in drinking water, soil and vegetation throughout the country, including sites in Maine; and

WHEREAS, the United States Environmental Protection Agency has established a lifetime health advisory level for perfluorooctanoic acid and perfluoro octane sulfonate in drinking water, and has developed a National Action Plan to protect public health from exposure to these compounds; and

WHEREAS, Maine State agencies are charged by *MR.S. Titles* 7, *22 and 38* with protecting public health and the environment from the risks of human exposure to these substances; and

WHEREAS, a coordinated response informed by persons with pertinent expertise is necessary to study PFAS distribution, assess the potential environmental and health impacts of PFAS, and recommend effective strategies to reduce or eliminate or reduce those impacts;

NOW THEREFORE, I, Janet T. Mills, Governor of the State of Maine, pursuant to authority conferred by *Me. Const. Art. V. Pt. 1, §1 and §12,* do hereby Order the following:

I. ESTABLISHMENT

The Governor's Task Force on the Threats of PFAS Contamination to Public Health and the Environment (Task Force) is hereby created. The purpose of the Task Force is to identify the extent of PFAS exposure in Maine, examine the risks of PFAS to Maine residents and the environment, and recommend State approaches to most effectively address this risk.

II. MEMBERSHIP

The Task Force shall consist of the following members:

A. The Commissioners, or their designees, of the Departments of:

1. Environmental Protection;

2. Health and Human Services;

3. Agriculture, Conservation and Forestry; and

4. Defense, Veterans and Emergency Management;

B. A public health physician designated by the Maine Public Health Association;

C. A representative, selected jointly by the Commissioners of Environmental Protection and Health and Human Services, from:

1. A Maine-based non-profit whose mission includes protecting human health and the environment from the effects of chemical contamination;

2. Maine's pulp and paper industry; and

3. A Maine-based association of:

a. Certified wastewater treatment plant operators;

b. Drinking water supply professionals; and

c. Biosolids and residuals management professionals.

The Commissioner of Environmental Protection shall, after conferring with the Governor, select a chair of the Task Force.

III. DUTIES

The Task Force shall:

A. Review information regarding known locations of PFAS detection in Maine and the status of any response strategies for those sites;

B. Identify significant data gaps in the knowledge of PFAS in Maine and develop recommendations to address such gaps;

C. Identify opportunities for public education regarding PFAS contamination and the effects of its exposure on public health and the environment;

D. Identify the sources of PFAS contamination and exposure pathways that pose the greatest risk to public health and the environment in Maine;

E. Examine the benefits and burdens of various treatment and disposal options for PFAS-contaminated media;

F. Assess how State agencies can most effectively use their existing authority and resources to reduce or eliminate priority and other risks from PFAS contamination;

G. Determine the inventory and use of fluorinated Aqueous Film Forming Foam in firefighting and fire training activities in Maine and evaluate effective nonfluorinated alternatives; and

H. Examine Maine and other data regarding PFAS contamination in freshwater fish and marine organisms and determine whether further such examination is warranted.

IV. OPERATIONS

The Task Force shall meet at the call of its Chair. The Task Force may form workgroups, make inquiries, conduct studies, hold public hearings and otherwise solicit and consider public comment. The Task Force may also consult with outside experts including those in other governmental agencies, institutions of higher education, non-governmental organizations, and the private sector. The Task Force shall issue a written report as soon as reasonably practicable.

V. OTHER

State agencies shall assist the Task Force in the performance of its duties and provide administrative and other support as requested. This Order shall not be construed to limit the discretion of any such agency to exercise its lawful authority to take any such action it deems necessary and appropriate to address issues of PFAS contamination.

VI. EFFECTIVE DATE

The effective date of this Order is March 6, 2019.

Janet T. Mills, Governor

APPENDIX B

Definitions and Acronyms

Acronym	Definition
AFFF	Aqueous Film Forming Foam
ATSDR	Agency for Toxic Substances and Disease Registry
Biosolids	Sewage sludge managed by wastewater treatment facilities
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Chain length	Number of carbon atoms linked together in a PFAS molecule
DACF	Maine Department of Agriculture, Conservation and Forestry
DEP	Maine Department of Environmental Protection
HA	Health Advisory issued by U.S. EPA Office of Water
MCL	Maximum Contaminant Level
Method 537.1	U.S. EPA certified analytical method used to determine presence of 18 different PFAS in drinking water
MRL	Minimal Risk Levels
NHANES	National Health and Nutrition Examination Survey
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PFAS	per- and poly- fluoroalkyl substances
PFHxS	Perfluorohexane sulfonate
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
Residuals	Solid wastes generated from municipal, commercial or industrial facilities that may be suitable for agronomic utilization.

Common Units of Measure

1 milligram/kilogram (mg/kg) = 1 milligram/liter (mg/L) = 1 part per million (ppm)

1 microgram/kilogram (µg/kg) = 1 microgram/Liter (µg/L) = 1 part per billion (ppb)

1 nanogram/kilogram (ng/kg) = 1 nanogram/Liter (ng/L0 = 1 part per trillion (ppt)

Conversions

1 ppm = 1,000 ppb = 1,000,000 ppt

APPENDIX C

	PFOA			PFOA + PFOS			PFOS		
	Number of Samples	Max Result	Average Result	Number of Samples	Max Result	Average Result	Number of Samples	Max Result	Average Result
COMPOST/SLUDGE/SEPTAGE SITES	**265**	**NA**	**NA**	**267**	**NA**	**NA**	**265**	**NA**	**NA**
COMPOST [1]	28	60	12.7	28	121	26.4	28	81.8	13.7
DRINKING WATER [2]	21	46.8	14.5	22	61.2	24	20	42.1	10.9
GROUNDWATER [2]	4	340	190.6	4	510	139.4	4	170	44.1
SLUDGE [1]	68	46	10.1	69	125.4	32.6	69	120	25.3
SOIL [1]	140	23.6	2.7	140	896.2	32.1	140	878	30
SURFACE WATER [2]	4	249	65.8	4	725	199.5	4	476	133.7
DEPARTMENT OF DEFENSE SITES	**1143**	**NA**	**NA**	**1,094**	**NA**	**NA**	**1143**	**NA**	**NA**
DRINKING WATER [2]	77	7.2	1.9	77	18.6	5.1	77	11.4	5.5
FISH [3]	56	3.2	0.9	NA	NA	NA	56	1,167	150.3
GROUNDWATER [2]	607	15,000	860.3	614	33,000	1,750.2	607	24,000	1129
SOIL [1]	264	43.2	1.9	264	3,584.3	91.5	264	3,570	103.2
SURFACE WATER [2]	139	1,500	80.7	139	7,240	557.8	139	7,100	489.3
DRINKING WATER	**69**	**5.1**	**4.5**	**70**	**290**	**102.3**	**70**	**290**	**120**
DRINKING WATER [2]	69	5.1	4.5	70	290	102.3	70	290	120
LANDFILLS	**194**	**NA**	**NA**	**195**	**NA**	**NA**	**192**	**NA**	**NA**
DRINKING WATER [2]	116	458	46.9	116	470	52.5	115	120	13.5
GROUNDWATER [2]	46	3,050	407.3	47	3,095.1	587	45	2,700	204.1
SOIL [1]	31	3.8	2.2	31	114.2	34.4	31	112	31.3
SURFACE WATER [2]	1	ND	ND	1	3.5	3.5	1	3.5	3.5
MYSTERY & SURFACE SPILL	**15**	**NA**	**NA**	**16**	**NA**	**NA**	**15**	**NA**	**NA**
DRINKING WATER [2]	13	61	11.3	14	63.4	10.9	13	2.4	1.5
SOIL [1]	2	0.1	0.1	2	0.2	0.2	2	0.2	0.2
SUPERFUND/RCRA SITES	**107**	**NA**	**NA**	**103**	**NA**	**NA**	**106**	**738**	**53.3**
DRINKING WATER [2]	37	3.8	1.9	35	5.1	2.2	36	2.2	2.1
GROUNDWATER [2]	51	270	33.9	49	759.2	90.3	51	738	65.8
SOIL [1]	5	ND	ND	5	ND	ND	5	ND	ND
SURFACE WATER [2]	14	18.6	10.3	14	129.6	43.1	14	122	43.7

PFAS Results Summary (2007 – 2019)

	PFOA			PFOA + PFOS			PFOS		
	Number of Samples	Max Result	Average Result	Number of Samples	Max Result	Average Result	Number of Samples	Max Result	Average Result
SWAT	**113**	**0.1**	**0.1**	**NA**	**NA**	**NA**	**113**	**47.1**	**11.8**
FISH [3]	113	0.1	0.1	NA	NA	NA	113	47.1	11.8
UNCONTROLLED SITES	**95**	**NA**	**NA**	**94**	**NA**	**NA**	**95**	**NA**	**NA**
DRINKING WATER [2]	60	38.2	11.7	60	956.3	119.1	60	930	167.9
GROUNDWATER [2]	30	1,160	258.7	29	5,040	795.7	30	4,180	522.1
SURFACE WATER [2]	5	1.9	1.9	5	1.9	1.9	5	ND	ND

(1) Results in ng/g dry weight.

(2) Results in ng/L.

(3) Results in ng/g wet weight.

(4) NA = not available or not applicable; ND = non-detect.

Maine Screening Levels

Water RAGs[1] (ppb)		
Compound	Residential	Construction Worker
PFBS	400	100,000
PFOS[2]	0.40	750
PFOA[2]	0.40	750

Soil RAGs[1] (mg/kg)						
Compound	Leaching to Groundwater[3]	Residential	Commercial Worker	Park User	Recreator Sediment	Construction Worker
PFBS	7.1	1,700	22,000	4,900	5,700	51,000
PFOS	0.021	1.7	22	4.9	5.7	5.1
PFOA	0.0095	1.7	22	4.9	5.7	5.1

Recreational Angler RAGs[1] (mg/kg wet weight)	
Compound	Fish Tissue
PFBS	52
PFOS	0.052
PFOA	0.052

Surface Water[4,5] (µg/l)		
Compound	Recreational	Construction Worker
PFBS	7,914	795,695
PFOS	0.17	0.74
PFOA	0.30	1.3

Beneficial Use[6] (mg/kg, dry weight)	
Compound	Beneficial Use
PFBS	1.9
PFOS	0.0052
PFOA	0.0025

[1] *Maine Remedial Action Guidelines (RAGs) for Sites Contaminated with Hazardous Substances*, Maine Department of Environmental Protection, effective October 19, 2018.

[2] In 2016, EPA established a lifetime health advisory of .070 µg/l (parts per billion) for the combined concentration of PFOA and PFOS. The RAGs for PFOA and PFOS in this table are risk-based values based on current science; however, EPA is developing further information on these contaminants. At this time, the Maine DEP recommends that the EPA health advisory level be applied at sites where groundwater is currently being used, or may be used in the future, for human consumption.

[3] Leaching to Groundwater RAGs are based on the Residential Water RAGs (PFBS = 400 ppb, PFOS = 0.40 ppb, PFOA = 0.40 ppb).

[4] Maine Center for Disease Control and Prevention, Department of Health and Human Services, *Human Health Risk-based Screening Levels for Perfluoroalkyl Compounds*, (Interdepartmental Memorandum to David Wright, DEP, from Pamela Wadman), August 17, 2016.

[5] Surface Water screening levels need to be recalculated according to EPA's "*Regional Screening Levels for Chemical Contaminants at Superfund Sites*" risk calculator approach.

[6] *Beneficial Use of Solid Wastes*, 06-096 C.M.R. ch. 418, Appendix A, last amended July 8, 2018. Screening levels are based on the leaching to groundwater pathway.

APPENDIX D

Residuals Testing Results

Material Type	PFOA (ng/g)			PFOS (ng/g)		
	Average	Median	Maximum	Average	Median	Maximum
Sludge	9	3.8	46	26.2	23	120
Compost	14	7.9	60	15.5	6.1	81.8
Site-Specific Soils	2	1.3	12.9	9.6	7.1	36.6

APPENDIX E

CLASS B AFFF Working Group Report To Governor's PFAS Task Force

Report Outline

Working Group Membership
Background
Recommendations
Survey Results
Enclosures 1-4

Prepared By
Faith Staples - Maine Emergency Management – Technological Hazards Program Manager
Jeff Squires – Maine Department of Environmental Protection – Director of Response Services

Membership:

Joseph Thomas – Maine State Fire Marshal

James Graves – Maine Fire Training Institute

John Duross – Maine Fire Chiefs Association

John Martell – Professional Firefighters of Maine

Brain Bernosky – Bangor International Airport

Chris Cronin – Maine Air National Guard

Sean Goodwin – State Emergency Response Commission

Bruce Yates – Global Partners LP

Jon Hendricks – Portland Fire Department/ Portland Jetport

Skip Pratt – Sappi Fine Paper

Monika Niedbala – Buckeye Partners

Jeff Squires – Maine DEP

Faith Staples – Maine Emergency Management Agency

Chris Rogers – Maine State Police

Michael LaPlante – Maine Department of Labor

Drake Bell – Irving Oil

Donald Griffin – Citgo

Terry Sullivan – Gulf Oil

Jason Farris – Maine Fire Chiefs Association

Arthur True – Kennebec County Emergency Management Agency

Matt Fournier – Maine Emergency Management Agency

Jeff Zahniser – Maine Air National Guard

Paul LaValle – Global Partners LP

Thomas Palmer – City of Bangor

Mike Scott – Professional Firefighters of Maine

Date Group Created: June 28th, 2019
Meetings Held: 3

Background: Recent reports and studies have raised awareness about the potential health effects associated with Perfluoroalkyl and Polyfluoroalkyl substances (PFAS), inclusive of the compounds PFOA and PFOS, and how it has been found in ground water sources. It has been determined that Class B Aqueous Film-Forming Foam (AFFF) used during fire suppression and firefighter training contributes to PFAS contamination of ground water. Aqueous film-forming foam (AFFF) is highly effective foam intended for fighting high-hazard flammable liquid fires. AFFF products are typically formed by combining hydrocarbon foaming agents with fluorinated surfactants. When mixed with water, the resulting solution achieves the interfacial tension characteristics needed to produce an aqueous film that spreads across the surface of a hydrocarbon fuel to extinguish the flame and to form a vapor barrier between the fuel and atmospheric oxygen to prevent re-ignition. [Interstate Technology Regulatory Council (ITRC) document "Aqueous Film-Forming Foams (AFFF)", (October 2018). **(Enclosure 1)**.]

The AFFF working group was formed to establish a comprehensive inventory of Class B AFFF firefighting foam throughout Maine and to make recommendations to the Governors PFAS Task Force regarding the future use of Class B AFFF. A formal letter of request from the State Fire Marshall **(Enclosure 2)** along with a survey **(Enclosure 3)** was developed and sent out to all Maine fire departments and industry partners to collect Class B AFFF information. Additionally, working group members developed and emailed a Class B AFFF infographic **(Enclosure 4)** to all fire service organization and industry partners in the state. Out of 305 fire departments in the State only 61 responses were received and out of 20 industry partners only 8 were received. Response to these surveys has been underwhelming, even after multiple requests. We are unaware of any mechanism that obligates response to these surveys. Maine DEP, MEMA and the State Fire Marshal's office will continue to encourage organizations to respond to these surveys and manage survey data for future use to ensure accurate information is available once an appropriate takeback and replacement program is established.

Recommendations

1. **Best Management Practices**

   That fire departments and industry partners in the State of Maine adopt the best management practices for Class B AFFF use outlined in the ITRC October 2018 document.

2. **Inventory and Product Management**

   a. That all fire departments in the State of Maine be required to disclose the type and quantity of current inventory of Class B AFFF using the survey that was sent out in August 2019. Maine DEP and MEMA will continue to track and compile that information until an appropriate takeback program is established.

   b. Establish standardized protocols for the safe containerization, storage and routine inspection of Class B AFFF foam inventories in accordance with adopted best management practices.

   c. Establish protocols for the proper disposal of containers used to store Class B AFFF and any associated equipment that may contain residual product.

3. **Continued Use of PFAS-Containing AFFF**

   a. Because Class B AFFF is vital for controlling and extinguishing petroleum-based fires, allow continued use of the currently available product until a suitable and effective replacement is identified to save life and critical infrastructure.

   b. That any Maine fire department or industry that uses PFAS-containing Class B AFFF for operational response, report that use immediately to the Maine Department of Environmental Protection Response Hotline (1-800-452-4664) to include the type of foam, manufacturer, quantity, location and circumstances in the report so that a determination can be made regarding potential impact to nearby drinking water supplies.

   c. Require the use of non-PFAS containing foam for training and flushing/testing systems unless otherwise directed by federal law (such as airports). This option may not be available for foam dispensing fire trucks that contain pre-filled internal foam storage tanks. These internal systems must be tested routinely and may already contain Class B AFFF which contains PFAS. In these situations, users will follow best management practices for the complete containment and disposal of any dispensed product.

4. **Establish State Level Funding Mechanism**

   a. That allows MEMA and Maine DEP to develop and execute a Class B AFFF takeback and/or replacement program that does not financially burden Maine fire departments or their municipalities.

   b. So that fire departments and their municipalities are not financially burdened for environmental clean-up incidental to Class B AFFF used for operational response if best management practices are adopted and utilized.

5. **Training and Education**

   a. That a training and educational component be added to the Fire Fighter I and Fire Fighter II programs of instruction at the Maine State Fire Academy. Education should focus on gaining a basic understanding of the threat PFAS containing Class B AFFF presents, as well as best practices for the operational use and training with foam.

   b. That all current/active firefighters in Maine receive similar instruction related to PFAS as a component to their annual In-Service training programs.

   c. That all fire service organizations and industry partners that use Class B AFFF, display the Class B AFFF infographic in a prominent location at their worksites and where foam is stored to increase employee awareness.

6. **Medical Surveillance Program**

   Incorporate baseline testing and medical monitoring procedures for Maines Firefighters and HAZMAT Technicians that have had and continue to have a greater exposure potential than the general population, with special focus on those who have had direct contact with AFFF over the course of their employment.

7. **Class B AFFF Formulation Analysis**

   Require Total Oxidizable Precursor (TOP) Assay sample analysis of Class B AFFF foams used by industry and Maine Fire Departments if it is unclear whether or not the foam contains the PFAS family of compounds.

Survey Results: As of 25 October 2019
Fire Departments: 61 responses
Industry: 8 responses

Fire Department Name	AFFF Firefighting Foam (gallons)	Manufacturer	No Foam Confirmed by FD (Need to Follow Up)
Littleton Fire	55	Not Listed	Cape Elizabeth Fire Department
Newcastle Fire	200	Not Listed	Farmingdale Fire Department
Bath Fire Department	65	Rockwood, Lightwater	Vassalboro Fire Department
Rumford Fire Department	115	Chemguard, Angus, Fire Ade	Frenchville Fire Department
Sabattus Fire Dept	95	National Foam	Farmington Fire Department
Fryeburg Fire Department	100	Fire Ade	Livermore Falls Fire Department
Bremen Fire Department	5	National Foam	Lincoln Fire Department
City of Augusta Fire Department	490	Fire Ade, Chemguard	Milford Fire/Rescue
Kennebunk Fire Rescue	30	National Foam	Presque Isle
Owls Head FD	345	Denko, 3M, Rockwood	Phillips Fire Department
Portland Fire Dept	1750	Chemguard	Westbrook Fire Department
Strong Fire Department	55	National Foam, Angus Fire, Rockwoood, Ansul	Peru Fire Department
Union Fire-Rescue	150	Minn. Mining & MFG., Co.	Mount Desert Fire Department
Biddeford Fire Department	155	Chemguard	Kingfield Fire Department
Eddington Fire Dept	50	National Firefighting Foam	Easton Fire Department
Richmond Fire Department	60	National Foam	Warren Fire Department
Scarborough Fire Department	195	Varies	Caribou Fire and Ambulance
South Portland Fire Department	3400	Many kinds	St. Agatha Volunteer Fire Department
South China Volunteer Fire Dept	10	3M 9/90	Lovell
Presque Isle Fire Department	440	Chemguard Class B AFFF	
Windham Fire Department	150	Chemguard AR-AFFF	
Monmouth Fire Department	5	Not Listed	
Bridgton Fire Department	430	National Foam Universal Gold AR-AFFF and GVC Aqua Det	
Raymond Fire Rescue Department	45	National Foam	
Fairfield Fire Department	10	National Foam	
Brunswick Fire Department	120	Chemguard	
Brewer Fire Department	90	Denko Class A&B Hi-X Foam	
Albion Fire Department	70	FireAde 2000 (Fore Service Plus Mfg)	
Limestone Fire Department	50	Denko	
Gardiner Fire Department	20	National Foam	
Brownfield Fire Department	15	Chemguard, Ansulite	
Thomaston Fire Department	250	Chemguard, Angus and 3M Lightwater	
101st Air National Guard Fire Dept.	2800	PHOS-CHEK 3% AFFF MILSPEC C6	
Epping Volunteer Fire District	95	Fire Ade	
Dixfield Fire Department	130	FireAde 2000	
Cumberland Fire Department	165	Chemguard	
Mexico Fire Department	30	Fire Service Plus Inc.	
Goodwins Mills Fire Rescue	25	Specialty Chemicals and Equipment	
Dedham Fire Department	50	Fire Ade	
Waterville Fire Department	150	Chemguard, FireAid	
Orono Fire Department	25	Kiddie Fire	
Berwick Fire Department	40	National Foam	
Total Gallons	**12530**		

Survey Results: As of 25 October 2019

Fire Departments: 61 responses

Fire Department Name	AFFF Firefighting Foam (gallons)	Manufacturer	No Foam Confirmed by FD (Need to Follow Up)
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Newcastle Fire	200	Not Listed	Farmingdale Fire Department
Bath Fire Department	65	Rockwood, Lightwater	Vassalboro Fire Department
Rumford Fire Department	115	Chemguard, Angus, Fire Ade	Frenchville Fire Department
Sabattus Fire Dept	95	National Foam	Farmington Fire Department
Fryeburg Fire Department	100	Fire Ade	Livermore Falls Fire Department
Bremen Fire Department	5	National Foam	Lincoln Fire Department
City of Augusta Fire Department	490	Fire Ade, Chemguard	Milford Fire/Rescue
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Gardiner Fire Department	20	National Foam	
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Cumberland Fire Department	165	Chemguard	
Mexico Fire Department	30	Fire Service Plus Inc.	
Goodwins Mills Fire Rescue	25	Specialty Chemicals and Equipment	
Dedham Fire Department	50	Fire Ade	
Waterville Fire Department	150	Chemguard, FireAid	
Orono Fire Department	25	Kiddie Fire	
Berwick Fire Department	40	National Foam	
Total Gallons	**9730**		

Industry: 8 responses

Industry Name	AFFF Foam (gallons)	Manafacturer	No Foam Confirmed by Industry - Follow Up
Sprague Operating Resources, LLC	4600	National Foam	Penobscot Bay Terminals
Cold Brook Energy	400	National Foam	Global Companies LLC
Sappi Mill Skowhegan	1100		Irving Oil Terminals
			Portland Pipe Line Corporation
			Portland Jetport
Total Gallons	**6100**		

EXHIBIT G

clf
conservation law foundation

For a thriving New England

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December 6, 2019

By Email (pfastaskforce@maine.gov)

Maine PFAS Task Force
c/o Maine Department of Environmental Protection
17 State House Station, 28 Tyson Drive
Augusta, ME 04330

Re: Comments of Conservation Law Foundation on Maine PFAS Task Force Draft Report

Dear Maine PFAS Task Force Members:

On behalf of Conservation Law Foundation (CLF), thank you for the opportunity to provide comment on the draft report prepared by the Governor's PFAS Task Force.[1] CLF appreciates the work of the Task Force in preparing the report, but it must be strengthened in order to protect public health and the environment from per- and polyfluoroalkyl substances (PFAS). CLF strongly supports the recommendations proposed by the Environmental Health Strategy Center for strengthening the report. CLF makes the following recommendations about how the draft report can be further strengthened:

1. **Develop a drinking water standard for the PFAS class of chemicals.**
   In order to protect the residents of Maine from exposure to PFAS compounds in drinking water, the Task Force should recommend that the Maine Department of Health and Human Services (DHHS) adopt a treatment technique drinking water standard for the PFAS class of chemicals. As CLF outlined in its December 2018 petition to DHHS for rulemaking for a drinking water standard (attached as *Exhibit 1*), DHHS has the authority to adopt a treatment technique standard, and such a standard is necessary to protect human health. In the alternative, the Task Force should recommend that DHHS adopt a maximum contaminant level (MCL) for the PFAS class or for each PFAS chemical.

2. **Test all public water systems for PFAS contamination.**
   The Task Force should recommend that DHHS's Drinking Water Program extend its 2019 PFAS sampling to all public water systems in Maine. Further, given the poor response rate to DHHS's recent PFAS sampling efforts, the Task Force should recommend that DHHS exercise its existing authority to require that all public water systems participate in the PFAS sampling.

[1] CLF is a non-profit, member-supported organization with offices located in Maine, Massachusetts, Vermont, Rhode Island and New Hampshire. CLF uses the law, science and the market to create solutions that protect public health, preserve natural resources and sustain a vibrant economy. CLF has been a leading advocate for healthy communities and safe drinking water in Maine and throughout New England and is engaged in numerous efforts to address the threat of emerging contaminants, including PFAS, throughout New England.

3. **Test all sites where historical sludge-spreading has occurred.**
   For decades, sludge has been spread over hundreds of properties in Maine, mostly farmland. PFAS contamination has already been identified at one of these sites, the Stoneridge Farm in Arundel. The Task Force should recommend that the Maine Department of Environmental Protection (DEP) test the soil and the agricultural products at all historical sludge-spreading sites for PFAS contamination.

4. **Test all farmers who may have been exposed to PFAS through sludge-spreading.**
   Earlier this year, blood tests performed on farmers at the Stoneridge Farm showed high levels of PFAS. In order to protect the health of farmers in Maine, the Task Force should recommend that all famers who may have been exposed to PFAS at sites where historical sludge-spreading occurred have their blood tested for PFAS.

5. **Perform testing of products in our food supply, including milk and fish.**
   In order to protect our food supply from PFAS contamination, the Task Force should recommend that DEP perform ongoing and frequent sampling of fish for PFAS contamination, and that the Department of Agriculture, Conservation and Forestry (DACF) perform ongoing and frequent sampling of milk for PFAS contamination.

6. **Provide public access to all information obtained during PFAS investigations.**
   To increase public education concerning PFAS in Maine, the Task Force should recommend that all information, including all test data, that has been, or will be, obtained during past, current or future PFAS investigations be reported and provided to the public.

7. **Take legal action against PFAS manufacturers.**
   Vermont, New Hampshire and other states have initiated legal actions against PFAS manufacturers, in part seeking to recover costs associated with PFAS cleanup. The Task Force should urge the Maine Attorney General to take similar legal action.

We look forward to working with the Governor's PFAS Task Force as it finalizes its report, and with the agencies responsible for implementing its recommendations, including the DEP, DHHS and DACF. Thank you for your service on the Task Force.

Sincerely,

Phelps Turner
Senior Attorney

Encl.: CLF Petition to DHHS for Rulemaking to Establish a Treatment Technique Drinking Water Standard for Per- and Polyfluoroalkyl Substances (December 19, 2018)

Exhibit 1

clf
conservation law foundation

For a thriving New England

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By email:

December 19, 2018

Bethany Hamm, Acting Commissioner
Maine Department of Health and Human Services
221 State Street
Augusta, ME 04333-0011
bethany.hamm@maine.gov

Subject: Petition for Rulemaking to Establish a Treatment Technique Drinking Water Standard for Per- and Polyfluoroalkyl Substances

Dear Commissioner Hamm:

Conservation Law Foundation (CLF) and Toxics Action Center hereby petition the Maine Department of Health and Human Services (Maine DHHS) to establish a drinking water standard for Per- and Polyfluoroalkyl Substances (PFAS) that is protective of public health.[1] Specifically, CLF petitions Maine DHHS to adopt a treatment technique drinking water standard for the PFAS class of chemicals in lieu of setting a maximum contaminant level (MCL) for specific PFAS. At a bare minimum, if Maine DHHS does not promulgate a treatment technique standard, Maine DHHS should adopt an MCL for the PFAS class or MCLs for each PFAS chemical that poses a risk to public water systems in Maine. As an interim step to protect public health, Maine DHHS should immediately adopt the Vermont Department of Public Health's Health Advisory for PFAS (PFAS Health Advisory) of 20 parts per trillion (ppt) for the PFAS Class as an MCL.[2]

PFAS have been found in drinking water sources across Maine and numerous studies have linked PFAS to significant health risks, including cancer. Although the State of Maine has taken some preliminary steps to limit exposure to this dangerous class of chemicals, Maine DHHS must take additional affirmative steps to protect Maine residents from PFAS.

CLF protects New England's environment for the benefit of all people. Founded in 1966, CLF is a non-profit, member-supported organization with offices located in Maine, Massachusetts, Vermont, Rhode Island, and New Hampshire. CLF uses the law, science, and the market to

[1] Pursuant to Maine's Administrative Procedure Act, codified at 5 M.R.S. § 8055, "[a]ny person may petition an agency for the adoption or modification of any rule."
[2] Although this petition has prioritized a drinking water standard for the PFAS class, there is also an urgent need to develop comprehensive standards for PFAS compounds, including but not limited to, surface water quality standards, pre-treatment standards for industrial users, and limits for land application of sludges.

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create solutions that protect public health, preserve natural resources, build healthy communities, and sustain a vibrant economy. CLF has been a leading advocate for clean water and safe drinking water in Maine and throughout New England, and is engaged in numerous efforts to address the threat of emerging contaminants like PFAS throughout New England.

Founded in 1987, Toxics Action Center works side-by-side with communities across New England to clean up and prevent pollution at the local level.

INTRODUCTION

Maine DHHS must immediately adopt a drinking water standard that protects the residents of Maine from exposure to all PFAS compounds. PFAS are persistent in the environment; bioaccumulative; highly mobile in water; found in hundreds of different products; and are toxic in very small concentrations. PFAS have been found at unsafe levels in drinking water in Maine, as well as in ground- and surface waters. Drinking water contaminated with PFAS is a significant source of exposure.[3] Without a drinking water standard, public water systems in Maine are not required to regularly monitor for PFAS compounds or to treat water with unsafe levels of PFAS.

DuPont, 3M, and other chemical manufacturers recklessly produced these dangerous chemicals for decades despite being aware of the significant health risks associated with PFAS. Furthermore, in 1981, 3M and DuPont were aware that ingestion of perfluorooctanoic acid (PFOA) caused birth defects in rats.[4] After receiving this information, DuPont tested seven children of pregnant workers: two had birth defects.[5] DuPont was also aware that at least one facility had contaminated local drinking water supplies with unsafe levels of PFOA by 1987, but failed to warn anyone.[6]

DuPont hid this vital health information from the public and the U.S. Environmental Protection Agency (EPA) while making billions of dollars in profits from continued production of PFOA.[7] Ultimately, DuPont was fined $16.5 million dollars in 2005 for failing to disclose information about toxicity and health risks caused by PFOA.[8]

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[3] *See* Me. Ctr. for Disease Control and Prevention, *PFOA and PFOS in Private Well Water Questions and Answers*, March 2017, https://www.maine.gov/dep/spills/topics/pfas/PFOS_PFOA_Factsheet_March2017_Final.pdf

[4] Nathaniel Rich, *The Lawyer Who Became DuPont's Worst Nightmare*, N.Y. TIMES, Jan. 6, 2016, https://www.nytimes.com/2016/01/10/magazine/the-lawyer-who-became-duponts-worst-nightmare.html

[5] *Id.*

[6] *Id.*

[7] *Id.*

[8] Memorandum from Grant Y. Nakayama, Assistant Administrator, to Environmental Appeals Board Re Consent Agreement and Final Order to Resolve DuPont's Alleged Failure to Submit Substantial Risk Information Under the Toxic Substances Control Act (TSCA) and Failure to Submit Data Requested Under the Resource Conservation and

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Although PFOA and perfluoro-octane sulfonic acid (PFOS) have now been phased out of production in the U.S.,[9] these compounds will remain in our drinking water, ground- and surface waters, as well as our bodies, for decades. In addition, manufacturers have rushed to produce thousands of alternative PFAS that are likely to pose similar health risks given the similarities in chemical structure.[10] There are now over 3,000 different kinds of PFAS.

To make matters worse, EPA has failed to take meaningful action to protect the public from exposure to PFAS in drinking water. After becoming aware of contamination of drinking water supplies and the significant health risks posed by these dangerous chemicals, EPA gave manufacturers almost a decade to phase out production and use of PFOA and PFOS through a voluntary program.[11] Despite learning in 2015 that millions of Americans were, and continue to be, exposed to PFAS contaminated drinking water, EPA has not taken steps toward requiring public water systems to regularly monitor for PFAS and to treat unsafe water.[12] EPA even suppressed a scientific study suggesting that EPA's current health advisory for PFOA and PFOS does not protect public health. After widespread public outcry, EPA announced the possibility of setting drinking water standards for just two out of more than 3,000 PFAS, and even this limited action will take years.[13]

In addition, the federal government's capacity to set a standard protective of public health has been compromised by the staggering liabilities of the United States for releases of PFAS at federal facilities nationwide, including releases from federal facilities in Maine.

Recovery Act (RCRA) 3 (Dec. 14, 2005), https://www.epa.gov/sites/production/files/2013-08/documents/eabmemodupontpfoasettlement121405.pdf

[9] U.S. Envtl. Prot. Agency, *Assessing and Managing Chemicals Under TSCA, Fact Sheet: 2010/2015 PFOA Stewardship Program*, https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program#what

[10] *See, e.g.*, Stephen Brendel et al., *Short-Chain Perfluoroalkyl Acids: Environmental Concerns and a Regulatory Strategy under REACH* 30 ENVTL. SCI. EUR. 9, (2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5834591/pdf/12302_2018_Article_134.pdf

[11] *See, e.g.*, U.S. Env't Prot. Agency, *In the matter of: Premanufacture Notice Numbers: Dupont Company* (April 9, 2009), https://assets.documentcloud.org/documents/2746607/Sanitized-Consent-Order-P08-0508-and-P08-0509.pdf; Premanufacture Notification Exemption for Polymers; Amendment of Polymer Exemption Rule to Exclude Certain Perfluorinated Polymers, 75 Fed. Reg. 4295, 4296 (Jan. 27, 2010).

[12] David Andrews, *Report: Up to 110 Million Americans Could Have PFAS-Contaminated Drinking Water*, ENVTL. WORKING GROUP, May 22, 2018, https://www.ewg.org/research/report-110-million-americans-could-have-pfas-contaminated-drinking-water#.W6_7a2hKg2w

[13] *The Federal Role in the Toxic PFAS Chemical Crisis, Hearing on SD-342 Before the Subcommittee on Homeland Security & Governmental Affairs*, 115 Cong. (2018) (statement of Chairman Rand Paul and Ranking Member Gary C. Peters) https://www.hsgac.senate.gov/hearings/the-federal-role-in-the-toxic-pfas-chemical-crisis

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Maine can—and must—take the lead in the absence of federal safeguards. We will never be able to reverse the damage caused by chemical manufacturers and EPA's inaction, but Maine DHHS has broad authority to promulgate rules that limit additional exposure to unsafe levels of PFAS in drinking water.[14] In the absence of such rules, the public will remain at risk, and the most vulnerable among us – nursing infants and children in general, who consume higher volumes of water for their body weight and have greater developmental susceptibility – will be at the greatest risk.

Moreover, in the absence of such rules, homeowners on well-water and municipalities and other drinking water system operators will be stymied in their efforts to recover the costs of adopting filtration and other safeguards from responsible polluters.

For all these reasons, Maine DHHS should stop putting public health at risk and adopt a treatment technique drinking water standard that will protect Maine residents from the class of PFAS. As an interim step, Maine DHHS should immediately adopt Vermont's PFAS Health Advisory as a drinking water standard for public water systems.

I. BACKGROUND

A. PFAS are harmful to human health.

PFAS are a public health crisis "perfect storm" because PFAS compounds are extremely persistent in the environment, highly mobile in water, bioaccumulative, toxic in very small quantities, and found in hundreds of products. PFAS compounds are man-made substances that do not occur naturally, and they have been used in non-stick cookware, water-repellent clothing, stain resistant fabrics and carpets, cosmetics, firefighting foams, and other products that resist grease, water, and oil.[15] These chemicals are extremely strong and highly resistant to degradation.[16]

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[14] *See* 22 M.R.S. § 2611 ("The [Maine DHHS] commissioner shall promulgate and enforce primary drinking water regulations which are necessary to protect the public health and which shall apply to all public water systems. . . .[s] Such regulations shall be no less stringent than the most recent National Primary Drinking Water Regulations in effect, as issued or promulgated by the United States Environmental Protection Agency. Regulations under this subsection may be amended from time to time, as necessary.").

[15] Seth Kerschner and Zachary Griefen, *Next Round of Water Contamination Suits May Involve CWA*, LAW 360 (October 5, 2017), https://www.law360.com/articles/970995/next-round-of-water-contamination-suits-may-involve-cwa

[16] New Jersey Dep't of Envtl Prot. Division of Science, Research, and Envtl. Health, *Investigation of Levels of Perfluorinated Compounds in New Jersey Fish, Surface Water, and Sediment*, June 18, 2018, https://www.nj.gov/dep/dsr/publications/Investigation%20of%20Levels%20of%20Perfluorinated%20Compounds%20in%20New%20Jersey%20Fish,%20Surface%20Water,%20and%20Sediment.pdf

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PFAS are toxic to humans in very small concentrations—in the *parts per trillion*.[17] PFAS are suspected carcinogens and have been linked to growth, learning and behavioral problems in infants and children; fertility and pregnancy problems, including pre-eclampsia; interference with natural human hormones; increased cholesterol; immune system problems; and interference with liver, thyroid, and pancreatic function.[18] PFAS have been linked to increases in testicular and kidney cancer in human adults.[19] The developing fetus and newborn babies are particularly sensitive to some PFAS.[20]

Alarmingly, epidemiological studies identify the immune system as a target of PFAS toxicity. Some studies have found decreased antibody response to vaccines, and associations between blood serum PFAS levels and immune system hypersensitivity (asthma) and autoimmune disorders (ulcerative colitis).[21] There are no medical interventions that will remove PFAS from the body.[22]

PFAS are very resistant to breakdown, bioaccumulate, and easily migrate. PFAS are persistent in the environment and have been "shown to bioaccumulate in wildlife."[23] A study by the U.S. Centers for Disease Control and Prevention (CDC) found four PFAS (PFOS, PFOA, perfluorohexane (PFHxS), and perfluorononanoic acid (PFNA)) in the serum of nearly all of the people tested, indicating widespread exposure in the U.S. population.[24] PFOA and PFOS were found in up to 99 percent of the U.S. general population between 1999 and 2012.[25] PFAS are found in human breast milk and umbilical cord blood.[26]

While a great deal of public attention has recently been paid to PFOA and PFOS, and Maine DHHS, through its Center for Disease Control and Prevention, adopted a Maximum Exposure

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[17] Agency for Toxic Substances and Disease Registry, *Per- and Polyfluoroalkyl Substances (PFAS) and Your Health*, https://www.atsdr.cdc.gov/pfas/health-effects.html, Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls*, https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf, at 5–6.
[18] *Id.*
[19] *Id.* at 6; Vaughn Barry et al., *Perfluorooctanoic Acid (PFOA) Exposures and Incident Cancers among Adults Living Near a Chemical Plant*, 121 ENVTL. HEALTH PERSPECTIVES 11-12, 1313-18 (Nov.-Dec. 2013), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3855514/pdf/ehp.1306615.pdf
[20] U.S. Envtl. Prot. Agency, *Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)*, (May 2016) https://www.epa.gov/sites/production/files/2016-05/documents/pfoa_health_advisory_final_508.pdf at 10
[21] *Id.* at 39.
[22] Vermont Dep't of Health, *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in Drinking Water*, July 9, 2018, http://www.healthvermont.gov/sites/default/files/documents/pdf/ENV_DW_PFAS.pdf
[23] Me. Dept. of Envtl. Prot., *PFOA and PFOS: What is it?,* (Oct. 31, 2018, 4:33 PM), https://www.maine.gov/dep/spills/topics/pfas/index.html
[24] Ctr. for Disease Control and Prevention, *Per- and Polyfluorinated Substances (PFAS) Factsheet* (Apr. 7, 2017), https://www.cdc.gov/biomonitoring/PFAS_FactSheet.html
[25] U.S. Envtl. Prot. Agency, *Drinking Water Health Advisory for Perflourooctanoic Acid (PFOA)* (May 2016) at 9, https://www.epa.gov/sites/production/files/2016-05/documents/pfoa_health_advisory_final_508.pdf
[26] Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls*, *supra* note 17, at 3.

Guideline (MEG) for Drinking Water of 70 ppt for PFOA and PFOS when both are present in drinking water,[27] EPA and other scientists have raised concerns that other chemicals in the PFAS class of compounds are similar in chemical structure and are likely to pose similar health risks.[28] For example, all PFAS share a strong carbon-flourine bond and "degrade very slowly, if at all, under environmental conditions."[29] Although some of the long-chain PFASs are being regulated or phased out, the most common replacements are short-chain PFASs with similar structures, or compounds with fluorinated segments joined by ether linkages. While some shorter-chain fluorinated alternatives seem to be less bioaccumulative, they are still as environmentally persistent as long-chain substances or have persistent degradation products.[30] In addition, because some of the shorter-chain PFASs are less effective, larger quantities may be needed to provide the same performance.[31] Thus, drinking water rules must protect the public health from unsafe exposure to all compounds in the PFAS class.

B. PFAS have been found in Maine drinking water, groundwater, and surface waters.

Not only are PFAS toxic in very small amounts (in the nanograms per liter or parts per trillion), they are highly mobile in groundwater and surface water, and have been found in waters throughout Maine.

1. Groundwater

In Aroostook County, Maine, near the former Loring Air Force Base, PFAS compounds have been found in groundwater and surface water.[32] The base has been closed since 1994, and was added to the EPA National Priorities List in 1990 due to contamination from waste oils, PCBs, and pesticides.[33] More recently, a preliminary assessment was conducted to identify areas of the former base where Aqueous Film Forming Foams (AFFFs) were historically used.[34]

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[27] Me. Ctr. for Disease Control and Prevention, *Maximum Exposure Guidelines (MEGs) for Drinking Water*, Dec. 31, 2016, https://www.maine.gov/dhhs/mecdc/environmental-health/eohp/wells/documents/megtable2016.pdf

[28] *See, e.g.,* U.S. Envtl. Prot. Agency, *supra* note 11 (stating that, with respect to "GenX" compounds (chemical substances intended to replace long-chain (C8) PFAS used in Teflon), "EPA has concerns that these PMN substances will persist in the environment, could bioaccumulate, and be toxic ("PBT") to people, wild mammals, and birds.").

[29] Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, ENVTL. HEALTH PERSPECTIVES, May 2015, https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.1509934

[30] *Id.*

[31] *Id.*

[32] U.S. Envtl. Prot. Agency, *Loring Air Force Base Limestone, ME; Cleanup Activities*, https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0101074

[33] *Id.*

[34] *Id.*

Groundwater, surface water, soil and sediment samples collected from this assessment identified the presence of PFAS chemicals – further investigation is to be conducted to determine the extent of contamination.[35]

A former Naval Air Station in Brunswick, Maine, has also been placed on the EPA Superfund program after PFAS levels were detected in nearby groundwater.[36] Most significantly, Building 653 of the site was historically struck by lightning, and a fire suppression system was activated in the surrounding area.[37] As a result, the PFOS and PFOA levels detected in the area around Building 653 were an astounding 24 parts per billion (ppb) and 0.63 ppb, respectively.[38] Of the 139 on-base monitoring wells tested, 70 wells showed the presence of PFAS above the EPA Health Advisory limits.[39]

Additional sites in Maine that detected PFAS contamination, most likely originating from historic use of AFFFs, on the property include:

- Sanford and York County, Maine, where in 2013 PFOS was detected at 290 ppt in groundwater testing. Possible sources include AFFF from the near Sanford Seacoast Regional Airport, previously the Naval Auxiliary Air Facility.[40]
- In Kittery, Maine, on-base monitoring well samples were taken in 2018. Of the four wells tested, one found PFAS compounds at a rate of 140 ppt. The suspected source of this PFAS contamination is AFFF used at the neighboring Portsmouth Naval Shipyard.[41]

In 2018 PFAS compounds of PFOS and PFOA were found in Cutler, Maine. The contamination levels detected from four on-base monitoring wells showed levels between 161-360 ppt. Once again, the source of this contamination is suspected to be the use of AFFF from the Navy VLF Transmitter Cutler.[42]

2. Drinking Water

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[35] *Id.*
[36] U.S. Envtl. Prot. Agency, *Brunswick Naval Air Station Brunswick, ME; Cleanup Activities* https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0101073 Naval Facilities Eng'g Command, *Testing of Perfluorinated Compounds in Off-Base Drinking Water Wells: Former Naval Air Station Brunswick, Brunswick, Maine,* April 2016, https://www.maine.gov/dep/spills/topics/pfas/NASB_ResWell_PFC_FactSheet_April2016.pdf
[37] *Id.*
[38] *Id.*
[39] *Interactive Map Shows If Your Tap Water is Contaminated with PFCs*, ENVTL. WORKING GROUP (June 15, 2017) https://www.ecowatch.com/ewg-pfcs-drinking-water-2436908585.html (follow "Interactive Map" hyperlink; then search for the Brunswick, Maine contamination site).
[40] *Id.*
[41] *Id.*
[42] *Id.*

A 2017 investigation of well water near the Houlton International Airport revealed PFAS contaminants in drinking water above the EPA Health Advisory of 70 ppt.[43] The residents of a nearby Mobile Home Park were supplied with bottled water as a result of these findings.[44] The investigation of the well that serves the Mobile Home Park found PFAS contaminants at a level of 70.6 ppt, and another water sample tested in December of 2017 also found PFAS levels above 70 ppt.[45]

In the Spring of 2017 PFAS was detected in the Kimball Lane well in West Kennebunk.[46] Although the levels detected were below the EPA Health Advisory limit of 70 ppt, the district opted to err on the side of caution and shut down the well until June 8, 2018.[47] The District Superintendent, Norm Labbe, decided to be proactive in the protection of the residents in the district, adding that the EPA Health Advisory guidelines are based on the size of an adult and are not necessarily protective of the entire population.[48]

Following the 2013 findings of PFOS in groundwater near the Sanford Airport (previously the Naval Auxiliary Air Facility Sanford), public water supply testing was conducted in nearby Sanford.[49] The Sanford Water District testing from 2013-2016 showed PFOS contamination in 2 out of 16 samples collected.[50] The samples detected an average PFOS level of 33 ppt, with a maximum of 290 ppt detected in some testing.[51]

3. Surface Water

The suspected source of the Kennebunk contamination are byproducts from nearby Stoneridge Farm.[52] In the mid-1980s sludge from sewer districts and a paper mill were spread as soil

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[43] Jen Lynds, *Houlton Mobile Home Park water not safe to drink*, THE COUNTY (February 6, 2018) https://thecounty.me/2018/02/06/news/houlton-mobile-home-park-water-not-safe-to-drink
[44] *Id.*
[45] *Id.*
[46] Donna Buttarazzi, *Water district took well offline after detecting contaminants, superintendent says*, BANGOR DAILY NEWS (February 4, 2018) https://bangordailynews.com/2018/01/19/news/york/water-district-took-well-offline-after-discovering-contaminants-official-says
[47] *Id.*; Kennebunk, Kennebunkport and Wells Water District, *Updated: Kennebunk River Well PFAS Information* (June 8, 2018) https://kkw.org/kennebunk-river-well-pfas-information
[48] Buttarazzi, *supra* note 46.
[49] *Interactive Map Shows If Your Tap Water is Contaminated with PFCs*, *supra* note 39 (follow "Interactive Map" hyperlink; then search for the Sanford "Public Water District" EPA Tap Water Detection).
[50] *Id.*
[51] *Id.*
[52] Buttarazzi, *supra* note 46; Donna Buttarazzi, *Dairy farm contaminated KKWWD's Kimball Lane well*, SEACOASTONLINE.COM (February 1, 2018) http://www.seacoastonline.com/news/20180201/dairy-farm-contaminated-kkwwds-kimball-lane-well

enhancers on the farm land.[53] The Kimball Lane well was tested after results showed more extensive contamination from the monitoring well on this nearby Stoneridge Farm property.[54]

The Stoneridge Farm well also presented PFAS compounds at 140 ppt during testing in 2016.[55] A data report from the Maine Department of Environmental Protection (Maine DEP) in February of 2017 showed the presence of PFAS compounds in various bodies of water on the Stoneridge Farm.[56] The extent of contamination on Stoneridge Farm is still being monitored by the Maine DEP, who notes that PFAS compounds can accumulate in milk from the dairy cattle when they are consuming nearby tainted surface waters.[57] Alarmingly, the milk tank on the farm was tested and uncovered PFAS contaminants at the rate of 690 ppt, nearly ten times in excess of the EPA Health Advisory limit.[58] Subsequent soil samples on the farm indicated PFAS readings as high as 896,200 ppt (although safe PFAS limits for soil are not held to the EPA Health Advisory limit of 70 ppt standard).[59]

II. Maine DHHS should establish a treatment technique drinking water standard for the PFAS class that is protective of human health.

In the absence of federal safeguards, Maine must act to protect drinking water and limit Maine residents' exposure to PFAS. As described below, setting MCLs on a chemical-by-chemical basis does not adequately protect the public from PFAS health impacts. Instead, a treatment technique drinking water standard for the class of PFAS is needed. This regulatory approach is authorized by law and technically feasible.

A. The chemical-by-chemical, MCL approach to regulating toxic chemicals is not protective of public health and the environment.

The current chemical-by-chemical regulatory framework for toxic chemicals is so inefficient it puts public health at risk. For example, even after the 2016 amendment to the Toxic Substances Control Act (TSCA), "it could take decades to evaluate the 80,000 chemicals already in commerce that have yet to be tested, let alone the 2,000 new

[53] *Id.*
[54] *Id.*
[55] Edsel Cook, *Pollution in the ground water: Well water in Maine is contaminated with PFAs, and it's compounding*, NATURAL NEWS (October 5, 2018) https://www.naturalnews.com/2018-10-05-pollution-in-the-ground-water-well-water-in-maine-is-contaminated-with-pfas.html
[56] *Id.*
[57] *Id.*
[58] *Id.*
[59] *Id.*

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chemicals introduced each year." [60] The EPA "still treats each chemical individually, continuing the saga in which similar, but slightly different, chemicals can be regrettably substituted."[61]

The "whack-a-mole" approach is especially troublesome when it comes to setting drinking water standards for emerging contaminants like PFAS, because it is time consuming and expensive to assess them, it is "technically and financially challenging to identify and reverse environmental and human exposure to PFASs[,]" and both of these issues are exacerbated by the continual introduction of new PFAS compounds.[62] There are at least 3,000 PFAS compounds in use currently[63] and regulators don't know the names of all PFAS compounds, much less where they are located in their state. Recently developed PFAS are regarded as trade secrets and closely-guarded confidential business information, so manufacturers often do not apply for patents or supply regulators with information about molecular structure or usage.[64]

In light of the thousands of PFAS that have been introduced into commerce, and more introduced each year, establishing MCLs for each PFAS compound is simply not sustainable. The regulators fall farther behind every year, putting our citizens in harm's way. Thus, Maine should adopt a treatment technique drinking water standard that protects Maine residents from exposure to unsafe levels of all chemicals in the PFAS class.

B. The current MEG for PFOA and PFOS does not protect Maine residents.

Maine's current MEG, which adheres to EPA's Health Advisory for PFOA and PFOS, does not protect Maine residents from exposure to unsafe PFAS levels in public water systems. Even though Maine DHHS's Center for Disease Control issued its MEG for PFOA and PFOS back in 2016, public water systems in Maine are not required to test for and treat unsafe concentrations of PFOA and PFOS because there is no federal or state drinking water standard for any of the PFAS compounds. While Maine DEP has been working to identify locations that show a presence of PFOA and PFOS in the environment, Maine DHHS has yet to adopt an MCL or

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[60] Joseph Allen, *Stop playing whack-a-mole with hazardous chemicals*, WASH. POST (December 15, 2016), https://www.washingtonpost.com/opinions/stop-playing-whack-a-mole-with-hazardous-chemicals/2016/12/15/9a357090-bb36-11e6-91ee-1adddfe36cbe_story.html?utm_term=.ea468ed06c5e

[61] *Id.*

[62] Zhanyun Wang et al., *A Never-Ending story of Per- and Polyfluoroalkyl Substances (PFASs)*?, ENVTL. SCIENCE & TECH., (February 22, 2017), at 2511, https://pubs.acs.org/doi/pdf/10.1021/acs.est.6b04806

[63] KEMI Swedish Chemicals Agency, *Occurrence and use of highly fluorinated substances and alternatives; Report from a government assignment*, 6-78, 26 (August 9, 2009), https://www.kemi.se/en/global/rapporter/2015/report-7-15-occurrence-and-use-of-highly-fluorinated-substances-and-alternatives.pdf

[64] Zhanyun Wang et al., *supra* note 62. at 26.

establish an alternative drinking water standard for PFAS. This means that public water systems in Maine are not required to monitor for or treat unsafe concentrations of PFOA, PFOS, or any other PFAS chemical. Even if Maine's MEG for PFOA and PFOS was adopted as an MCL, it would not be protective of public health because it does not address the thousands of PFAS chemicals in the PFAS class.

C. A treatment technique drinking water standard is appropriate for PFAS.

Maine DHHS has broad authority to regulate unsafe chemicals in drinking water.[65] In this case, the unique nature of PFAS demands an alternative approach to chemical-by-chemical regulation through MCLs. Regulation of PFAS as a class and through a treatment technique standard is necessary. There are well-established drinking water treatment technologies that public water systems can install to remove unsafe levels of PFAS from drinking water. There is simply no excuse for Maine DHHS to delay the promulgation of a drinking water treatment technique standard for the PFAS class to address this public health crisis "perfect storm."

1. Maine DHHS has the authority to adopt a treatment technique drinking water standard.

Maine DHHS has authority to adopt a treatment technique drinking water standard for PFAS. The Legislature has mandated that Maine DHHS "shall promulgate and enforce primary drinking water regulations which are necessary to protect the public health and which shall apply to all public water systems." Neither Maine's statute nor Maine's Rules Relating to Drinking Water expressly provide for how Maine DHHS should establish water standards, but they do recognize that Maine DHHS's commissioner has broad authority to establish these drinking water regulations so long as they are "no less stringent than the most recent National Primary Drinking Water Regulations in effect, as issued or promulgated by the United States Environmental Protection Agency."[66]

"A treatment technique is an enforceable procedure or level of technological performance which public water systems must follow to ensure control of a contaminant."[67] Where a treatment technique is selected in lieu of an MCL, the treatment technique must "prevent known or anticipated adverse effects on the health of persons to the extent feasible."[68] EPA has adopted

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[65] *See* 22 M.R.S. § 2611.
[66] *Id*. The State of Maine has primacy for the Safe Drinking Water Act in Maine and has adopted the authority of the Safe Drinking Water Act via rulemaking. Maine Department of Health and Human Services, *Rules Relating to Drinking Water*, 10-144 C.M.R. Ch. 231.
[67] U.S. Envtl. Prot. Agency, *How EPA Regulates Drinking Water*, https://www.epa.gov/dwregdev/how-epa-regulates-drinking-water-contaminants
[68] 42 U.S.C. § 300g-1(b)(7)(A).

several treatment technique drinking water standards in lieu of an MCL where EPA has determined that it is "not economically or technologically feasible to ascertain the level of [a] contaminant."[69] For example, the Lead and Copper Rule requires the use of a treatment technique.[70] This rule requires public water systems to test drinking water in the homes of consumers and undertake additional treatment measures to control lead if 10% of the samples exceed 15 ppb.[71] The Surface Water Treatment Rule also requires the use of a treatment technique. Under this rule, most public water systems that obtain water from surface water or groundwater under the direct influence of surface water must use filters and disinfectants to reduce pathogens.[72] In both cases, EPA had to establish a unique procedure to address the risks posed by a specific contaminant because an MCL would not have been practical or protective of public health due to the unique characteristics of the contaminants.

Similarly, the unique characteristics of the PFAS class pose a public health threat that cannot be adequately addressed with the establishment of an MCL for one or a few PFAS chemicals. Maine DHHS has the authority to develop a procedure that would require installation of specific drinking water treatment technologies under certain circumstances. Maine DHHS has multiple options to protect Maine residents from exposure to the PFAS class. For example, Maine DHHS could promulgate a rule that requires public water systems to install appropriate treatment technologies where (1) the sum of all measurable PFAS exceeds a conservative threshold level that is protective of public health and takes into account the cumulative impacts of all PFAS chemicals or (2) the presence of PFAS compounds is detected using "non-targeted" laboratory analysis.[73] Non-targeted analysis allows "researchers [to] rapidly characterize thousands of never studied chemical compounds in a wide variety of environmental, residential, and biological media."[74] An alternative option would be to require: 1) a robust source water assessment for PFAS and 2) treatment where PFAS may be present in the source water. Maine DHHS should determine a specific procedure for the drinking water standard through a robust stakeholder process as part of the rulemaking process.

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[69] *Id.*
[70] U.S. Envtl. Prot. Agency, *How EPA Regulates Drinking Water Contaminants, supra* note 67
[71] U.S. Envtl. Prot. Agency, *Lead and Copper Rule*, https://www.epa.gov/dwreginfo/lead-and-copper-rule
[72] U.S. Envtl. Prot. Agency, *Surface Water Treatment Rules, https://www.epa.gov/dwreginfo/surface-water-treatment-rules*
[73] U.S. Envtl. Prot. Agency, *EPA Researchers Use Innovative Approach to Find PFAS in the Environment*, https://www.epa.gov/sciencematters/epa-researchers-use-innovative-approach-find-pfas-environment, Karl Leif Bates, *Duke Expert Helps Spearhead State's New Water-Testing Program*, DUKE TODAY (Aug. 8, 2018), available at https://today.duke.edu/2018/08/duke-expert-helps-spearhead-states-new-water-testing-program
[74] *Id.*

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2. Due to the unique characteristics of the PFAS class of compounds, a treatment technique is necessary to protect public health.

i. Regulation of PFAS chemicals as a class is necessary.

Even if Maine DHHS were to adopt the current MEG (or a lower ppt value) as an MCL, a combined limit for PFOA and PFOS would not protect Maine residents from the 3,000 or more other PFAS.[75]

First, there are likely many other PFAS in Maine, including for example PFHxS, PFHpA, PFNA, and PFBS, which other New England states have found to have "a very similar molecular structure to PFOS and PFOA" [76] but the State does not test for them. Furthermore, given the speed and secrecy with which chemical manufacturers have introduced these dangerous chemicals into commerce, there could be even more PFAS that Maine is simply not aware of yet.[77]

Second, as discussed above, PFAS are similar in chemical structure and some PFAS break down into each other.[78] While long-chain PFAS compounds may be decreasing in the environment due to voluntary phase-outs by manufacturers, "the most common replacements are short-chain PFAS with similar structures."[79] Third, these PFAS chemicals are often found together, and fourth, they are likely to have similar health effects as discussed in Section I.A.

EPA has applied similar concepts to establish an MCL for a group of chemicals. For example, EPA established an MCL for five haloacetic acid disinfection byproducts (HAA5) because it did not have sufficient information regarding (1) the occurrence of individual haloacetic acids; (2) how water quality parameters affect the formation of haloacetic acids; (3) how "treatment technologies control the formation of individual . . . [haloacetic acids];" and (4) toxicity information for some of the individual haloacetic acids.[80] In light of the unique challenges

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[75] KEMI Swedish Chemicals Agency, *supra* note 63, at 6.
[76] *See* Mass. Dep't of Envtl Prot., *Office of Research and Standards Final Recommendation for Interim Toxicity and Drinking Water Guidance Values for Perfluorinated Alkyl Substances Included in the Unregulated Chemical Monitoring Rule 3*, June 8, 2018, https://www.mass.gov/files/documents/2018/06/11/pfas-ors-ucmr3-recs_0.pdf
[77] Environmental Working Group Comments on the Agency for Toxic Substances and Disease Registry (ATSDR) Draft Toxicological Profile for Perfluoroalkyls, ENVTL WORKING GROUP (August 20, 2018), https://cdn.ewg.org/sites/default/files/testimony/EWG%20Comments%20for%20ATSDR_Aug20..pdf?_ga=2.236461961.949885036.1539136763-1789323056.1527870942
[78] Section I(A): Maine DHHS should establish a treatment technique drinking water standard for the PFAS class that is protective of human health; The chemical-by-chemical, MCL approach to regulating toxic chemicals is not protective of public health and the environment.
[79] Blum, *supra* note 29.
[80] 63 Fed. Reg. 69390, 69409 (Dec. 16, 1998), https://www.gpo.gov/fdsys/pkg/FR-1998-12-16/pdf/98-32887.pdf#page=1

associated with regulation of these chemicals, EPA promulgated a group MCL even in the absence of complete information about each individual haloacetic acid in order to better protect public health.[81] For all these reasons, it is appropriate to regulate PFAS chemicals as a class.

ii. A treatment technique in lieu of an MCL is necessary.

A treatment technique in lieu of an MCL for specific PFAS chemicals or small groups of PFAS chemicals is necessary. As discussed previously, scientists suspect that PFAS chemicals in the class may have similar adverse health effects as the handful of PFAS compounds that have been studied more extensively.[82] EPA has only developed targeted test methods for 14 PFAS chemicals out of more than 3,000 compounds.[83] Thus, it is simply not economically or technically feasible to ascertain the level of each specific PFAS chemical in the PFAS class that pose a risk to Maine residents.

As Maine DHHS is well aware, establishing an MCL for one compound is resource intensive and time consuming. Adopting a treatment technique drinking water standard for the PFAS class in lieu of establishing MCLs for thousands of PFAS chemicals will require far fewer resources and will provide protection from exposure to unsafe levels of PFAS on a much shorter timeline. For these reasons, a treatment technique drinking water standard is necessary to protect Maine residents.

3. Treatment technologies are available to remove long- and short-chain PFAS.

There are both established and novel methods to remove and destroy PFAS. While long- and short-chain PFAS may be difficult to treat with any one traditional technology—some new technologies are in development— a "treatment train" of several technologies combining adsorption, separation, and destruction in sequence, for example, would be effective in treating drinking water and protecting public health.

Adsorption technologies such as Granular activated carbon (GAC) and ion exchange "are currently the most commonly encountered interim response measures to achieve immediate

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[81] *Id.*
[82] KEMI Swedish Chemicals Agency, *supra* note 63.
[83] U.S. Envt. Prot. Agency, *Method 537: Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography /Tandem Mass Spectrometry* 537-2 (EPA/600/R-08/092) (Sep. 2009), http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=ED20973987CE8E7A0E0944E8E31D66BE?doi=10.1.1.645.8401&rep=rep1&type=pdf

compliance with drinking water standards and serve as the benchmark of practicality and effectiveness for other treatment technologies."[84]

While new adsorption technologies like organically modified silica adsorbents show promise,[85] GAC has long been used for adsorption of chemical pollutants, consistently removes PFOS with an efficiency of more than 90 percent,[86] and is the treatment technique specified in Safe Drinking Water Act for the control of synthetic organic chemicals:

> granular activated carbon is feasible for the control of synthetic organic chemicals, and any technology, treatment technique, or other means found to be the best available for the control of synthetic organic chemicals must be at least as effective in controlling synthetic organic chemicals as granular activated carbon.[87]

Separation technologies, including reverse osmosis, microfiltration, ultrafiltration and nanofiltration, are highly effective for PFAS removal and can remove PFAS at more than 99 percent effectiveness.[88] "Membrane filtration has several benefits including: achieving continuous separation, low energy consumption, ease of combination with other existing techniques, easy up-scaling, and low chemical costs."[89] Ozofractionation (a patented process by the company EVOCRA and available commercially as Ozofractionative Catalyzed Reagent Addition (OCRA) (Dickson 2013, 2014)) is a novel separation technology that shows high (>99.99 percent reduction) effectiveness for PFAS.[90]

Finally, novel destructive treatment technologies for PFAS are becoming available. Destructive technologies include sonochemical decomposition,[91] chemical/advanced photochemical oxidation,[92] and AECOM's DE-FLUORO™ technology.[93]

This treatment train solution will also confer significant co-benefits for public health, because the

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[84] J. Horst et al., *Water Treatment Technologies for PFAS: The Next Generation, 38,* Groundwater Monitoring & Remediation (Spring 2018), at 15.
[85] *Id.* at 15–16.
[86] K.H. Kucharzyk et al., *Novel treatment technologies for PFAS compounds: a critical review* 204 JOURNAL OF ENVTL. MANAGEMENT (December 2017), at 759; 42 U.S.C. § 300g-1(b)(4)(D).
[87] 42 U.S.C. § 300g-1(b)(4)(D).
[88] Kucharzyk, *supra* note 86, at 759–60; Horst, *supra* note 84.
[89] V.A. Arias Espana et al., *Treatment technologies for aqueous perfluorooctanesulfonate (PFOS) and perfluorooctanoate (PFOA): A critical review with an emphasis on field testing*, 4 ENVIRONMENTAL TECHNOLOGY & INNOVATION (2015) 168, 177.
[90] Horst, *supra* note 84, at 17.
[91] Espana, *supra* note 89, at 174.
[92] *Id.* at 178.
[93] AECOM, *AECOM's Promising New PFAS Treatment Technology DE-FLUORO Shows Complete Destruction of PFAS*, https://www.aecom.com/content/wp-content/uploads/2018/04/PFAS-Treatment-Technology-DE-FLUORO_INFO-SHEET.pdf

same technologies that are effective in PFAS treatment are effective in removing a host of other dangerous chemicals. GAC adsorption filters alone, for example, are effective in removing dozens of harmful contaminants in addition to PFAS (including, but not limited to: RDX, arsenic, benzene, cryptosporidium, MTBE, mercury, perchlorate, tetrachloroethylene (Perc), and trichloroethylene (TCE)).[94] Other technologies that should be considered as components of the treatment train confer similar co-benefits; for example, membrane separation technologies like reverse osmosis not only treat PFAS but, without limitation, also treat 1,4-dioxane, alachlor, chromium, malathion, and nitrates.[95]

For all these reasons, CLF and Toxics Action Center urge Maine DHHS to initiate a rulemaking for a treatment technique drinking water standard for the PFAS class.

III. In the alternative, Maine DHHS should either adopt an MCL for the PFAS class or for each individual PFAS chemical.

Maine DHHS must take action to establish drinking water standards for PFAS in the absence of federal safeguards even if Maine DHHS does not establish a treatment technique standard. As discussed in Section II.C., Maine DHHS has the authority to regulate PFAS as a class or on a chemical-by-chemical basis. PFAS are present in Maine waters and are known to cause adverse health effects. Thus, at a bare minimum, Maine DHHS should either 1) adopt an MCL for the PFAS class, or 2) set a schedule for the adoption of an MCL for each individual PFAS chemical that has been identified and begin establishing MCLs immediately. Of course, as new PFAS chemicals are identified, the schedule of MCL adoption will need to be modified.

IV. Maine DHHS should immediately adopt Vermont's PFAS Health Advisory as a maximum contaminant level.

In the interim and until Maine DHHS establishes a treatment technique drinking water standard for PFAS, Maine DHHS should immediately adopt Vermont's PFAS Health Advisory of 20 ppt for the PFAS Class as an MCL.

CONCLUSION

For all the forgoing reasons, CLF and Toxics Action Center petition Maine DHHS to establish a drinking water standard for PFAS that is protective of public health. Specifically, Maine DHHS should adopt a treatment technique drinking water standard for the PFAS class. In the alternative, Maine DHHS should establish an MCL for the PFAS class or individual MCLs for each PFAS chemical that poses a risk to public water systems in Maine. As an interim step,

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[94] U.S. Envtl. Prot. Agency, *Drinking Water Treatability Database*, *Granular Activated Carbon*, https://oaspub.epa.gov/tdb/pages/treatment/treatmentContaminant.do

[95] *Id.*

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Maine DHHS should immediately adopt Vermont's PFAS Health Advisory of 20 ppt for the PFAS Class as an MCL.

The significant threats posed to human health and the environment by the PFAS class of compounds are clear. These compounds have been found in Maine drinking water, groundwater, and surface waters. The dangers this class of chemicals pose to Maine residents demand immediate action to limit further exposure. Thank you for your consideration.

Sincerely,

Phelps Turner
Staff Attorney
Conservation Law Foundation

/s/ Sylvia Broude
Sylvia Broude
Executive Director
Toxics Action Center

CC:

Nancy Beardsley, Director, Maine CDC Division of Environmental Health (nancy.beardsley@maine.gov)
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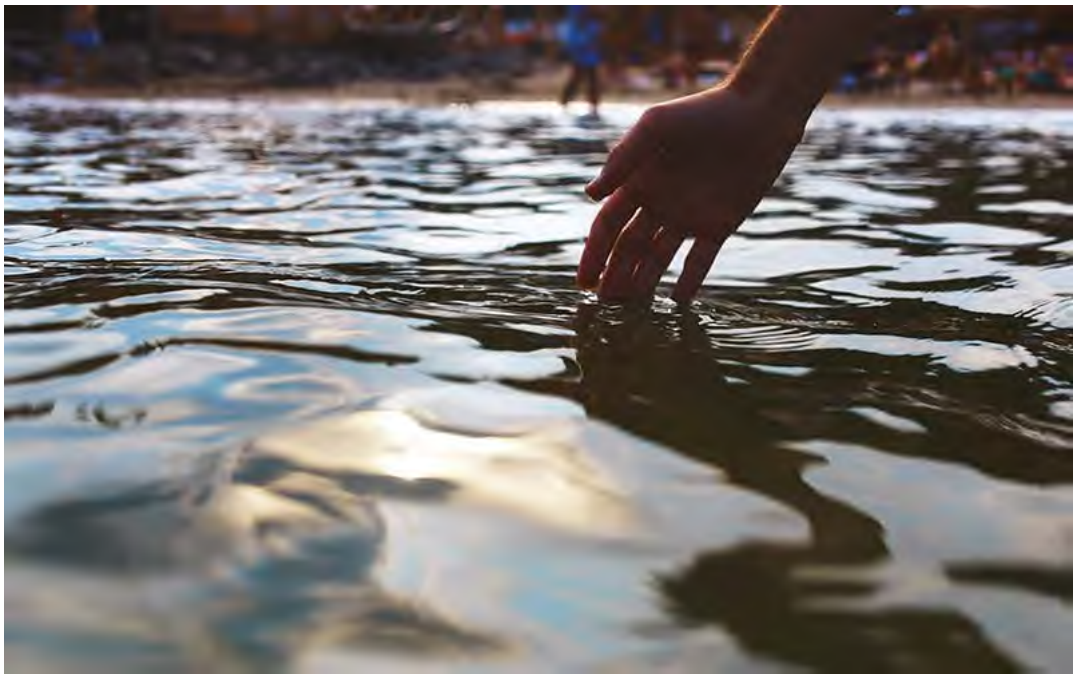
EXHIBIT H

Maine Needs to Act Now to Protect Us from Toxic “Forever” Chemicals

The state’s PFAS Task Force squandered the opportunity to advance strong action on these dangerous chemicals, but the state has other options to protect Mainers.

JAN 8, 2020 | PHELPS TURNER (/ABOUT/OUR-TEAM/PHELPS-TURNER) | @PHELPSTURNER (HTTPS://TWITTER.COM/PHELPSTURNER)



The Maine PFAS Task Force had the chance to take bold action to protect us from toxic "forever" chemicals but its recommendations to Governor Mills miss the mark, leaving our drinking water – and our health – vulnerable. Photo: Symonenko Viktoriia viaShutterstock

Most Mainers first learned of the dangers posed by PFAS chemicals (https://www.clf.org/making-an-impact/tackling-toxic-chemicals-pfas/) two years ago, when news broke that milk from Arundel's Stoneridge Farm was contaminated with them (https://www.seacoastonline.com/news/20180201/dairy-farm-contaminated-kkwwds-kimball-lane-well). The likely culprit: sludge spread on the farm as fertilizer.

That troubling news spurred state agencies to take steps to safeguard us from these widely used yet dangerous chemicals, which harm humans and the environment (https://www.clf.org/blog/toxic-chemicals-drinking-water/). Since then, the state has been performing limited testing of farms, farm products, and water supplies, which shows additional contamination exists in Maine. In addition, the Legislature passed a law requiring PFAS to be phased out of food packaging, and Governor Mills convened a PFAS Task Force to develop further recommendations for action.

Despite these efforts, however, much work remains to be done to protect Mainers from PFAS contamination. The task force recently released a draft of its recommendations, and they fall well short of the bold action that is needed.

As seen in the recent blockbuster film Dark Waters (https://www.focusfeatures.com/dark-waters/video/official-trailer-1), and as we've highlighted (https://www.clf.org/blog/maine-to-study-toxic-forever-chemicals/), science shows that PFAS chemicals may increase the risk of cancer, inhibit growth and learning in children, and interrupt thyroid function, among other devastating health impacts. They are often referred to as "forever" chemicals because they remain in our bloodstream and environment for decades. These chemicals pose an imminent danger because they are widely used in everyday household products and have already contaminated water sources in Maine.

That's why we are continuing our push for greater protections from these unsafe pollutants.

Maine's PFAS Task Force Missed a Key Opportunity to Advance Protections

We were encouraged when Governor Mills convened the PFAS Task Force in March 2019, especially because the Environmental Protection Agency has abdicated its responsibility to address this (https://www.npr.org/2019/02/14/694660716/epa-says-it-will-regulate-toxic-pfas-chemicals-but-not-soon-enough-for-critics) toxic pollution at the federal level. The task force's charge was threefold: identify the extent of PFAS exposure in Maine, examine the risks they pose to residents and the environment, and recommend state approaches to most effectively address those risks.

In November 2019, the task force issued its draft recommendations. In reviewing them, we determined that they needed to be stronger to protect people and the environment effectively. Here are the main areas where the task force missed the mark:

- It failed to recommend a drinking water standard for PFAS, which would have set a maximum level for these toxic chemicals in our drinking water, protecting us from additional exposure.
- It recommended that some, but not all, public water systems be tested for PFAS contamination. This means that some of our water will likely remain untested. Given that the Maine Centers for Disease Control and Prevention found recently that 9 out of 19 public water supplies contained PFAS at levels considered harmful to human health, anything short of 100% testing is not good enough.
- It failed to recommend testing sites, including farms, where sludge has been spread historically, meaning that many farms and farm products that may be contaminated will likely go untested. This is despite recent tests by the Maine Department of Environmental Protection that revealed that 31 out of 32 sludge producers and 14 out of 15 compost producers exceeded the state's level for one or more PFAS.

CLF pushed the task force to correct these failings (https://www.maine.gov/pfastaskforce/materials/report/comments/CLF%20Comments%20on%20Maine%20PFAS%20Task%20Force%20Draft% but ultimately, in December, the body adopted its draft recommendations, with only slight modifications. We again urged the Task Force to strengthen its recommendations, in particular, the adoption of the statewide drinking water standard. However, given the wide range of interests represented on the Task Force, the group was unable to agree on a recommended standard. It

Even if Governor Mills implements every recommendation made by the task force, Mainers will still be at risk from the harms caused by these hazardous pollutants. Fortunately, however, we have other opportunities for addressing this growing public health threat, and we will be pushing the Legislature and the relevant agencies to take action.

Opportunities Remain to Protect Mainers from the Dangers of PFAS

In 2020, there will be several opportunities for legislative and regulatory action on PFAS pollution in Maine. For instance, the Department of Environmental Protection (DEP) is introducing a bill to the state Legislature, LR 3002, that will seek to amend the state's Uncontrolled Hazardous Substance Sites law. The amendment will give the state the authority to require the removal and treatment of PFAS when they are a danger to public health. It will also allow the state to use money in the uncontrolled substance sites fund to clean up PFAS contamination. CLF will be working to ensure that DEP gains this additional authority funding stream to help clean up contaminated sites.

Further, DEP is currently considering a new policy to designate PFOS – one of the PFAS class of chemicals – as a priority chemical under Maine's Kids Safe Products ActCLF submitted comments in favor of this change, but also called for it to apply to other forms of PFAS. We will continue to participate in this process, including a public hearing on the rule changes on January 23 of this month.

As these and other activities unfold in Maine, we will continue to advocate for stronger protections for humans and the environment from the serious risks posed by PFAS "forever" chemicals.

Tags: Dark Waters (https://www.clf.org/blog/tag/dark-waters/), drinking water (https://www.clf.org/blog/tag/drinking-water/), forever chemicals (https://www.clf.org/blog/tag/forever-chemicals/), Maine PFAS Task Force (https://www.clf.org/blog/tag/maine-pfas-task-force/), PFAS (https://www.clf.org/blog/tag/pfas/)