

Managing PFAS in Maine

Final Report from the Maine PFAS Task Force
December 2019



Table of Contents

Task Force Members

Task Force Principles

PFAS Background

PFAS in Maine

Recommendations

Appendices

A. Executive Order

B. Definitions and Acronyms

C. Sampling Summary

D. Residuals Testing

E. AFFF Workgroup Report

PFAS Task Force Members

Dr. 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
Department of Defense, Veterans and Emergency Management

Dr. Lani Graham
Maine Public Health Association

Dr. 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 and 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 reducing uses of PFAS;**
- 4. Investigating PFAS contaminants in the environment;**
- 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.**

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 development of more specific details to implement. 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.

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 are still required components in a class of 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 the more stable and persistent PFOA and PFOS compounds.

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 at 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 this time, the U.S. EPA has 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. These differences among states are reflected in the variety of standards and screening levels for PFAS that other states have established in the absence of federal action to respond to their own unique circumstances.

DRAFT

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 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 possible 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;
- 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.

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, and increases in testicular, liver and pancreatic tumors.

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 (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 1999.² Four PFAS (PFOS, PFOA, PFHxS and PFNA) have been found in the

¹ <https://www.atsdr.cdc.gov/pfas/PFAS-health-effects.html>

² National Report on Human Exposure to Environmental Chemicals – US CDC:
<https://www.cdc.gov/exposurereport/index.html>

DRAFT

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 use of these chemicals in the U.S.

For most people, diet is thought to be the primary source of exposure to PFAS.³ The major types of dietary exposure for 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 was 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, residuals and septage spreading sites, air emissions from 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.⁴

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 the same toxicity information as EPA, nearly all of

³ Egeghy & Lorber. *Journal of Exposure Science and Environmental Epidemiology* (2011) 21, 150–168

⁴ US Environmental Protection Agency. Fact Sheet PFOA & PFOS Drinking Water Health Advisories (November 2016). EPA 800-F-16-003.

DRAFT

these agencies have adopted toxicity values as much as 10-fold lower (including ATSDR's proposed values), 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.

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.⁵

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,

⁵ Reference VT background soil study.

DRAFT

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.

Maine Department of Environmental Protection

As of October 2019, the Maine DEP has 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, and near known contaminated sites. All fish data tested by DEP's SWAT Program for PFOA, PFOS and PFBS have been below recreational angler screening levels recommended by ME CDC. The highest PFAS level found was PFOS at 42.9 ng/l (wet weight) in white perch from the Mousam River. Additional information is available online in DEP's biennial SWAT program reports⁶.

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

⁶ <https://www.maine.gov/dep/publications/reports/index.html>

DRAFT

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, or where all PFAS exceed 400 ppt. As a result of this approach, carbon filtration drinking water treatment systems 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 sludge 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 agronomic loading rate calculations described in DEP's Chapter 419, *Agronomic Utilization of Residuals*. Of the licensed 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.

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:

DRAFT

- Assess 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 our 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 as well as all available records of land application; 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 private wells that are not subject to federal or state regulation or testing requirements. 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

DRAFT

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 have been sampled for PFAS in Maine through an EPA-coordinated sampling program from 2013-2015 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

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 ⁽¹⁾	---	---	---	---	---	---	---
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	---	---

DRAFT

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 did not exceed 70 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.

DRAFT

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 may 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 determine 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 biosolid 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
---------------	-------------	--	---	---	---

DRAFT

#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

DRAFT

(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 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 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

DRAFT

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 C.

Financial Impacts

PFAS has already had a significant financial impact in Maine and is likely to impose an even greater cost in future years. The Kennebunk, Kennebunkport and Wells Water District spent \$???

 to install a treatment system for PFAS. Their neighbor, a dairy farm, stopped selling milk due to PFAS adulteration. 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. 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.

DEP and DWP have conducted very targeted sampling, and within that narrow scope have spent at least \$200,000 and \$??? respectively to date. DACF estimates that staff time, sampling, and laboratory fees in 2019 totaled approximately \$40,000.

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.

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

DRAFT

PFAS in a residential well costs approximately \$3,300 and such systems will have ongoing maintenance costs.

Recommendations

- 1. Providing safe drinking water;**
- 2. Protecting our food supply;**
- 3. Identifying and reducing uses of PFAS;**
- 4. Investigating PFAS contaminants in the environment;**
- 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.**

1. Providing Safe Drinking Water

The Task Force recommends that all Community Water Systems (currently 378) should be required to test for PFAS using certified analytical methods.

Some members recommend testing all Community water systems and all schools and daycare facilities that are regulated as Non-Transient Non-Community water systems (total approximately 600). Additionally, some members recommend ultimately requiring all public water systems (more than 1,900) to conduct testing.

Task Force members disagreed about the level of PFAS detection at which customers should be notified. Maine DWP recommended a notification threshold of 10 parts per trillion for individual PFAS because it is generally in the range of recently proposed or adopted health-based guidelines proposed or derived by several other states. Some members recommend requiring water system operators to notify customers of PFAS testing results at any level of detection.

In the absence of federal regulation, legislation would be required 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

DRAFT

Force recommends that the State should develop laboratory capacity to offer testing for PFAS to private well owners but recognize that this proposal will require significant upfront instrument and infrastructure costs. Some members recommended that the State should require PFAS testing of private wells at the time of real estate transfers.

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. Some members recommend using federal guideline levels, while other members recommend setting Maine-specific thresholds for action in light of such action by other states.

2. Protecting our Food Supply

Foods may contain PFAS in unsafe quantities due to contact with PFAS-containing materials (such as packaging or processing equipment), due to vegetative uptake into produce, due to livestock consumption of PFAS-containing feed, or due to other environmental exposures. Regulation of contaminants in food is controlled almost exclusively by the U.S. Food and Drug Administration (FDA). (See Recommendation #7 for further discussion of federal actions.)

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 continued testing of agricultural produce and products grown and/or raised in soils where residuals have been agronomically utilized.

Some members also recommend testing of 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 but the resulting advisories would be no more restrictive than the existing statewide fish consumption advisory already in place for mercury contamination.

3. Identifying and Reducing Uses of PFAS

The Task Force recommends that the State require manufacturers to report the intentional use of PFAS 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.

DRAFT

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 supports the recommendations of the Firefighting Foam workgroup, included in Appendix D. This includes recommending legislation to require fire service organizations to report discharges of Class B AFFF to the environment. The workgroup also recommends legislation to establish a Class B AFFF take back and replacement program once an alternative that meets performance requirements is readily available at a reasonable cost.

The Task Force also recommends that State procurement guidelines should discourage the purchase of PFAS-containing products.

Some members of the Task Force also recommend 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.

4. Investigating PFAS contaminants in the environment

The Task Force recommends the State continue efforts to sample for PFAS in prioritized locations, 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 exceed health-based guidelines for drinking water and screening levels for food products. High priority locations for sampling should include locations where Class B AFFF has been discharged, near unlined landfills, and where wastewater residuals were utilized on fields that produce crops for consumption.

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

DRAFT

Some 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). Some members recommend limiting this to only specific PFAS with published toxicity values and certified analytical methods, while others recommend including the entire family of compounds.

Some members recommend that the State of Maine should establish specific health risk levels for all PFAS compounds where sufficient data exists based on best available science. Other members recommend the State continue to rely on federal agencies to establish toxicity values that are the basis for health risk levels of PFAS.

Some members also recommend that the State of Maine evaluate the statute of limitations for private claims related to the discovery of contamination on private property.

5. Managing Waste Responsibly

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 wastewater treatment plant sludge and septage. Some members recommend that this testing be terminated for individual generators when concentrations diminish over time.

Some members recommend prohibiting any land spreading of residuals and general distribution of compost derived from residuals containing PFAS. However, members also recognize that agronomic utilization of residuals has environmental benefits, including improvements to soil health, nutrient recycling and carbon sequestration. Reducing uses of PFAS (Recommendation #3) is expected to reduce concentrations of PFAS in residuals so that utilization can resume.

The Task Force also 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.

6. Public Education

DRAFT

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. 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.

7. 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 identify effective foams that do not contain PFAS and to eliminate requirements for firefighting foams to 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.

The EPA should add 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

DRAFT

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

The FDA should establish PFAS adulteration levels for foods and regulatory limits for food packaging in order to minimize dietary exposures to all PFAS.

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

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.

8. 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.

DRAFT

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 State's 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 products, including claims for financial compensation. The Task Force recommends that the State ask the Maine Attorney General to fully consider available legal avenues to apply the costs of PFAS contamination in Maine to appropriate responsible parties who knowingly supplied products that are harmful to human health and the environment.

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 strategic responses 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.