

# Briefing to the Joint Standing Committee on Environment and Natural Resources



## PFAS in Maine

*February 15, 2023*

Melanie Loyzim, Commissioner

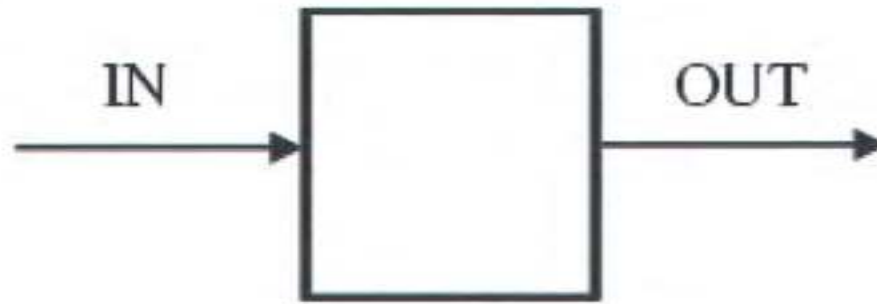
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

*Protecting Maine's Air, Land and Water*

# 2020 PFAS Task Force

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
8. Funding for state agencies to investigate, respond to and reduce exposure of Maine citizens to PFAS





## Source Reduction

Report usage  
Prohibitions

## Investigation & Remediation

Water Quality  
Wastewater discharges  
Surface water quality  
Fish tissue sampling

Remediation & Waste Management  
Residuals  
Landfills  
Soil  
Groundwater



# Updates on the PFAS Soil and Groundwater Investigation



*February 15, 2023*

Susanne Miller, Director  
Bureau of Remediation and Waste Management

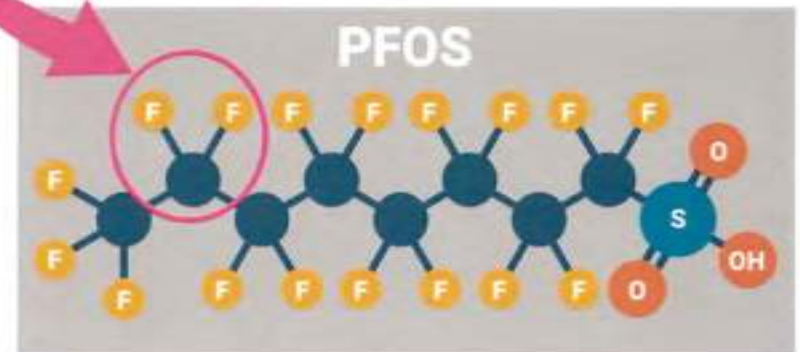
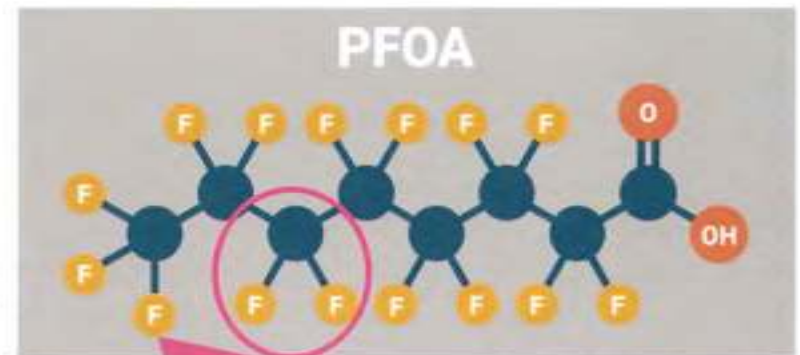
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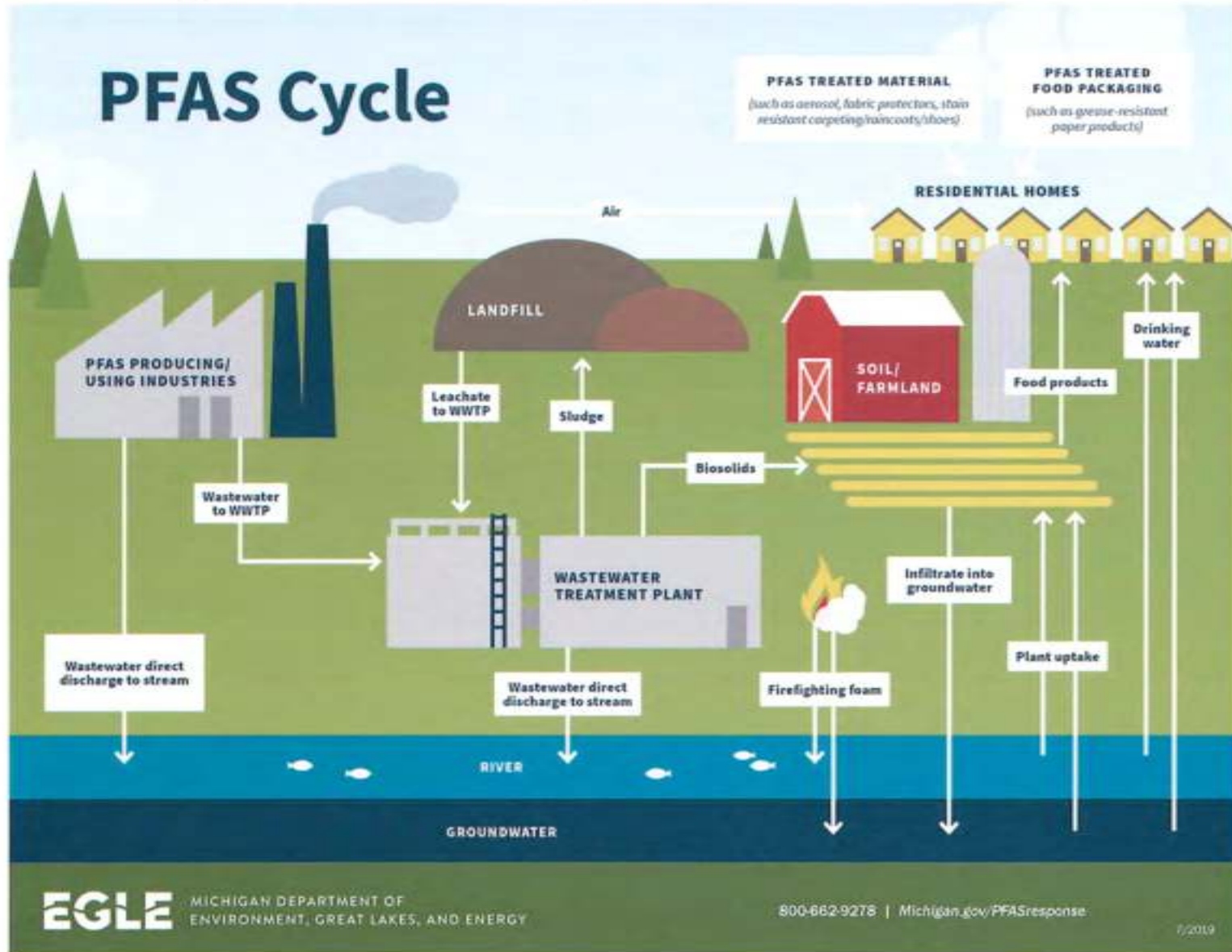
# Refresher: What are PFAS?

**PFAS = per- and poly fluoroalkyl substances**

- 32 MRS §1732, 38 MRS §1612 - one fully fluorinated carbon atom
- Used in many consumer products:
  - Grease and water repellent
  - Heat resistant
- Difficult to destroy the C-F bond, ubiquitous in environment
- Referred to as “forever chemicals”



# PFAS are found in Maine's soils, surface and groundwaters, plants and wildlife



**EGLE** MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

800-662-9278 | [Michigan.gov/PFASresponse](http://Michigan.gov/PFASresponse)

6/2019

# Why should we be concerned about PFAS?



Increased cholesterol levels



Decreased vaccine response in children



Small decreases in infant birth weights



Increased risk of kidney or testicular cancer



Changes in liver enzymes



Increased risk of high blood pressure or pre-eclampsia in pregnant women

*Taken from the Agency for Toxic Substances and Disease Registry (U.S. CDC) - [Potential health effects of PFAS chemicals | ATSDR \(cdc.gov\)](https://www.cdc.gov/ATSDR/pfas/pfas.html)*



# PFAS in Maine - up to 2020

- 1940's – Teflon 1st PFAS introduced into the marketplace
- 1970's – EPA Biosolids Program
- 2016 – PFAS detected in public monitoring well; soil and groundwater at an Arundel farm and in farm's dairy milk
- 2019 – Governor Mills creates PFAS Task Force
- 2020 – PFAS Task Force Releases report; 2 Fairfield dairy farms detect PFAS in milk; DEP investigation of soil and groundwater in Fairfield begins





# 2021- Now: Maine Responds Swiftly

- 2021- Soil and groundwater investigation required
- 2021 - \$20M to DEP in state budget + \$5M from MJRP; 11 FTE's and 6 LPP positions added
- 2021 – 2023 PFAS investigation underway
  - Establish administrative structure
  - Develop processes to implement program
  - Hire, onboard, and train new staff
  - Finalize contracts & purchase equipment
  - Research and update license files/records
  - Coordinate with Maine DACF, CDC, DWP, IF&W
  - Schedule and conduct sampling events
  - Collect, validate, review, and compile data
  - ~ 50 staff involved in ongoing effort



# Standards and Screening Levels

- Maine's interim drinking water standard

**20 ppt for sum of 6 PFAS**

(PFOA, PFOS, PFNA, PFHxS, PFHpA, PFDA)

- EPA Health Advisories

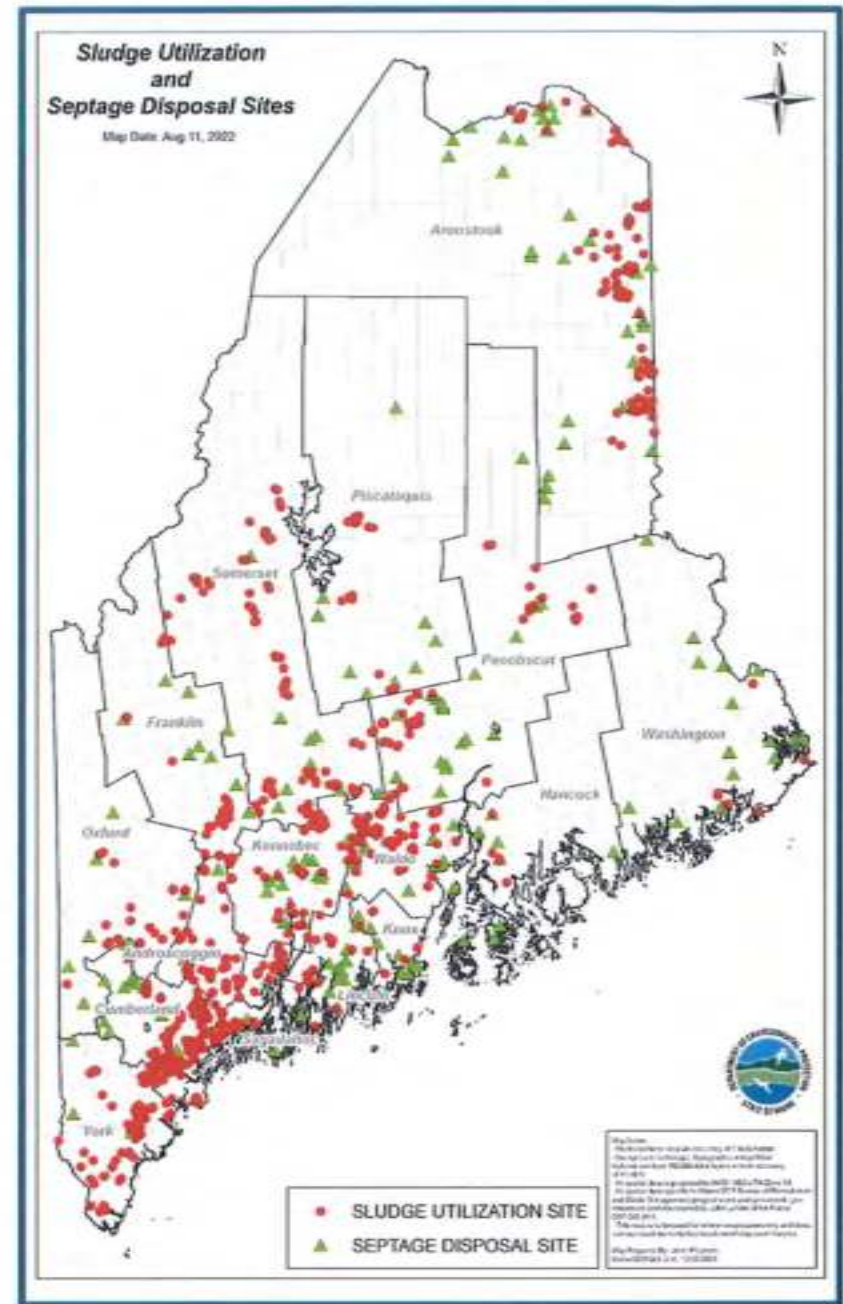
PFAS Compound	New Health Advisories
PFOA	0.004 ppt (Interim)
PFOS	0.02 ppt (Interim)
GenX	10 ppt (Final)
PFBA	2,000 ppt (Final)

For PFOA and PFOS the interim advisory falls below current laboratory reporting levels. Current laboratory methods can't reliably determine if PFOA or PFOS are present at these interim levels



# PFAS Investigation

- Original estimate 700 sites; now 1,037
- Sites =
  - Multiple fields/locations
  - Cross municipal boundaries
  - Significant acreage
  - Sometimes used by multiple generators (multiple sources applied to one location)
  - Land ownership/lot changes



# PFAS Investigation - Prioritization

## PFAS Sludge Land Application Investigation Tiered System

Tier	Volume Applied	PFAS Likely Present in Sludge	Proximity to Receptors Within ½ Mile
I	> 10,000 cubic yards	X	X
II	5,000 - 10,000 cubic yards	X	X
III	< 5,000 cubic yards	X	X
IV	Sites where information gathered to date indicates that no sludge was land applied. Additional research is needed to verify this information.		

- Tiered sludge sites
- Septage sites managed separately



# PFAS Investigation – Where are we?

- Soil and groundwater investigation has been initiated at 20% of all sites
  - 15% Groundwater investigation complete
  - 14% Soil investigation complete
  - ~ 308 residential water treatment systems installed
- Tier I Sites just about complete; working on Tier II Sites
- Tier III will have most sampling
- Septage sites ~ 50% complete



# PFAS Investigation – Groundwater

- 77% groundwater well results lower than Maine's interim drinking water standard of 20 ppt
- Remaining 23% above 20 ppt as follows:
  - 12% 20 - 100 ppt
  - 7% 100 - 1000 ppt
  - 4% > 1000 ppt



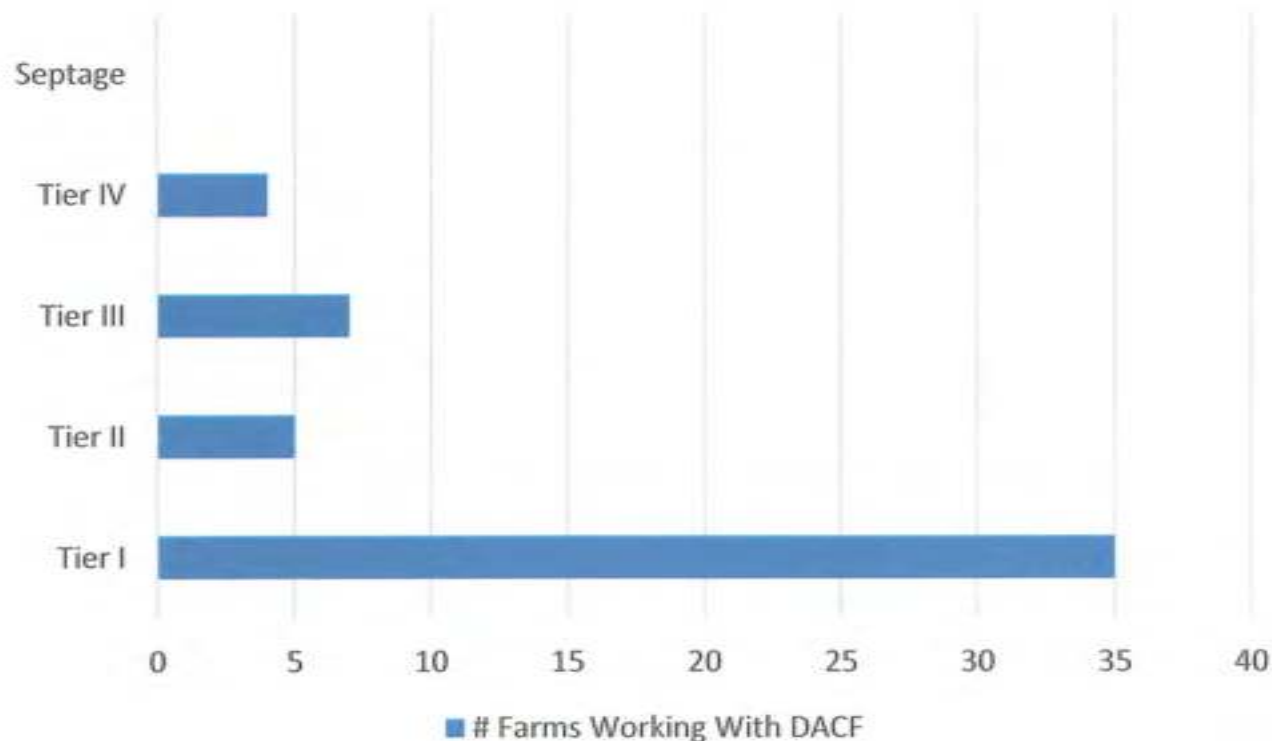
# PFAS Investigation - Soil

- ~ 400 **soil samples** collected
- No enforceable PFAS soil standard or one number to explain what PFAS in soil levels mean
- Screening levels typically based on use and function of soil
- DEP screening levels for residential use, recreational use, redevelopment, etc.
- DEP does not have screening levels for agricultural use



# PFAS Investigation - Farms

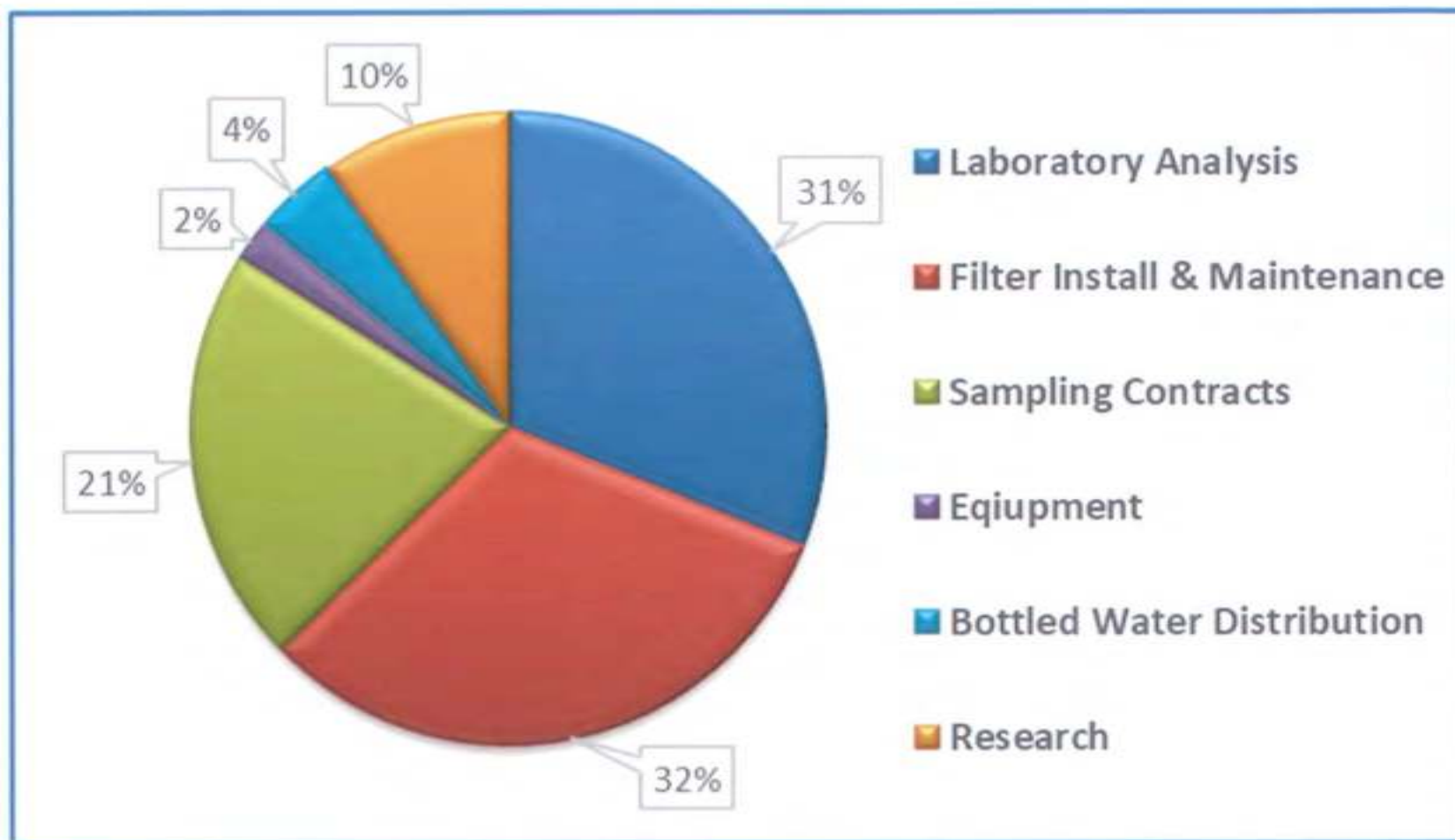
- 56 Farms working with DACF
- 50 associated with sludge sites; 0 with septage





# PFAS Investigation - Expenses

Non-personnel costs > \$3,500,000 since 2019



# PFAS Investigation – Treatment Costs

Average Costs of Filtration Installations Per Residence	
Filter System Installation (One time)	\$3,400
Pre-Treatment Systems (One time only as needed)	\$3,500
Sheds (One time only as needed)	\$8,700
Filter Changeouts * (Annual cost per changeout)	\$1,500
Routine Sampling ** (Annual cost)	\$3,500

\* Filter changeouts vary 1-4 times/year

\*\* Sampling may be as frequent as monthly or as little as 1-2 times/year. Annual costs range \$2,500 to \$4,500 a year



# PFAS Investigation – Cost Projections

- Preliminary projections – still early in process!

# Sites to investigate	Cost based on current “burn” rate	Costs doubled for inflation/unexpected
1,037	\$27.7M	\$53.5M

- Cost of investigating **every private drinking well in Maine**
  - Maine Census ~ 370,000 private groundwater wells
  - Based on current burn rate for 1,525 wells, total costs could be ~ **\$1.5B**
- **Ongoing annual costs** of maintenance & monitoring filtration systems = **\$1.232M - \$3.234M**



# PFAS Investigation – Cost Projections

- Projections only calculated for filtration systems in place; not new ones that will need to be installed





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[www.maine.gov/dep](http://www.maine.gov/dep)

