



Sustainable Biosolids Management Conference 2019

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MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Protecting Maine's Air, Land and Water

PFAS, PFAS, PFAS

- Chapter 418, Appendix A adopted July 8, 2018
 - Established screening concentrations for 3 PFAS
 - PFBS - 1900 ng/g
 - PFOA - 2.5 ng/g
 - PFOS - 5.2 ng/g
 - Based on Maine Remedial Action Guidelines (RAGs)
 - Leaching to groundwater – endpoint 200 ppt
 - No plan to require residuals testing at that time



PFAS, PFAS, PFAS

- Dairy farm in southern Maine showing impacts from PFAS
 - Site had received paper mill residuals and biosolids
 - Paper mill sludge and bioash ~1983-1985
 - Biosolids licensed in 1986, received biosolids 1989-2004
 - DEP became involved in early 2017
 - Tested soil, groundwater, surface water, hay, manure, purchased feed, milk



PFAS, PFAS, PFAS

- Dairy farm PFAS sampling results:

Matrix	Highest PFOA Conc.	Highest PFOS Conc.
Drinking Water	8.9 ng/L	42.1 ng/L
Surface Water	7.67 ng/L	476 ng/L
Groundwater	41.2 ng/L	2.5 ng/L
Milk	<50 ng/L	938 ng/L
Soil	23.6 ng/g	878 ng/g
Manure	3.2 ng/g	20.3 ng/g
Hay	2.1 ng/g	9.7 ng/g
Purchased Feed	<0.5 ng/g	<1 ng/g



PFAS, PFAS, PFAS

- Biosolids Land Application Programs and Composters notified March 22, 2019:
 - Required updated sampling plan by April 12, 2019
 - Required sampling by May 7, 2019
- Paper Mill Residual Land Application Programs notified April 16, 2019:
 - Required updated sampling plan by May 6, 2019
 - Required sampling by June 3, 2019
- No land application of biosolids/paper mill residuals or distribution of biosolids compost until approved by DEP



PFAS Testing Program

- 73 facilities notified of the requirement to test
 - 23 composting facilities
 - 41 land application program licensees
 - 9 paper mills/former paper mills
- Some didn't test for various reasons (not producing residuals, out of business, etc.)
- If over the screening concentrations, were required to perform pollutant loading rate calculations and some required to test site-specific soils



PFAS Testing Program

- 46 sludges
 - Data from some not required to test
 - 3 heat-dried pellet products
- 16 composting facilities
 - 8 WWTP sludge composters
 - 5 dewatered residential septage only composters
 - 3 mixed WWTP sludge/dewatered septage
- 8 different paper mill residuals
- 74 site-specific soils



PFAS Results

- PFBS not an issue
- 65% of sludge samples exceeded for PFOA
- 93% of sludge samples exceeded for PFOS
- 89% of composts exceeded for PFOA
- 74% of composts exceeded for PFOS
- No paper mill residuals exceeded for PFOA or PFOS
- 19% of site-specific soils exceeded for PFOA
- 57% of site-specific soils exceeded for PFOS



PFAS Results

- Sludge
 - Average concentration PFOA 8.5 ng/g and PFOS 25.5 ng/g
 - Median concentration PFOA 3.8 ng/g and PFOS 22.9 ng/g
 - Maximum concentration PFOA 46 ng/g and PFOS 120 ng/g
- Compost
 - Average concentration PFOA 14.2 ng/g and PFOS 16 ng/g
 - Median concentration PFOA 7.7 ng/g and PFOS 7.3 ng/g
 - Maximum concentration PFOA 60 ng/g and PFOS 81.8 ng/g
- Site-Specific Soils
 - Average concentration PFOA 2 ng/g and PFOS 9.6 ng/g
 - Median concentration PFOA 1.3 ng/g and PFOS 7.1 ng/g
 - Maximum concentration PFOA 12.9 ng/g and PFOS 36.6 ng/g



Current Activity

- 13 composts approved for distribution
- 7 Class B programs approved to land-apply on some fields
- 3 Class B programs not able to land-apply
- All paper mill residuals approved for distribution



Moving Forward

- Ongoing testing requirements
- Bureau of Water Quality providing grants
 - Emergency dewatering
 - Planning grants for dewatering infrastructure
 - Possible construction grants
- PFAS Task Force
 - Executive Order establishing task force March 2019
 - Public health experts, DHHS, DEP, DACF, MEMA, industry experts, drinking water sector
 - Report and recommendations December 2019
- Septage?





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