



Navigating PFAS in Biosolids in Rural Virginia

Local Government Advisory Committee
Chesapeake Bay Program

September 24, 2026

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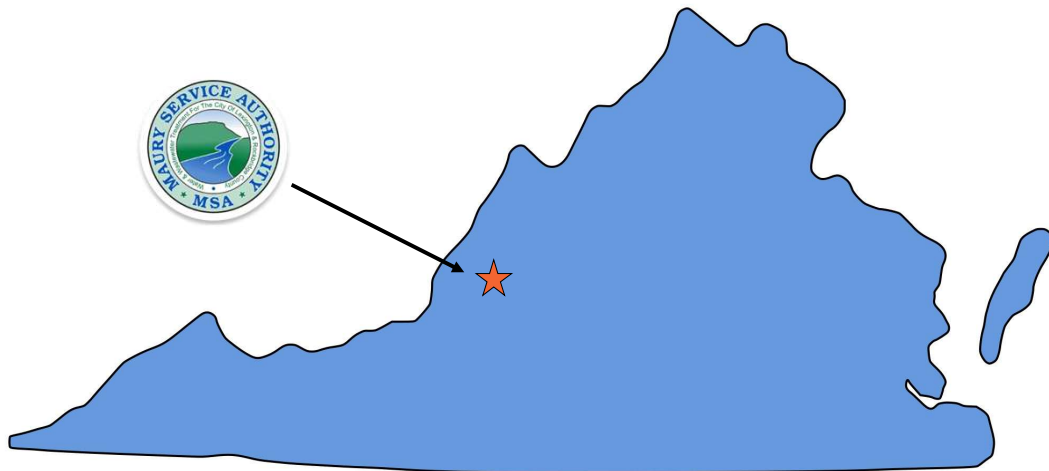
Agenda

- 1 Biosolids Land Application Intro
- 2 MSA and Project Background
- 3 Plant PFAS Sampling and Analysis Results
- 4 Developing a PFAS and Solids Roadmap for MSA

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Where is the Maury Service Authority (MSA)?



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Biosolids Land Application Intro.

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Biosolids Land Application in VA

- Fertilizer for Farmers
- Regulated by VA DEQ
 - VPDES or VPA
 - Nutrient Management Plan
- Sewage Sludge vs Biosolids
 - Square vs Rectangle
 - Biosolids required to achieve pathogen and volatile solids destruction treatment
 - Sewage Sludge – universal for solids from raw to any level of treatment
- Cake and Liquid land application options



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MSA Liquid Land Application Example



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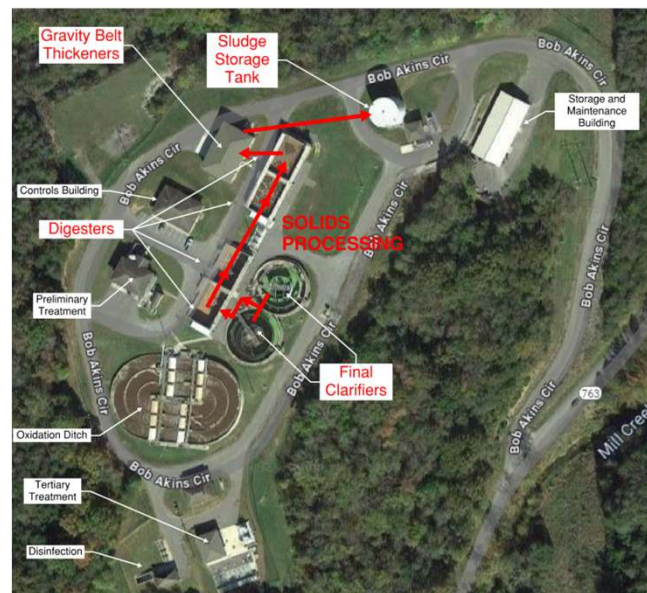
MSA and Project Background

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MSA in 2025

- Wastewater Facilities Assessment in 2023
 - Identified approximately \$30M of improvements
 - Mainly aged infrastructure
- Sludge Storage Tank & Solids Handling Equipment Replacement needs
 - Sludge Storage Tank not repairable
 - GBT 1 inoperable
 - GBT 2 in need of rehab/replacement
 - GBT support equipment in need of replacement
- Recommend conducting Cake v. Liquid Study



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Project Drivers

- Continue to effectively protect the local environment
- Ensure continued reliable operations
- Increase flexibility for biosolids disposal
- Position the MSA for future adaptations
- Linkage between future planning and ongoing operational efficiencies
- Results in Cake VS Liquid Biosolids Study to include Emerging Contaminants and future Emerging Technologies Considerations



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Plant PFAS Sampling and Analysis Results

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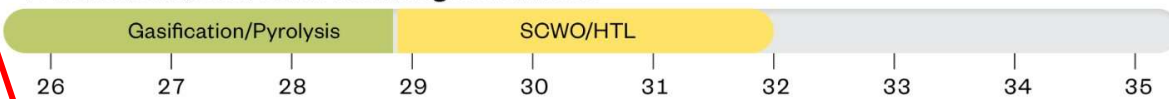
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How Does the **POTENTIAL** EPA Activity Align with MSA Actions?

PFAS Regulation Timeline



PFAS Removal/Destruction Technologies Readiness

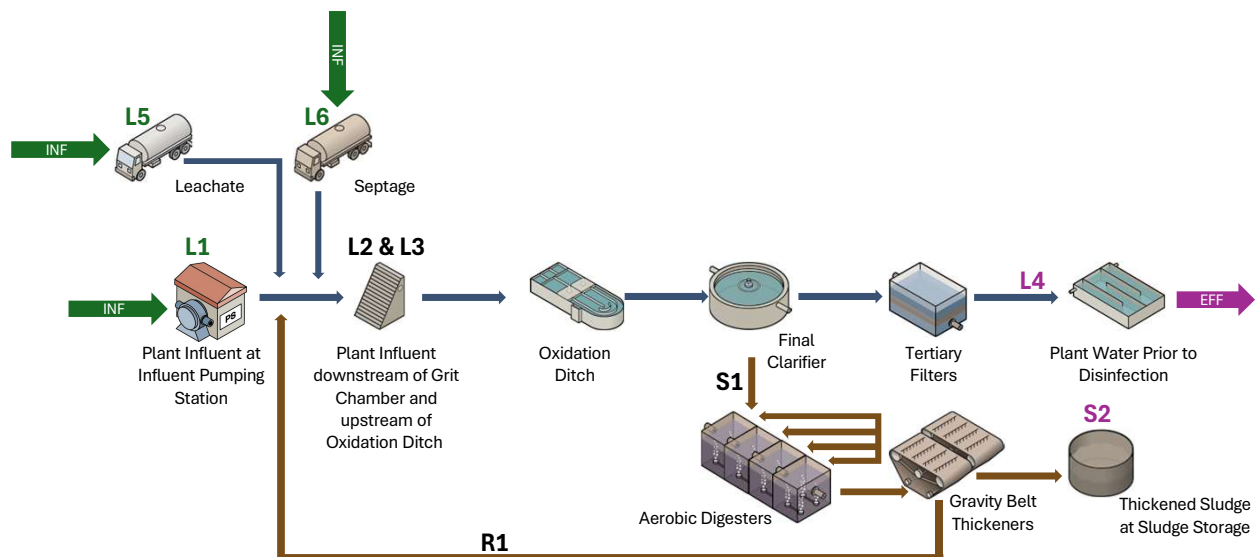


**MSA PFAS Report
Process Started in 2023**

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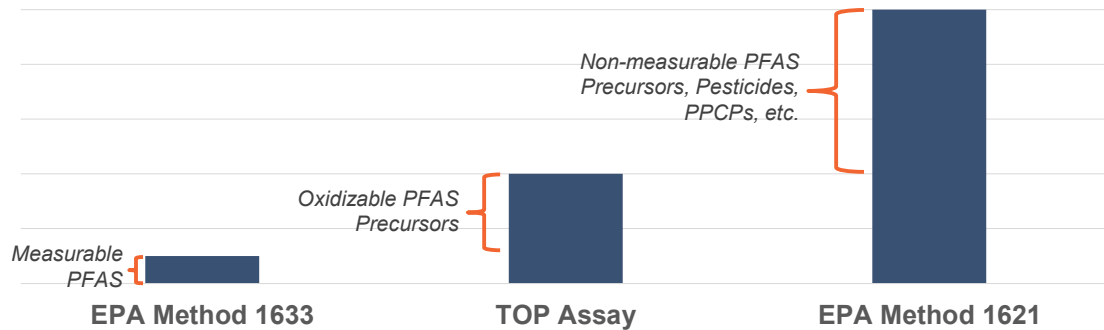
Comprehensive Sampling Approach to Understand Impacts Throughout Facility



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PFAS Analysis Methodology



	EPA Method 1633	Total Oxidizable Precursor (TOP) Assay	EPA Method 1621
Compounds analyzed	40 measurable PFAS	40 measurable PFAS + oxidized PFAS precursors	Adsorbable organofluorine (PFAS, pesticides, PPCPs)
Matrices	Wastewater Biosolids	Wastewater Biosolids	Wastewater only

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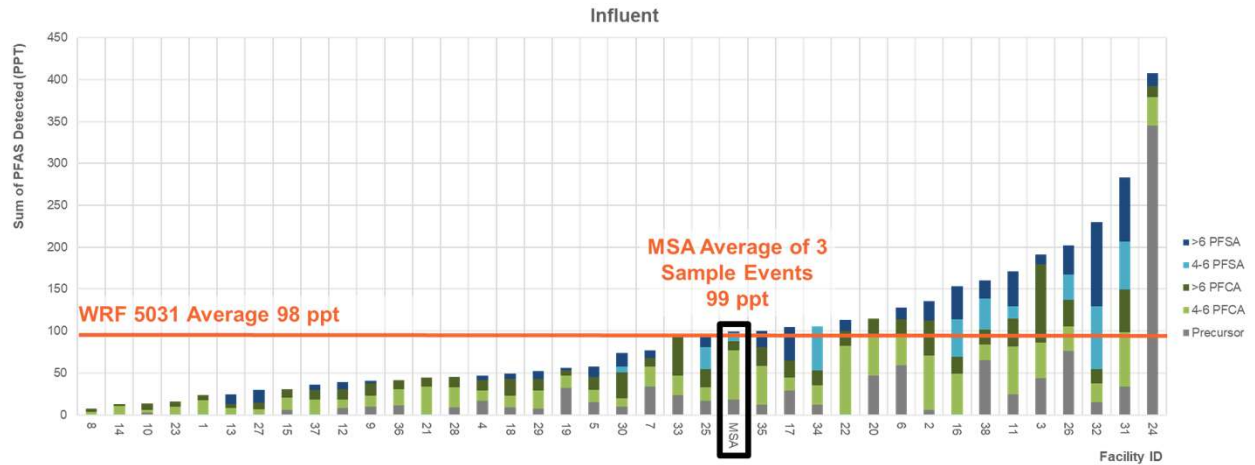
PFAS in Biosolids in VA

Parameter	Units	Expected Biosolids PFAS Limits			PFOA and PFOS Levels in Biosolids at the MSA
		July 1, 2027		July 1, 2029	
		PFOA	PFOS	PFOS & PFOA	
Biosolids Action Level	ppb	25	25	25	PFOA = 5-10 ppb PFOS = 10-15 ppb PFOA + PFOS = 15-25 ppb
Biosolids Land App. Rate <3.0 dt/acre	ppb	25 - 50	25 - 50	25 - 50	
Biosolids Land App. Not Allowed	ppb	50	50	50	

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Influent* PFAS Compared to 38 WWTPs in the US



*Influent includes leachate and septage.

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Emerging Technologies

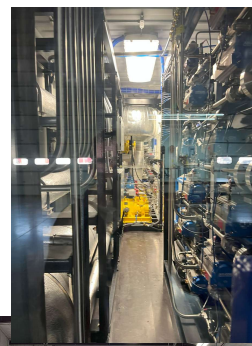
Gasification / Pyrolysis



Ecoremedy
Gasification in
Edmonds, WA



Supercritical Water Oxidation (SCWO)



374Water
AirSCWO-6 in
Orlando, FL



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So What Next for MSA?



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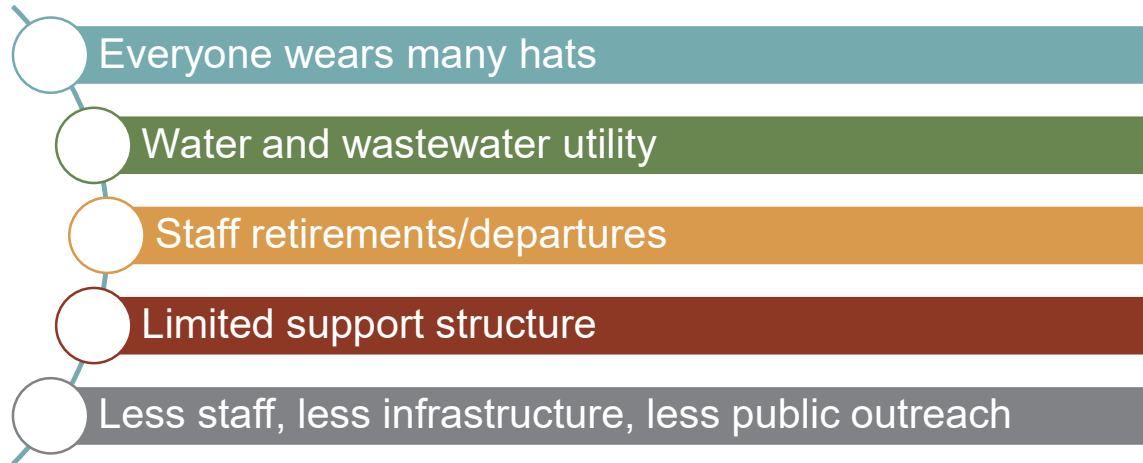
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Developing a PFAS and Solids Roadmap for MSA

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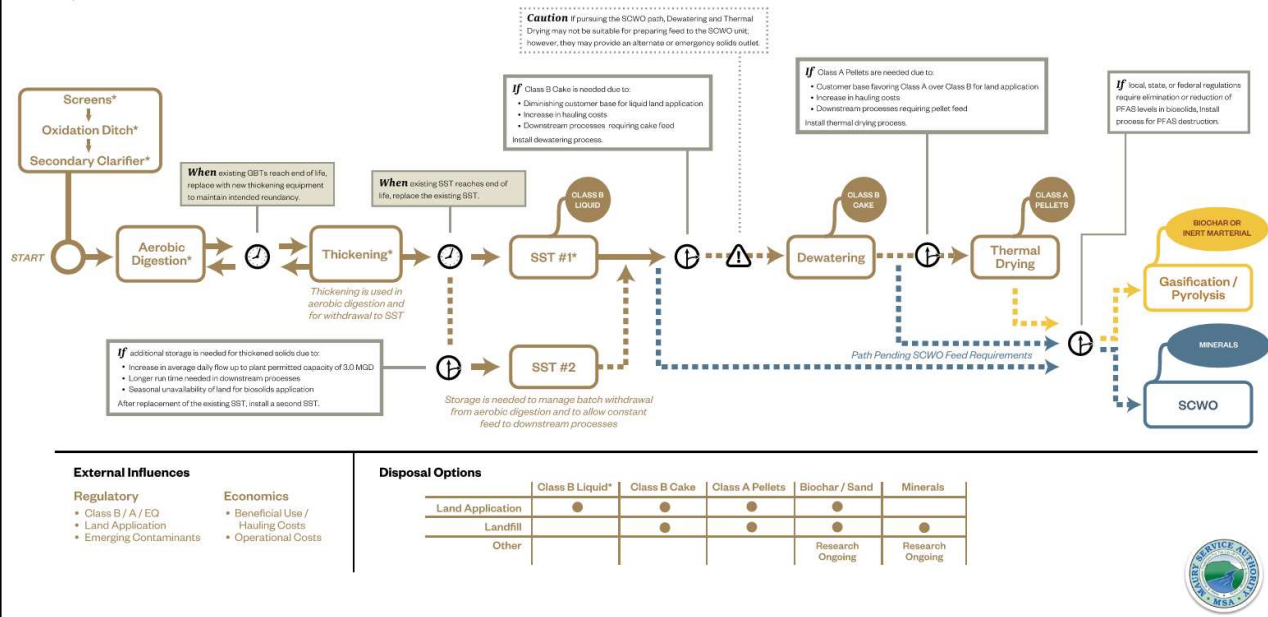
Small Utility Considerations



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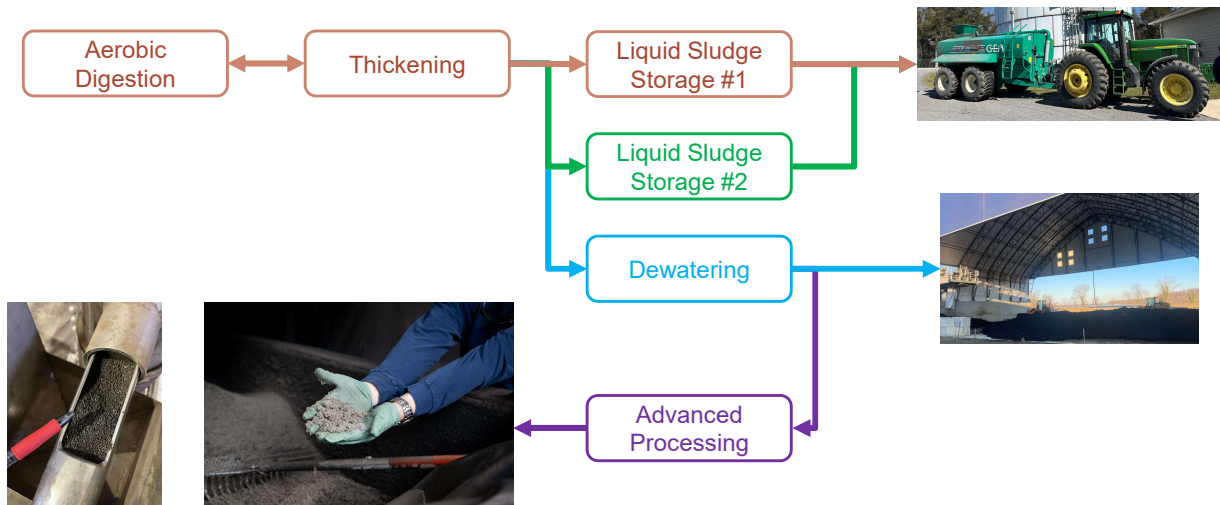
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Overall Biosolids Roadmap



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Simplified Roadmap



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Alternative Comparison

Alt. No.	Thick.	Dewater.	PFAS Removal	SST	Thickening	Dewatering	PFAS Destruction	Solids Conv.	Eng.	Total
1	Upgrade GBTs in existing building	-	SCWO	\$6M - \$7M	\$4M - \$5M	-	\$18M - \$22M	\$1.6M - \$1.9M	\$5M - \$6M	\$35M - \$42M
2	Upgrade GBTs in existing building	Install new dewatering technology	SCWO	\$6M - \$7M	\$4M - \$5M	\$18M - \$22M	\$18M - \$22M	\$1.6M - \$1.9M	\$8M - \$9M	\$56M - \$66M
3	Upgrade GBTs in existing building	Install new dewatering technology	Gasification/Pyrolysis	\$6M - \$7M	\$4M - \$5M	\$18M - \$22M	\$41M - \$50M	\$1.6M - \$1.9M	\$11M - \$13M	\$82M - \$97M
4	Install combination Thickening/Dewatering Units in existing GBT facility		SCWO	\$6M - \$7M	\$8M - \$9M		\$18M - \$22M	\$1.6M - \$1.9M	\$5.1M - \$6M	\$39M - \$46M
5	Install combination Thickening/Dewatering Units in existing GBT facility		Gasification/Pyrolysis	\$6M - \$7M	\$8M - \$9M		\$41M - \$50M	\$1.6M - \$1.9M	\$9M - \$10M	\$66M - \$77M

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Alternative Comparison – Near-Term Project

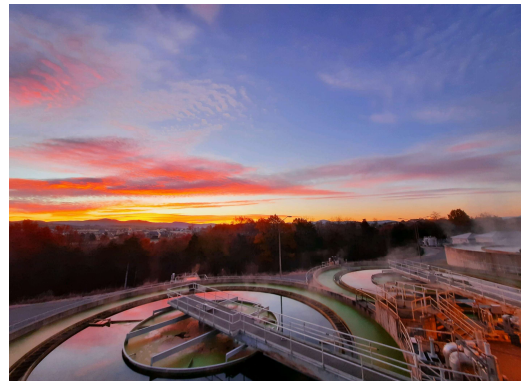
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Key Next Steps

- Be proactive instead of reactive
 - Move forward now to get ready
 - Be prepared for difficult discussions from proactive sampling
- Continue to Monitor evolution of PFAS destruction technologies in the industry
- **Outside Funding is essential for small and rural systems to respond to PFAS requirements**
 - Enforcement vs Funding – land application works for one but not another
- **Communities need to understand impacts on landfills**
- **Regionalization needs to be discussed concerning PFAS Destruction Technology implementation**



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