



PFAS in Biosolids

What You Need to Know

What are PFAS, PFOS, and PFOA?

PFAS – short for per- and polyfluoroalkyl substances – refers to a large group of more than 4,000 human-made chemicals that have been used since the 1940s in a range of products, including stain- and water-resistant fabrics and carpeting, cleaning products, paints, cookware, food packaging and fire-fighting foams. These uses have led to PFAS entering our environment, where they have been measured by several states in soil, surface water, groundwater and seafood. Some PFAS can persist in the environment or in the human body and can accumulate within the food chain. There is evidence that exposure to certain PFAS may lead to adverse health effects in humans. PFOS and PFOA are both analytes or chemicals found in PFAS.

How does PFOS and PFOA get into biosolids?

Wastewater Treatment Plants (WWTPs) receive waste and water from residential, commercial, and industrial sources that may have PFAS contamination from sources listed above, which can accumulate in the treated sewage sludge i.e. biosolids. WWTPs are not currently equipped to eliminate PFAS in its biosolids.

What is MDE implementing in terms of biosolids used in land application?

On May 9, 2024, HB 1153/ SB 956 was signed into law. The law requires the Department to:

- by October 1, 2024, to identify significant industrial users that currently and intentionally use PFAS chemicals;
- by January 1, 2025, to develop PFAS monitoring and testing protocols for significant industrial users.
- by June 1, 2025, to develop PFAS action levels for addressing PFAS contamination from industrial discharge for pretreatment permits;
- by September 1, 2025, develop mitigation plans for addressing PFAS;
- by July 1, 2026, implement measures to reduce PFAS discharge levels to WWTPs.

In coordination with these dates given in the law, MDE is establishing the following tiered recommendations for WWTPs and landowners/farmers who are considering land applying biosolids as a fertilizer source. The purpose of this tiered approach is to reduce or eliminate the application of Class A and Class B biosolids that may have a higher risk, while still allowing



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varying levels of land application rates, depending on PFAS concentrations. The recommended tiers are as follows:

- If the total concentration of PFOS and PFOA is 100 µg/kg or above, land application of the biosolids is recommended to be stopped.
 - The WWTP shall notify MDE of the PFOS and PFOA concentrations 30 days after receipt of sample results.
 - Biosolids with concentrations 100 µg/kg or above should either be disposed of in a permitted refuse disposal system, or treated through a technology known to mitigate PFAS.
 - The WWTP should implement a PFAS source reduction plan which may include sampling the WWTPs influent and effluent, and identifying potential industrial sources discharging into the sewer system.
- If PFOS and PFOA are at or above 50 µg/kg, but less than 100 µg/kg, the recommended application rate for land application of biosolids must be lowered to 1.5 dry tons per acre or less.
 - The WWTP shall notify MDE of the PFOS and PFOA concentrations 30 days after receipt of sample results.
 - The WWTP should implement a PFAS source reduction plan which may include sampling the WWTPs influent and effluent, and identifying potential industrial sources discharging into the sewer system.
- If PFOS and PFOA are at or above 20 µg/kg, but less than 50 µg/kg, the recommended application rate for land application of biosolids must be lowered to 3 dry tons per acre or less.
 - The WWTP shall notify MDE of the PFOS and PFOA concentrations 30 days after receipt of sample results.
 - The WWTP should implement a PFAS source reduction plan which may include sampling the WWTPs influent and effluent, and identifying potential industrial sources discharging into the sewer system.
- Biosolids with PFOS and PFOA concentrations below 20 µg/kg may be land applied with no additional requirements after submission of results.



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What will be the sampling rate for PFAS at WWTPs that produce biosolids?

Amount of Sewage Sludge Generated (per 365 day period - dry weight basis)	Testing Frequency
Greater than zero but less than 290 metric tons	Once every year
Equal to or greater than 290 but less than 1,500 metric tons.	Four times every year
Equal to or greater than 1,500 but less than 15,000 metric tons.	6 times every year
Equal to or greater than 15,000 metric tons.	Once every month

The permit holder will not need to submit a new permit application. MDE will be administratively updating these sampling and reporting requirements on January 1, 2025, and will notify the WWTP operator with the start date of the new requirements, via letter. As renewed permit applications are submitted to MDE through the normal permitting cycle, MDE will establish these sampling and reporting requirements in the respective permit. All new permits will have these sampling and reporting requirements.

What EPA test method should be used for testing biosolids?

EPA Method 1633 that is able to quantify 40 different PFAS in biosolids, and also any non-drinking water samples including wastewaters, soils, sediments, landfill leachates, fish, chicken, and clam tissue.

Does MDE have the regulatory authority to impose sampling requirements?

Yes, Code of Maryland Regulations 26.04.01C: A person may not engage in sewage sludge utilization in a manner which will likely cause an undue risk to the environment or public health, safety, or welfare as may be determined by the Department; and

Per COMAR 26.04.06.06C MDE may require analyses for sewage sludge constituents other than those identified in regulation to adequately assess the quality of sewage sludge.

Questions/ More Information

Please contact MDE's Biosolids Division at (410) 537-3314.