

DMM- 7/ Biosolids Recycling in New York State – Interim Strategy for the Control of PFAS Compounds

New York State Department of Environmental Conservation

DEC Program Policy

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I. Summary

PFAS is an abbreviation for a group of chemicals called per- and polyfluoroalkyl substances. According to the United States Environmental Protection Agency (EPA), scientific studies have shown that exposure to certain levels of PFAS may lead to increased risk of some cancers, reproductive effects, and other health effects. PFOS is one of the many PFAS compounds and is an abbreviation for perfluorooctane sulfonic acid. Another PFAS compound is known as PFOA, which is perfluorooctanoic acid. This Program Policy establishes interim PFOA and PFOS sampling criteria for biosolids that are recycled in New York State and actions that DEC will take based on those results. This interim policy will remain in place until EPA issues risk-based standards applicable to biosolids that will be recycled, and DEC completes a rulemaking to incorporate those standards, or more stringent standards if deemed appropriate. This policy will also provide data for DEC to use in the development of the rulemaking once the EPA standards are issued to determine the impacts the EPA standards will have on New York State facilities.

Of the multitude of PFAS compounds, PFOA and PFOS content have been found to be an effective indicator of industrial impacts on biosolids. These criteria are not risk-based but will reduce the potential environmental risk associated with PFAS that could be found in biosolids until EPA issues risk-based standards, which is not expected until December 2024 or later.

This policy does not dictate how a particular wastewater treatment plant must address potential PFAS sources.

II. Policy

The technical standards applicable to the recycling of biosolids are found in 6 NYCRR Part 360, 361-2, and 361-3. Under clauses 361-2.4l(1)(ii)l, 361-3.2(d)(8)(ii)l, 361-3.3(d)(6)(ii)l, in Part 361 effective November 4, 2017, DEC may require analyses of biosolids for additional pollutants based on the characteristics of the waste and information from the pretreatment program and other sources. In addition, all solid waste management facilities, including biosolids recycling facilities, are obligated under subdivision 360.19(b) to protect groundwater and to not allow leachate to enter groundwater, unless under the authority of a State Pollutant Discharge Elimination System Permit. Control of the amount of PFAS in biosolids that are recycled is needed to control the potential for the leachate generated from recycled biosolids from reaching groundwater. The amounts of pollutants in leachate that migrate to groundwater versus remaining in the soil profile is dependent on the amount and characteristics of the pollutant as well as other factors (soil type, etc.).

EPA is currently developing comprehensive risk-based standards for PFAS compounds in biosolids that are recycled. DEC intends to initiate a rulemaking for Part 361 after the EPA standards are established. However, EPA does not anticipate completion of their work until December 2024 or later. In the interim, DEC will reduce potential environmental risk by identifying biosolids that present a greater risk due to the influence of industrial sources to the applicable wastewater treatment plant and requiring those sources to be addressed to reduce the biosolids PFOA and PFOS levels to background (domestic) levels. This will reduce the current risk to groundwater resources and provide DEC with data that will assist in the rulemaking.

III. Purpose and Background

During treatment at a wastewater treatment plant, liquids are separated from solids. Those solids are then treated physically and chemically to produce a semisolid, nutrient-rich product known as biosolids. Biosolids that are to be beneficially used must meet federal and state requirements. Examples of beneficial use of biosolids include application to agricultural land and the production and use of compost. When applied to land at the appropriate agronomic rate, biosolids provide several benefits including nutrient addition, improved soil structure, and water reuse. Land application of biosolids can also have economic and waste management benefits (e.g., conservation of landfill space; reduced demand on non-renewable resources like phosphorus; and a reduced demand for synthetic fertilizers). Diverting organics, such as biosolids, from disposal at landfills also reduces climate impacts associated with methane emissions from landfills.

Biosolids can contain pollutants of concern if not properly controlled. Both federal and State standards are in place to address these concerns. EPA develops the pollutant standards used by New York State. In some cases, New York State may choose to impose standards that are stricter than those issued by EPA. Potential harm from a pollutant is determined by conducting a risk assessment. Risk assessment is a scientific process that considers two primary factors: 1) exposure (i.e., how much contact a person or ecological receptor, such as plants or fish, has with the contaminant in environmental media due to contamination of biosolids); and 2) the toxicity of the pollutant.

EPA's Biosolids Program has developed a framework to evaluate risks from exposure to chemicals in biosolids. The framework consists of three steps: 1) prioritize chemicals for assessment; 2) screen for human health and environmental risk; and 3) perform a refined risk assessment for chemicals that fail the screening. The Biosolids Program has requested that EPA's independent Science Advisory Board review this proposed framework and provide input on the approach.

As part of the EPA's PFAS Strategic Roadmap, EPA committed to conduct a biosolids risk assessment for two PFAS compounds, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). The assessment is currently underway. Problem formulation, the first step in conducting a risk assessment, includes the following steps: 1) articulates the purpose for the assessment; 2) defines the problem (source and occurrence); 3) identifies the conceptual exposure pathways; and 4) presents data and tools used for analyzing and characterizing risk. The problem formulation process also involves engagement with states and tribes, risk managers, scientists, and members of the biosolids community regarding foreseeable science and implementation issues. Problem formulation for PFOA and PFOS was completed in November 2020. EPA has announced that they intend to complete the risk assessment for PFOA and PFOS in biosolids by December 2024.

In the interim period before EPA issues standards for PFAS in recycled biosolids, DEC will reduce the risk associated with biosolids recycling by setting criteria that will identify biosolids that are impacted by industrial PFAS sources and requiring those sources be identified and addressed if recycling is to occur.

IV. Responsibility

DEC's Division of Materials Management (DMM) staff, in central and regional offices, are responsible for implementing the procedures established in this program policy. Owners or operators of biosolids recycling facilities are responsible for source tracking and reduction requirements for their collection systems to meet the interim guidelines in their biosolids.

V. Procedure

The State of Michigan has conducted extensive work on evaluating biosolids and industrial PFAS influences. Their results will be used as a basis for DEC's interim guidelines until EPA has established risk-based standards or other more relevant information is available. It is understood that other PFAS compounds can be found in biosolids, but the State of Michigan found that PFOS content was an effective indicator of industrial impacts on biosolids.

Sampling Requirement

Within 180 days of the issuance of this policy, all currently permitted 361-2 and 361-3 facilities that accept biosolids must sample each biosolids source (water resource recovery facility) and submit the results to DEC. For proposed facilities that are not yet permitted on August 1, 2023, analyses must be submitted with the permit application. DMM will provide a notification form for use by the facility. Prior to sampling, the facility must provide a completed notification form to the DMM, including the name of the biosolids source(s) that will be sampled, the laboratory that will be used, and the timing of the sampling. All samples must be collected in accordance with the sampling protocols outlined in Appendix B of the NYSDEC guide Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), April 2023 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/pfassampanaly.pdf). Only personnel trained to sample for these substances, as determined by DMM, are allowed to collect samples for analysis.

The required test method is Draft EPA Method 1633 unless an alternative is allowed by DEC. The requirement for use of certified laboratories and certified methods under 6 NYCRR 360.6(b) is waived since these certifications do not currently exist. The samples must be analyzed for all the PFAS compounds provided by the test method, not PFOA and PFOS alone. The laboratory used must be acceptable to DMM.

NOTE: DEC will conduct the initial sampling and provide funding for analysis for all facilities subject to this policy. The samples will be sent to a research laboratory under contract with DEC.

After the initial sampling event, all permitted 361-2 and 361-3 facilities that accept biosolids must sample each biosolids source at a frequency determined by DEC, based on the quantity recycled, potential PFAS sources to the wastewater treatment plant, and previous analytical results.

PFOA and PFOS Guidance Values

DEC interim guidelines for PFOA and PFOS in biosolids recycled:

PFOS in biosolids, dry weight (ug/kg or ppb)*	PFOA in biosolids, dry weight (ug/kg or ppb)*	Action Required for Biosolids that are Recycled
20 or less	20 or less	No action required
> 20 but < 50	> 20 but < 50	Additional sampling required. DEC will take appropriate steps to restrict recycling after one year if the PFOS or PFOA levels are not reduced to below 20 ppb.
50 or greater	50 or greater	DEC will take action to prohibit recycling until PFOS or PFOA concentration is below 20 ppb.

* In addition to dry weight results, DEC may require analyses using the SPLP (Synthetic Precipitation Leaching Procedure) and use those results to determine whether the biosolids source can be recycled.

This Program Policy shall remain in effect until Part 361 is revised to incorporate risk-based standards developed by EPA applicable to biosolids that will be recycled. At that time, this policy will be obsolete and no longer in effect.

VI. Related References

- 6 NYCRR Part 360 Series, November 4, 2017
<https://www.dec.ny.gov/regs/2491.html>
- USEPA PFAS Strategic Roadmap
<https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024>
- USEPA Risk Assessment of Pollutants in Biosolids
<https://www.epa.gov/biosolids/risk-assessment-pollutants-biosolids>
- LAND APPLICATION OF BIOSOLIDS CONTAINING PFAS Interim Strategy March 2021, Michigan Department of Environment, Great Lakes, and Energy
<https://www.michigan.gov//media/Project/Websites/egle/Documents/Programs/WRD/Biosolids/PFAS-Biosolids-Strategy.pdf?rev=c81c0064150d4f45bece88efcf304e3f>
- USEPA Draft Method 1633 for 40 PFAS Compounds
https://www.epa.gov/system/files/documents/2022-12/3rd%20Draft%20Method%201633%20December%202022%2012-20-22_508.pdf