Draft PFAS Sewage Sludge Risk Assessment

What does the EPA's draft risk assessment mean for utilities?

EPA released its Draft Sewage Sludge Risk Assessment for PFOA and PFOS on January 14, 2025, evaluating potential human health risks to a "farm family" from land-applied or surface disposed biosolids. This risk assessment precedes potential future regulations and encourages risk reduction through PFAS source control and biosolids land application in areas less susceptible to potential impacts.

Key Findings of the Risk Assessment

The draft risk assessment quantitatively evaluated potential human health risks through 18 potential exposure pathways from two common biosolids management practices: land application and surface disposal in a monofill. Risks associated with sludge incineration were described only qualitatively due to a lack of data.

The quantitative assessment focused on a hypothetical "farm family" that lives on or near a site where biosolids are disposed of in a monofill or land-applied annually at a rate of 10 metric tons (dry) per hectare for 40 years. The assessment assumes that the farm family sustains itself primarily on the crops, milk, meat, eggs, and drinking water from the impacted land for 10 years.

Key findings include:

- EPA's acceptable risk thresholds may be exceeded for the farm family under some modeled scenarios when biosolids containing 1 part per billion (ppb) of PFOA or PFOS is land-applied.
- Human health risks may occur from drinking contaminated groundwater near inadequately lined surface monofills with sewage sludge containing 1 ppb PFOA or 4-5 ppb PFOS.
- While incinerating sewage sludge might affect nearby communities, EPA needs more data to quantify the risks.
- The draft risk assessment focused on the hypothetical farm family and did not assess risks to the general population who typically have a diverse diet and are not in close contact with land-applied biosolids.

What This Means for Utilities

While the draft risk assessment is not a regulation and does not require immediate action, it signals potential future regulatory requirements for biosolids management. Utilities should begin evaluating their current practices and planning for potential operational changes. The EPA recognizes that WWTPs may have limited management options, particularly in the near term, but recommends several steps for consideration:

Immediate Considerations

- Monitor sludge for PFAS using EPA Method 1633.
- Review current management practices and alternatives.
- Evaluate upstream source control options.
- Consider enhanced pretreatment program implementation.
- Begin planning for potential operational changes.

Risk Reduction Options

Land Application:

- Consider application sites away from fishable waters.
- Avoid fields used for livestock grazing or dairy feed.
- Prioritize grain/fruit crops over leafy greens.
- Evaluate groundwater vulnerability.

Surface Disposal:

- Prioritize sites with composite liners.
- Implement leachate collection/treatment.
- Monitor nearby groundwater.

Incineration:

- Test performance with OTM-45.
- Investigate incomplete combustion products with OTM-50.
- Evaluate impacts of operating conditions (e.g. temperature, hold time, turbulence).

Looking Ahead

The EPA is planning several related initiatives:

- National Sewage Sludge Survey, which will include PFAS concentrations.
- POTW Influent PFAS Study.
- Methods Update Rule 22 adding Method 1633 to the Code of the Federal Register.
- Risk management deliberation (including costs and treatment feasibility).
- Potential Clean Water Act Section 405 regulations.

An Interim Step

While not a regulation, this risk assessment:

- Indicates EPA's potential direction on future regulatory limits and guidance.
- May inform state and local requirements or affect acceptability of land application for farmers.
- Suggests need for proactive utility planning.
- Is expected to be finalized after a 60-day public comment period ending March 17, 2025.

How We Can Help

As utilities navigate the implications of EPA's draft risk assessment and prepare for potential future regulations, Carollo offers comprehensive technical and strategic support. With our extensive experience in PFAS treatment and biosolids management, we can help you develop both immediate and long-term solutions.

Our support includes:

- Risk assessment interpretation and site-specific impact analysis.
- Source investigation and control strategies.
- Treatment technology evaluation and pilot testing.
- Biosolids management program review, optimization, and strategic planning.
- Sampling and monitoring program development.
- Regulatory compliance assistance.
- Funding strategy development and grant application support.
- Stakeholder communication and public outreach.
- Cost-benefit analysis for treatment alternatives.
- Development of short and long-term implementation plans.

For additional information on PFAS or the draft risk assessment, contact Kyle Thompson, PhD, PE, at kthompson@carollo.com