EPA National Biosolids Program

• The Biosolids program under the Clean Water Act (40 CFR 503) established requirements for the beneficial use or disposal of sewage sludge when:
  • Applied to land to fertilize soil
  • Placed in a sewage sludge only landfill
  • Disposed of in a sewage sludge incinerator
• Sewage Sludge Surveys & Biennial Reviews have identified over 700 chemicals in biosolids
• ORD research is ongoing and includes $6+ million in funding for external biosolids research
  • Occurrence, fate and transport of contaminants in biosolids
  • Pre-treatment and thermal removal of contaminants from sewage sludge including PFAS
  • Evaluate emerging contaminants, exposure methods, mobility and bioavailability of contaminants, and plant uptake after biosolids application
Biosolids — Screener Chemical Risk Assessment

Scientific Advisory Board (SAB) - fall 2022

The Clean Water Act (CWA)

Standards for the Use or Disposal of Sewage Sludge [40 CFR Part 503]

Biennial Reviews & Sewage Sludge Surveys

Pollutant Risk Screening
Exceeds EPA level of concern?

NO

EXCLUDE POLLUTANT

YES

Risk Assessment
Exceeds EPA level of concern?

NO

EXCLUDE POLLUTANT

YES

Consider Regulation
If pollutant may adversely affect public health or the environment.
Biosolids – Conceptual Model

Human Health risk
- Inhalation
- Drinking water
- Diet
- Soil ingestion

Ecological risk
- Water
- Soil
- Terrestrial
PFAS Actions – Whole-of-Agency Approach

PFAS Strategic Roadmap: EPA’s Commitments to Action 2021–2024

Office of Chemical Safety and Pollution Prevention
Office of Water
Office of Land and Emergency Management
Office of Air and Radiation
Office of Research and Development

RESEARCH RESTRICT REMEDIATE
PFAS Actions –To Restrict PFAS

Actions That Affect Biosolids

- Biosolids → Risk Assessment
- Effluent Limitations Guidelines (ELG) → Pretreatment
- EPA Draft Method 1633 and 1621 → Monitoring
- NPDES Permits → Monitoring and Compliance
Biosolids — PFAS Roadmap Actions

• Biosolids from wastewater treatment facilities can be contaminated with PFAS.

• When spread on agricultural fields, the PFAS in biosolids can impact source drinking water quality and can contaminate crops and livestock.

• The CWA (40 CFR 503) authorizes EPA to set pollutant limits and monitoring and reporting requirements for contaminants in biosolids if sufficient scientific evidence shows that there is potential harm to human health or the environment.

• The PFAS Strategic Roadmap on PFAS in biosolids:

  “EPA will complete the risk assessment for PFOA and PFOS in biosolids by Winter 2024.

  A risk assessment is key to determining the potential risk associated with exposure to chemicals and if regulation of PFOA and PFOS in biosolids is appropriate to protect public health and wildlife health from biosolids containing PFOA and PFOS.”
Effluent Guidelines — PFAS Roadmap Actions

New Rulemaking Efforts
• PFAS Manufacturers
• Metal Finishing/Electroplating Operations

New Detailed Studies
• Landfills
• Textile Manufacturing

New Categorical Reviews
• Leather tanning
• Paint manufacturing
• Plastics molding and forming

These actions were also included in the EPA Preliminary ELG Program Plan 15 September 2021
Effluent Guideline Revisions

• Currently there are no national ELG limits on PFAS discharges from industrial sources.

• Organic Chemicals, Plastics, and Synthetic Fiber Manufacturing (40 CFR Part 414)
  • Initiated rulemaking to regulate PFAS discharges from facilities engaged in manufacturing of PFAS.
  • Completing data collection from companies that manufacture PFAS
  • Looking to gather more information on PFAS processors to determine if new effluent limits on those industrial operations are also warranted.

• Metal Finishing (40 CFR Part 433) and Electroplating (40 CFR Part 413)
  • Initiated rulemaking to regulate PFAS discharges from facilities engaged in chromium electroplating.
  • Proposed revisions to 40 CFR Part 433 and Part 413 in 2024.

• Updates published in ELG Plan 15 later in 2022
Draft Method 1633 — PFAS Roadmap Actions

• Analytical method for detecting up to 40 specific PFAS analytes in 8 environmental matrices, including wastewater, surface water and biosolids.

• EPA has published the single lab validated method on our Clean Water Act methods website.

• The multi-lab validation study is currently underway, and we expect that to be completed in 2022.

• Broadly screens for thousands of PFAS in water – aggregate measure of organofluorines
• Detection level 2-4 parts per billion
• Single-laboratory validation complete
• Validated in wastewater and surface water matrices only
• Collaborated with ASTM D19, EPA’s Office of Research & Development and Pace Laboratories
• Multi-laboratory validation will begin this summer

Valuable tool used in conjunction with analysis using 1633
NPDES Permits — PFAS Roadmap Actions

18 APR 2022
Memorandum —
Addressing PFAS Discharges in EPA-Issued NPDES Permits and Expectations Where EPA is the Pretreatment Control Authority

Industrial categories targeted for PFAS ELGs or studies
- Recommends Effluent Monitoring using draft method 1633 for all 40 PFAS Analytes

Publicly Owned Treatment Works
- Recommends Effluent, Influent, and Biosolids Monitoring using draft method 1633 for all 40 PFAS Analytes

Encourages use of Draft Adsorbable Organic Fluorine (AOF) Method 1621 with draft method 1633
Pollution Prevention and Pre-Treatment

• Several states (CA, ME, MI, NH) have initiated programs to monitor for PFAS in sewage sludge

• Future monitoring using EPA method 1633 improves consistency

• Monitoring allows for targeted industrial pre-treatment efforts based on biosolids contamination
Questions