BAY AREA BIOSOLIDS COALITION

Biosolids Regulatory & Current Research Summary

Biosolids are subject to federal, state, and sometimes local regulations, primarily through EPA, the State and Regional Water Boards, the Bay Conservation and Development Commission, and county-specific regulations. Biosolids regulations fall under the umbrella of the 1972 Clean Water Act (CWA). In 1993 EPA adopted comprehensive risk-based regulations under the CWA known as Standards for the Use or Disposal of Sewage Sludge (Title 40 of the Code of Federal Regulations [CFR], Part 503). The 1993 rule established technical requirements for biosolids that are land-applied, surface disposed, or incinerated, and was meant to prevent harm to public health and the environment from any reasonably anticipated adverse effects from potential waste constituents and pathogenic organisms present in sewage sludge.

Land-applied biosolids must meet risk-based pollutant limits for nine heavy metals and are subject to monitoring and reporting requirements. In general, California biosolids fall below the risk-based "High Quality" (or concentration) limits for pollutants set by EPA. This is in large part due to strict pretreatment requirements implemented in the 1980's that regulate pollutants industries can discharge to municipal POTWs.

EPA's policies promote the benefits of recycling biosolids to land to make use of their nutrient content and soil conditioning properties. The extent to which biosolids are treated for beneficial use to meet the appropriate class requirements is dependent on their use and the soil conditions. Therefore, Bay Area municipalities treat biosolids to class levels driven by the crop type and soil conditions at application sites. Research has been conducted over the past 70 years with findings that determined land application to be the most beneficial and sustainable use of biosolids. Benefits include:

1. Improving soil tilth –-> increasing crop production
2. Increasing water holding capacity, reducing need to irrigate, increasing drought resistance
3. Reducing need for inorganic fertilizer while introducing slow-release nitrogen available as crops need it
4. Conserving non-renewable phosphorus (finite reserves on planet for element on which life depends)
5. Sequestering carbon long term

The Coalition supports ongoing research through financial contributions and member participation in the field as well as serving on advisory committees, all with the aim of protecting public health and the environment as we learn about emerging contaminants. The various research efforts we are supporting include:

- USEPA is updating biosolids prioritization, screening and full probabilistic risk assessment models, which is targeted to be complete by end of 2023. This will be followed by a step-wise evaluation of over 750 constituents throughout 2024 with a decision on whether there is a need to further regulate any constituents by end of 2024.
- USEPA issued four grants totaling $6 million dollars to evaluate unregulated organic contaminants which may be present in biosolids. These projects are scheduled to be complete between fall of 2023 and 2025.
- USDA's NRCS issued a grant of $1.5 million dollars to the W-4170 research committee to evaluate PFAS in land applied biosolids over the next two years.
- University of Arizona and CASA, in collaboration with W-4170 and the EPA grant awardees, are executing a national PFAS research project to evaluate potential exposure via leaching to groundwater under land application sites, as well as crop uptake. First phase (groundwater leaching) is to be complete by September 2023, and the second phase (crop uptake potential) a year later.
- SWRCB statewide microplastics strategy over the next two years.
- SWRCB and Region 2 Water Board investigations of influent, effluent, and biosolids PFAS concentrations.
- WRF Project #5031 Occurrence of PFAS Compounds in US Wastewater Treatment Plants by end of 2023.
- UC Davis is evaluating potential crop uptake of PFAS from land application of biosolids and food waste compost. Results should be summarized by spring of 2023.
- UC-Merced and UC-Extension ongoing research quantifying the benefits of biosolids land application.

For more information, contact the Coalition Program Manager Sarah Deslauriers at sdeslauriers@carollo.com.

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