



At a Glance

Why We Did This Review

We conducted this audit to determine whether the U.S. Environmental Protection Agency (EPA) has and implements controls over the land application of sewage sludge that are protective of human health and the environment.

Sewage sludge is the solid, semisolid or liquid residue generated during the treatment of domestic sewage. When sludge materials go through additional processing steps and treatment to meet EPA standards for land application, they are referred to as biosolids. Treatment is used to reduce the concentration of disease-causing organisms, called pathogens, and to reduce the attractiveness to mosquitoes, flies, fleas, rodents and birds, as well as other disease-carrying organisms. If the resulting product meets regulatory standards, the product can be used for agricultural and residential soil fertilization.

This report addresses the following:

- *Cleaning up and revitalizing land.*

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EPA Unable to Assess the Impact of Hundreds of Unregulated Pollutants in Land-Applied Biosolids on Human Health and the Environment

What We Found

The EPA's controls over the land application of sewage sludge (biosolids) were incomplete or had weaknesses and may not fully protect human health and the environment. The EPA consistently monitored biosolids for nine regulated pollutants. However, it lacked the data or risk assessment tools needed to make a determination on the safety of 352 pollutants found in biosolids. The EPA identified these pollutants in a variety of studies from 1989 through 2015. Our analysis determined that the 352 pollutants include 61 designated as acutely hazardous, hazardous or priority pollutants in other programs.

The EPA identified 352 pollutants in biosolids but cannot yet consider these pollutants for further regulation due to either a lack of data or risk assessment tools. Pollutants found in biosolids can include pharmaceuticals, steroids and flame retardants.

The Clean Water Act requires the EPA to review biosolids regulations at least every 2 years to identify additional toxic pollutants and promulgate regulations for such pollutants. Existing controls based on the Clean Water Act and the EPA's Biosolids Rule include testing for nine pollutants (all heavy metals), researching for additional pollutants that may need regulation, reducing pathogens and the attractiveness of biosolids to potential disease-carrying organisms, and conducting compliance monitoring activities. The EPA's risk communication regarding biosolids should also be transparent.

The EPA has reduced staff and resources in the biosolids program over time, creating barriers to addressing control weaknesses identified in the program. Past reviews showed that the EPA needed more information to fully examine the health effects and ecological impacts of land-applied biosolids. Although the EPA could obtain additional data to complete biosolids risk assessments, it is not required to do so. Without such data, the agency cannot determine whether biosolids pollutants with incomplete risk assessments are safe. The EPA's website, public documents and biosolids labels do not explain the full spectrum of pollutants in biosolids and the uncertainty regarding their safety. Consequently, the biosolids program is at risk of not achieving its goal to protect public health and the environment.

Recommendations and Planned Agency Corrective Actions

We recommend that the Office of Water address control weaknesses in biosolids research, information sharing with the public, pathogen control and training. Further, we recommend that the Office of Water and Office of Enforcement and Compliance Assurance improve the consistency of compliance monitoring and better record inspection data. The EPA provided acceptable corrective actions and milestone dates in response to eight of the 13 recommendations. Those recommendations are resolved with corrective actions pending. Five of the recommendations in this report (7, 9, 10, 11 and 13) are unresolved with resolution efforts underway.