Legislative Budget and Finance Committee

PA's Program for Beneficial Use of Biosolids (Sewage Sludge) by Land Application

Report Presentation by Philip Durgin,
Executive Director, at June 27, 2017, Meeting

Good morning. House Resolution 60 of 2016 directed the Legislative Budget and Finance Committee to review the Commonwealth's program for the beneficial use of sewage sludge by land application, including the methods the Department of Environmental Protection uses to administer and enforce the program and alternative to the methods currently being used to use or dispose of biosolids.

Although the terms *biosolids* and *sewage sludge* are sometimes used interchangeably, the term "sewage sludge" is typically used to refer to the solids that settle out in the wastewater treatment process, while the term "biosolids" is used to refer to the finished, treated, and processed product that can legally be applied to land. Our report follows that convention.

Biosolids are typically used or disposed of in one of three ways: by spreading the biosolids on land--typically farmland--, by landfilling, or through incineration. In Pennsylvania, about half (46 percent) of biosolids are sent to landfills, about 38 percent are land-applied, and about 15 percent are incinerated.

Land application is generally the least expense option, although it can vary widely depending on factors such as the size of the facility, local tipping fees, and transportation costs. Incineration is the most expensive option, and typically costs about twice as much as land application.

Regardless of whether the biosolids are land applied or sent to a land fill, they must be treated to reduce pathogens. Class A biosolids, which are typically

produced as dry pellets, are treated to the point where they have very low pathogen and pollutant levels. As such, they can be bagged and sold to homeowners to use in their home gardens, and farmers may use them with very few harvesting or site restrictions.

About 80 percent of the biosolids used by farmers are Class B biosolids, which are allowed to have significantly higher pathogen and pollutant levels than are allowed for the Class A product. Due to harvesting restrictions, Class B biosolids are used almost exclusively for feed and forage crops for animals or crops such as wheat and barley, where the harvested parts do not touch the surface of the soil.

Public concern regarding the land application of biosolids generally focuses on issues of public health, potential environmental damage, and odor. Although several respected soil scientists have written and testified about the potential hazards of the land application of biosolids, particularly on agriculture fields, the U.S. Environmental Protection Administration, as well as the environmental protection agencies in all 50 states, have deemed the practice to be safe, provided the applicable regulatory provisions are followed. The EPA is also required by law to collect and analyze data every two years for the purpose of identifying new pollutants that may need to be regulated.

The issue of potential health effects, along with complaints of nauseating odors, was also raised in a widely followed case in Pennsylvania which was ultimately appealed to the Pennsylvania Supreme Court. In that case, which was decided in December 2015, the Pennsylvania Supreme Court upheld the ruling of a lower court that the use of biosolids as fertilizer is a "normal agricultural practice," and therefore protected under Pennsylvania's Right to Farm Law.

The EPA, which strongly favors land application over landfilling or incineration, has cited the issue of odors as the biggest threat to the beneficial use of biosolids through land application. Biosolids are not necessarily malodorous. If processed correctly using modern techniques, and stored and spread using best practices, the odors may be barely noticeable. While upgrading processing techniques may require significant new investment for some wastewater treatment facilities, there are many low cost steps—such as avoiding spreading biosolids when wind and humidity conditions are unfavorable—that facilities and farmers can take to mitigate odors.

To address the odor issue, the report recommends DEP strengthen its requirements for wastewater treatment plants to require them to develop an odor management plan if they intend to produce biosolids for land application. DEP already requires these plants to "consider" odor management as part of their required Biosolids Quality Enhancement Plan, but our recommendation would require a written odor management plan to address potential odor problems not only at the facility but also at the farms where the biosolids are stored and spread. If DEP is made aware of a valid odor complaint, they could then take appropriate enforcement actions if the odor management plan is not being properly implemented.

The report also compares Pennsylvania's biosolids regulations to those of several nearby states. It was difficult to make exact comparisons because states use different criteria (e.g., some states have standards for how much of a buffer needs to be left between the biosolids and the neighboring property line and other states have standards for buffers for the distance between biosolids and occupied buildings), but all states must have regulations that at least meet the standards set by the EPA. We concluded that, for the regulations we reviewed with regard to buffers between water supplies, property lines, and notification to adjacent landowners, Pennsylvania's regulations were generally in line with the requirements imposed by other states.

We also reviewed records of DEP inspections of biosolids facilities and application sites. DEP regulations only state that they "intend" to inspect facilities and application sites on a yearly basis, so it is not a firm requirement. We found one DEP region was very conscientious in conducting annual administrative reviews of application sites, with all six of the farms we sampled from that region having been reviewed every year for the past three years. For the other five DEP regions, the level of review varied significantly, with one region having conducted only one review in three years for the six application sites we sampled. We also reviewed the inspection records for 12 wastewater facilities that produce biosolids, but did not find any record of inspection for any of these facilities pertaining to their biosolids permit (one facility had been inspected by DEP, but it was not clear whether the inspection pertained to their biosolids permit or to some other aspect of their operations.)

Finally, the resolution asks us to assess new technologies and alternative methods for using or disposing of biosolids. The report contains a long list of new and innovative approaches to both making current processes more effective and to better exploiting the energy-generating potential of biosolids. Several of these technologies are in the testing phase and some are in full scale operational mode. As these technologies are further tested and refined, they may become feasible alternatives to land application, landfilling, and incineration.

Thank you for your attention.