

Report Highlights

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

House Resolution 60 of 2016 calls on the LBFC to review the Commonwealth's program for the beneficial use of sewage sludge by land application.

We found:

- ***PA sends more of its biosolids to landfills than most states.*** About 46% of PA biosolids are sent to landfills, with land application—typically on agricultural land—accounting for about 38%, and incineration about 15%. Nationally, about 60% of biosolids are land applied, 20% landfilled, and 20% incinerated.
 - ***No biosolids management method is risk-free.*** While the U.S. EPA and others have concluded that the risk of land application of biosolids, if done properly, is minimal, some risk may still exist. To address this concern, EPA is required to conduct biannual reviews to identify new pollutants that may need to be regulated. Negative environmental impacts also exist if biosolids are landfilled or incinerated.
 - ***Pennsylvania biosolids are classified as either EQ (Exceptional Quality) or non-EQ.*** EQ biosolids must meet strict pollution and pathogen requirements and have few use restrictions. Non-EQ biosolids, which comprise over 80% of the land-applied biosolids in PA, have less strident pollution and pathogen requirements, and therefore are subject to multiple siting and use restrictions. Both types of biosolids can only be applied up to the agronomic rate for nitrogen of the crop being grown.
 - ***Land application of biosolids is the least expensive use/disposal method.*** While costs can vary widely depending on factors such as the volume of material handled, the distance between a treatment facility and landfill, and landfill tipping fees, it typically costs large facilities about \$45 more per wet ton to landfill biosolids than it does to apply them to land. Incineration is about twice the cost of land application. Total costs for use/disposal of biosolids generated in PA were approximately \$70 million in 2007 (\$37M for landfilling, \$19M for land application, and \$13M for incineration).
 - ***Biosolids reduce fertilizer costs to farmers and the use of biosolids is protected under the Right to Farm Act.*** Biosolids contain nitrogen, phosphorus, and various micronutrients that are beneficial to plant growth. In 2015, the Supreme Court ruled that the use of biosolids as fertilizer is a “normal agricultural practice” protected under PA's Right to Farm Act.
 - ***Public concern over offensive odors has been cited as the biggest threat to the beneficial use of biosolids.*** The odor emanating from biosolids can vary from barely noticeable to highly objectionable. Many steps can be taken, including low-cost steps such as avoiding land application when weather conditions are unfavorable and ensuring the material has fully finished the anaerobic process, to reduce odor.
 - ***DEP only conducts periodic inspections of biosolids land application sites.*** DEP's regulations state it “intends” to conduct an administrative inspection of both biosolids generating facilities and application sites at least annually. We reviewed 12 facilities and 36 application sites for the 3-yr period 2014-2016; none of the facilities had an inspection pertaining to their biosolids operations, and only 30% of sites had an annual administrative review.
 - ***PA biosolids regulations appear to be generally in line with those of other states.*** All states must, at a minimum, comply with federal biosolids regulations. States may, however, enact stricter standards. We reviewed several key standards and found PA's regulations were roughly comparable to the comparison states.
 - ***Many new technologies are being developed to improve how biosolids are processed and to create alternative beneficial uses.*** The report identifies many promising technologies, some of which are already in use.
- Recommendation:** DEP should modify its General Operating Permit requirements to require biosolids generators to develop odor management plans covering both the operating facility and the receiving sites.