

BENEFICIAL REUSE OF MUNICIPAL WASTE-TO-ENERGY ASH AS A LANDFILL CONSTRUCTION MATERIAL

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Abstract

The Solid Waste Disposal Authority of Palm Beach County owns a municipal waste-to-energy plant located in West Palm Beach, Florida. Currently, ash generated by the operation of the facility is disposed at the Authority's adjacent Class I Landfill. In 1998, the Florida Legislature amended certain provisions of the Florida Statutes to encourage the beneficial reuse of municipal waste-to-energy ash in manners that are protective of human health and the environment. To that end, the Florida Department of Environmental Protection developed a document entitled "Guidance for Preparing Municipal Waste-to-Energy Ash Beneficial Use Demonstrations" to assist communities in developing reuse demonstrations. SWA and CDM undertook a project and developed a report in accordance with the Guidance document to demonstrate that reuse of the ash from the SWA's waste-to-energy facility as a landfill construction material is consistent with the reuse goals set forth by the Legislature. Initial studies were performed to identify locations and quantities for use of ash within the confines of SWA property. Some of these locations included future Class I and Class III Landfill cells and perimeter roadways. It was determined that nearly 3 million cubic yards of landfill space could be saved through beneficial reuse of the ash. An initial analytical screening was performed to test the leaching potential of the eight RCRA metals and compare to applicable groundwater and surface water standards. Overall results were favorable, with some indication that lead could pose potential concern. Geotechnical index testing (grain size, moisture content, and organic content) was performed to determine if ash has similar physical properties to the sand that is currently used on-site. Results indicated that the ash has similar physical properties to the sandy material. This initial testing was performed in accordance with the July 1998 DRAFT version of the guidance document.

Regulation Background

In 1998, the Florida Legislature amended Section 403.7045(5) of the Florida Statutes, addressing the disposal of ash residue generated by solid waste management facilities combusting solid waste. The amended language clarified the authority of the Florida Department of Environmental Protection ("FDEP")

to work with solid waste management facilities to identify and develop methods for recycling or reusing ash generated by resource recovery operations. More importantly, the amended language of the statute granted clear authority to the FDEP to approve ash reuse projects that present no significant threat to human health and that will not violate FDEP standards and criteria.