

# **APPENDIX 4**

## Facility History

The Dean Forest Road Municipal Solid Waste Landfill accepts municipal solid waste (MSW) from within the City of Savannah. The waste stream presently includes municipal waste combustor ash from the Savannah Resource Recovery Facility (SRRF), privately owned and operated on behalf of the City's Resource Recovery Development Authority. The SRRF incinerates municipal solid waste to produce electricity and produces ash as a waste product. This operation greatly reduces the volume of landfilled MSW and is expected to destroy all volatile organic compounds (VOCs). All wastes received for disposal currently meet the applicable RCRA Subtitle D characterization requirements, including metals. Previous exceedances of regulatory limits are discussed later in this section.

The Dean Forest Road Landfill was permitted by the Environmental Protection Division in 1982, and disposal operations began in March 1984. As originally configured, the facility was divided into four quadrants (refer to [Figure 2](#) in [Appendix 2](#)). Prior to 2005, each quadrant was bordered on three sides by perimeter ditches that controlled all surface water runoff from the facility. Waste was placed in shallow trenches that were numbered as shown in [Figure 2](#).

The facility initially accepted putrescible waste along with construction and demolition debris, classified as MSW. Disposal operations for the facility began in the Northeast quadrant in March 1984. By July 31, 1985, the first 11 of the 14 trenches in this quadrant had been filled to grade with waste and the remaining three trenches (12-14) were being excavated. The excavated material was being used for cover material, and waste disposal had moved to trench 15 in the Northwest quadrant. Trenches 12 through 14 were subsequently filled although the time frame is not known.

Based on EPD inspection reports, waste was being placed in trench 21 in April 1986. By November 1986, the City was placing waste in the second lift of trench 25, suggesting that the entire first lift of the Northwest quadrant had been filled by this date.

In April 1987, an EPD inspector reported the facility was placing waste in trench 26 but did not reference the lift. By July 1987, it was noted that the SRRF was on-line and the ash from that facility was being placed in the northern end of trench 26 at the landfill. It appears that ash and MSW were being disposed in the same location. Operation of the SRRF greatly reduced the volume of waste and consequently the pace of disposal at the landfill.

An EPD inspection report noted apparent leachate in the northern rim ditch adjacent to the Northwest quadrant on April 15, 1987. This liquid was subsequently tested and results indicated the liquid had a pH of 7.3, with no constituents of concern noted.

In 1988, an EPD inspection report indicated that the City had begun a segregated disposal practice for the SRRF ash. On May 18, 1988, the EPD inspector reported

that the City was placing ash in trench 28 (in the Southwest quadrant) and MSW in trench 25 (in the Northwest quadrant). The EPD inspector instructed the City to cease segregating these waste streams. It is believed that waste segregation continued without interruption, however.

The City petitioned the EPD to continue the practice of waste segregation, and in a follow-up inspection (June 17, 1988) the EPD noted that the practice was in fact continuing. However, the EPD also noted that laboratory analyses of some ash samples from May 1988 had exceeded the Toxic Characteristic Leaching Procedure (TCLP) test limits for lead and cadmium; therefore, the material was not suitable for disposal in an unlined facility. The EPD then instructed the City to segregate the waste streams until a clay-lined facility could be constructed to provide for disposal of the ash.

The City continued the segregation practice and began designing an ash monofill cell to be constructed in the Southeast quadrant. An EPD inspection report from October 20, 1988 indicated that the City was placing ash in trench 28 and MSW in Trenches 15 and 16. AEM assumes the disposal in trenches 15 and 16 were taking place in lift 2 of these areas.

EPD files indicate that additional testing of ash conducted around July 1989 showed TCLP levels for cadmium up to 4.7 milligrams per liter (mg/L), lead up to 54 mg/L, and barium up to 204 mg/L. No significant levels of arsenic, chromium, mercury, selenium or silver were detected. TCLP regulatory levels for the detected metals are 1.0 mg/L for cadmium, 5.0 mg/L for lead, and 100.0 mg/L for barium. Based on these results, the EPD directed the City to continue segregated disposal of the ash until a clay-lined disposal area could be designed and constructed. The EPD inspection report from October 1989 also indicates that the City was placing waste in trench 27 at that time. On the basis of previous and subsequent inspection reports, that waste is inferred to be MSW.

With regard to testing results, ash from the Savannah Resource Recovery Facility has been tested by the EP Toxicity Test (prior to circa 1988) and later the Toxicity Characteristic Leaching Procedure (TCLP). Although records of annual testing prior to 1995 were not found, it is believed that the earliest tests were done on grab samples rather than composite samples, and thus may not accurately represent the overall characteristics of ash at that time.

An EPD inspection conducted on April 12, 1990 noted that the City was placing MSW in trench 25, lift 2 (Northwest quadrant) and ash in trench 29 (Southwest quadrant). The EPD inspector also noted that sewage sludge was being mixed with the ash in trench 29 and causing leachate to run in the trench. Additionally, the inspector indicated that MSW was being placed in lift 2 of trench 24 in an “uncontrolled manner”.

On January 3, 1991, an EPD inspector indicated that ash was being placed in lift 2 of trench 28, and MSW was being placed in lift 2 of trench 18. The inspector noted further that only trenches 28 and 29 and a wet weather trench had been used on the south side of the landfill.

Additional information on filling operations was provided by the City in an April 10, 1991 request to the EPD for separate MSW and C&D areas and associated differential cover requirements. In this request, the City indicated that:

- Lift 1 had been completed for the entire Northeast quadrant (trenches 1-14) and for the entire Northwest quadrant (trenches 15-27).
- Lift 2 had been completed for trenches 19-27 in the Northwest quadrant and the City was currently placing MSW in lift 2 of trench 18.
- Both wet weather trenches (in the northwest and Southwest quadrants) had been filled, and trenches 40 and 41 had been excavated and were currently being used for wet weather operations.
- Trenches 28 and 29 had been filled to grade with ash, and ash was being placed in lift 2 of these trenches.

In the request, the City proposed placement of C&D material only as lift 2 for trenches 1-14 (Northeast quadrant) and lift 2 for trenches 15-17 (Northwest quadrant). Ash would be placed in trenches 28-30 (Southwest quadrant) only until a separate, clay-lined area was constructed. MSW would be placed in trenches 31-39 (Southwest quadrant) and 40-43 (Southeast quadrant) with trench 43 proposed as a buffer between the MSW and the proposed clay-lined, ash monofill area. The proposed monofill was to occupy trenches 48-51 of the Southeast quadrant with trenches 44-47 of this quadrant retained for potential future expansion of the monofill.

The fate of the City's request was not ascertained but subsequent inspections tended to indicate the proposed filling operations were generally being followed. The report for an inspection conducted on May 21, 1991 stated that ash was being placed in trench 29, while an August 26, 1991 inspection said that ash was being placed in trench 30 and MSW was being placed in trench 32 (both in the Southwest quadrant). These data tend to suggest that no additional MSW was placed in the northern quadrants after early 1991. Site personnel did confirm that a second lift was never placed in the Northeast quadrant.

However, site personnel did indicate that ash was placed in trench 42, in the western part of the Southeast quadrant. The dates of placement are not known, but the ash was later excavated in preparation for construction of Phase I-B (see below). There is no record, nor any recollection of ash placement in any other portion of that quadrant.

EPD files indicated that additional testing of the SRRF ash residue conducted in May 1993 revealed acceptable metals concentration in the bottom ash and mixed

ash. The fly ash tested separately, however, revealed cadmium concentrations up to 6.3 mg/L. All other metals were below the TCLP requirements for non-hazardous waste. As the fly ash was mixed with the bottom ash prior to disposal and the mixed material passed the TCLP test, the waste was deemed acceptable.

The City eventually received EPD-approval for a clay-lined, monofill disposal area in the Southeast quadrant, but that monofill was never constructed. Due to changing regulations, the City opted to design a new waste disposal unit in this area with a synthetic liner and a leachate collection system in accordance with EPA's Subtitle D requirements. The City completed a lined waste unit in the eastern portion of the Southeast quadrant in 1995. That unit is referred to as Phase 1-A, and the northern 200 feet was approved for operation in August 2004.

In late 1996, the City began excavating wastes from the western portion of the Southeast quadrant. Following excavation of wastes from this area (Phase 1B), the subgrade was tested to ensure that all contaminated soils were removed. The lined waste unit was then expanded into this area in mid 1997 thereby converting the Southeast quadrant into a Subtitle D landfill unit.

During construction of Phase 1B, mounded groundwater was encountered in the northeastern corner of this phase. Dewatering was conducted to allow for construction. Also during the Phase 1B construction, a borrow pit was opened to the west of the Southwest quadrant to provide material for the construction project.

In 2004, the City excavated wastes from the eastern portion of the Southwest quadrant (Phase 1-C1) and tested the subgrade to ensure complete removal of any impacted soils. The rim ditch between the Southeast and Southwest quadrants was filled and the lined area for Phase 1-B was expanded into the newly excavated area. The perimeter ditch was also widened adjacent to the northwest and southwest corners of the Southwest quadrant to recover the capacity of the filled center ditch. The City has since completed excavations of all waste from the Southeast and Southwest quadrants and is creating a continuous, Subtitle D, lined waste unit in the southern half of the facility.