MIAMI-DADE COUNTY WATER AND SEWER DEPARTMENT

PROJECT FACT SHEET

New Biosolids Processing Facility Planned

The Miami-Dade County Water and Sewer Department (WASD) will be issuing a solicitation to design-build-operate (DBO) a Biosolids Processing Facility (BPF). The BPF will be designed to receive and process biosolids from the North District Wastewater Treatment Plant (NDWWTP), Central District WWTP (CDWWTP), and South District WWTP (SDWWTP). The BPF will allow WASD to produce a higher quality biosolids product that has greater flexibility in how the material is reused or where it is disposed, thereby lowering disposal costs. It also will provide a solids treatment alternative that is less affected by inclement weather, thus improving operations of all three treatment facilities. The BPF will be located at the SDWWTP, which is at the south end of Miami-Dade County, near South Miami Dade Landfill and Black Point Marina.

Miami-Dade County WASD Facts

Prominence: Largest water and sewer utility in the southeast

Population Served: 2.3 million residents

Employs: 2,500 workers

Annual Operating Budget: $528 million

Services: Water and wastewater to unincorporated Miami-Dade County, and wholesale water or wastewater to 25 municipalities

Facilities: Owns and operates three wastewater treatment plants

WASD plans to implement the BPF as a DBO project under a public-private partnership (P3). CH2M HILL serves as the design criteria consultant for the project and is not eligible for inclusion on the upcoming P3 solicitation for this project.

Current Solids Processing

Current operations at the CDWWTP and SDWWTP process solids onsite through gravity thickeners and anaerobic digesters. The CDWWTP also treats solids generated by the NDWWTP, which are pumped to the CDWWTP headworks or gravity thickeners. At the CDWWTP, digested biosolids are dewatered, then land applied as Class B biosolids when weather and site availability permit, or disposed in a landfill when there are no available land application sites. At the SDWWTP, digested biosolids are dewatered by centrifuges prior to Class B land application, composting, or landfill disposal along with grit collected from the SDWWTP. When weather permits, SDWWTP biosolids are composted onsite using the aerated static pile process, after which the compost product qualifies for Class AA marketing and distribution.

Biosolids Processing Facility

Project Type: Design-build-operate, public-private partnership (P3)

Location: SDWWTP
8950 SW 232nd Street
Miami, FL 33190

Facility Type: Biosolids processing facility

Schedule: Notice to Proceed issued to the P3 during the 2nd quarter of 2015

Term of Contract: 20 years

Biosolids Processing Facility Location

The BPF will be located on the SDWWTP site, including up to 3 acres of an existing paved area that can be made available as a potential site for the BPF if thermal drying is used. If a composting process is used, the operation will be performed at the SDWWTP within the current composting system boundary (Figure 1). If composting is used, WASD and the P3 Provider will negotiate to determine the value, terms, and intended uses of the infrastructure and equipment being provided by WASD and used by the P3.

Design Capacity

The design capacity of the BPF was estimated by projecting historical solids production rates using the 2013 Ocean Outfall Compliance Plan growth projections (WASD, 2013). Based on 5 years of operating data, the SDWWTP and CDWWTP produce dewatered cake at the rate of approximately 0.39 to 0.41 dry tons per million gallons of wastewater treated. Both the CDWWTP and SDWWTP have several projects planned to improve digestion and other solids handling processes. With these improvements, the volatile solids reduction achieved in the digesters is estimated to increase to at least 56 percent. Solids projections and capacity

FIGURE 1
Current Composting System Boundary at the SDWWTP

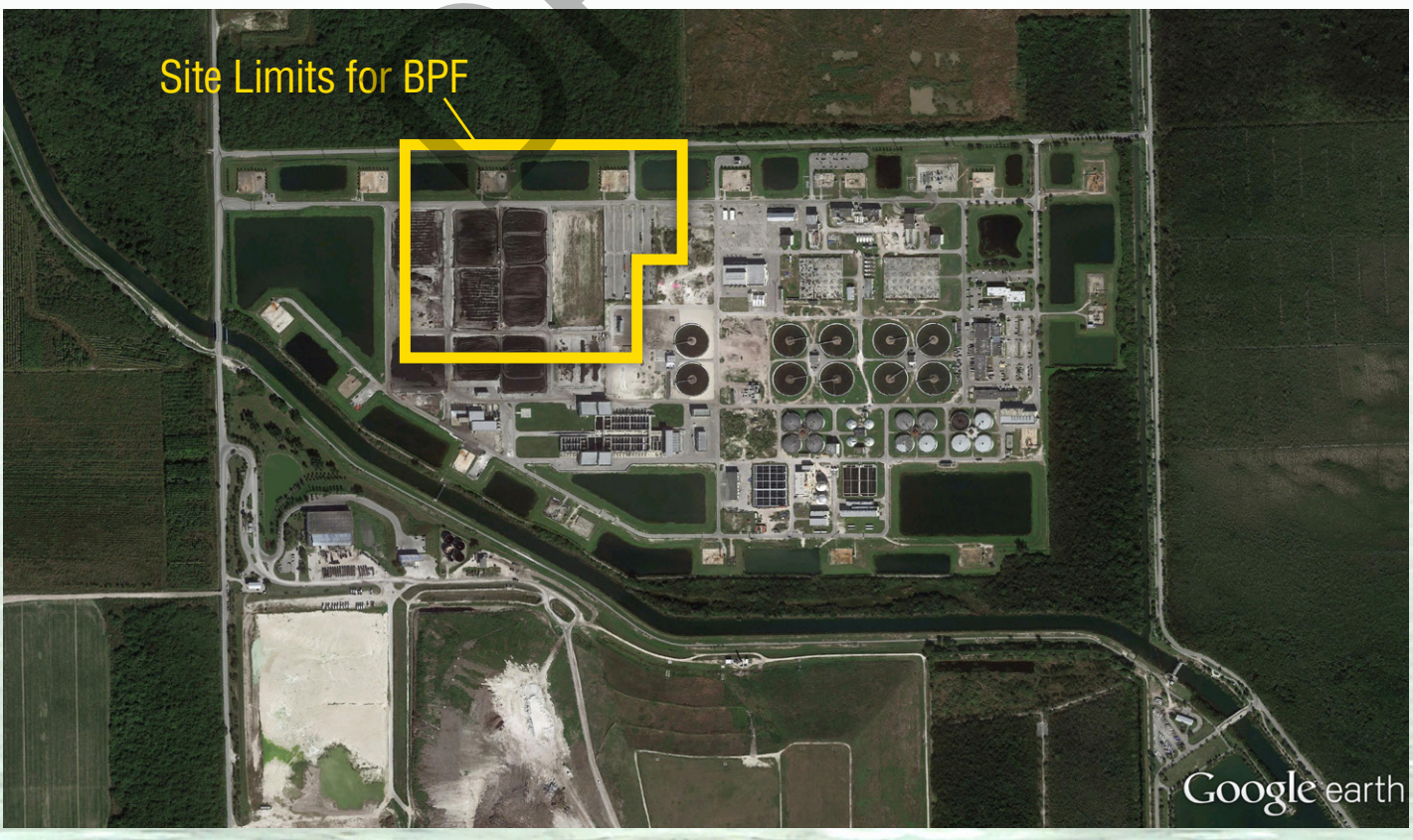


FIGURE 2
Projected Annual Average Dry Solids Production for the BPF

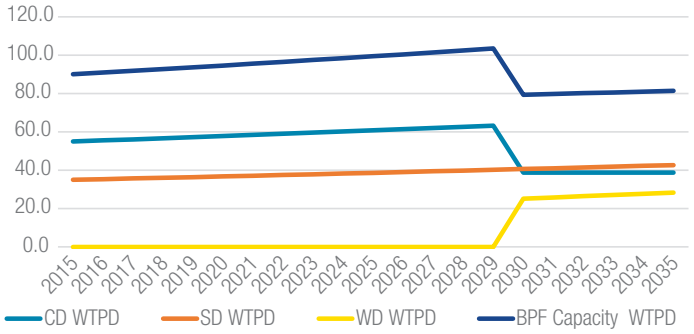
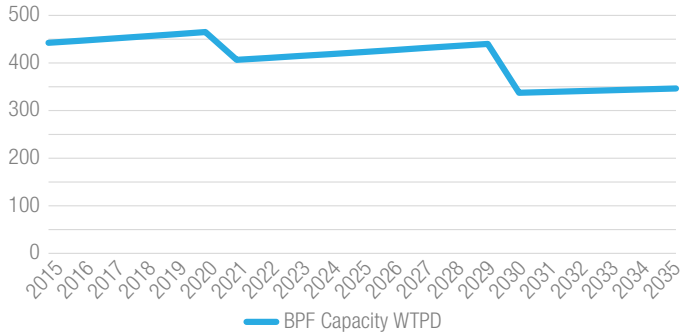


FIGURE 3
Projected Annual Average Wet Solids Production for the BPF

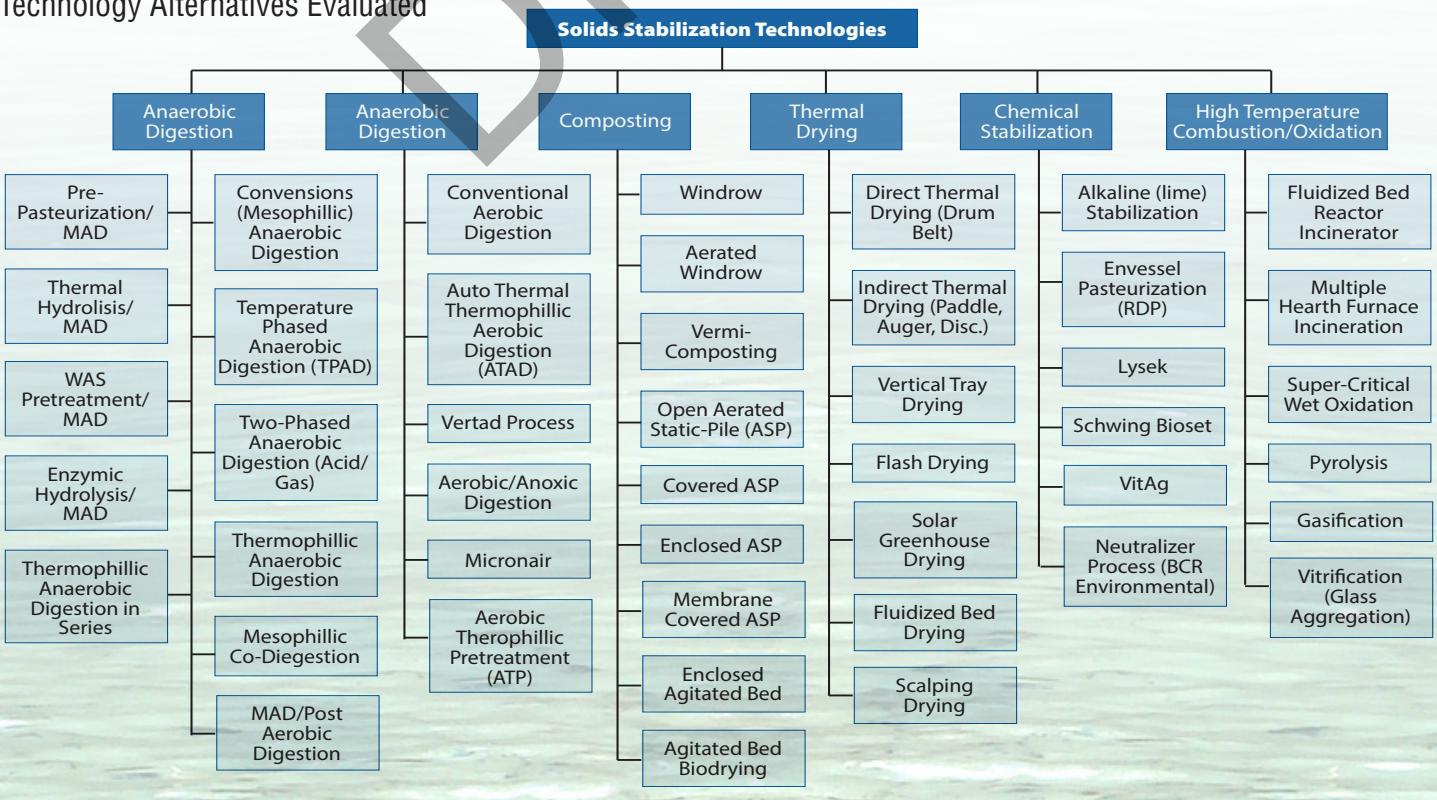


of the BPF are based on these improvements being in place and performing as intended. The projected capacity of the BPF in dry tons per day (DTPD) and wet tons per day (WTPD) during its 20-year service period is summarized in Figures 2 and 3. In 2020, new dewatering facilities are expected to be operating at the SDWWTP and producing cake with 22-23 percent dry solids, as compared with 16-17 percent dry solids being produced currently at SDWWTP. This is the reason for a projected decrease in wet solids production in 2020. A new treatment facility, the West District WWTP (WDWWTP), is expected to be in service by 2030 and will manage all its biosolids separately from the BPF. A predicted diversion of wastewater flows and solids to the WDWWTP is the reason for projected reductions in both dry and wet solids to be managed by the BPF in 2030.

Technology Alternatives Evaluation

Six general technology options for solids stabilization were screened for the BPF: (1) anaerobic digestion, (2) aerobic digestion, (3) composting, (4) thermal drying, (5) chemical stabilization, and (6) high-temperature combustion/oxidation (Figure 4). WASD has

FIGURE 4
Technology Alternatives Evaluated



decided to maintain and improve its existing anaerobic digestion processes, so options (1) and (2) were eliminated. Chemical stabilization and high-temperature processes also were eliminated because of WASD's concerns with chemical handling and safety.

The two preferred and recommended technologies are composting and thermal drying. Several variations of composting may be considered for the BPF. Because of periodic, heavy rainfall in South Florida, a cover over composting and curing areas is required for good operations.

The thermal drying process is based on one of the following principles:

- The materials to be dried are directly exposed to the heat source (direct drying systems)
- The heat is transferred to the material through a conducting medium (indirect drying systems)

Both general types of thermal drying technologies may be considered for the BPF. Heat sources that may be used for thermal drying include natural gas and waste heat from the Cogeneration Facility at the SDWWTP. The WASD intends to identify and use the most cost effective and sustainable of these technologies for the new BPF.

Cogeneration Facility Waste Heat

There is waste heat available from the SDWWTP Cogeneration Facility, which uses internal combustion engines to produce electricity from biogas produced by the SDWWTP digesters and South Dade Landfill. This waste heat is available in two forms, medium-grade heat at approximately 190 degrees Fahrenheit (°F) and high-grade heat at 470°F. The Cogeneration Facility is designed to use gas produced from those two sources. The waste heat produced by the engines is available for other uses. Unused heat is dissipated into the atmosphere or the effluent stream. In 2015, the Cogeneration Facility will have four cogeneration engines (2 MW each) installed.

Existing uses of waste heat (for heating the digesters and a chiller) are expected to continue through the 20-year contract term. Table 1 summarizes the estimated available waste heat produced and available to the BPF for startup and design years.

Project Schedule

The preliminary project schedule proposes that a Notice to Proceed will be issued to the P3 during the 2nd quarter of 2015.

Procurement Process

The procurement process is being conducted under state legislation for P3 (Section 287.05712, Florida Statutes) and is intended to conclude after an evaluation of proposals by a Competitive Selection Committee with the award by WASD of an Interim Agreement (Phase 1) for planning, development, design, and financing services for the project. The Company awarded the Interim Agreement also would be required to submit certain cost, schedule, and other information for the negotiation and possible award of a Comprehensive Agreement (Phase 2) that may include the final design, permitting, construction, financing, and operation and maintenance of the project.

TABLE 1
Waste Heat Availability

Condition	Waste Heat Produced (mmBTU/hr)[a]	Waste Heat Used (mmBTU/hr)	Total Available Waste Heat (mmBTU/hr)	Available High-Grade Waste Heat (mmBTU/hr)	Available Medium-Grade Waste Heat (mmBTU/hr)
Initial Startup, 2015	13.6	4.9	8.7	6.1	2.6
Design Year, 2035	20.9	4.9[b]	16.0	6.9	9.1

Notes: [a] mmBTU/hr is million British thermal units per hour
[b] Assuming no changes to digestion and gas production systems from 2015.