District of Columbia Water and Sewer Authority

BIOSOLIDS MANAGEMENT PROGRAM

The District of Columbia Water and Sewer Authority's (DC Water) Blue Plains Advanced Wastewater Treatment Plant (AWTP) treats an average of 370 mgd of wastewater from the metropolitan Washington, D.C., area. It is the largest AWTP in the world. Currently, lime stabilization is used to convert wastewater treatment residuals into a renewable resource used as a soil amendment. Implementation of the Biosolids Management Program (BMP) will largely replace lime stabilization with thermal hydrolysis and anaerobic digestion. The Biosolids facility will include 4 anaerobic digesters, 4 Cambi™ treatment trains, a pre-dewatering centrifuge building, a combined heat and power facility, a gas treatment facility, buildings, flares and gas holder. The site layout includes provisions for future construction of 4 more digesters, and additional centrifuges and Cambi trains.

"Green" benefits of the BMP include:

- Producing digester gas, a renewable fuel containing approximately 60% methane, which will be used to produce heat and electric power, thus reducing existing air emissions.
- Reducing the quantity of biosolids by approximately 50%, thus reducing the amount of diesel fuel used for hauling.
- Creating a Class A biosolids product, which can be used more widely than the Class B biosolids currently produced.

For procurement purposes, the BMP has been divided into four components.

1. Main Process Train — pre-dewatering, thermal hydrolysis, and anaerobic digestion
2. Combined Heat and Power facility
3. Final Dewatering
4. Site Preparation

Main Process Train (MPT) — The MPT project will be delivered via a design-build procurement and is expected to include the following:

- Screening of raw sludge prior to pre-dewatering
- Pre-dewatering — 4 parallel trains of centrifuges producing dewatered solids for feeding the thermal hydrolysis process (THP)
- 4 parallel trains of Cambi THP
- Anaerobic digestion — 4 mesophilic digesters, with mixing, gas handling, and feed and withdrawal systems
- Gas conditioning/moisture reduction, gas pressure equalization and compression, and gas management, including emergency gas flares
- Support systems including odor control, electrical power supply, controls and interface with Blue Plains' existing Process Control System

Current Status — The MPT contract valued at $208.4 million was awarded in June 2011 and is approximately 10% complete. The anticipated completion date is January 2015.

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Combined Heat and Power (CHP) — Digester gas will be the primary fuel, supplemented as necessary with natural gas. The digester gas supply is anticipated to be sufficient to generate up to 13 MW of electricity. The CHP will be delivered using a design-build-operate procurement and will include the following:

- Digester gas and natural gas compression
- Combustion turbines using digester gas as the primary fuel
- Heat recovery steam generators to produce steam for the Cambi THP
- Back-up steam production system to ensure steam is available for THP

Current Status — The CHP contract valued at $83 million will be awarded in February 2012. The anticipated completion date is January 2015.

Final Dewatering — The Final Dewatering facilities include a new belt filter press system to mechanically dewater the Class A thermally hydrolyzed-digested biosolids. The dewatered cake product will be transferred to bunkers for truck load-out. Direct truck load-out will also be provided as a backup or secondary load-out option. Facilities also include upgrades to the conveyance of raw cake for lime stabilization. The Final Dewatering facilities are being delivered via a traditional Design-Bid-Build (DBB) process. The first contract for the odor control facility valued at $6.9 million was awarded in November 2011 and is 5% complete. The second contract for the belt filter press building valued between $50 – $70 million is expected to be awarded in April 2012.

Site Preparation — Site preparation included earthwork necessary to restore surface grades to elevation +14 feet in the biosolids area. The site preparation contract was delivered via a DBB process. This contract was valued at $5.3 million and was completed in December 2011.

DC Water's Business Goals — The Biosolids Management Program is one in a series of many programs launched under DC Water's Capital Improvement Program, valued at more than $7.8 billion over the next 20 years. DC Water anticipates that many of these contracts will be subject to the EPA's Fair Share Objective for Minority and Women Business Enterprises' (MBE and WBE) participation of 28 percent and 4 percent, respectively for A/E agreements, and 32 percent and 6 percent for construction services. This objective is the largest in EPA's Region 3.

Over the last three fiscal years (FY09 through FY11), there were 57 construction contracts awarded that valued $991 million, of which more than 46% (or $458 million) was awarded to MBE/WBE and Local Small Disadvantaged Business Enterprises (LSDBE) businesses. LSDBEs have been awarded $76 million, and MBE/WBEs have been awarded $382 million. DC Water is committed to meeting or exceeding EPA objectives for MBE and WBE participation in prominent and leadership roles.