



## Water Biosolids

**Client**  
Water and Sewer Authority

**Location**  
Washington, DC, USA

## Blue Plains Advanced Wastewater Treatment Plant

### Project Highlights

- New digester facilities will include nine 4 million gallon egg-shaped digesters with the capability to operate in the conventional high-rate mode or in a two-phase (acid/gas) configuration; and two 3 million-gallon digested solids storage tanks
- New thickening facilities to replace aging dissolved air floatation technology
- Assisted WASA with a major denitrification demonstration project that operated half the plant in a nitrogen removal mode
- Provided odor control and environmental management services (EMS) planning and implementation technical support

### Project Description

The District of Columbia Water and Sewer Authority (DC WASA) needs to upgrade the Blue Plains AWTP biosolids processes. Through the Engineering Program Management Consultant (EPMC) IV contract, WASA has retained a team of consultants, led by CH2M HILL, to provide program management for the biosolids improvements at Blue Plains.

The objectives of EPMC IV include providing biosolids treatment capacity to meet current and future needs and applying proven innovative technology to increase the reliability and capacity of solids processing at Blue Plains in an economic manner. Other objectives of the program include providing program reliability and flexibility through diversification of end-use and/or disposal options and by replacing aging facilities and improving the characteristics and consistency of biosolids to enhance management options.

The current biosolids program at the Blue Plains AWTP relies heavily on land application in surrounding counties of Virginia and Maryland. Some of the biosolids were composted at the Montgomery County (Maryland) Regional Composting Facility (MCRCF) until it was closed. As a result of the facility shutdown, a significant processing and end-use option for a portion of the biosolids was no longer available to WASA.

The biosolids management program addresses both short-term and long-term needs. Short-term need include implementing interim plant and operational improvements to increase reliability and enhance biosolids quality, reduce odor, and ensure good practices for the off-site land application program.

Long-term needs include developing and implementing a capital improvements program that will meet WASA's ultimate biosolids program objectives. The major capital projects include the following:

Anaerobic digestion facilities—The new digester facilities will include: nine 4 million-gallon egg-shaped digesters with the capability to operate in the



conventional high-rate mode or in a two phase (acid/gas) configuration; and two 3 million-gallon digested solids storage tanks.

Biological thickening facilities—The new thickening facilities will replace aging dissolved air floatation technology with gravity belt or centrifuge thickening. Both technologies will be evaluated and tested onsite with the specific waste biosolids from a high-rate secondary and nitrification/denitrification system.

Additional dewatering facilities—This capital program includes the addition of high-solids dewatering centrifuges and improvements to the existing lime stabilization and stabilized biosolids storage systems.

Biosolids EMS—A biosolids environmental management system is being developed as part of the National Biosolids Partnership's Demonstration Program.

Odor control facilities—An odor study was conducted to evaluate offsite odor generation from plant unit processes. As a result, a comprehensive evaluation of plant unit processes and recommended short- and longer-term solutions was developed.

CH2M HILL is responsible for all planning, preliminary engineering, design engineering management, on-site operational assistance, and maintenance of the capital program for WASA. Construction of all the facilities will be complete in 2008.