

BLUE LAKE WASTEWATER TREATMENT PLANT SUPPLEMENTAL FACTS



This supplement to the Blue Lake Fact Sheet provides more technical detail about the plant's solids handling system than is provided in the general fact sheet.

WASTEWATER SOLIDS TREATMENT GOES GREEN!

Biosolids converted to fertilizer pellets

Blended primary and secondary biosolids are thickened, dewatered and dried in a rotary drum dryer to produce fertilizer pellets which are applied to cropland as slow release, organic fertilizer.

The product meets EPA's "Exceptional Quality" requirements for low levels of heavy metals and contaminants.

Capacity increase

MCES Facility Planning in 2005 determined that the dryer was approaching its capacity. Addition of the anaerobic digestion process would reduce the mass and volume of solids by about 30%, thereby increasing the capacity and extending the life of the dryer equipment.

What is anaerobic digestion?



The biosolids are decomposed in three 1.4 million gallon concrete tanks by microorganisms (naturally contained in the waste) in the absence of oxygen. The organic material in the waste is converted to water, residual solids and biogas composed of carbon dioxide and methane.

Green energy features

- The biogas produced by the digesters at about 60% methane replaces 90% of the 9 million BTU/HR. of purchased natural gas to fuel the pelletizer, saving about \$500,000 annually.
- When the dryer is offline, biogas fuels hot water boilers that heat the 20,000 sf digester control building, with estimated savings of 1.2 billion BTU annually.
- During dryer operation, hot water used to scrub odors from dryer exhaust is used to preheat the sludge.
- When the dryer is offline, hot water from the boilers is used to preheat the sludge.

FACTS – BLUE LAKE WASTEWATER TREATMENT PLANT (WWTP)

Location	Shakopee, Minn.
Capacity	38 million gallons per day (mgd)
Average daily flow	28 million gallons per day (mgd)

Population served	285,000 people in 27 communities
Service Area	Lake Minnetonka area, Shakopee, Prior Lake and Chaska
Biosolids pellet production	About 30 dry tons per day (dtpd) before digester startup About 17 dtpd after digester startup

FACTS – ANAEROBIC DIGESTION PROCESS

Process tanks	3 tanks with fixed steel covers
Storage tank	1 tank with membrane cover for gas storage
Tank Size	90-foot diameter, 35-foot deep cast in place concrete
Volume	1.4 million gallons
Process	2 stage mesophilic digestion, 98 F, 26 days retention
Gas production	About 26,000 scf/hour 57-61% methane 12 million BTU

FACTS – CONSTRUCTION

Construction Period	Sept. 2009 – April 2012 (32 months)
Project Cost	\$27.8 million
Financing	Minnesota State Revolving Loan, \$25.8 million American Recovery “Green” Infrastructure, \$2 million

