



CASE STUDY

Gloversville-Johnstown WWTP produces 40% of Electrical Needs from JDV Supplied Anaerobic Digestion System Improvements

“Without JDV equipment, the facility would not have been recognized in 2007 as an Environmental Excellence Award winner.”

George Bevington, Manager
Gloversville-Johnstown Joint Wastewater Treatment Facilities
Johnstown, New York

Benefits Achieved:

- Reduced Sludge Handling Costs
- Reduced Electrical Power Costs and Dependence on the Electrical Grid
- Increased Recycling of Waste to the Benefit of the Environment and the Community

The Problem:

Industrial use of the facility reduced dramatically at a time when energy pricing was rising. The common need to reduce energy costs became a critical factor in maintaining operations.

The existing secondary digester was in dire need of repair. The flare no longer worked and valuable gas was leaking from the 90' digester cover that was out of alignment. This reduced the overall storage volume of the tank and highlighted an opportunity to improve the energy efficiencies within the plant operations.



Figure 1 Welded Secondary Digester Cover

The Solution:

The 90' steel digester cover was brought to the top of the digestion tank and welded into a fixed position with JDV supplied parts and materials to eliminate the biogas leaks. This however required a separate gas storage solution to make up for the lost capacity. JDV supplied a JDV Double Membrane Gas Holder to store the biogas. The JDV Double Membrane Gas Holder the storage system is easier to install, has lower upfront capital costs and requires lower operating capital when compared to other methods of gas storage.

The unique design allows for variable gas storage within the inner membrane at constant pressure during gas production and utilization, while the air inflated outer membrane provides gas pressure and



protection. The outer membrane is constructed of a high tech cross woven fabric, coated with PVC and Ultraviolet (UV) ray protection, which has proven to endure the weather elements for over 20 years.

In order to improve the overall digester efficiencies, JDV TurboMixer Systems were installed in the primary and secondary digesters. The JDV TurboMixer increases the overall bacterial breakdown rate of organic materials in the digester, producing effective levels of digester gas which can be used to power the digester boiler, cogeneration plant or other facility equipment. The JDV TurboMixer System provides discreet bubbles of uniform size and at uniform intervals for optimum efficiency of the anaerobic digestion process and prevention of the formation of scum.



Figure 2 New JDV Double Membrane Gas Holder

The Conclusion:

The Anaerobic Digestion System, with the JDV supplied improvements, produced 71 million cubic feet of biogas in 2008, 47% more biogas than the previous year. The 132,360 kWh per month of electricity that was produced by the facilities cogeneration plant was powered by the biogas stored in the JDV Double Membrane Gas Holder.

The result was an award winning facility that effectively lowered its 2008 energy costs with over \$200,000 in electrical cost savings while handling increased overall loadings. The New York State Department of Environmental Conservation awarded the facility the 2007 Environmental Excellence Award and the 2008 Operations and Maintenance Award.

JDV has been a supplier of choice for products and services for the Gloversville-Johnstown Joint Wastewater Treatment Facilities since 2005 and continues to be a trusted partner.

“In 2009, JDV was selected to provide screw conveyors for a large solids handling project at the facility. JDV was selected because of the quality of their products and their expertise during planning, design, and installation.”

George Bevington, Manager
Gloversville-Johnstown Joint Wastewater Treatment Facilities
Johnstown, New York