

Rensselaer County Sewer District's Biosolids System Upgrade Project Results in Beneficial Reuse of Biosolids

by Brian Hilts and Gerard Moscinski

For almost four decades the Rensselaer County Sewer District (RCSD) wastewater treatment plant (WWTP) utilized a wet air oxidation process, Zimpro®, to stabilize its biosolids. Those biosolids were placed in an on-site monofill that served as the disposal location. RCSD reconsidered this program when several factors became clear: monofill capacity was diminishing; the biosolids process equipment had reached the end of its useful life; process-related energy and maintenance costs were high; and return-stream effluent from the process had negative impacts on the liquids treatment process. Given these factors, RCSD knew it was time to upgrade its biosolids process system.

RCSD conducted a biosolids alternative analysis, and selected an alternative with the lowest lifecycle cost that also generated a beneficially useful biosolid product. An anaerobic digestion process with new dewatering equipment and a thermal dryer was the selected alternative. Biogas generated from the anaerobic digestion process satisfies the heat demands of the digesters and is utilized as a fuel source for the thermal dryer. The dryer produces Class A biosolids. In an effort to reduce capital costs, the project reused three concrete tanks and two metal tanks by converting them into anaerobic digesters and thickened sludge holding tanks respectively.

The project was divided into two phases. Phase 1 consisted of anaerobic digestion conversion, biogas handling and storage, and installation of new dewatering equipment. A fourth anaerobic digester, thermal dryer, and dried product handling and storage were installed in Phase 2. Phase 1 was completed and operational in 2013, while Phase 2 was finished in late 2014.

In preparation for the production of a Class A biosolid, RCSD developed a biosolids marketing plan which identified outlets for the dried product. Based upon the plan, a request for proposal was issued to commercial biosolids users and brokers. They were asked to propose to RCSD a “turn-key” partnership, in which the broker would take responsibility for the dried product from the loading facility to the outlets. The five-year contract was awarded to Resource Management Inc. (RMI) for the dried product, and

the deal included revenue sharing guarantees with RCSD. At the completion of the 2015 growing season - the first complete season utilizing the dried product as a soil amendment - RMI reported that farmers were very happy with the product. The value and demand for this Class A product has potential for growth in the market.

The primary function of the Rensselaer County Sewer District is to protect the Hudson River by providing secondary treatment to the wastewater before it is discharged.

The RCSD serves the Towns of Brunswick, North Greenbush, Schaghticoke and Sand Lake, and the Cities of Rensselaer and Troy.

The biosolids system upgrade project has allowed RCSD to replace its existing biosolids process with one that reduces energy and maintenance costs, that doesn't have negative impacts on the liquid treatment process, and that beneficially utilizes biosolids, both as a biogas source and as a soil amendment.

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Dryer

Photo by Brian Hilts



Dried product loadout

Photo by Brian Hilts