

Thermal Hydrolysis Process (THP) Provides Sustainable Treatment of Wastewater Biosolids

Modern wastewater treatment plants are challenged to process water, remove pollutants and return treated effluent back into the water cycle. As plants continue to work within constrained footprints, operate more sustainably and increase capacity to meet forecasted demands, it is imperative that more efficient and effective treatment technologies are employed.

The thermal hydrolysis process (THP) is a relatively new process by which sludge is heated and pressurized with the purpose of reducing organic solids to make them more readily biodegradable, generally before anaerobic digestion. It is becoming a more frequently used solids-processing option for larger wastewater utilities, as solids hauling costs are increasing and concerns over contaminants in the land application of solids are growing. THP provides many benefits, including the production of a low-odor, Class A biosolids product. The process results in reduced digester volumes, which can increase solids-processing capacity, and THP produces biogas that can return a net-positive energy yield, which can help qualify a utility for green energy funding.

Crowder Construction Co. is working with the Hampton Roads Sanitation District (HRSD) in Virginia at its Atlantic Treatment Plant and the City of Raleigh in North Carolina at its Neuse River Water Resource



The Cambi thermal hydrolysis process (THP) system allows the Hampton Roads Sanitation District (HRSD) in Virginia to generate power and fine fertilizer directly from sewage waste.

Recovery Facility to help implement successful THP strategies. For HRSD, the primary objective of the project is to produce a high-quality, Class A biosolids product and provide for future increases in solids-handling capability without increasing digester capacity. The project will also provide for a new fats, oil and grease (FOG) receiving station to feed the THP. For the City of Raleigh, the primary objectives are to convert from aerobic to anaerobic digestion, produce a Class A biosolid to reduce or eliminate solids, land application and to produce sustainable biogas

that creates a positive energy yield for the facility. Crowder has managed the purchase, delivery and installation of the THP system for both projects.

Alternative delivery approaches were used in the successful implementation at both facilities, allowing for early contractor input through constructability reviews, value engineering, early equipment procurement and specifications support. As a benefit, the owners can review and evaluate process equipment and make final selections on several important factors, including service history, aftermarket product support, and capital and operations cost to provide a better picture of overall life-cycle costs to the facilities. This is especially important for THP, as this process technology has not been widely used in the U.S. municipal market.

The costs of sludge management typically account for 30% or more of a wastewater treatment plant's capital costs and upward of 50% of the operational costs. However, THP can improve sludge management, creating the potential to generate revenue, reduce facility costs and improve sustainable operations. ♦



The new Cooling Facility for the HRSD's Atlantic Treatment Plant THP Improvements project will support the new Cambi THP.



The Cooling Facility and Cambi THP prepare for commissioning in Virginia Beach.