



Clarifier and Performance Maintenance

Ossining WPCF Westchester County, New York

The Project

The Westchester County Department of Public Works/Environmental Facilities (DEF) has retained Stearns & Wheler for several projects since 1996 to upgrade the sludge dewatering system at their 8.4 mgd Ossining Wastewater Treatment Facility (WWTF), beginning in the mid-1990s.

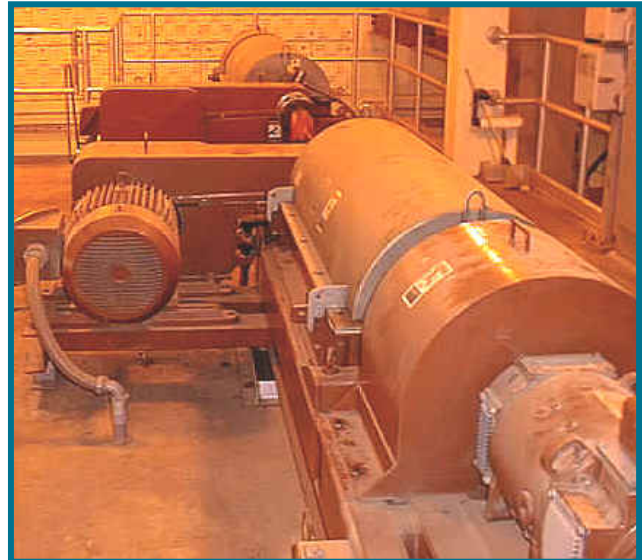
Dewatering System Improvements

Stearns & Wheler was first retained by the Westchester County DEF to design and construct a sludge dewatering system that would feed dewatered municipal wastewater sludge to their existing multiple hearth incinerator. For this project, two continuous feed, solid bowl, scroll type, horizontal, sludge dewatering centrifuges were provided for mechanical dewatering of thickened sludge prior to incineration. The purpose of the centrifuge dewatering system was to reduce the volume of sludge requiring incineration and disposal. In addition to the centrifuges, the dewatering system included gravity thickeners, thickened sludge pumps, sludge grinders, centrifuge feed pumps, sludge conveyors, and a polymer feed system designed for conditioning sludge prior to dewatering.

Dewatering of thickened sludge achieved a minimum suspended solids capture of 95 percent by weight. To achieve this, thickened waste and primary sludge from the Ossining WWTF, alum sludge, and anaerobically digested sludge from another wastewater facility, the Peekskill Wastewater Treatment Plant (WWTP), was pumped through sludge grinders to the conditioning/blend tank by the thickened sludge pumps. After mixing, the sludge was fed through the centrifuge feed pumps to the new centrifuges, where it was dewatered and discharged to an intermediate belt conveyor. This conveyor transported the dewatered sludge to weigh conveyors for transport to the incinerators.

Dewatered Sludge Storage

In 2001-2002, as a result of increasingly stricter emission standards on the County's incinerator (constructed in 1977), Westchester County made the



decision to abandon the incineration of sludge. Instead, thickened sludge would be hauled to a remote facility on a contract basis. In 2005, Stearns & Wheler was retained to modify the sludge thickening train to include sludge storage and loading facilities. Until this project, sludge storage was accomplished in one of the two gravity thickeners; decreasing the effectiveness of the thickening process. The construction of separate sludge storage facilities will enable the existing thickeners to reach their full design potential.

When completed, the new sludge storage facilities will include:

- Thickened sludge storage tanks.
- Sludge mixers and transfer pumps.
- Sludge loading facility.
- Odor control and chemical feed facilities for sludge mixing and loading areas.
- Workshop (electrical/instrumentation) and storage facilities
- Chemical unloading area

The sludge unloading facility is adjacent to a waterfront park, so the capture and treatment of odor-causing emissions is essential. To address this, the odor control system will consist of a 30,000 standard cubic feet per minute chemical packed bed scrubber with sodium hypochlorite and caustic soda feed systems. The design of the storage facility has been completed. Construction of the facility will be bid in 2008.