

Case Study

application	Dewatering of Boiler Ash
location	Lisbon, CT
product	Geotube® Dewatering Technology

Job owner	Wheelabrator Technology Group
contractor	North American Industrial Services, Gorsham, ME

Ten Cate develops and produces materials that function to increase performance, reduce costs, and deliver measurable results by working with our customers to provide advanced solutions.

THE PROJECT

The Wheelabrator Technology Group provides design/build and operation of trash-to-energy facilities. The Wheelabrator facility located in Lisbon, CT utilizes a storage tank for collection of scrubber water resulting from the incineration of trash and wood.

The collection tank, over years of use, has accumulated an ash slurry that requires the reduction of solids to regain clean water storage volume.

THE CHALLENGE

Wheelabrator Technology requested a quotation for removal of ash slurry from the tank while on-line—eliminating the typical

approach of taking tank off-line during cleanout. Due to site and height restrictions, normal dewatering equipment was unable to be utilized. The situation required a dewatering system that could be custom-fitted to the available space, and function properly while other normal facility operations continued.

An effective solution was to use Ten Cate’s Geotube® dewatering technology, with Geotube® containers specially configured to fit into the spaces available. (Figure 1)

Using Geotube® dewatering technology, the scope of the project was to contain and consolidate boiler wash down to a high solids level, in a clean and safe manner. Slurry was to be collected into the frac tank. Solids were then to be sampled and the correct amount of flocculation chemicals added. The slurry would then be pumped into the Geotube® containers for dewatering.

Dewatering with Geotube® technology is a three-step process. In the *confinement* stage, the Geotube® container is filled with dredged waste materials. The Geotube® container’s unique fabric confines the fine grains of the material.

In the *dewatering* phase, excess water simply drains from the Geotube® container. The decanted water is often of a quality that can be reused or returned for processing or to native waterways without additional treatment.

In the final phase, *consolidation*, the solids continue to densify due to desiccation as residual water vapor escapes through the fabric. Volume reduction can be as high as 90 percent.

THE SOLUTION

Wheelabrator contracted North American Industrial Services of Gorsham, Maine to remove and dewater ash slurry from storage tank. The contractor installed a hydraulic pump through the top of the tank and lowered it in to the settled ash



Figure 1



Figure 2

slurry, allowing tank to continue operation while dewatering operations went on. The slurry was pumped to an 18,000 gallon mix tank and chemical conditioning was added to the slurry, increasing dewaterability of ash slurry.

A sample of the conditioned ash slurry was removed and tested on the Geotube® Rapid Dewatering Test (RDT) to verify dewaterability. This test procedure could be done in a matter of minutes and effectively gauge the dewatering rate of the slurry.

The contents of the mix tank were pumped at a rate of 200 gallons per minute (gpm) into three

Geotube® MDS containers fed independently through a 4" pipe manifold system. (Figure 2) Geotube® MDS containers were selected because they could be ordered in existing sizes that would fit the available space at the facility.

With Geotube® dewatering technology in this configuration, the facility and the contractor could conduct dewatering operations on their own schedule, without disrupting other activities.

THE PERFORMANCE

Dewatering performance using Geotube® dewatering technology was exceptional, and better than the facility expected. Over eight days, six fill/drain cycles were completed.

The filtrate water draining from the Geotube® containers was so clean (solids being less than 100 mg/1) that it was able to be reintroduced back in to the closed water loop of the plant without further treatment. (Figure 3) The solids dewatering within the Geotube® containers were of such dryness after 24 hours that it would support technicians *walking on it*.

Once the Geotube® MDS containers were allowed to dry for up to 45 days, the dryness levels surpassed mechanical dewatering dryness test of 48% dry solids. The Geotube containers could then be opened and the solids removed for disposal.

The simplicity and the speed of the operation means that the facility can easily repeat the operation with Geotube® dewatering technology as tank cleanout again becomes necessary.

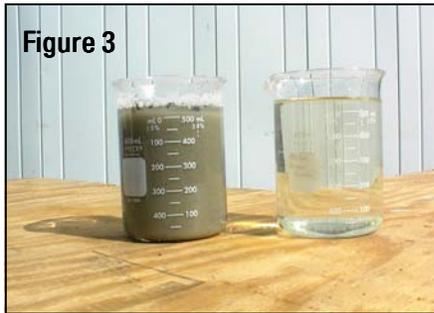


Figure 3

Dewatering Results at Wheelabrator Technology Group, Lisbon, CT Facility

Date	Fill Cycle	Gallons	Geotube Dewatered Height-Inches	Yards Pumped	24 hr-Dewatered Consolidated Yards	30 days-Dewatered Consolidated Yards
16-Aug	1	8,000	6	39	4.3	
16-Aug	2	8,000	13	39	4.8	
18-Aug	3	8,000	18	39	3.9	
18-Aug	4	12,500	23	61	3.9	
19-Aug	5	12,500	29	61	4.3	
22-Aug	6	12,500	32	61	2.15	
Totals		61,500		300	70.5	51

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