



Manufacturer of Chlorine Dioxide Dewaters Wastewater Residuals with a Geotube®

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The Challenge

This Wisconsin chemical processing plant had wastewater residual accumulating in the bottom of one of their storage tanks. They wanted to dewater the residual on site and dispose of the solids to a nearby landfill. A MDS (Mobile Dewatering System) Geotube® was chosen as a cost effective solution to dewater and get the solids to pass a paint filter test for disposal. The objective was to pump the residual out of the storage tank, treat it with the proper chemistry to aid in the dewatering, pipe it into a Geotube® placed in a 30 cubic yard roll-off dumpster, and have the solids dry down to pass the paint filter test. At the end of the process the MDS Geotube® would be hauled to a landfill and disposed of.

WaterSolve's Chemical Conditioning

(Sample) A representative sample of the storage tank residual was tested by a WaterSolve technician in the WaterSolve laboratory. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. In addition, dosing rate(s) were determined during bench-top dewatering experiments and recommendations provided to the manufacturer during this phase of the program. Solve 7118 (coagulant) followed by Solve 9330 was selected as the best treatment program for this residual.

Geotube® Container Sizing

Geotube® containers are manufactured from high strength polypropylene fabric and designed to allow effluent water to escape through the pores of the fabric while retaining the chemically-conditioned solids. The MDS tubes are 22.5 ft. in circumference and 22 ft. long. They have a fill capacity of 22 cubic yards.

The Result

A WaterSolve technician was on site to operate the Geotube® system and train the employees on site how to manage the dewatering and apply the proper dose of polymer. The training included taking the chemical feed system apart to clean it, priming the pumps and bleeding the air out of the system, and jar testing to predetermine the polymer demand. Once the jar testing was completed the system was started and the residual was pumped to the MDS tube. The jar testing revealed the dose has a 2 to 1 ratio for the Solve 7118 and the Solve 9330. The 2" pipe flowed at approximately 100-gpm. In the beginning the solids were thick and demand was 0.8 and 0.4-gph respectively for the Solve 7118 and Solve 9330. As time went on the doses were cut in half to maintain a good floc. The MDS Geotube® was pulse filled several times. They were taught to fill the tube to 5.5 ft. high and let it dewater and then refill it again. Before leaving the site the technician instructed them to use mineral oil to flush the chemical feed pumps, prior to placing them in storage which protects and cleans the pumps for future use.



The LMI pump sitting on the pail in the left of the photo is injecting the Solve 7118 coagulant into the 2" residual pipeline. The polymer make-down unit in the center of the photo mixed the Solve 9330 with water and injected it into the pipeline as well.



This inline sample port allows visual observation of the polymer dose to determine if the feed rate needs to be adjusted.



The 2" pipeline is plumbed into the fill-port of the MDS Geotube® which is inside the 30 cubic yard roll-off container.