



Aerobic Digester Sludge Dewatering

Objective

Watersolve LLC, was tasked to perform a pilot study at an automotive facility in Mexico. The purpose of the study was to determine the effectiveness of dewatering aerobic digester sludge using Geotube® MDS containers. Geotube® containers are manufactured from high strength polypropylene fabric and designed to allow effluent water to escape through the pores while retaining the chemically-conditioned solids. The MDS container would be placed inside a 30 yard dumpster box. The filtrate would be released to a nearby drain to then be directed to the plants treatment facility. Samples of the dewatering material would be measured for dry weight solids. Once the test was complete, the dumpster would be hauled to a disposal facility where the MDS bag and solids would be removed. Results of the pilot test will be analyzed to determine if Geotube® technology might be a long term dewatering solution at the facility.

Project Planning

A sample of the material was provided to Watersolve and tested in the lab. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. Based on this testing, and additional information gathered from the plant (flow rates, existing plumbing, hours of operation), project costs were calculated and presented to the facility.



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Aerobic digester sludge will be dewatered in an MDS container placed in the dumpster box in the background.



The MDS will be placed in the dumpster. Released filtrate will flow to an existing floor drain located where the yellow curbs meet.



The untreated aerobic sludge is shown on the left. The treated material is shown in the middle jars. The filtrate being released from the Geotube® MDS container is on the right.

The Project

The pilot study was to be conducted on-site with Watersolve assisting in the start-up for the first five days. Watersolve LLC shipped supplies, equipment, and personnel to the site. The equipment, under the supervision of Watersolve, was installed by the facility. Based on testing and provided flow rate information, a polymer make-down unit was selected for this application. Existing facility equipment would pump the material from the lagoon to the Geotube® MDS container. The material would be transferred in existing 2" PVC, injected with made-down polymer, mixed, and deposited in the MDS container to dewater. Two Geotube® Dewatering Test (GDT) bags were also filled in order to gather additional dryness information. Material from each GDT bag was removed and dry weight solids data was measured each day, for 6 days. By the fifth day of the project, the MDS container had reached capacity. The MDS container would be allowed to dewater at night, and re-filled to capacity during the day.

Results

The project went well and operations continued after Watersolve personnel left the facility. Dry weight solids of the dewatering material measured 8% after 1 day, and 12% after 5 days.



The polymer make-down unit is activating the polymer and injecting it prior to the elevated white mixing manifold. The treated material is then deposited into the MDS container.



The GDT bag was filled and sampled daily for dry weight solids.