

Dewatering WWTP Biosolids

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Location: Indiana

Products: TenCate™ Geotube®
Containers

Solve 9248 Polymer

Equipment: Polymer Make-down Unit

A polymer make-down unit is assembled on this trailer along with a mixing manifold in which the made-down polymer is injected into the biosolids supply-line.

Objective

This small town in Indiana had its new wastewater treatment plant designed for Geotube® dewatering technology. The objective was to have the biosolids pumped from the digesters to the Geotube® containers and dewater them to pass a paint filter test. They could then be hauled off site to be land applied or transferred to a landfill. This technology had significant cost savings compared to constructing a building and using a belt press to process the biosolids. A concrete containment area with a drain that transferred filtrate water back to

the head of the plant was all that was needed to allow for this technology.

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 engineering firm designed a containment area to allow for two- 45' circumference x 57' long containers. This would allow for one container to finish dewatering while a new one was started.

Chemical Conditioning

A representative sample of the digester residual was collected and sent to WaterSolve's laboratory for testing. 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 facility during this phase of the program. Solve 9248 was the recommended polymer to dewater this residual into the Geotube® container.

The Result

WaterSolve LLC, was contracted by the facility to furnish the Geotube® container, polymer feed system, polymer, and technical assistance to start up this operation in the spring of 2008. A polymer make-down unit was assembled with a mixing manifold and supply hoses on a small trailer. (This allows the equipment to be stored inside the facility when not in use.) The trailer was delivered to the facility and a WaterSolve technician was on site to start up the system. A 45' circumference by 57' long

Geotube® container was unrolled in the containment and the 6" hoses connected the facilities supply line to the mixing manifold and the Geotube® fill port. A water hose was connected to the polymer make-down unit from a nearby hydrant. A 115 volt electrical supply was connected as well. The pail of Solve 9248 polymer was plumbed to the unit and primed. Pumping began as the digester biosolids made their way to the Geotube® container. A sample port in the 6" hose provided sampling of the chemically treated biosolids and adjustments

were made from visual observation of the flocculation. The dial on the polymer make-down unit was adjusted up or down as the samples from the sample port indicated. The technician spent the rest of the day training the employees on the operation and characteristics of the system. The tube was pumped to several times and stopped in October of 2008. On June 4, 2009 a sample was collected from the container and tested 15% dry wt solids. The facility manager is very happy with the results of this operation.



The Geotube® lies in the containment area atop of the drainage netting which allows the water to exit from the bottom of the tube.



After being filled in October of 2008, a sample from the Geotube® container was taken, the dry wt solids were 15% which passed the paint filter test.



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