



Dewatering Residuals from Indiana Wastewater Treatment Plant

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Objective

This Indiana town of 4,400 people had some local industrial inputs to the waste stream causing metal contaminants in the biosolids at the wastewater treatment plant. These biosolids needed to be dewatered and sent to a landfill for disposal. The plant manager had been hiring a firm with a portable belt press to dewater the biosolids for a fee of \$45,000 annually and was looking for new technology to reduce the costs. The objective was to use existing infrastructure and site personnel to operate a process to dewater the bio solids at a time of their choosing.

The Solution

WaterSolve proposed using Geotube® containment and dewatering technology as a cost effective and efficient method for handling the biosolids. 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. With the removal of the divider walls in the drying bed there was space for one 60' circumference by 100' long Geotube® container. This resulted in a container large enough to process one year of biosolids. With the addition of a polymer feed system and some 4" flexible hose, a system was constructed to dewater the biosolids as needed.

WaterSolve's Chemical Conditioning

WaterSolve completed a dewatering performance trial on the biosolids from the plant and determined Solve 9248 emulsion polymer performed best based on the water release rate, water clarity and flocculation appearance.



Filtrate collected from the site and untreated wastewater residual.



Personnel roll out the Geotube® container in the drying beds.

The Result

WaterSolve, LLC was contracted by the facility manager to install a polymer feed system and 60' circumference by 100' long Geotube® container. A polymer make-down unit was installed in a pumphouse near the drying bed. A 4" flexible hose was plumbed into the biosolids feed-line in the pumphouse and a sample port was installed in the hose just prior to the Geotube® container in the drying bed. Adjustments to the polymer feed rate were made from visual observation of the samples collected from this port. Employees were trained on how to operate the system and monitor the polymer feed rate. The Geotube® container was releasing filtrate faster than the drying bed could absorb it and the manager was very impressed with the results. The first year savings were \$25,000 compared to the cost of the portable belt press. The second year savings were \$35,000. Needless to say, they have continued to use this technology with excellent results.



A 60' x 100' Geotube® container was installed to contain and dewater 12-18 months of biosolids (approximately 700,000 gallons).



Key elements in the release of water from biosolids is proper polymer mixing and injection to provide good chemical conditioning.



The 60' x 100' Geotube® container is pumped periodically to a height of 6' to dewater and consolidate biosolids from the 275,000 gallon storage tank. Clean water from the Geotube® container is collected from the drying bed and returned to the headworks of the facility. The polymer make-down unit is shown on the right.