Your Water, Wastewater, & Materials Dewatering Partner

5031 68th Street SE, Caledonia, MI 49316 | (616) 575-8693 | Fax: (616) 575-9031

# *Cleaning Sand Mine Wash Water With Geotube® Containers*

Volume 337
September, 2014

## The Challenge

The owners of a sand mine in Missouri estimated a water flow of 5,000 gallons per minute would be required to clean the sand. They wanted to recycle the water and needed to remove the solids before returning it to the storage pond. There was limited space at the site for settling ponds, which were used to settle out the residual in the wash water. The objective was to filter the water, collect the solids, and return the water to the pond at a 5,000 GPM flow rate.

## WaterSolve's Chemical Conditioning

A representative sample of the sand wash water was sent to WaterSolve's lab to identify a polymer treatment program. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculant appearance. Solve 153 was selected as the best flocculant to produce the water release, clarity, and flocculation needed 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. It was determined that 4 Geotubes 120' in circumference by 128' long would be sufficient to operate the plant at a 5,000-gpm flow.

Water is sprayed on the sand as it goes across the screens to filter the sand in the plant.

A Polymer Make-down Unit is used to activate the Solve 153 polymer and meter it into the 12" pipeline prior to the Geotube® containers.

## The Result

WaterSolve assisted the owners in the design and layout of the Geotube® dewatering system. There were 4 fillports required for each tube that laid on a 4" bed of gravel for maximum dewatering. A header system supplied a 6" hose to each of the fillports. A polymer make-down unit was placed in a small barn near the pipeline that delivered the sand wash water to the Geotube® containers. The Solve 153 was fed at 5 to 15-gph depending on the level of solids in the wash water entering the Geotube® containers. Once the polymer dose was optimized, the turbidity of the filtrate released from the tubes was in the 25 to 50 NTU range. The wash water coming from the filtrate pond was doing an excellent job getting the sand wash clean. The owners were happy to see the sand getting clean to the desired level they had planned. This Geotube® dewatering system is successfully capturing the solids and allows the plant to recycle the wash water and get the sand clean.

The Geotube® container is effectively capturing the solids and releasing clean filtrate water.

Beautiful white sand is successfully produced from the plant using recycled water cleaned by WaterSolve's Geotube® technology.