



## Dewatering River Intake Sediments

### Objective

The objective was to remove residuals from a water intake well for a power plant in Indiana. The large well, which is used to bring cooling water to the power plant from the river, requires periodic cleaning to remove the sediment that accumulates in the structure. In the past, the sediments were pumped to an upland location and the water ran back to the river. It was determined that Geotube® containers would be more effective in dewatering the sediments.

WaterSolve, LLC was tasked to provide technical assistance for the installation and operation of a Geotube® dewatering system. The project commenced on March 12, 2009 after the preparatory work had been completed.

### 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 estimates indicated there was approximately 335 cubic yards of residuals to be collected. The lay-down area allowed for one 45' circumference by 100' long GT500 Geotube® container having a dewater capacity of 367 cubic yards.



The polymer make-down unit and related piping.



The water intake well shown at the left portion of the photograph was cleaned out. The sediment was dewatered in the Geotube® container shown. A stone pad was prepared for the lay-down area. The river is shown in the background.

### Chemical Conditioning Program

It was not practical to collect a sample of the sediment from the well. Instead, a dry sample was collected from the area that was previously used for upland sediment disposal. This dry sample was diluted with water from the Ohio River and then used to determine the most effective chemical conditioning program. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculant appearance. A chemical conditioning program consisting of Solve 9233 performed the best during the trial and was recommended for the project.

### Inside this issue:

- Location:** *Southern Indiana*
- Products:** *TenCate™ GT500D Geotube® Containers*  
*Solve 9233 Emulsion Polymer*
- Equipment:** *Polymer Make-down Unit*



The Geotube® container after it is nearly full. The river intake well structure adjacent to the Ohio river shown in the background.

### The Result

The 45' circumference x 100' length Geotube® container was laid out on the pad of crushed stone. After the pumping started, one of the initial objectives was to collect an actual sediment sample. During the first day of pumping, the majority of flow was the overlying water. The second day was nearly the same. It was determined that the operation would pump for 24 hours/day. After the sample was collected at the end of the second day, confirmatory testing was completed as shared with the staff. The Geotube® dewatering system was started with technical assistance from WaterSolve. After the initial start up and training, the contractor operated the system and successfully completed the project.



The sediment sample (left) was conditioned with Solve 9233 (center). The Geotube® filtrate is shown on the right.