

Sediment Removal from Potable Water Reservoir

The city of Archie, Missouri receives its potable water supply from a small river. The river water is pumped into a primary settling pond and flows by gravity into a secondary settling pond. The river water that was filling the ponds contained sediment which reduced the capacity of the ponds, deposited organic material, created algae growth and other organic chemical problems. Manganese deposits were forming on the equipment and plumbing in the plant. These problems were affecting the odor and taste of the water.

According to Rick Blundell, the Water Plant Superintendent for the City of Archie, copper sulfate had to be added to the ponds to retard growth. Carbon treatment had to be used to cleanse the water of taste and suspended undesirables. Even though the city was spending more time and money to treat the water, the taste and odor remained a problem. The settling ponds had to be cleaned.

The problems Blundell faced in choosing the method to clean the ponds are typical to this type of project. If he chose to drain the ponds and remove the sediment, the pond would be out of service, leaving water supply unavailable to the city. Also, the contractors that were contacted would not guarantee the dam against leaks. If he chose to dredge the ponds, he had no space available to place a spoil area for the dredge slurry.



CLEANING THE POND:

Archie Water Plant Superintendent Rick Blundell shows dewatered sediment removed from the pond.

THE SOLUTION

The final method researched by Rick was to use Envirotubes to contain and dewater the slurry, returning the water to the ponds. This solution would remedy the problems the project presented and would cost no more than the other methods. The job could be done easily with an economical number of tubes over a short period of time. The process would include pumping mud into the tubes and allowing them to decant clean water back into the pond. This was not a very large job and the procedure was simple enough that Rick decided the city would operate with their own personnel.

Industrial Fabrics, Inc. furnished the package for the job. This package included the dredging equipment and pipeline rental, Envirotubes constructed of 4x6 geotextile, polymer, training, and all parts so the city could do the project.



DREDGE AND DIRT:

The dredge is small enough to fit in most ponds.

Quick Quote

"This project could not have been done with hydraulic dredging, without the use of Envirotubes."

- City of Archie Missouri

THE RESULTS

The water quality improved as soon as the job began. The dam has remained secure and there is no more need for carbon treatment. There is no detectable manganese, the black coating is disappearing and the copper sulfate treatment of the pond is minimal. Intake water amounts, from the reservoir to the plant changed from 15NTU in 2001 to 5-8NTU in 2002. This project could not have been done with hydraulic dredging, without the use of the Envirotubes.



COST-EFFECTIVE SOLUTION:

Fabricated from 4 x 6 reinforcement geotextile, Envirotubes offer the benefit of being less expensive than other cleaning methods.

THE RESULTS:

Water is filtered out, leaving dried solid materials inside the Envirotubes.

