Objective

A village in Ohio was successfully removing algae sludge with a DAF unit. The problem was that they were putting the sludge back into lagoon number 1. WaterSolve was called in to recommend a pilot study to prove the performance of dewatering the algae sludge collected by the DAF in a Geotube® trial. If the sludge was collected and dewatered properly it would reduce the volume of solids filling lagoon number 1.

Geotube® Container Sizing

Geotube® containers are manufactured from high strength polypropylene fabric and designed to allow effluent water to escape through pores of the fabric while retaining the chemically-conditioned solids. An MDS (Mobile Dewatering System) Geotube® was used in the pilot test to determine if the process would work and determine the volume of solids collected in a week of operation. It has a capacity of 25 cubic yards. After the pilot study it was determined that a 30 ft. circumference by 50 ft. long tube with a capacity of 100 cubic yards would hold 90 to 100 days of the algae sludge.
The Result

In the seven days of the pilot study, it was determined the Geotube® would perform very well and was a very simple way to collect and dewater the algae sludge. The operator immediately ordered the 30 ft. circumference by 50 ft. long tube for the fall season of operation. The DAF operates at 790-gpm and they can discharge nearly a million gallons daily. A dewatering containment pad was built to collect the filtrate and pump it back into the lagoon treatment system. The dewatered sludge came to about 1 cubic yard daily. The chemical treatment in the DAF was ferric chloride followed by a flocculent. There was no further treatment needed as a diaphragm pump was used to transfer the sludge with minimal shearing of the flocculent. This was a simple and cost-effective process to collect and dewater the algae sludge.