



Brine Evaporation Pond Dredging



One of the five brine evaporation ponds that was dredged to the Geotube® Containers.

Objective

Brine evaporation ponds that collected waste water generated from an industrial plant in Arizona needed to be cleaned out. After initial bench tests, Geotube® dewatering containers were chosen to consolidate the pond residual. WaterSolve, LLC provided the equipment, polymer, Geotube® containers, and technical support of this project. Hydraulic dredges were used to remove the pond residual and send it to the Geotube® containers.



Untreated sample



Treated sample

Chemical Conditioning

A representative sample of pond residual was collected as pictured on the left and sent to WaterSolve's laboratory in Grand Rapids, MI. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. The photo on the right is the sample treated with Solve 137.

WaterSolve, LLC was tasked to evaluate the pond residuals and recommend an appropriate chemical conditioning program. In addition, dosing rate(s) were determined during bench-top dewatering experiments and recommendations were provided. During these evaluations, a chemical conditioning treatment of Solve 137 was recommended. WaterSolve, LLC was later contracted to provide the polymer feed equipment, polymer, Geotube® containers, and on site personnel to operate the chemical feed system during dredging operations.

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. To contain approximately 35,000 cubic yards of residual, over 4,600 linear feet of 75' circumference Geotube® containers were used. A lined lay-down area approximately 1000' x 220' was constructed to hold the Geotube® containers.

The first six Geotube® containers were deployed in the lay-down area.



The Result

WaterSolve LLC was contracted to chemically treat the pond residual as it was dredged to the Geotube® containers. WaterSolve's Chemical Control and Tracking System was installed in a Conex box near the Geotube® containers and plumbed into the dredge pipe line. The automated system utilizes flow and density meters to adjust chemical feed rates. The data from the CCTS was recorded real-time and this information was used to monitor project progress and to track chemical usage. A sample port was installed so the WaterSolve technician could visually observe the chemical conditioning program and adjust the feed rate if needed. During the dredging operations, each deployed Geotube® container reached its maximum fill height several times and the project was complete after all the ponds were dredged.



The Geotube® containers were filled to their maximum capacity several times during the dredging operations.