



Geotube® Pilot Study

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Challenge:

A company in charge of operating a temporary ground water treatment system at a former industrial site was having difficulties meeting discharge limitations and consulted WaterSolve for recommendations. An onsite Pilot Study was conducted to evaluate the use of Geotube® containers as well as WaterSolve chemicals and dosing methods.

Goals:

- Determine how Geotube® container dewatering technology can be used to effectively capture solids precipitated by chemical treatment and therefore protect the downstream filtration media from fouling.
- Evaluate the use of Geotube® technology for dewatering of sludge generated by the chemical treatment process with and without the use of a settling step.
- Evaluate current chemical dosing process and compare with WaterSolve's chemicals and dosing method.

WaterSolve's Chemical Conditioning

A representative water sample was tested by a WaterSolve technician in the facilities laboratory. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. In addition, dosing rate(s) were determined during bench-top dewatering experiments and recommendations provided during this phase of the program.

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. Geotube® Dewatering Test (GDT) containers were used for the pilot study. A GDT is approximately one cubic foot container that is used to test the dewatering efficiency of various water and sediment samples.



Various chemical dose rates and combinations of several chemicals were evaluated during the on-site pilot study.



Water samples were collected from several locations during the test. This sample was collected from a tank that was custom built to simulate a weir tank thickening step.

The Result

WaterSolve technicians and customized testing equipment was deployed to the site in New Jersey for the pilot study. Side streams of ground water from two different locations along the treatment process were used for the trials. Chemical feed pumps, a customized simulated thickening tank, transfer pumps, GDT containers, and water collection totes were used for the on-site trials. Samples were taken and observations were recorded throughout the several tests. A report with test results, recommendations, and the costs associated with each treatment modification was sent to the client within a week of performing the on-site pilot study.



Small metering pumps were used to dose the various chemicals for the on-site pilot study.



GDT containers were filled with the conditioned solids to simulate a full scale Geotube® container.