



Reclamation Projects Requires Pit Remediation

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The Geotube® containers were placed on a bed of 1" gravel that is on a liner covered with felt. A 12" piping system returned the filtrate to the pits under the stone in the photo.



The material dewatered very well. It passed paint filter quickly. Cement is being added to the Geotube® container in the left of the photo to help stabilize the lead it contained before hauling it to a landfill. The tube in the center is being filled and is being smacked to help get water out quickly.

The Objective

The objective was to hydraulically pump the material out of the pits and dewater it using Geotube® containers for subsequent hauling to a landfill.

Chemical Conditioning

Samples of the residual were sent to the WaterSolve lab for dewatering trials to select a chemical treatment program that would perform the best. Solve 216B was selected as the polymer with the best release, filtrate clarity, and flocculation at the lowest dose.

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 area provided for Geotube® containers allowed for seven 80' circumference by 100' long tubes. The tubes would be removed and hauled away as more space was needed for additional material to be dewatered.



On left, the 6" hydraulic pump was attached to another excavator and is pulled through the water to suck up the material and pump it to the Geotube® containers.

On right, this 4" pump fit on the long reach excavator. It has a 4" discharge that attached to a 6" HDP pipeline that delivered the material to our 6" manifold. It pumps approximately 500-gpm.



The Result

WaterSolve was contracted to supply the Geotube® containers, the polymer and make-down equipment, the pipeline manifold, and the technicians to install and operate the dewatering system. The general contractor provided the dewatering pad, the pumping equipment, and operators to remove the residual from the pits and pump it to the containers. Two different pumps were removing the material from the pits. A long reach excavator was equipped with a 4" hydraulic pump that discharged into a 6" HDP pipe. A 6" hydraulic pump was held by another excavator and it moved throughout the pit to suck up the material. It discharged into a 6" pipeline as well. WaterSolve provided an independent polymer treatment system to each pipeline and maintained radio communication to each operator to inform them of the quantity of material they were pumping. There was approximately 8,000 cubic yards of the lead impacted material removed throughout the project. This material dewatered very well. Cement was later mixed into the material to stabilize the lead and it was successfully hauled away to meet the deadline.