

GCL serves as cost-effective, time saving alternative to compacted clay liner in mine drainage settlement pond

Bailey Mine, located in Southwestern Pennsylvania and owned by parent company CONSOL Energy Inc., supplies bituminous coal used in the generation of electricity. At the site, coal laden sediment is pumped to settlement ponds which are typically underlain with clay. As the ponds are extended vertically to increase their capacity, the side slopes must be lined with clay or geosynthetic clay liner (GCL) to prevent the pumped water from reentering the local aquifer.



PROJECT DETAILS

CONSOL Bailey Mine Tailings Pond

LOCATION

West Finley, Pennsylvania

PRODUCTS USED

BENTOMAT® SDN GCL

Bailey Mine, located in Southwestern Pennsylvania and owned by parent company CONSOL Energy Inc., supplies bituminous coal used in the generation of electricity.

CHALLENGE:

In the summer of 2009, compacted clay became difficult to find at the site so an alternate liner system was required to line the mine's tailings pond. The settlement ponds had steep 2H:1V side slopes. The site's close proximity to water actively being used for coal waste disposal added to the challenges.

SOLUTION:

A geosynthetic clay liner was decided upon as a cost-effective, time-saving replacement for the compacted clay. BENTOMAT SDN was the GCL of choice because of its excellent internal shear strength and its stability on steep slopes. It also minimized the operation of equipment.

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RESULT:

GCL installation was approved by the Pennsylvania Department of Environmental Protection who required that all GCL deployed on a daily basis be installed on an approved subgrade and covered with two feet of soil by the end of the day to prevent premature hydration of the GCL from rainfall. In August 2009, the tailings pond was successfully completed within the estimated time frame and the remaining soils were conserved for future compacted clay layers.