

Geocell Systems Help Rehabilitate Canals

Different materials have been tried across the western U.S. over the past few decades to protect irrigation canal liners. One typical method uses low-cost earthen material like clay. Over time, however, these systems begin to crack and leak. “It’s not a very efficient way to convey water,” said Joe Kaul of Kaul Corp., Presto Geosystems’ Western States representative and geosynthetics supplier.

A 10-year canal lining study by the U.S. Bureau of Reclamation tested four canal types for a multitude of factors, including construction and maintenance costs, durability and effectiveness against seepage. One of the tested canal lining types, geomembranes with concrete covers, offered the highest long-term performance results.

Kaul introduced the concrete-filled 3-D geocellular Geoweb system to the U.S. Bureau of Reclamation as an effective geomembrane cover solution. The system has more than 30 years of proven success protecting geomembranes in a multitude of industries, and Kaul believed it could help provide a better long-term solution.

Gary Kennedy, superintendent for the Mancos Water Conservancy District in Colorado, noted that the region had been rehabilitating its canal systems for a number of years.

Materials considered for several sites included shotcrete covers and individual concrete tiles, both commonly used to protect liners.

Ultimately, the concrete-filled Geoweb solution was chosen. It offers protection from expansion and contraction issues caused by freeze-thaw cycles, and the ability to flex and conform to minor subgrade movement and reduce long-term maintenance costs. The 3-D structure eliminates the need for steel reinforcement and expansion joints. Its cells control concrete shrinkage cracks, allow flexing and some movement, provide consistent infill depth and accommodate a higher slump concrete, facilitating faster concrete placement.



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