

Fort Randall Dam

Pickstown, South Dakota

Project Profile (2013)



Project Summary

Completed in 1952, Fort Randall Dam encloses Lake Francis in south central South Dakota. The Spring of 2011 brought historic flooding to Fort Randall Dam and the entire Missouri River corridor. As a result of this flooding, inspections made it apparent that numerous repairs were needed to rehabilitate the dam. Part of the repairs included extensive hydrodemolition and partial replacement of large portions of the spillway slab.

Concrete shrinkage was already a concern given that the replacement concrete would be highly restrained by the underlying remaining concrete and the surrounding concrete. Of additional concern - since more than 8" of concrete was being removed in most areas, reinforcement steel for temperature and shrinkage would need to be installed, requiring 130,000 dowel anchors to be drilled into surrounding concrete. The dowels could put additional strain on the concrete both during installation and during service.

In lieu of the 130,000 dowels and temperature and shrinkage steel, the owner opted to use PREVent-C® admixture at a 5% dosage rate along with a macro polypropylene fiber at 5 lbs/yd in addition to other adjustments to their specialty concrete mix design.

Owner: United States Army Corps of Engineers

Engineer: United States Army Corps of Engineers

Concrete Contractor: Red Wilk Construction

General Contractor: Morris Inc.

Ready-Mix Producer: Wagner Building & Supply

Products: PREVent-C®500 Shrinkage-Reducing/Compensating Admixture