

**Morris Shepard Dam**, owned by the Brazos River Authority, impounds water for hydroelectric power and forms Possum Kingdom Lake in central Texas. The dam, completed in 1941, is a slab buttress dam, the largest of its kind in the U.S. When the south gates were opened, extensive damage was done to the river channel bank. The result was a severely limited use of these gates and a reduction in usable reservoir capacity.



The solution was to extend the spillway hearth and direct the flow into the channel. Before this could be done, a 360' x 140' area averaging 20' thick of large stone, used to reduce erosion, had to either be removed or consolidated.

### **SOLUTION**

Working with the Freese & Nichols Engineers, Fort Worth, The Judy Company, Inc. determined there would be significant savings by consolidating the stone with grout. Anchor bars were needed to tie the new spillway to the consolidated rock mass.



The original design required building a coffer dam in the deep part of the river. Working with the

prime contractor, M. K. Eby, Bedford, Texas, it was proposed, part of the mass be consolidated under water and the coffer dam lap onto the stone. This resulted in significant savings in time and dollars.

The stone was consolidated with a cement/flyash/sand slurry and injected into holes drilled to the bottom of the fill. The grout was mixed adjacent to the work area and pumped into place. The underwater work was performed by Midwest Marine Contractors, Olathe, Kansas. At completion, 5,800 cubic yards of grout was placed.



Rock anchors were installed by The Judy Company Inc. in the consolidation fill and in the shale foundation bedrock. The majority of the anchors were 1.75" in diameter and tested to 56,00 lbs. At completion, a total of 575 were installed.

When completed, the job was honored with the Marvin M. Black Excellence in Partnering award.

For more information on the services that the Judy Company provided at Morris Shepard Dam, call 913-422-5088.