



Market Application Focus

Dams

Concrete Repair & Protection

Corrosion

Project: Morris Sheppard Dam & Powerhouse
Owner: Brazos River Authority
Engineer: Jaster-Quintanilla
Contractor: Restek Inc.
Year: 2007

The Problem



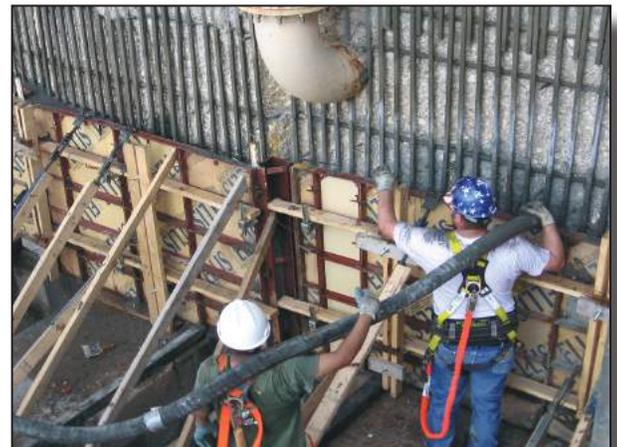
The Morris Sheppard Dam, constructed between 1938 and 1941, impounds the 19,800 surface-acre Possum Kingdom Lake, highly regarded as one of the most beautiful lakes in Texas. The cast-in-place concrete Powerhouse sits at the base of the 190-foot tall, 2,015-foot long dam structure, and houses twin 11,250 kilowatt generating units. Maintenance personnel observed that cracks and spalls had developed in the heavily reinforced exterior walls of the Powerhouse. The original drawings showed a concentrated vertical layer of one-inch square reinforcing

bars spaced 4 inches on center at portions of the outer face of the Powerhouse walls. Further investigation of the existing conditions revealed that extensive corrosion of the embedded reinforcing steel was causing the 4 to 6 inch thick concrete cover to shear off at the exterior face of the reinforcement.

Other areas of concern included delaminated concrete on the sloped top and vertical face of large encasement blocks that anchored the 12-foot diameter Penstocks and spalling concrete was also found beneath several of the large concrete struts located between the massive buttresses that support the dam's concrete slab.

The Sika Solution

Repair areas with significant concentrations of reinforcing steel were called to have ¼ inch diameter stainless steel pins installed 24 inches on center each way to mechanically anchor the repair material to the substrate. To help ensure effective material placement in small, hard-to-reach areas, wall systems below designated elevation were specified to be repaired using Sika MonoTop 611, a free-flowing, polymer-modified, silica fume enhanced, form and pour repair mortar. Repair areas above the



Case Study

