

CASE STUDY/spillway leak seal

FLORENCE, MISSISSIPPI

Background

A lake can provide several opportunities for recreation. There's fishing, boating, swimming, and let's not forget the awe-inspiring views from your back porch as the sun rises and sets each day. With enjoyment also comes several factors for maintaining proper lake levels i.e. dams and spillways. Sometimes, water can find its way around, under, or through its intended dams, which can severely hinder the pleasures that come with lake living. Let's see how polyurethane resins were used to stop a bad situation before it got worse on a private lake in Central Mississippi.

The Problem

This lake has a spillway to maintain appropriate water levels. It is constructed of concrete and is approximately 50' wide with elevated sides and 70' long with a sloping grade to promote drainage. At the end of the concrete spillway are two 48" culvert pipes to drain the water underneath the roadway. We must say, this spillway construction was top notch and the repair is not related to a design flaw, but high amounts of continuous flooding. A resident found a small void forming along one side of the spillway. They immediately built a sandbag dam in front of the void and called Helms Polyfoam to evaluate the situation. The void was due to water undermining the spillway. As we know, when water finds a weak point in soil, it is tenacious and will continue to create a tunnel. Water was tunneling all the way under the 70' spillway and exiting at the mouth of one culvert pipe and in the middle of the other.



The Solution

Not all repairs have a “magic bullet” and often require multiple steps and materials to create the *total repair*. In the case of this spillway, two types of polyurethane resins were used to stop the leak and stabilize the spillway.

Priority #1 was to stop the leak and stop it quickly before it continued to create voids underneath and potentially collapse the spillway. High expansion, structural, hydrophobic, polyurethane resins were injected underneath the spillway at the water's initial intrusion point. Within 5 minutes, the water leak was stopped to a mere trickle! Hydrophobic, expanding resins can make quick work of even the highest flow leak! Once the leak was stopped injections were made in grid pattern through all suspected water paths. This style of injection ensured all voids created by the water were filled and sealed. Priority #2 consisted of preventative maintenance and further stabilization of the area. For this application, hydrophobic, permeating, polyurethane resins were used. The adjustable set time and hydrophobic properties make this style resin great for tracking and sealing even the smallest of leaks. This resin was injected underneath the slab across the entire mouth of the spillway and a slow set time to ensure maximum travel before curing.

Whether a leak is high flow or a mere trickle, polyurethane resins in the hands of a professional contractor are a perfect option for sealing a leaking dam or levee.