

Open Pit Quarry

A small river located approximately 1/4 mile away began leaking water into an open pit quarry through rock fractures in the river bottom. The leaks grew as water eroded away the mud seams and eventually the entire river flow was entering into the fractures. The downstream portion of the river ran dry. Estimated flow rates into the quarry exceeded 20,000 gallons per minute and depending on rainfall could exceed 30,000 gallons per minute.

Once on site, Support Restoration Technologies technicians set up a temporary dam to reroute the river flow around the fractures. Once the river had been rerouted a detailed inspection of the main fractures could be performed. The large main fracture was approximately 20 feet long and approximately 3 feet wide. The depth was measured at 10 feet before turning and running under the rock formations and entering a maze of underground fractures and caverns that lead to the discharge point of the leak inside the quarry.

Technicians installed injection rods down through the fractures until refusal. A rapid set concrete cap was placed over the fractures and allowed to cure. Expanding polyurethane grout was pumped into the fractures and allowed to flow through the fractures eventually filling them back to the bottom of the river bottom fracture.

The polyurethane grout was allowed to set overnight before removing the temporary river diversion and restoring river flow

For more information on this project please call Randall Brooks at 513-353-2544.