Mississinewa Lake Dam

Peru, Indiana

Keller completed the Mississinewa Lake Dam foundation remediation by constructing a cut-off wall for seepage control.

The project

Mississinewa Dam consists of an 8,000-foot long earth-fill embankment, with a maximum height of 140 feet. Since its completion in 1966, the dam had experienced numerous seepage problems due to known foundation defects within the rock and the consequent ability of the overburdened foundation and embankment materials to migrate into the bedrock.

The challenge

The roadway across the dam was a limited size so a 45 foot-wide work platform was constructed with driven sheet piles and stone backfill. Soil conditions included impervious compacted fill on top of a deep valley of glacial deposited material and several layers of decomposed to impervious limestone formations.

The solution

Keller installed a continuous concrete cut-off wall with a total size of 437,729 SF of which 337,631 SF was soil and 100,008 SF of rock excavation. The depth of cut-off wall panels varied from 147 ft to a maximum of 235 ft with compressive strength up to 27,000 psi.

During construction of the test section cut-off wall, defects in the rock foundation below the dam embankment resulted in the Corps of Engineers issuing a Contract Modification to pre-treat the rock foundation below the dam prior to the cut-off wall construction by grouting these defects and solution features. During the grouting phase of this project, a Deep Feature was located in the dam rock foundation which resulted in the cut-off wall being extended from a depth of 147 ft to a revised depth of 235 ft deep. The installation of the cut-off wall to this depth sealed this known solution feature.

Project facts

Owner(s)
USACE Louisville District

Keller business unit(s)
Keller

Main contractor(s)
N/A

Solutions
Groundwater control

Markets
Infrastructure
Dams and levees

Techniques
Slurry cutoff walls
Diaphragm walls

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