

Hi-OPTV Survey for over 700 boreholes



The Rock Grouting project at McCook Reservoir, Robertson Geo client Nicholson Construction, Canonsburg, PA, USA.

CASE STUDY



McCook Reservoir is a 26.5 million cubic meter (7 billion gallon) storage reservoir as part of the combined sewer overflow system for the Chicago area. The excavation will extend 76m (250ft) into limestone.

To decrease permeability in the rock up to two orders of magnitude to less than 0.5 Lugeons, two rows of grout curtain (one on each side of the cutoff wall staggered

15 degrees from vertical in opposite directions) are drilled through the overburden then 99m (325ft) into the limestone.

To obtain the reservoir storage, the basin was constructed by excavating and shaping an average of 19m (65ft) of overburden soil then blasting/excavating 76m (250ft) further into limestone bedrock. To decrease permeability around the perimeter of the reservoir, a cement bentonite cutoff wall was constructed through the overburden soils.

Beneath the cutoff wall will be two rows of grout curtain drilled through the overburden then into the limestone to depths of 107m (350ft) to provide the necessary ground treatment to decrease permeability in the rock zones. One row is outside and one row inside the overburden cutoff wall. The grout holes are inclined at 15 degrees from vertical and with each row in opposite directions.

Robertson Geo's High Resolution Optical Televiewer (Hi-OPTV), along with the Micrologger2 was used to verify the inclination, alignment and to identify the fracture direction and orientations in a total of 752 boreholes of depths varying from 5ft to 40ft.

