

# **A model study of slurry-trench excavation and soil-bentonite cut-off walls.**

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## **Abstract**

This investigation was framed with the intent to simulate the field conditions during a slurry-trench excavation in order to develop design guidelines and parameters for evaluating the overall stability of such excavations in local sand deposits, and to determine the optimum contents of the sand-Bentonite backfill for the final cut-off wall.

To achieve these objectives series of model tests were conducted to investigate the behavior and characteristics of slurry trench excavations in homogeneous sand deposits with two different relative densities utilizing a slurry of the Wyoming Bentonite clay "Aquagel". The properties and characteristics of both clay and sand were investigated prior to the experimental model study.

The results of the model tests indicated the effect of various parameters on the stability of slurry trenches. The relative density of sand deposit, the slurry concentration and water level were found to be the major parameters influencing the behavior and stability of such trenches.

Furthermore, the utilization of Sand-Bentonite mixtures for the final cut-off wall was attempted and the results of the effectiveness of such mixtures were encouraging.

To achieve these objectives series of model tests were conducted to investigate the behavior