GEOSENSE

Dam Safety Monitoring

Zeizoun Dam, Syria

PROJECT SUMMARY

NAME: Zeizoun Dam

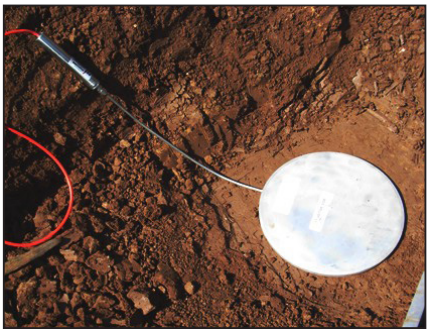
YEAR: 2010

CLIENT: Directorate of Water Resources Hama Governorate

MAIN CONTRACTOR: General Company for Hydro Projects

INSTRUMENTATION: AL MUTAWASSET

CONSULTANT: Agrocomplect SA, Bulgaria



OVERVIEW

The Zeizoun dam is situated on the Orontes river north of Hama in Syria and was originally constructed in 1996 with a capacity of 71 million^3 and used for widespread irrigation in the Al-Ghab province.

On 4th June 2002 a failure occurred in the original dam which was completely destroyed and resulted in widespread flooding and damage. As part of the re-building program a new design with an extensive monitoring system is currently being implemented.

The new dam design includes a much deeper foundation which is intended to remove the weak strata identified as part of the reason for the failure. A grouting and monitoring gallery is included in the new design, which is located beneath the core foundation.

MONITORING

The dam integrity is carried out by monitoring key areas as follows:

Main Dam Body
Pore water and total soil pressures, settlement and lateral movement within the core. Seismic response of the crest.

New Dam Foundation
Water levels under the downstream shoulder.
Groundwater levels beyond the dam toe.

Existing Dam Body
Pore water pressures within the core.

Reservoir Level
Water level, pressure and loading.

Dam Abutments
Groundwater levels.

New/Existing Dam Connection
Joint movements.

Gallery
Seepage.
Joint movements New/Existing Dam Body Surface movements Downstream Open Channels Water level and flow.

PRODUCTS USED

VW Piezometers
For accurate measurement of pore water pressure and water level.

V-notch Weirs & Weir Monitor

Staff Gauges

Ultrasonic Flow Meter
Measurement of flow in open channels.

GEO-XM Magnetic System
For measuring ground settlement.

Reed Switch Probe
For use with the GEO-XM system

Inclinometer Casing
For use with portable inclinometers.

Portable MEMS Inclinometer
For measuring lateral displacement.

VW Total Pressure Cells
For measuring total earth pressures

VW Soil Extensometers
For measuring lateral & longitudinal deformation.

Data loggers

Data visualisation software

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