

Dam Site Investigation and Monitoring

The assessment of Dam site geophysical and geotechnical conditions is critical to the safety that new or existing Dams require.

The American Society of Civil Engineers (ASCE) has identified over 2,000 high hazard potential U.S. Dams and considers a \$45 billion dollar investment is needed for repairs, replacements, removal and inspection. There are many others needing remedial work that are not considered high hazard.

Robertson Geo technology and techniques are proven for accurate and reliable calibrated subsurface data that's essential for the planning, construction, monitoring and repair of Dam projects. Its surface and subsurface equipment can provide data from the initial ground conditions and the evolving conditions through the life of the Dam.

A logging service, full system sales and rentals can facilitate any project from the smallest embankment through massive arch and buttress Dams. Robertson Geo services are available to support the development of everything from deep investigative systems through specialist overwater systems and small portable systems.

Projects and Users of Robertson Geo equipment

Major projects include Boone Dam in Tennessee with equipment present for the reconstruction of the Oroville Dam in California. Robertson Geo equipment was also used for site investigation purposes for the Hoover Dam on the Colorado River between Nevada and Arizona.

Users of Robertson Geo equipment include:

- Nicholson Construction
- AECOM
- Bauer Pileco
- Gannett Fleming
- CH2M Hill
- Hayward Baker
- Bencor
- US Army Corp of Engineers

Boulder City - People look out over the Hoover Dam hydroelectricity power station on the Colorado River between Nevada and Arizona.

Dam Site Investigation

Site investigation using Robertson Geo wireline geophysical logging in test boreholes is available at all stages of the working life of the Dam:

Concept	Characterising ground conditions for feasibility studies
Design	Ground investigation to feed into the design process
Build	Targeted ground investigation providing detailed data in key areas
Working Life	Routine monitoring
Events (e.g. overload)	Targeted evaluation of to assess condition or potential damage
Upgrade/Replacement	Investigation to feed into the decision making process

Robertson Geo geophysical logging provides valuable data for Dam projects:

Geotechnical	To characterise ground conditions in terms of condition, stiffness, fractures and lithology
Hydrogeological	To gain an understanding of the groundwater conditions
Structural	To investigate the condition of existing structures associated with dams

Typical Robertson Geo subsurface probes used for Dam Site investigations are:

Geotechnical

Televiwer (Optical and Acoustic)	Fractures and bedding
Calipers (3-Arm and 4-Arm)	Quality control
PS Logger	Vp, Vs, small strain moduli
Formation Density	Density, small strain moduli

Hydrogeological

Electric Log	Resistivity, SP
Induction Log	Conductivity
Focussed Electric Log	Resistivity
Dual Neutron	Porosity
Flowmeters	Flow rates
Temperature Conductivity	Fluid temp and conductivity

Structural

Televiwer (Optical and Acoustic)	Fracture identification/orientation
Downhole Camera	Physical inspection

