

**WHEN YOU NEED TO BE  
'DAM' SURE!**

## Dam Monitoring Services

For more information [ [damassessment.com](http://damassessment.com) ]



*hydro* GEOPHYSICS

*Subsurface Imaging*

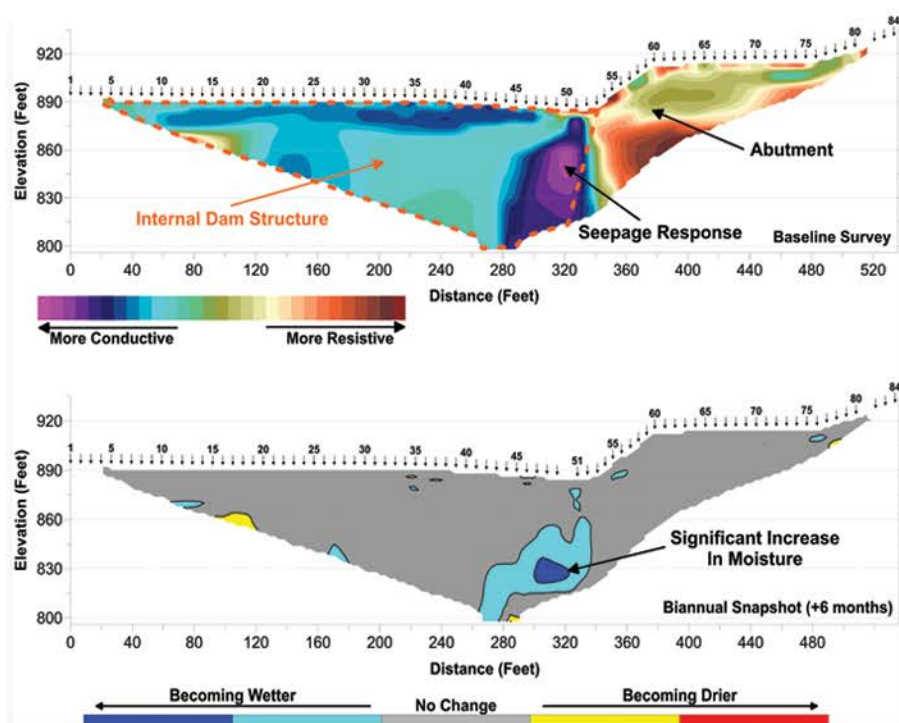
*Innovative Solutions*

## Dam Monitoring

Dam monitoring is a critical component in the long term maintenance and safety of earthen structures. Today, the ability to monitor soil moisture and the competency of internal structures through the use of geophysical techniques such as electrical resistivity, seismic, and self-potential (SP), are major breakthroughs for understanding the hydrodynamic processes associated with these structures. By repeating geophysical measurements over time, we can monitor changes in subsurface conditions to help identify and understand current conditions and predict future problems associated with potential system failures.

### State of Health Monitoring

Monitoring programs can be designed and deployed to cover an entire dam structure or focus on regions of known issues or seepage. Typically, this would be a semi-permanent sensor installation to provide low-cost 'snapshots' on an annual or bi-annual basis. The data can provide advanced warning of anomalous conditions within the dam structure that might indicate adverse seepage or monitor for changes in known flow conditions. The plot at top right shows a baseline electrical resistivity cross-section through an earthen dam. The highly conductive anomaly towards the left groin of the dam is a response to seepage through the structure. The plot bottom right represents the change in resistivity value for a 'snapshot' taken 6 months later, with the region associated with the seepage becoming 'wetter' over this timeframe.



**HYDROGEOPHYSICS, INC. (HGI) HAS PIONEERED SUBSURFACE GEOPHYSICAL MONITORING TECHNIQUES FOR DEPLOYMENT ON DAMS AND EARTHEN STRUCTURES, INCLUDING LEVEES, EMBANKMENTS, AND TAILINGS STORAGE FACILITIES. IN OUR APPROACH, WE APPLY COST-EFFECTIVE, HIGH-VALUE INFORMATION OVER LARGE REGIONS AND IN A NON-DESTRUCTIVE MANNER, VERSUS DRILLING, CPT, AND OTHER MORE INVASIVE SAMPLING METHODS.**



HGI's Geotection Resistivity Monitoring System deployed at a dam site

### Critical Structure Monitoring

Our monitoring technology can also provide round-the-clock observations for dams and related earthen structures. With a permanent array of sensors and a fixed monitoring system installed onsite, the technology can be operated autonomously or interactively through the internet. Timing of data collection is customizable to provide clients with high-resolution temporal 'snapshot' views of the interior of their dam. The automated system can generate alerts to notify clients of the development of anomalous subsurface conditions.

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