WE GET THE BIG PICTURE

HGI is an innovative, solution-oriented geophysical consulting company and service provider to the environmental, engineering, ground water, mining, oil & gas, and natural resource exploration industries. We specialize in the application of 3D geophysical methods for time lapse subsurface characterization and monitoring of fluid flow through geologic materials.

Innovation, quality of work, detailed focus, and flexibility are hallmarks of HGI’s service. Our ability to create custom-fit solutions based on individual client needs makes us an industry leader in the field of geophysics and geosciences.

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Cover Monitoring

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Subsurface Imaging

Innovative Solutions

A Broader Understanding

Waste piles undergo natural seasonal and diurnal cycles that affect internal temperature, moisture, and vapor movement. When combined with external precipitation, monitoring covers to understand performance can be challenging unless a holistic approach is used. Geophysical characterization and monitoring provide information over a broad swath of landscapes giving perspective to various components affecting cover performance.

Methodologies

Seeing an opportunity to apply a more holistic approach to the challenges faced during reclamation, scientists and engineers at HGI have adapted geophysical characterization and monitoring methods to visualize the dynamic movement of moisture within and below cover systems.

There are several geophysical tools available for monitoring covers including electrical resistivity, induced polarization (IP), ground penetrating radar and electromagnetic induction. Each of these methods measures some aspect of the electrical properties of the subsurface, which are influenced by soil saturation and ionic strength of the pore water. However, resistivity and IP have the distinct advantage of looking through the cover and determining whether infiltration is affecting the waste below it.

The example above shows seasonal changes occurring in the waste and cover. With the exception of a small weak spot, the cover appears to be working properly.

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