

Enhanced Oil Recovery

Resistivity Monitoring Technology

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.

For more information on HGI's products and services, please visit us at HGIworld.com or call us at: 1-866-647-3315



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Technology Profile

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hydroGEOPHYSICS

Enhanced Oil Recovery

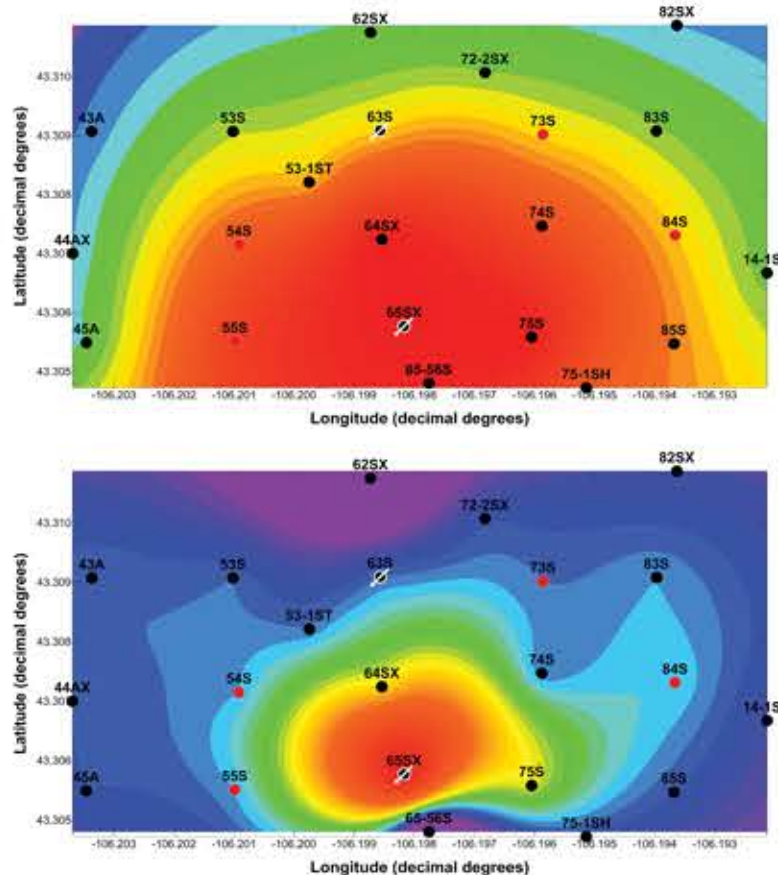
Directly delivering reagents through an injection well is a common means to increase the efficiency of resource extraction in the oil industry. Known as 'Enhanced Oil Recovery' (EOR), this technique can increase the amount of crude oil that can be extracted from an oil field. Geophysical monitoring, when coupled with EOR methods, can provide cost efficient volumetric information on rock and fluid properties in subsurface reservoirs, helping to understand the fate of the reagents and their intended target. Monitoring changes in geophysical parameters creates a better understanding of dynamic subsurface processes and allows for oil recovery methods to be refined, thus optimizing injection strategies.

HYDROGEOPHYSICS INC. (HGI) HAS DEVELOPED ADVANCED GEOLOGICAL MONITORING TECHNOLOGIES TO HELP ENSURE THE EFFECTIVE DELIVERY OF REAGENTS TO SUBSURFACE TARGETS.

As secondary and tertiary recovery methods are implemented, they are accompanied by changing properties within the subsurface reservoir. One significant change in the majority of recovery methods is in the conductivity of the reservoir. Geophysical methods are used to record and monitor these changes over time.

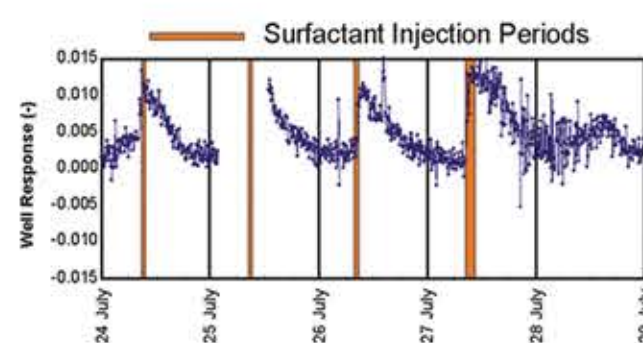
Geophysical Monitoring

HGI has developed a number of unique tools to monitor changing electrical properties during oil recovery. These tools use existing oil field infrastructure (injection and production wells) coupled with a dedicated geophysical data acquisition trailer to provide near 'real' time monitoring.



Case Study Rocky Mountain Oil Testing Center Injection

These figures demonstrate geophysical monitoring methods used to track a solution injection at the Rocky Mountain Oil Testing Center. The images to the left show a plan view of the electrical properties of a reservoir before an injection (top left), and the percentage change during the injection (bottom left). An example electrical response from a monitoring well during a series of surfactant injections is shown below.

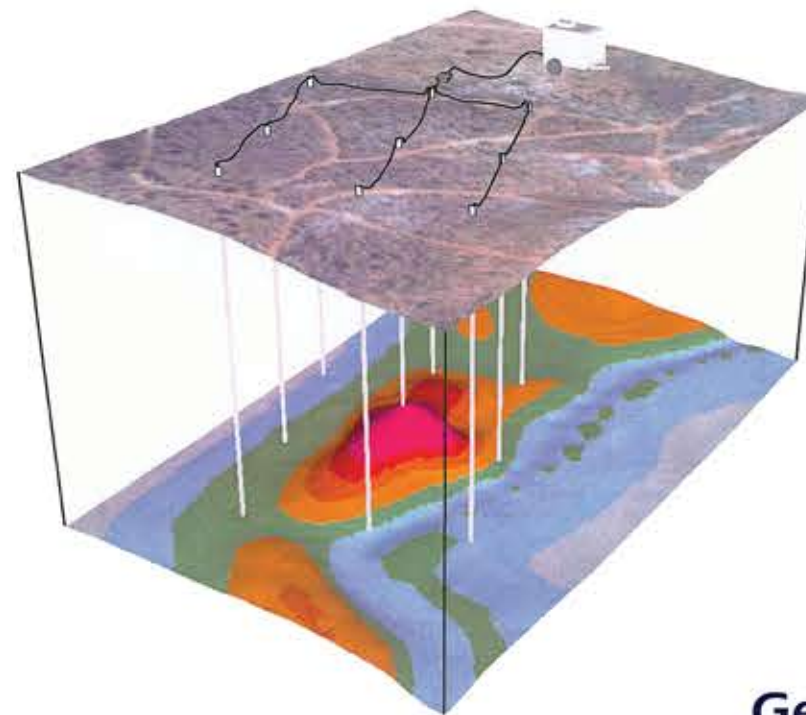


Subsurface Imaging

Innovative Solutions

Geophysical Solutions

To monitor injections, HGI built the Geotection™ system - a state-of-the-art, 180-channel, geophysical monitoring system that can capture a complete snapshot of subsurface conditions (on average) every 20 minutes. Geotection™, along with the latest advances in modeling algorithms, provides the high resolution imagery needed to capture dynamic changes within a reservoir.



- ~ Multi-channel module-based acquisition system allows for flexible configurations
- ~ Monitor dynamic subsurface processes on the order of minutes to months
- ~ Remotely operable through satellite communication link
- ~ Applicable to any monitoring project where fluid conductivity contrast exists, i.e. contamination plumes

Geophysics You Can Trust

HGI has been advancing the field of geophysical monitoring for Oil & Gas, Heap Leach Mining, and Remediation using electrical methods for over 15 years. Our technologies have been proven to provide better accuracy, faster acquisition, and clearer results than competing methods. We create custom-fit solutions for individual client needs, making us an industry leader in the field of geophysics and geosciences.



HGI professionals have the skills and experience to support every aspect of your project from concept and design to acquisition and interpretation.

Our Clients

GeoEngineers
BHP Billiton

DOW Chemical
Anglo Gold

Freeport McMoRan
Coeur Mining

Montgomery & Associates
Newmont Mining

KGHM
Kinross Gold

Rio Tinto
Kennecott Mining

GoldCorp
MWH
Pacific Copper