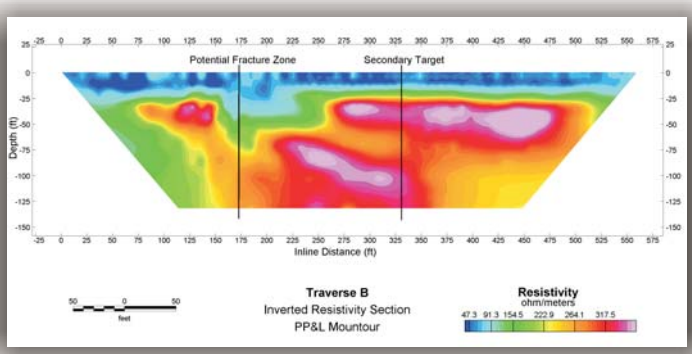
WATER RESOURCE SURVEY SERVICES
HIGH RESOLUTION GEOPHYSICAL TECHNOLOGIES

ARM assists with the development and maintenance of water resources by conducting non-intrusive and low-cost surveys that help hydrogeologists delineate potential sources of water and water bearing materials such as sand and gravel.

Surface geophysics can be used to characterize unconsolidated aquifers, such as buried glacial valleys, or to map sand and gravel units for residential or municipal well designs. Electrical resistivity imaging (ERI) can be used in conjunction with aerial photo fracture trace analysis to optimize the location of test wells in bedrock aquifers where the primary water supply is associated with bedrock fractures. An example of an ERI transect selected over an identified lineament from an air photo is shown below.

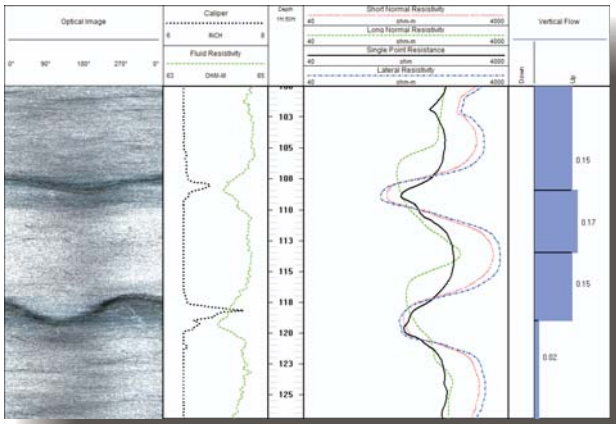
APPLICATIONS:

- Fracture trace analyses
- Buried valley delineation
- Sand and gravel mapping
- Bedrock fracture identification
- Top of bedrock delineation
- Well construction and rehabilitation



The location of a fractured bedrock zone is identified by an area of low resistivity relative to the higher resistivity competent bedrock.

Our borehole geophysical group provides state of the art logging capabilities including a full suite of standard logging tools and optical televiewer (OTV) and acoustic televiewer (ATV), neutron, density, and heat pulse flowmeter. ARM's logging truck can log to a depth of 4,000 feet. By collecting visual information with the OTV and integrating with other logging measurements such as borehole diameter (caliper), fluid resistivity, formation resistivity, and vertical flow data (heat pulse flowmeter), ARM can identify producing water bearing zones in wells like the example shown below. This can assist in well siting, fracture trace validation, packer testing and hydrofracturing design, pump settings, and well rehabilitation.



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