A Full Service Geophysical
Data Acquisition Company
Bay Geophysical’s Specialties

- Oil & Gas Exploration
- Gas Storage Facilities
- \( \text{CO}_2 \) Injection Studies

- Shallow Engineering & Environmental
- Subsurface Hydrogeologic Studies
- Mineral Exploration
Bay Geophysical provides services for design, implementation, acquisition and interpretation of seismic surveys both land and marine.

• High resolution P-Wave (2-D & 3-D) reflection surveys, Shear wave and multi-component reflection surveys and refraction surveys with targets depths ranging from 5 feet – 15,000 feet.
• Variety of energy sources: vibroseis, impulse and shothole.
Seismic Survey Design, Modeling and Analysis

- Model 3-D designs accommodating cultural features and hazard surveys such as pipelines, leases and permits before data acquisition to facilitate the best subsurface coverage for our clients.
- Ray trace analysis allows field observers to identify and confirm target reflections in the raw shot record.
- Fold distribution analysis of proposed 3-D seismic survey geometry
Seismic Data Acquisition

Bay employs vibroseis or impulsive energy sources as dictated by the survey environment.
Seismic Data Acquisition
Next Generation Vibroseis Systems

- Smaller footprint optimized for environmentally/culturally restricted and populated areas, reduced agricultural impact by 30%
- Increased force, bandwidth output, and focused output
- Improved low frequency performance and signal to noise ratio
- Low source generated ground pressure
- Quieter with new sound limiting systems
- Keeps source non-intrusive
Seismic Data Acquisition
Next Generation Vibroseis Systems

Data acquired in Arizona with 2 IVI EnviroVibe systems with depth imaging >11,000 feet
Seismic Data Acquisition
Next Generation Vibroseis Systems

Data acquired in California with 3 IVI EnviroVibe systems with 3+ seconds of data
Seismic Data Acquisition
Acquisition Systems

Wireless Seismic RT System
Multiple crew next generation wireless system with real-time monitoring and recording

Less cultural interference, reduced environmental impact, real-time data acquisition, real-time parameter selection and continuous QA/QC.
Seismic Data Acquisition

Acquisition Systems

Wireless Seismic RT System 2
Simple solution to natural and cultural features

- Cable-less crossings (roads, railroads, rivers etc.)
- Greatly reduces agricultural damages
- Increased field flexibility (farmers planting/harvesting, no-permits)
Seismic Data Acquisition

Acquisition Systems

Wireless Seismic RT System 2

Real-time Data acquisition: cable-less and wireless

Real-time data acquisition means no “shooting blind”, no data harvesting/physical data collection and no loss of data due to theft or loss of box.
Unlike “cable-less” systems, the Wireless Seismic system is a real-time data acquisition system with continuous QC and real-time noise monitor.

No surprise noise-trains after acquisition.
Seismic Data Acquisition

Acquisition Systems

ARAM Aries II

- 24-bit high definition recording using multiple energy sources
- 2-D or 3-D seismic surveys
- Bay has 1,000s of channels available
- Multiple crews
- Proven track record
Why High Resolution?

High resolution data allows shallow features and low velocity layers to be resolved with refraction statics, greatly reducing artificial rollover.

This high resolution seismic line was acquired with a single vibroseis source.
Bay took part in a consortium of private corporations and universities in the DOE program studying the feasibility and suitability of the long-term storage of CO$_2$ in deep subsurface geological reservoirs.
CO$_2$ Geosequestration
Case Studies

Potential Storage Sites

- Oil and Gas Reservoirs
- EOR
- Deep Coal Seams
- Deep Saline Formations
- Enhanced Coalbed Methane Recovery
- Salt Caverns
- Mineral Trapping
Bay has acquired over 200 miles of high resolution seismic data for CO₂ injection studies with formation targets of 3,500 feet to over 13,000 feet in depth.
Bay successfully provided a geological model for CO$_2$ storage in rift fault systems. Additionally, Bay identified numerous step-ladder reservoirs in addition to stratigraphic traps, therefore increasing the number of possible reservoirs suitable for storage.
Bay’s 2-D seismic program identified an area suitable for a well site for CO₂ injection. Bay acquired a 3-D seismic grid over the area, allowing for the estimation of CO₂ storage capacity and increased understanding of the structural and lithological properties of the caprock(s) and reservoir(s) at a higher spatial resolution than the 2-D program.
Shallow Gas Shale: Antrim Scour

- Glacial Till
- Scour w/ Boulders
- Weathered Shale
- Antrim Shale
- Traverse Limestone
Fault and Fracture System
Coal Bed Fault Analysis
Southern Illinois
Northern Oklahoma
Gas Storage Field, Southern Indiana
Full HSE Capabilities

- DOT and ATF compliant
- OSHA Training, including Hazwoper
- IAGC Compliant HSE
- NCA NQA-1 Compliant QA/QC Program
- MSHA Training
- Extensive Safety Program
Client Relationships
Bay places a premium on maintaining our clients

For More Information, Please Contact Us

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