

## WHO IS MICROSEISMIC, INC.?

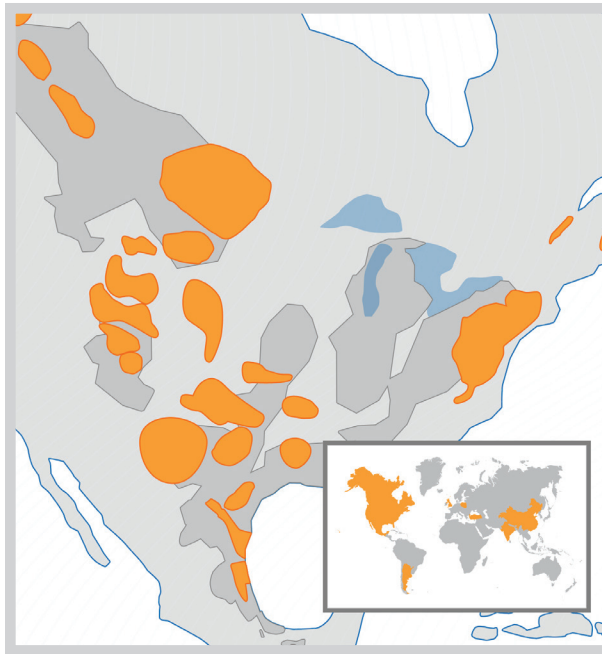


MicroSeismic, Inc. is an oilfield services company providing real-time monitoring and mapping of well stimulation operations in unconventional oil and gas plays.

- » Pioneer in passive monitoring activity with surface and near-surface arrays
- » Over 10 years of experience
- » Neutral, third-party vendor providing non-invasive monitoring
- » Monitored over 20,000 stages in every major shale play in North America
- » Over 300 customers in 18 countries
- » We make safety and minimal environmental footprint our top priority

## OUR PURPOSE

**Our purpose is to provide clean, abundant energy through better frac'ing.**



### HEADQUARTERS

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## INFORMATIONAL GUIDE FOR

# Passive Well Stimulation Monitoring Permits



[MicroSeismic.com](http://MicroSeismic.com)



Temporary FracStar® array design depicting sensor placement.



Dedicated crews of highly skilled professionals laying cables and sensors in a star-like pattern.



The temporary deployment of cables and sensors leaves minimal disturbance to property and the environment.

**Microseismic Does:**

- » Professionally design surface arrays and distribute sensors
- » Rapidly deploy temporary cables (about the same diameter as an extension cord) with sensors
- » Listen for vibrations caused by well stimulation
- » Produce professional images of how rocks break in a reservoir
- » Monitor well stimulation in order to help clients make informed decisions

**Microseismic Does Not:**

- » Utilize traditional, active monitoring with heavy vibrator trucks
- » Use heavy machinery or explosives
- » Drill additional wells
- » Record reservoir data used to interpret reservoir structures or properties
- » Permanently install sensors for FracStar® designs
- » Create unnecessary noise - our recording equipment works best in quiet settings

Surface-based, passive monitoring is the environmentally conscious method to monitor well treatments.

Unlike other monitoring techniques, passive monitoring does not require the drilling of additional wells or the use of heavy recording equipment.

- » Data not recorded for use to identify hydrocarbons or depositional structures under properties
- » Our employee's top priority is protecting the land and ensuring environmental sustainability
- » Monitoring well stimulations results in a safer, more efficient extraction process
- » MicroSeismic's process is designed specifically to monitor activity in and around the wellbore during stimulation



MicroSeismic's surface-based monitoring equipment is installed by professional field operations crews who strive to "leave no trace."

- » Dedicated crews of 12-15 highly skilled professionals rapidly deploy and retrieve cabled sensors
- » Only requires surface permitting
- » Professional surface arrays designed to distribute sensors with minimal intrusion on property
- » Monitoring equipment requires little interference with existing structures on property

**How Our Equipment Works:**

- » Sensors are attached to cables that run several thousand feet per line
- » Cables and sensors are laid out in approximately 10-12 lines (varies by design)
- » Sensors are similar to stethoscopes; they are placed on the surface to listen to the rock breaking during well stimulations