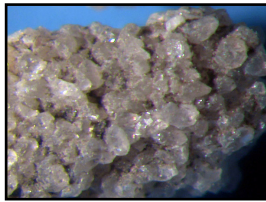
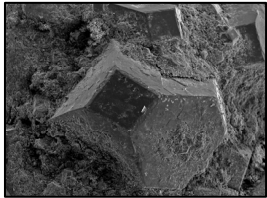


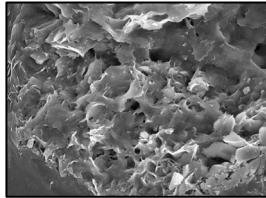
Illite (2000X)
 • Can Lower Resistivity,
 • Potential for Migrating Fines



High Perm Sand (20X)
 • Oil Stained
 • Show Indicator



Pyrite (100X)
 • Alters Log Response
 • Lowers Resistivity

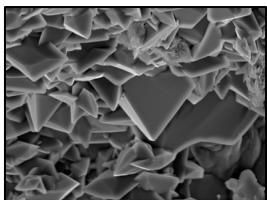


Smeectite (2000X)
 • Can Lower Resistivity,
 • Sensitivity to Fresh Water -
 Potential Formation Damage

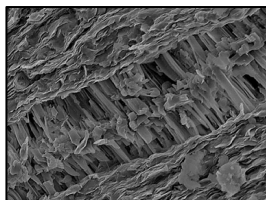
MORE OIL and GAS

through what the

ROCKS REVEAL!



Quartz Druse (2000X)
 • Evidence of Open Fracture



Shale (2000X)
 • Fracture Fill

We provide **ground truth** by looking at the physical rocks that hold your oil & gas.



Stolper Geologic, Inc.
 Since 1980
 16688 W 73rd Drive
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 USA

TO:

- ✓ RESOURCE PLAYS
- ✓ TIGHT GAS
- ✓ FRACTURES
- ✓ ROCK-LOG CALIBRATION
- ✓ LOW-RESISTIVITY PAY
- ✓ SENSITIVE CLAYS
- ✓ FORMATION DAMAGE



***A major oil company's
 comparison of consultants
 credited Stolper Geologic
 with the most
 production & reserves.***

Stolper Geologic, Inc.
 Since 1980 OPTICAL and SCANNING ELECTRON MICROSCOPY

KNOWLEDGE EXPERIENCE

EXPERTISE

OPTICAL and SCANNING ELECTRON **MICROSCOPY**

Visit stolpergeologic.com for:

- Photo Gallery: Includes our **movie showing smectite clay actively swelling** from water, but not oil contact.
- Questions and Answers • About Us •
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109 formations and 14 countries worked since 1980.

BAKKEN

- Confirmed hydrocarbon presence via cut fluorescence.
- Identified varying bedding types, lithology changes, and “sweet” spots.
- Identified, classified, and quantified fractures.
- Confirmation of expulsion fractures.
- Charted density averages for brittleness component.

EAGLE FORD

- Similar fracture system observed as in Bakken.
- Pyrite (laminated vs disseminated) - low resistivity.
- Cut fluorescence.
- Identified clays – smectite, bentonite zones.
- Cuttings used - fewer core available.
- Energy Dispersive X-ray Spectrography (EDS) used to provide densities.
- Bedding changes from top to bottom.
- Expulsion fractures seen in lower most Austin Chalk & upper most Buda.
- Identified “sweet” spots.

HAYNESVILLE

- Scope of project included resolution of log response vs. production disparity. (Logs responses for upper and lower zones look very similar yet lower zone is much better producer).
- Identified only subtle lithologic changes.
- Identified, classified, and quantified fractures.
- Provided visual estimates of TOC averages.
- Bottom line: lower zone has greater TOC and is more fractured.

MANCOS

- Identify lithologic changes and quantify fractures.
- Confirm presence of hydrocarbons.
- Identify and quantify conductive minerals lowering resistivity.
- Identify and quantify clay types lowering resistivity and their potential for formation damage.

COTTON VALLEY

- Identified lithologic changes, and classified and quantified fractures.
- Confirmed presence of oil and gas in matrix.
- Identified and quantified conductive minerals lowering resistivity responses.
- Identified and quantified dominant clay types (lowering resistivity and creating potential for formation damage).
- Identified “sweet” spots.

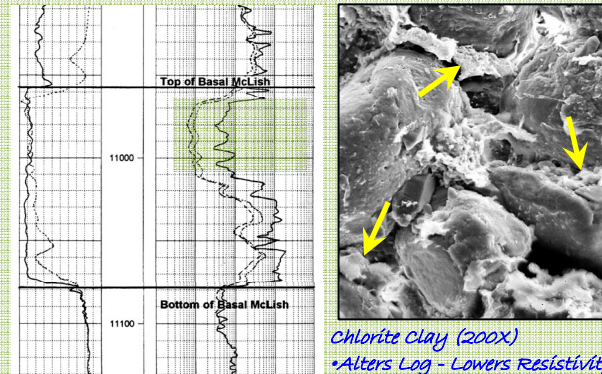
We'll help you find more oil and gas, and avoid problems that could leave it in the ground.

Our techniques and skill have been tested and proven many times. Our microscopic analyses of cuttings and core, from current and historical wells, are quick, accurate, and reveal critical knowledge that is not readily available by other means.

Contact us today for ideas about your projects.

OIL PRODUCED FROM PREVIOUSLY AVOIDED ZONES

These zones were routinely isolated in fear of producing water. We found that authigenic chlorite clay (arrows) caused the low resistivity rather than a fluid change **Because of our analysis; the zones were completed and produce oil with little to no water.**

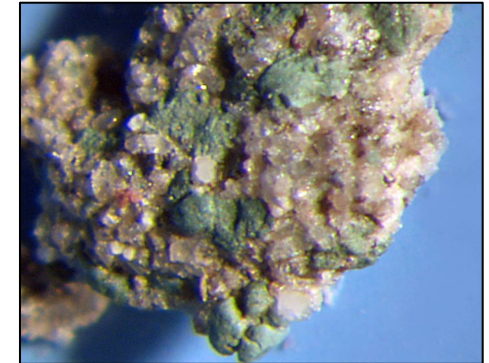


JONAH

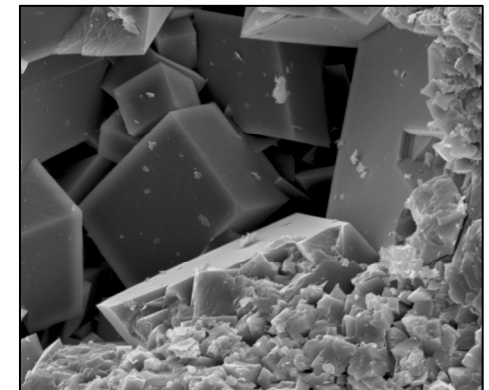
- Identify matrix quality and lithologic changes.
- Identify and quantify fractures.
- Confirm presence of hydrocarbons.
- Identify continuous gas saturated sections +/-100' as opposed to isolated 20' intervals.

NIOBRARA

- Identified facies and lithology changes.
- Identified intervals of greater matrix contribution.
- Identified, classified, and quantified fractures.
- Identified characteristics of “sweet” spots.



Glauconite Pellets (20X)
• Lower Resistivity



Dual Porosity System (2000X)
• Can Appear Water-Wet, Alters Log Response



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Quartz Druse (50X)

• Open Fracture Evidence