



Measurement Services

New England Research offers a large range of measurement services tailored to customer needs. Both routine and specialized rock core physical property measurements are available. These measurements can be done over a large range of pressures and temperatures and at controlled fluid pressures.

Our rock mechanics tests adhere to strict ASTM and ISRM standards and can be performed in parallel with permeability, velocity, or resistivity tests. In this way we can establish dynamic versus static property correlations necessary to calibrate well-log data and quantify formation heterogeneity and anisotropy. The lab data and the model parameters derived from them are also indispensable for constraining reservoir models on stress distributions, wellbore stability, and completion/stimulation designs and for predicting sanding, compaction, and permeability reduction during reservoir depletion.

In-House Services

Ultrasonic Velocity Measurements

- Axial propagation as a function of stress
- Multiaxis velocities (simultaneous axial and radial propagation versus stress)
- Benchtop velocities
- Benchtop velocity anisotropy characterization

Permeability

- Permeability (single phase at single stress condition)
- Permeability (single phase as a function of stress)



Complex Electrical Impedance

- Complex resistivity measurements (versus effective stress or load)

Combined Petrophysical Measurements (by quote)

- Permeability and Resistivity
- Permeability and Velocities
- Velocities and Resistivity
- Permeability, Resistivity, and Velocities

Compressibility

- Bulk compressibility
- Grain compressibility
- Uniaxial Strain (constant pore pressure)
- Uniaxial Strain (pore pressure depletion)

Geomechanics

- Static elastic constants (isotropic model)
- Static elastic constants (anisotropic model)
- Static elastic constants (single plug anisotropic method)
- Confined Compression to failure
- Multistage Confined compression
- Creep

(cont.)

Geomechanics (cont.)

- Cyclic Loading
- Unconfined Compressive Strength with static elastic moduli
- Tensile Strength (Brazilian test)
- Fracture Toughness
- Hollow cylinder (basic)
- Hollow cylinder (instrumented)

Thermal Properties

- Linear thermal expansion (25-250 °C)
- Thermal expansion anisotropy (25-120 °C)

Routine Core Analysis

- Standard Helium pycnometry 85
- Routine gas permeability and porosity at net confining pressure

Relative Permeability

AutoScan Petrophysical Core Scanning

- Photography
- P and S Velocities
- Electrical Resistivity
- Permeability
- FTIR (Chemistry)
- Impulse Hammer (Mechanical Properties)

Sample Preparation

- Plugging, trimming, end grinding
- Cleaning
- Non-standard sample sizes and samples requiring special handling

Support Services

M Mercury injection to 60,000 psi

- Drainage

NMR

- T2 Distributions (ambient condition at one echo spacing)

CT scanning

- Single Energy
- Dual Energy
- MicroCT

Microscopy and Chemistry

- High resolution digital scanning
- SEM/BEI/EDS
- QEMSCAN quote
- XRD
- TOC/RockEval
- Whole Rock Elemental Chemistry

Analysis and Consulting

NER provides a full range of data analysis and consulting services including data processing and integration, custom software solutions and reporting.

Supported industry applications include Rock Typing, In Situ Stress Estimates, Shale Sweetspotting, Core-Log Integration and Upscaling, 3D/4D Seismic Studies, Digital Rock Physics/Mechanics, Compressibility and Geomechanical Forecasting for Reservoir Depletion/Injection.

