

**AGAT** Laboratories 

# Reservoir Properties Services

AGAT Laboratories has been providing an integrated geological and engineering approach to reservoir evaluations studies for over 40 years.

Our geologists, engineers and technicians offer comprehensive reservoir quality analysis, which aids in optimization of reservoir performance. Within our Rock Properties Division, AGAT Laboratories offers a unique, combined source of geological and engineering data that is used in the development and management of petroleum reservoirs.

## **The AGAT Advantage**

In pursuit of excellence, AGAT Laboratories remains committed to providing our clients with unique solutions to optimize their business.

### **Quality**

Our Quality Management System is accredited to the International Organization for Standardization (ISO) 17025:2005. We maintain memberships in the American Petroleum Institute Subcommittee for Core Analysis (SCA), Canadian Energy Geoscience Association (CEGA), Canadian Council of Independent Laboratories (CCIL) and Association of Professional Engineers, Geoscientists of Alberta (APEGA).

### **Health, Safety and Environment**

AGAT Laboratories is committed to safeguarding the health and safety of our employees and clients and our safety systems are regulated by provincial and federal government legislations. We also take a “Green” approach to all of our operations to lessen our environmental footprint while still providing optimal services.

### **Client Project Managers**

Our Reservoir Properties client project managers (CPM) are highly experienced in managing both domestic and international large-scale programs. These personnel have extensive experience and are available to provide clients with technical advice and interpretation for the evaluation of reservoirs. They actively participate in the planning and coordinating of client projects throughout all stages of the laboratory process.

### **Technical Innovations**

AGAT Laboratories has an active Research and Development Program that has contributed greatly to keeping us at the forefront of technology and innovation. We are committed to investing in new developments to continue to advance science and offer our clients the latest in analytical technology.

## Facilities

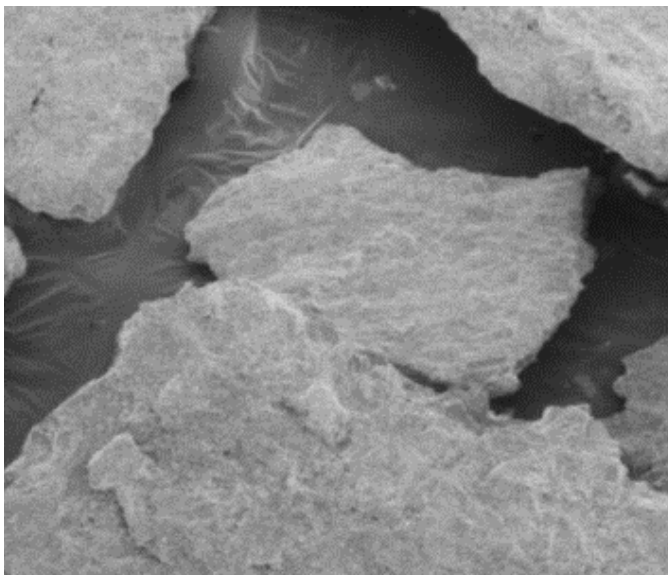
We have over 450,000 square feet of laboratory spaced dedicated to serving the Energy Sector. Our diversity of services allows us to offer our clients a full scope of analysis from the divisions of Reservoir Properties, Oil and Gas Chemistry, Environmental Chemistry, Air Quality Monitoring and Tribology Preventative Maintenance.

## Geology and Petrology

Our Geological Services group provides data that is used by both geologists and engineers. We offer interpretation programs as well as rock-based analytical programs. These services are designed to accurately evaluate depositional environments, mineralogy, reservoir quality, sensitivity to drilling and completion fluids, and the possible mechanisms causing formation damage.

These services include the following:

- Fracture analysis
- X-Ray Energy Spectrometry
- Full Petrographic analysis
- Energy Dispersive X-Ray analysis
- Thin Section analysis
- Scanning Electron Microscopy
- X-Ray Diffraction
- QEMSCAN



## Routine Core Analysis

Routine Core analysis frequently emerges as the standard and can be considered the cornerstone upon which formation evaluation rests. Routine measurements are performed on core or plugs to determine petrophysical properties of rock samples for effective characterization. Understanding that each core program is unique, our geologists and engineers will customize analytical programs based on project needs. They are available to describe, depth-correct and prepare core for client viewing as well as assist in sample selection for further analysis to achieve optimal results.

These services include the following:

- Core Handling
- Core/Gamma Logging
- Porosity and Permeability
- UV and Color Digital Photography
- Fluid Saturations
- Profile Permeability
- CT-Scanning

## Oil Sands Analysis

Our Oil Sands Division provides services for the mining, cold production and in-situ production of oil from heavy oil reservoirs. Data generated from our heavy oil services is used by geologists, engineers and petrophysicists to calibrate wire line logs, identify potentially productive intervals, estimate reserves and evaluate reservoir quality.

These services include the following:

- CRISP
- Dean Stark Analysis
- CT Scanning
- Clark Hot Water Process
- Digital colour photography techniques
- Proprietary V-Notch Sampling
- Tailing Ponds Analysis and Bitumen Extraction
- Particle Size Distribution

# Reservoir Characterization

AGAT Laboratories' Reservoir Characterization Division offers a complete range of services to efficiently explore, develop and produce petroleum resources. We offer clients one integrated source for complete formation and reservoir evaluation through a combination of professional personnel, advanced technology, experience and training.

## Special Core Analysis

The following tests are performed to allow better predictions of reservoir performance from reservoir samples, and to evaluate any detrimental effects of subjecting a reservoir to foreign fluids, to avoid or eliminate production problems.

- Relative Permeability Parameters
- Critical Velocity/Salinity
- Capillary Pressure Measurements
- Wettability Evaluation
- WAG Flood
- Constant IFT Relative Permeability
- Formation Damage
  - Drilling and completion fluid leak off and regain permeability
- Heavy oil EOR
  - Steam Flood
  - Solvent Steam Flood
  - VAPEX
- Gas Cycling EOR

## Detailed Reservoir Fluid (PVT) Studies

The following tests are conducted on representative reservoir hydrocarbon fluids acquired through downhole sampling or recombination of surface separator samples. The data generated through these services is essential for the prediction of reservoir performance and product mix throughout the producing life of the reservoir, from primary, secondary and tertiary production.

- Field Sampling Services
- Differential Liberation
- Constant Volume Depletion
- Enhanced Oil Recovery Studies
  - Miscibility
  - Swelling
  - Multi-contact Test
  - Reservoir Conditions IFT

## Scale and Corrosion Services

The following services are useful in evaluating the potential production problems associated with handling produced and/or make-up water in both the surface facilities and injection into the reservoir. Scale and corrosion inhibitor products can be evaluated to minimize the problems associated with the identified scale formation or equipment corrosion.

- Physical Compatibility
- Water Compatibility Simulation Modeling
- Scale Inhibitor Evaluation
- Dynamic Wheel Corrosion Inhibitor

## Rock Mechanics

Rock mechanics testing provides key information on the strength and stability of reservoir rocks with respect to drilling, fracture design, cap rock integrity and production optimization. These services include:

- Young's Modulus and Poisson's Ratio
- Compressive Strength
- Mohr Coulomb
- Acoustic Velocities
- Tensile Strength
- Direct Shear
- Brazilian Tensile Strength
- Brittleness
- Fracture Propagation

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and learn more about our wide range  
of laboratory services.