Total Original Hydrocarbon In-Place Modelling

Crucial data for optimizing unconventional reservoir resource recovery

The ability to determine hydrocarbon resource in-place for unconventional reservoirs is critical for evaluating and exploiting untapped resources. Trican Geological Solutions provides comprehensive total original hydrocarbon in-place modelling for unconventional shale gas, retro-grade condensate, tight oil, and coalbed methane reservoirs. The modelling methodology incorporates a complete suite of lab and field tests on core material, including:

- Porosity, water and gas saturation, and residual oil or liquid saturation using pyconometry and Dean-Stark techniques
- Desorption canister gas compositions
- Residual oil or liquid compositions from thermal desorption gas chromatography
- Multiple gas adsorption isotherms
- Source rock analyses and total organic carbon (TOC) determination
- Integrated wireline log for resource profiling along the wellbore (calibrated using lab-measured core or cuttings data)

The modelling process involves determination of fluid PVT properties using industry-accepted correlations, equation of state-based flash modelling, and integration of available laboratory-measured PVT properties of wellhead fluids. Using a volumetric model, integrated hydrocarbon in-place modelling provides the necessary data for play evaluation and reserve booking, including:

- Total original hydrocarbon in-place of cored intervals and integrated log-based resource profiling of the full reservoir section
- Relative phase components of the total hydrocarbon in-place, including free gas, adsorbed gas, solution gas in water and solution gas in oil
- In-place estimates of liquid or condensate, and wellhead liquid-gas ratio (LGR) for retrograde condensate or liquid-rich reservoirs
- Fluid phase behaviours and formation factors for gas and oil at in-situ reservoir conditions
- Specific gravities of gas, liquid or oil at standard oil tank conditions
- Gas content and critical desorption pressure for coalbed methane reservoirs
Total Hydrocarbon In-Place for Condensate Reservoirs (CGR-76STB/MMSCF)

For more information, please contact Trican Geological Solutions.