Testing Services for Heavy Oil

Realize the production potential of heavy oil reservoirs
Heavy oil reservoirs play an increasingly important role in meeting worldwide energy demands.

Currently the largest discovery of producible reserves, heavy oil provides a great economic opportunity, but successful production of these unconventional reservoirs requires leading-edge technologies and a global support network of heavy oil domain experts to provide you with certainty that leads to more informed decision making and repeatable success.
Understanding heavy oil dynamics and properties to enable critical decisions and ensure producibility

Proper characterization of these challenging reservoirs—which includes conveying fluids to the surface, measuring pressure and temperature, and developing detailed reservoir models—is vital in meeting bottom-line production targets. Domain experts from various backgrounds work with you to deliver the ideal test solution. Using advanced technologies so that you may realize the production potential of your heavy oil reservoirs in a time- and cost-efficient manner, Schlumberger teams deliver reliable results to give you confidence in your well's ability to produce.
Schlumberger domain experts use a wide array of products and services to ensure efficient, reliable results you need to reduce risk and make well-informed decisions for heavy oil production. By using the most versatile range of testing and artificial lift services, Schlumberger achieves your heavy oil test objectives economically and delivers the right answers.

Beginning with a complete pretest plan that addresses test objectives, we review existing reservoir and fluid data and design a heavy oil test string that optimizes flow, measures flow rates, and samples multiphase fluids at the surface and single-phase fluids downhole. Test design incorporates safety and efficiency measures for each job, including the environmentally-safer disposal of reservoir fluids. Each planned test iteration is integrated into a reservoir model, ensuring the design of the test remains within specifications and continues to meet test objectives.

Advantages
- Reservoir-driven design using real-time production and modeling software
- Reservoir inflow performance evaluation with analysis of:
  - transient productivity index
  - flow capacity and permeability thickness
  - completion efficiency
- Formation heterogeneity identification
- Reservoir drainage determination
- Lifting optimization of reservoir effluents
- Fluid characterization and PVT analysis with the collection of downhole and surface fluid samples
- Environmentally conscious operations

Heavy oil testing: An integrated approach
Planning and executing successful tests for heavy oil and non-naturally flowing, low-API reservoirs requires experience, expertise, and the integration of many services. Schlumberger offers multidisciplinary testing products and services for complete, dynamic reservoir testing. Our field-proven, integrated technologies include the following:

**CERTIS** high-integrity reservoir test isolation system combines many features of a conventional retrievable packer with those of a permanent production packer, including a built-in floating seal assembly that eliminates the need for drill collars and slip joints.

**CQG** crystal quartz gauge is designed from proprietary sensor technology and dramatically reduces thermal effects to provide the most accurate pressure measurements available.

**eFire** electronic firing head system allows low-pressure initiation and precise delay times, and is insensitive to well conditions.

**IRDV** intelligent remote dual valve combines a tester valve and a circulating valve that can be cycled independently or in sequence.

**PhaseSampler** multiphase well testing equipment enables PVT-quality samples of multiphase fluids to be captured at line conditions, directly from the flowline.
PhaseTester® portable multiphase well testing equipment with Vx† technology enables better estimation and recovery of reserves, as well as ESP optimization for extended life cycles.

Phoenix® artificial lift downhole monitoring systems deliver real-time data (transmitted anywhere in the world via the InterACT™ connectivity, collaboration, and information system) to help lower operating costs through better ESP system management and promote longer lift system run life.

REDA® Maximus® electric submersible pumping systems help extend ESP run life, expand ESP operating range, and increase production in thermal recovery applications.

SCAR® inline independent reservoir fluid sampling delivers representative fluid samples from deep within the reservoir; samples are collected directly in the flow stream to eliminate contamination caused by dead volumes.

SenTREE® subsea test tree provides reliable well shut-in and disconnect during emergencies offshore; it also prevents hydrocarbon release during disconnecting from and reconnecting to the well.

Variable speed drive can be used to adjust the speed of the ESP to establish different production rates; this helps the submersible pump to produce over a wider volume range than is possible at a fixed speed.

Y-tool and bypass system allows testing to be conducted simply and efficiently to obtain reliable information for improving field productivity and to reduce rig costs significantly.

Confidence in your heavy oil decisions

With a wealth of experience and the latest advances in technology, Schlumberger provides accurate reservoir characterization that helps you meet your test objectives. During heavy oil operations, reach a better basis for your decisions and be certain.
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Be certain.