Manage unconventional wells in real time with high-density, multipoint, ultrahigh-temperature reservoir sensing for the life of the well.
Oil reserves such as the bitumen Alberta oil sands present operators with the toughest challenges for extraction. The thick tar-like hydrocarbon requires the use of specialized techniques, such as in-situ thermal recovery, where oil is heated in place to mobilize and recover it. The LxData monitoring system offers state-of-the-art, multipoint temperature- and pressure-monitoring capabilities suited to your unique projects, including the most challenging steam-assisted gravity drainage (SAGD) wells.

To date, more than 100 LxData systems have been successfully deployed in North America, more than ten of which for customers in the Alberta oil sands, where the systems have been field-proven to improve operational best practices, reduce operational costs and enhance safety.

Drawing on these successes, the LxData system enables operators worldwide to:

- Manage data in real time at the well, pad, or field, including data for reservoir and production engineering
- Characterize and monitor steam distribution and chamber growth accurately during startup and production
- Determine flow profile to optimize steam injection
- Identify potential steam breakthroughs
LxData™ Optical Monitoring System

Ultrasound Temperature

High Density

Multipoint Monitoring

The comprehensive, integrated data acquired by the LxData system in real time can hasten and improve decision-making to minimize the severity or impact of problem wells, optimize surface operations, and enhance the safety of pressure-control operations.

The system can even lessen the probability of sand production by providing full production-alarm monitoring with accurate sub-cool and steam-breakthrough measurements and reliable data on flow obstructions, thief zones, and tubing or casing leaks.

Additional applications:

- Validating reservoir models
- Estimating the reserve lifetime of the asset
- Determining optimal effective operating pressure
- Establishing the highest, most economical recovery parameters
- Providing injection and production profiles and rates, as well as subsurface pressure data to help optimize future well drilling and completions
LxData Sensor Array

Unlocking the power of optical sensors to provide benefits unmatched by electronic sensors.

Reliability. Proven reliability in the most extreme conditions with ratings to 572°F (300°C), far beyond standard fiber-optic sensor ratings.

Accuracy. Precision of real-time readings without relying on averaged return readings from fiber.

Longevity. Designed for 15 to 20 years of service without wear-out phase. Diagnostic sensors recalibrate should chemical changes occur to the fiber.

Simplicity. Completely passive sensors require no electrical power or adjustments (fine tuning). Limited handling with minimal components and moving parts require nominal maintenance.

Robustness. Immunity to electromagnetic interference and resistance to corrosion, chemicals, water, and lightning provide an ideal solution for harsh, complex environments.
Flexibility. Can be used in conjunction with components of the OmniWell reservoir-monitoring product family, including specific location, temperature, pressure, seismic, acoustic, and multiphase flow.

Adaptability. Ability to cover short or long distances, inches or miles, depending on your application.

The Weatherford LxData system features combine to create a thermal- and pressure-monitoring solution providing more powerful pad-level architecture. The integration into a central data acquisition and processing unit (DAU) and a full suite of horizontal/vertical/specialist sensing strings delivers a real-time, pad-level representation of your thermal environment for advanced imaging, reservoir modeling, and process optimization.
Advanced Ultrahigh-Temperature Fiber Optic Technology

Building on the successful Weatherford track record in reservoir monitoring, the LxData system incorporates a breadth of features, including:

• High-capacity-fiber Bragg grating technology for reliable, high-resolution, always-on data
• Pressure and thermal sensing on a shared fiber or instrument
• Real-time, synchronized, and correlated pressure and temperature data
• High-density, multipoint thermal sensing with configurable sensor location and spatial resolution
• Integrated 1/4-in. slimline optical pressure-temperature gauge
• Scalable, integrated pad-level monitoring for producers, injectors, observation wells and electric submersible pumps
• High-value visualization and modeling tools
• Continuous, remote health-monitoring capabilities with self-diagnostics and performance assessments
LxData™ Optical Monitoring System

To learn more about how reservoir monitoring can improve your production, contact us at omniwell@weatherford.com or visit us at weatherford.com.