

TESTING AND PRODUCTION SERVICES

Well Testing Services

Delivering reliable well test data through industry-leading expertise, equipment, and software



Experience and technology yield better data

We help you make the most of your well test with field-proven equipment and decades of experience.

You require accurate exploration and appraisal well data to make critical reservoir-management decisions. You also need to optimize production and maximize recovery while minimizing environmental impact.

With more than 30 years of experience, Weatherford is one of the largest providers of surface well testing in the world. Our offerings include appraisal and production well testing, frac flowback, well cleanup and unloading, plug recoveries, inline production tests, and extended well testing. We operate with the highest-quality health, safety, security, and environmental (QHSSE) standards.

In addition to expanding our equipment portfolio, we have invested heavily in specialized training and competence assurance programs that build the expertise critical to successful well testing and production operations. Whether your objective is to obtain critical reservoir data or to meet stringent environmental regulations governing your active wells, discover the difference our breadth of capabilities and depth of experience can make on your next operation.



Well test design and analysis services

In well testing, one size does not fit all. Objectives and operating conditions vary and require design customization. Leveraging our proprietary design software, such as ReO[®] software, and our experienced testing engineers, we can develop a test plan that delivers the accurate and meaningful data you need to make informed reservoir-management decisions and optimize recovery.

Once the test is complete, our engineers use Weatherford proprietary PanSystem[®] and PanMesh[™] analysis applications to provide a detailed analysis, validation, and interpretation of the test data along with reservoir-management recommendations.

Exploration and appraisal well testing

During exploration and appraisal well testing, we acquire critical data, such as flow rates and formation fluid properties, as well as surface and downhole pressure, temperature, and fluid samples. This data can help you assess the commercial potential of a reservoir and produce your wells cost effectively.

To acquire the data, we use surface well testing packages, multiphase flowmeters, and sophisticated electronic data-acquisition systems. We also have the capacity to transmit data in real time to approved parties at off-site locations, which facilitates fast, well-informed decision making. With a global network of advanced geosciences laboratories, we can provide formation fluid analysis on downhole and surface samples acquired during testing.

Optimize well performance, minimize environmental impact

With the same base technologies that we use for testing exploration and appraisal wells, we provide services to help you optimize the performance of your producing assets while minimizing environmental impact. These services include production testing, well cleanup and unloading, and management of frac flowback.

Management of Frac Flowback

A byproduct of hydraulic fracturing, residual proppant can damage production lines, process facilities, and equipment as it flows back to the surface. We use an array of technologies—including hydraulic chokes, four-phase separators, pressurized knockout vessels, and high-pressure plug catchers—to manage returning proppant and solids effectively.

Well Cleanup and Unloading

Our services include the removal and proper disposal of completion fluids and solids. With equipment built to the industry's most stringent standards, we can handle any fluids that have been used during completions. Our systems can be customized to operate virtually emissions free, so we can test in even the most environmentally sensitive areas.

Production Testing

Production testing can help you optimize field performance, diagnose production problems, and comply with applicable environmental regulations. We offer standard inline testing packages—which minimize emissions and prevent production interruptions while testing—as well as memory production logging and flow metering. Our flow-metering

technologies include the non-nuclear Alpha VS/R wet-gas flowmeter, the Alpha VS/R-D multiphase flowmeter, and the compact REMMS partial-separation flowmeter. All are suitable for space-constrained environments, and all incorporate advanced Red Eye® technology, which measures water cut.

Applications of Production Testing

- Optimizing well and field performance
- Diagnosing production-related problems
- Evaluating the effectiveness of stimulation treatments
- Validating export meters
- Complying with environmental regulations

Extended Well Testing

Weatherford extended well testing services enable you to bring production online immediately after completion while gathering pertinent reservoir data and planning full-field development strategies. With a track record of successful projects around the world, Weatherford offers the technologies, engineering expertise, and global reach to design and operate in any environment, including complex and remote installations.





Our technologies deliver testing efficiency

We offer proprietary technologies that expand the frequency of flow-rate information and enable real-time production decisions.

Inline Multiphase Flow Measurement

Our multiphase flow measurement products provide accurate and continuous flow-rate measurement for all oil, water, and gas phases in individual wells or in groups of wells. Suited for applications in which conventional three-phase separators are less effective, our multiphase meters eliminate the need for bulky test separators and provide accurate, real-time flow-rate measurements.

The Weatherford Alpha VSRD multiphase flowmeter is a robust, full-range flowmeter for the measurement of gas, oil/condensate, and water rates. The flowmeter is based on an extended-throat Venturi meter, a sonar flowmeter, a Red Eye MP water-cut meter, and a gamma densitometer. This combination of technologies has a wide operating envelope and offers maximum accuracy in wet-gas and liquid-dominant multiphase streams.

The Alpha VSRD advantage

- Provides full multiphase (0 to 100% GVF) measurement with redundant total flow measurement

- Delivers true three-phase, non-nuclear wet gas measurement
- Measures independent water cut (0 to 100%)
- Provides measurements that are unaffected by salinity and emulsion state
- Affords operational flexibility with a high turndown ratio, which enables a single system to handle a wide operational range

Real-Time Data Acquisition

Our data-acquisition (DAQ) software system provides real-time test monitoring with high-speed data logging, customizable trends, visual representation of the process layout, and on-demand report generation. It enables users to visualize system performance in real time and to have immediate access to actionable, decision-making data.

The DAQ software system remotely monitors the well test 24 hours per day with configurable alarm, alert, and commenting features. It also calculates advanced process parameters and fluid properties based on industry-recognized standards and correlations.

The DAQ software advantage:

- Provides accurate, real-time testing analysis of well- and field-level assets
- Monitors surface tests and downhole tests
- Features advanced data trending, including zooming, scaling, and annotations
- Visualizes the unique processes and equipment of each well or asset in real time
- Provides comprehensive test reports, including comments, photos, drawings, and trend plots
- Saves time and money with real-time test reporting
- Provides customizable data trending and report generation
- Enables early changes to production parameters based on immediate update reports



Cultivating expertise through dedicated training

Our people make the difference. We provide our well testing and production services personnel with specialized computer-based and classroom training to build proficiency in the latest techniques and technologies, as well as best QHSSE practices. We cultivate and share expertise through a series of case-study-driven courses that teach technicians and third-party specialists how to design effective well tests and how to interpret testing and production data. Courses cover diverse topics and range from introductory to advanced levels.

Our courses—incorporating 30 years of input from operators and service companies—include new developments in well test design and analysis. These courses are held at Weatherford training centers throughout the world, including our dedicated training site in Edinburgh, U.K., and at client facilities by request.



Weatherford well testing services deliver reliable well test data through industry-leading expertise, equipment, and software. To learn how our services and technologies can work for you, contact your authorized Weatherford representative or visit www.weatherford.com/contact-us



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