



Weatherford®

LOWIS™

Life of Well Information Software



Facilitates proficient, cooperative interaction between people and more effective production workflow processes.

LOWIS Software

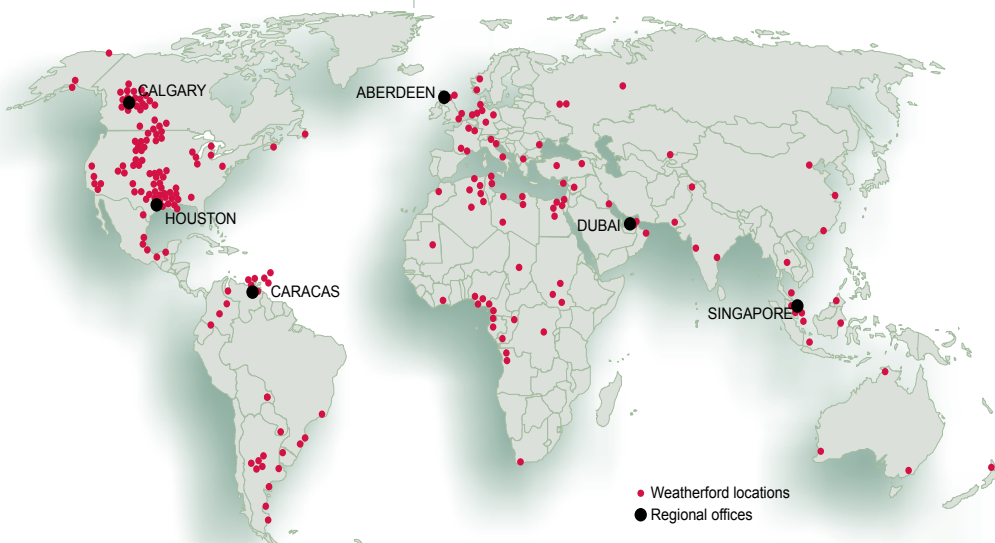
Weatherford International's production optimization division provides solutions to increase production and lower lifting costs in green and brown fields. We deliver agile, well-supported products and services that foster innovative optimizing approaches for flowing wells and all forms of artificial lift. The software, hardware and completions solutions help you work better, smarter and faster.

Not simply a suite of great products . . . rather, comprehensive solutions for the well, reservoir and field.

Real-Time Production Optimization

Weatherford has solutions for all types of production. From onshore stripper wells to high-volume offshore and subsea wells, Weatherford appreciates that different types of wells and reservoirs require different methods of optimization. Weatherford offers a range of products and services that enable production optimization initiatives to be located throughout the entire enterprise. These initiatives can range from downhole instrumentation within the wellbore through asset planning tools that integrate reservoir management and optimization of well, reservoir and surface equipment into a single software solution.

Weatherford is the world leader in providing production optimization solutions for flowing wells and all forms of artificial lift. The solutions provided by Weatherford increase production and lower lifting costs. The role of a service company is to maximize recovery and profitability in the completion and production of green and brown fields. *LOWIS* software offers the industry's leading software tools to optimize operations and reservoir management.



An Integrated Approach to Well Management

LOWIS software is a web-based, enterprise-wide, well management suite designed to help improve the bottom line for any oil and gas production operation. By reducing lifting costs, optimizing workflows and minimizing the financial risk associated with the evolution of new technologies, this innovative software suite can help companies better achieve their financial goals and objectives.

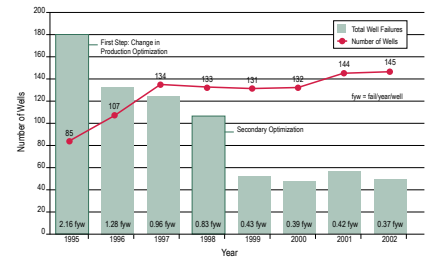
Reduce Lifting Costs: The software platform provides real-time monitoring and alarming capabilities coupled with integrated analytical and reporting tools to achieve optimum well performance. Using the program's suite of tools and customizable workflow interface, operators can more quickly identify, prioritize, plan and service poor performing wells, thereby reducing downtime and the associated production losses.

Optimize Workflows: Built-in score-carding tools, combined with easy access to complete well histories, enable producers to develop and implement best practices around failure management. LOWIS program features provide a unique combination of surveillance, analysis and well service management tools in a single interface, further empowering producers to better organize and standardize their production workflow processes. Single point viewing of data from multiple disparate sources enables the knowledge sharing process. Valuable, historical well data once stored in spreadsheet files on individual desktops can now be stored and shared on central servers.

Minimize Financial Risk: The rapid uptake of new technology in the production operations domain can expose companies to unnecessary financial risk. Use of the software's comprehensive solution eases this burden and allows producers to focus on the core activity of optimizing oil and gas production.

What tasks can LOWIS software perform for me?

Production	production testing production loss analysis material balance production summary reports
Artificial Lift	analytical tools operation by exception optimize well performance prevent failures reduce downtime
Well Services	plan interventions prioritize work schedules capture work details track equipment reduce cost of services
Field Services	pump teardown analysis track chemical programs workover or rig management
Flowing Wells	EFM histories and alarms heavy oil "huff and puff"
Injection	water, CO ₂ , WAG and steam target vs. actual recovery daily/monthly volume report reports by patterns



Customers have shown measurable optimization improvements.

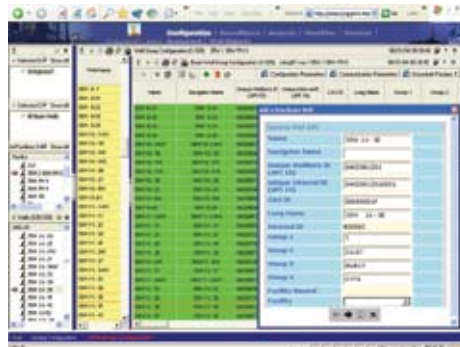
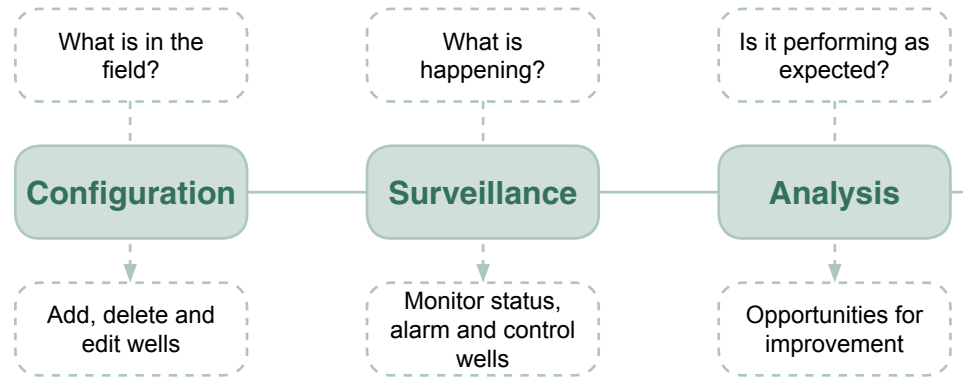
Features at a Glance

- Full SCADA functionality for well monitoring and control
- Common interface to view and interact with data from multiple sources
- Integrates suite of surveillance, analysis and well service management tools
- Prioritization of opportunities from field and well surveillance
- Open to several methods of wellhead telemetry
- Supports all well types and processes
- Seamless trending, reporting and graphing

LOWIS Software



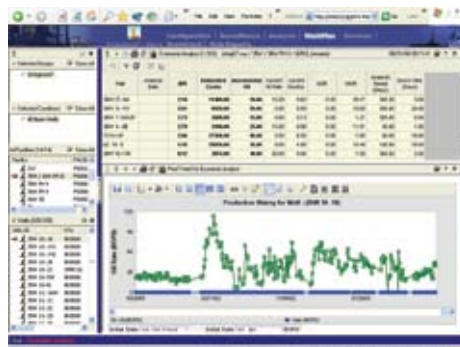
Managing the Workflow Process



Pre-built equipment catalogs for easy entry with simple menus for adding, changing and deleting wells.



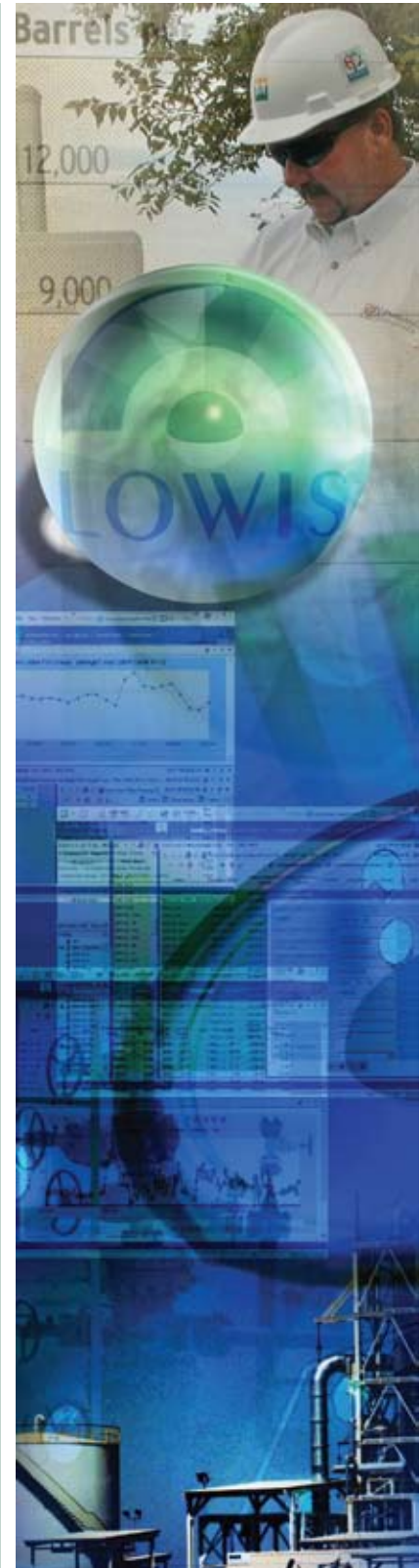
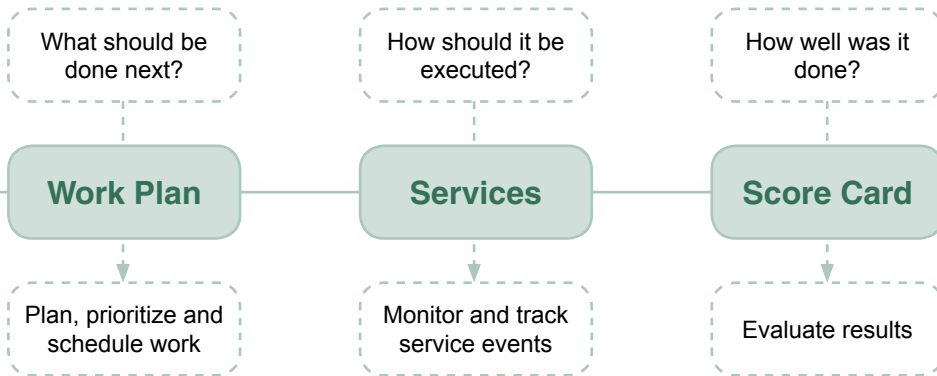
Well graphics with a table view are easily navigated for multiple wells.



Prioritization of workovers is possible in the work planning process.



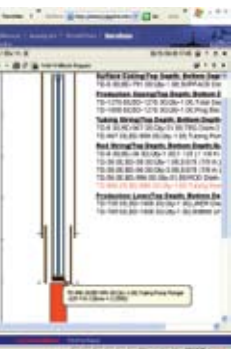
Review past jobs and services performed to optimize and equipment.



Tabular format of data for quick looks through



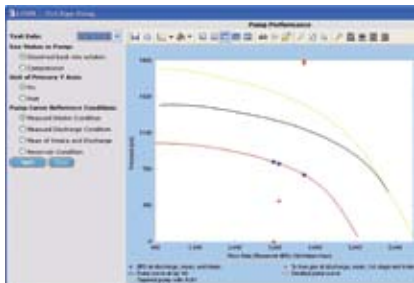
Analytical tools enable the user to diagnose problems and interact on the latest operating conditions of each well.



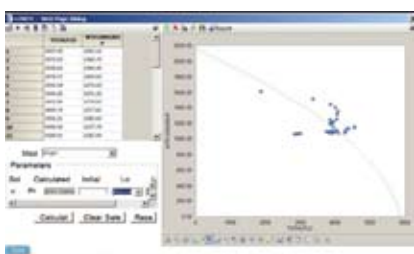
Evaluate details on determine procedures



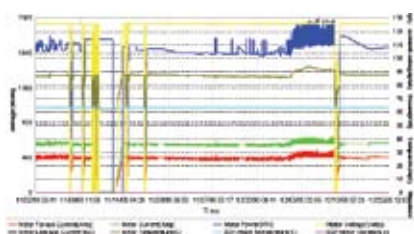
Easily create or access reports and trends showing the effectiveness of operating changes and workovers.



Pump Performance Curve



Inflow Performance



Real-Time ESP Data

An Integrated Production Workflow Solution

To successfully manage today's upstream oil and gas production operations, various individuals within an organization must collaborate effectively on a variety of important tasks. Throughout the life cycle of a well, these multi-disciplinary tasks range from planning and executing to results evaluation and process improvement.

Achieving productivity gains in this complex, interdependent environment requires timely sharing of reported data, calculated results, analytical findings and expert observations. Critical information is often fragmented and dispersed across the enterprise, hindering an organization's efforts at collaboration. *LOWIS* workflow facilitates proficient, cooperative interaction between people and more effective production workflow processes.

- Full SCADA functionality for well monitoring and control
- Common interface to view and interact with data from multiple sources
- Integrated suite of surveillance, analysis, and well service management tools
- Visually display information and map out daily work priorities from the *LOWIS* console
- Management of work prioritization and attention to the highest producers
- Open to several methods of wellhead telemetry
- Connectivity to multiple controllers and RTUs
- Supports all well types and processes
- Seamless trending, reporting and graphing

Real-Time Data

- Surveillance tools place integrated real-time and historical well data at the user's fingertips and facilitates immediate control of wellhead facilities
- *LOWIS* software supports hundreds of field controllers and RTUs so that you can continue to maximize your investment in these devices

Analysis Workbench

The analysis workbench provides a means for faster diagnosis and remediation of production problems whether your artificial lift type is beam, ESP, PCP or something else. This suite of tools allows your engineers to analyze and optimize your wells using real-time information. This enables your engineers to zero in on probable performance problems before well intervention.

Well Service Management (WSM)

The WSM module is used to prioritize and plan well service events. It presents histories in comparative graphs and reports to help determine best operating practices. Web reporting tools facilitate enhanced information exchange across the enterprise to help you understand your operational issues and cost drivers.

- Some of the typical outputs from our score card analysis:
- Costs in a given year for tubing and rod failures
- Number of acid jobs completed with the total and individual costs
- Total pump failure workovers in a given year and associated costs
- The most efficient service company for any given job type with detailed crew and supervisor information
- Number of workovers and costs trended over time

What Value Does LOWIS Software Provide?

More than anyone, **Asset Managers** will recognize the value of this unique software platform across their operation. It offers measurable value by improving operating inefficiencies on a daily basis. Of even more value are the savings created by having a standardized approach to managing the total workflow process. This minimizes the time spent each day searching for and organizing production data from various sources into logical information that can be acted upon. The web reports facilitate faster, more efficient knowledge transfer across multiple domains.

The combination of real-time optimization and well service management tools in a single interface empowers **Production Engineers** to more quickly identify problems and isolate the underlying root cause. Using the same interface, production engineers can plan and prioritize work based on economics. Well services are much easier to organize and prioritize, and score carding ensures that the engineering team benefits from the development of best practices around failure management.

Engineering Technicians can diagnose problems or operational inefficiencies in artificially lifted systems in hours rather than days. The time saved in surveillance and diagnostics can be re-directed to problem remediation and production optimization. By using the *LOWIS* configuration tools, engineering technicians can adjust controller settings and view the effective results of those changes.

Full SCADA functionality for remote well monitoring, control and alarming alerts **Lease Operators** to potential problems instantly, any time, anywhere. The lease operator can quickly review all wells each morning and more effectively prioritize his or her daily activities. Analysis of pump efficiency and run time can help the lease operator proactively manage power usage in the field.

Service Providers can better benchmark their products and services, identify areas for improvement, and maintain a competitive edge by providing more value to producers. Opportunities to fill additional client needs with products and services can be recognized by tracking well work, services and products.

IT Specialists can reduce the amount of support required to administer multiple software products and systems. Proprietary applications can be included within the *LOWIS* software framework, further minimizing support requirements. Data acquisition, storage, consolidation and visualization help improve overall data integrity and simplify the production data management process.



LOWIS Software



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Contributor and participant in PRODUCTION xML, or production markup language (PRODML™) an industry standard that can be used to improve data exchange and work process efficiency in production optimization.

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