OVERVIEW

Hundreds of activities are performed at a given rig site on any given day and staying on top of everything is critical to safe, productive, and cost effective operations. To manage this complexity requires accurate recording, reporting, and analysis of rig operations across all the variety of ongoing activities. Each team member has different responsibilities that must be supported with the overarching objective to collect and report up-to-date information in a timely fashion and in a manner that is not intrusive to their day-to-day operations.

Supervisors need to easily record and report activities on a single well or across an entire field, while managers require timely and accurate reports to act appropriately. Analysts need to be able to easily access and analyze this information to drive performance and operational improvement, and engineers require it to be readily available for their well engineering and planning projects. All must collaborate together to drive well operations at peak safety and efficiency.

The OpenWells® operations reporting system offers a comprehensive solution to track, report, and analyze rig operations from site sourcing through to abandonment. It provides simple, visual solutions to speed up data entry and leverages the industry standard Engineer’s Data Model™ (EDM™) to store, manage, and share data with Landmark’s leading suite of integrated engineering applications. It provides each member of the team tailored methods to collect and report their data into a comprehensive, collaborative environment for operators to effectively manage well operations of all kinds.

BENEFITS

Streamline activity and morning reporting
OpenWells software utilizes a unique data entry canvas with an intuitive, visual interface that uses interactive illustrations of typical rigs, equipment, and operations to guide users to record or view their information. This simplifies data entry and reduces training requirements, so supervisors can begin using the system quickly.

Reports and entry forms are designed in WYSIWYG (What You See Is What You Get) format to replicate a company’s specific report look and feel. This enables operators to incorporate their custom report design and users know exactly how their data will be shown and disseminated to management.

Improve drilling operations
OpenWells software has several analysis capabilities to help analysts and managers uncover drilling performance improvements. The NPT (Non-Productive Time) analysis module is a comprehensive tool to discover root causes of NPT and uncover hidden losses that can be difficult to find and attribute.
Perform technical limit analysis by looking at offset wells by hole section to identify best practices and lessons learned to incorporate into ensuing wells. OpenWells software enables tracking of all equipment failure details, the cause and types of equipment failure, and failure costs. A Lessons Learned feature allows engineers to provide observations and insights to a particular report that can be searched against and used in similar future situations.

Use the Data Analyzer capability to execute comprehensive data queries to dig into the data to discover relationships, compare and contrast designs, and benchmark operations to provide more context in drilling operations.

**Advance collaboration and decision making**

OpenWells software utilizes the EDM unified data model that is shared across Landmark’s suite of engineering applications like WELLCAT, COMPASS, StressCheck, CasingSeat, WELLPLAN, and DecisionSpace Well Engineering. Operations and engineering information is entered just once and then automatically available across the suite to pre-populate calculations and reports for faster and more accurate analyses. This enables teams to collaborate more effectively.

Use the optional iWellFile™ web dashboard and historical well report viewer to securely share access to up-to-date ongoing and historical well information, output reports, down hole schematic diagrams and analytical results. This is an easy way to share information with team members, management, or partners and help facilitate morning meetings with a dispersed group.

*Interactive rig site schematics streamline access and editing of equipment and activity reports.*
**FEATURES**

**Interactive, visual activity reporting**

Using point and click interactive rig site schematics provide engineers with a familiar visual reference to create and edit their activities, such as cementing, logging, and rig equipment, using either a land rig, jack-up, semisubmersible, or drill-ship visual canvass. This takes the complexity out of how to enter information and speeds up training of new users.

Daily operations data entry forms can be designed to look like familiar company reports and to match company reporting workflow standards. This What You See Is What You Get (WYSIWYG) visual data entry allows engineers to use the same report format and look to enter data that then it is distributed to management. This helps simplify data entry and provides an immediate preview of the actual report.

OpenWells software supports support all common reporting aspects of drilling, completion, well servicing, well intervention, construction and reclamation, through plugging and abandonment for onshore, offshore, conventional and unconventional plays. The suite of reports includes more than thirty types of activity reports.

**Integrated PROFILE wellbore schematics**

PROFILE wellbore schematic software is integrated into the OpenWells software package and provides engineers the ability to create accurate, high quality wellbore equipment and planned completions diagrams as well as view historical equipment and configurations in existing wellbores. Detailed wellbore schematics are incorporated into all OpenWells data entry forms so engineers or rig supervisors can view the current schematic or drill string as they complete the report.
PROFILE software provides downhole and surface equipment configuration, high resolution equipment symbol visualization, and accurate rendering of downhole equipment and operations. Comprehensive hardcopy wall plots can be created and engineers can build their own wall-plot formats and equipment symbols. At any point in well construction, the software enables engineers to compare planned and actual well construction diagrams so the engineer has an accurate, visual view of operations.

**Engineer’s Data Model (EDM)**

The Engineer’s Data Model software, the industry standard for managing well engineering and operations data, is included in the OpenWells software package. The enterprise grade relational database supports common architectures for reference datum levels, security, unit management, data migration, document attachments, library, output reporting, catalog editor, XML import/export, and AutoSync data transfer.

The EDM AutoSync utility provides tools for automatic synchronization between multiple regional databases located around the world in a common corporate data store. For
example, as daily reports are received from the rigs, or the drilling engineer updates a
directional plan from a regional office, the EDM AutoSync utility quietly monitors for new
or changed data, then updates the corporate data store with new information.

**Today’s wells**

This feature allows a drilling engineer to quickly review the status of all active wells.
Well status, cost information, and details such as depth versus days graphs may be viewed without navigating through the Well Explorer Tree.

![Today’s Wells provide dashboard view of key well information.](image)

**Data entry/output forms editor**

OpenWells provides fully customizable data entry forms through the OpenWells software form customizer tool. Using drag and drop functionality, users configure data entry forms that best suit the operations reporting requirements for engineering teams. These forms can be printed giving the user a true WYSIWYG experience.

**Knowledge management**

The software enables the capture of lessons learned, equipment failure and nonproductive time information. It provides an “at-hand” data capture tool for field personnel to document learning gained during well operations. By leveraging operations experience and learning, engineers can reduce costs and improve future well designs and well construction operations.

**Library support**

Enables users to export and import data from operational area libraries in the EDM database around drill strings, cementing, stimulations, etc. This library feature supports quick moving operations that are “cookie cutter” and significantly increase operations the speed of data entry.
**Configure printed reports using Microsoft Word**
Simplify report maintenance and reduce support costs by using the familiar Microsoft Word to create, edit and print reports. This can also simplify the regulatory reporting process as users can generate editable regulatory reports in Microsoft Word, allowing analysts to then directly enter information that is not contained in EDM. In the 5000.1.12 release the OpenWells software includes one pre-configured MS Word report, the Texas-W2 Completions report, as an example.

**Directional drilling reporting**
OpenWells enables users to enter directional drilling-specific, bottom hole assembly (BHA) operations parameters for drilling or sliding mode in the “BHA Operations” tab of the Daily Operations report. This operations reporting system is tightly integrated with COMPASS wellpath planning software.

**Spreadsheet Import**
The software allows electronic import for all spreadsheets. This enables users to populate a spreadsheet by importing data from external sources, from a file or through the Microsoft Windows clipboard.

**Application Security**
The application provides create, delete, view, edit and print access to be configured to virtually any information in the system. User accounts can be set up for service company employees, granting secure view, and edit access to the data entry screens relevant to their services.

**Data Validation**
The Rule Book Editor and Data Validator enable customers to define rule books to ensure data consistency and data quality and to enforce business rules to support operations’ reporting requirements. Administrators can configure when validation is performed. Batch validation is supported to enable multiple reports to be validated in one pass.

**Data Analyzer data query and analysis software**
Data Analyzer software is included in the OpenWells software package. Data Analyzer software enables simple to complex ad-hoc well-operations data querying and analysis for the entire EDM database. Queries are constructed using an intuitive selection tree where data fields are displayed with familiar user defined. Queries and templates are stored in the EDM database, so that they may be shared among all engineers to promote consistent analysis and query re-use. Engineers can create queries to select information created in engineering applications, such as CasingSeat, COMPASS, PROFILE, StressCheck and WELLPLAN software, or through information captured during well operations using OpenWells software. This functionality supports rapid access to data, enabling engineers to compare and contrast any type of information, benchmark operations, and extract information required for corporate or regulatory reporting.
**System and Software**

**OPERATING SYSTEMS**
- Microsoft® Windows® 7 Enterprise 64-bit with SP1
- Microsoft Windows Vista Enterprise 64-bit with SP2
- Windows 2008 Server SP2, 64-bit
- Citrix XenApp 6.0
- Oracle 11.2.0.2
- Oracle 10.2.0.4
- SQL Server 2008 R2 SP1

Drilling fluid analysis displays from Data Analyzer.

**Import Activity from the Pason Electronic Tour Sheet**
Supervisors can save time and eliminate duplicate entry by importing operations activity from a Pason Electronic Tour Sheet. Selecting the “Import” button on the time summary data entry form provides the option to import a Pason Tour Sheet. After selecting the Electronic Tour Sheet, supervisors are presented with a preview of the available operations and can select which of those activities to import.

**OpenWells module for Rushmore Reviews DPR, SPR and CPR workbooks**
Analysts tasked with preparing workbooks for the Rushmore Drilling Performance Reviews (DPR), Shale (SPR), and Completions (CPR) submission can now use the OpenWells Performance Reviews module to automatically generate workbooks. Using this module automates export of up to 95% of the DPR workbook, over 50 percent of the SPR workbook and approximately 10 percent of the CPR workbook.
“Hundreds of activities are performed at a given rig site on any given day and staying on top of everything is critical to safe, productive, and cost effective operations. Managing this complexity requires accurate recording, reporting, and analysis with a solution that does not impede the pace of operations.”

Landmark offers solutions to help you deliver on your business strategies. For questions or to contact your Landmark representative, visit us at landmarksoftware.com.