

# ***Engineer's Desktop™***

## ***Software Version 5000.1.13.1***

### ***Release Notes***

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## What's In This Release?

The function of the 5000.1.13.1 update release is to add new and drop some existing supported operating systems and Citrix configurations, plus add a significant number of enhancements and bug fixes for nearly all EDT applications and utilities. Patch releases were ported to this release as well.

The [supported platforms](#) were updated in this release. Descriptions of Enhancements, Fixed Problems, and Known Issues for each application in the EDT suite are provided.

To go directly to the enhancements, bug fixes, and known issues for individual applications, click the blue links below:

<b>CasingSeat™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>COMPASS™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>Data Analyzer™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>EDM™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>Engineer's Desktop™ (EDT™)</b>	<a href="#">Integration Enhancements</a>	<a href="#">Integration Fixed Issues</a>	<a href="#">Integration Known Issues</a>
<b>OpenWells®</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>PROFILE™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>Real-Time View™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>StressCheck™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>WELLCAT™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>Well Cost</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>
<b>WELLPLAN™</b>	<a href="#">Enhancements</a>	<a href="#">Fixed Issues</a>	<a href="#">Known Issues</a>

An [Introduction](#) to the Engineer's Desktop release, [System Requirements](#), [Installation Instructions](#), and [Licensing](#) for all products is also covered in this document.

To see the most up-to-date version of these release notes visit the [Landmark Software Management \(LSM\)](#) site.

**Note:**

Page 56 and following covers EDT enhancements, fixed issues, and known issues for this release, as well as 5000.1.0 and subsequent upgrade releases.

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# Introduction To Engineer's Desktop™

Welcome to the 5000.1.13.1 update release of the 5000.1.0 version of Engineer's Desktop™ (EDT™) software. The Windows-based Engineer's Desktop software enables the Drilling & Completions applications—Well Engineering, Tubular Design, and Well Data Management—to run on a shared data model.

The function of the 5000.1.13.1 update release is to add new and drop some existing supported operating systems and Citrix configurations, plus add a significant number of enhancements and bug fixes for nearly all EDT applications and utilities. Patch releases were ported to this release as well.

Engineer's Desktop software contains the following application areas:

- *Engineer's Data Model™ software*—EDM Administration Utility, SQL Server Utility, Drilling and Well Services Data Migration
- *Drilling Engineering*—CasingSeat™, COMPASS™, StressCheck™, WELLPLAN™, WELLCAT™, and Well Cost applications
- *Data Management*—OpenWells®, Data Analyzer™, PROFILE™, and Real-Time View™ applications.

EDT release 5000.1.13.1 update is installed via a WinZip® file obtained via the Electronic Software Delivery system, using Landmark Software Manager.

**IMPORTANT:**

- **EDT 5000.1.13.1 software is an update release of 5000.1.0 and higher.** If you are currently using an EDM database version that is 2003.14 through 5000.0.0, you must first install EDT 5000.1.0 and then upgrade your database using the new Multi-Version Database Upgrade Utility (EDMPatchDB.exe) before installing the 5000.1.13.1 upgrade. Refer to the *EDT™ Version 5000.1.0 Summary Level Release Notes* for complete details on installing and upgrading to 5000.1.0.
- **EDT 5000.1.13.1 applications can co-exist with previous versions of EDT applications on the same machine with no issues.** To run EDT 5000.1.13.1 and a 2003.x version of EDT on the same machine, you must point one or both versions of EDT software to a LAM server located on a remote machine, since only one LAM server can run locally. LAM 2003 and LAM 5000 cannot run on the same machine.

The following sections of this document provide more information about the Engineer's Desktop release and the enhancements, issues fixed and known issues for releases 5000.1.0 through 5000.1.13.1. Contact your Landmark Sales or Support Representative for further information on upcoming EDT release plans.

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## ***Applications Included in the Engineer's Desktop Software Release***

The WinZip® Patch Installer will install WELLCAT™ software (new in EDT for the 5000.1.3 release) and will overwrite all Engineer's Desktop 5000.1.0 and higher files installed on your system with the 5000.1.13.1 versions of the files. Files that did not exist will be created.

All of the EDT software applications in the release are described briefly below. They are grouped into three natural combinations:

- Engineer's Data Model
- Drilling Engineering
- Data Management

### **Engineer's Data Model Applications**

#### *EDM Database*

EDM (Engineer's Data Model) is Landmark's newest integrated database product. This release of Engineer's Desktop enables the migration of legacy data from COMPASS, WELLPLAN, and DIMS applications into the new common database. CasingSeat and StressCheck applications can directly import legacy data files. Common data from each legacy database can be merged into one set of shared business objects, preventing future duplication of information.

Click [here](#) to view the EDM enhancements, fixed issues, and known issues for 5000.1.13.1.

The EDM database allows for centralization of Drilling application data sets and enables naturally integrated engineering workflows. Integrated workflows are available between Drilling applications.

#### *Catalog Editor*

(Drilling) Catalogs are used as equipment selection lists to design a casing, tubing, liner, or drillstring. Read-only system catalogs are distributed with the software. Additional custom catalogs can be created that will allow changes. A catalog can be copied and pasted (including read-only catalogs); copied catalogs are editable and can be customized. Custom catalogs are useful because the catalog content can be customized to the available pipes or other drilling products used by the company. A catalog can be locked to prevent changes. You can also merge catalogs.

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The Catalog Editor application allows you to edit the catalog selected in the Well Explorer.

### *Rig Editor*

The Rig Editor utility allows you to enter information regarding the identity and properties of the rig, derrick, related equipment, and capacities. In the WELLPLAN, StressCheck, and CasingSeat applications, this utility opens when you right-click a contractor. COMPASS software users can enter rig information by selecting Rig Editor from the Start > Landmark Engineer's Desktop 5000.1 > Tools menu. In the OpenWells application, rig and contractor information can be modified in the Contractor's tab of the Well Explorer.

### *Unit Converter*

Use the Unit Converter application to convert a numeric value from one unit measurement system to an equivalent unit measurement system based on unit types (categories) defined in the database.

### *EDM Report Manager*

This application is used to generate, view, save, and send Output Reports created with the EDT Drilling and Completions applications and is available to applications such as OpenWells, PROFILE, WELLPLAN, and COMPASS. Landmark plans to implement this Report Manager in other EDM applications in future releases.

### *Field Office Data Transfer (Drilling)*

The Field Office Data Transfer application is used to transfer the database hierarchy, wells, wellbores, events, and reports between EDM databases. It also has an option to import and export site and picklist metadata information. Data can be sent through the LAN or through Dial Up Networking. Data can be transferred through email or FTP. Two Windows Services must be run in the background for the receiving EDM database: Email Watcher, and Data Receiver. A dedicated PC is normally used for this purpose.

Email Watcher scans the recipient's email for attached data transfer files. Once a file is received, it is moved to the "receiving" directory. When using FTP, the data is ftp'd to the "receiving" directory. The Data Receiver service monitors for newly imported files in the receiving directory and automatically uploads the data transfer file contents into the EDM database.

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Additionally, the Field Office Data Transfer allows for Status updates, so when data is sent the sender can come back at a later time and update the status information, which grabs the log file on the receiver and updates the sender with the current status of the transfer.

The Field Office Data Transfer application also contains a Well Explorer, from which you can Import or Export, create nodes, edit properties, etc., as you can in the other EDM applications.

#### *EDM to OpenWorks Link*

EDM-OpenWorks Link is a tool that enables you to map wells in the selected EDM database to projects in the selected OpenWorks® database. This association between databases is called “mapping.” EDM to OpenWorks Link supports OpenWorks version 5000.0.1.

#### *EDM Publishing Service*

The EDM Publishing Service is a configuration utility and Windows service that enables automated or manual generation and/or email distribution of OpenWells Reports in printed (hard copy) or electronic (.PDF) format.

#### *EDM Services Controller*

The EDM Services Controller runs in the Windows System Tray and enables EDM Services to be configured, started, stopped, and restarted. The following Services are managed by the EDM Services Controller: LGC EDM Data Receiver (Email), LGC EDM Data Receiver (File System), LGC EDM Simultaneous Activity Monitor, and LGC EDM Publishing.

#### *SQL Server Utility*

This utility replaces the MSDE Administration Utility, and is used with SQL Server 2005 and SQL Server 2005 Express. Use the SQL Server Utility to perform the following functions:

- Install Microsoft SQL Server 2005 Express if it is not present on the local machine
- Create a blank copy of the EDM database
- Attach an EDM database file to Microsoft SQL Server 2005 Express
- Create two default users for new Microsoft SQL Server 2005 Express databases:

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- username: EDM, password: landmark (Default application user)
- username: EDM\_SA, password: landmark (Administration only).
- Compress existing Microsoft SQL Server 2005 Express databases
- Detach existing Microsoft SQL Server 2005 Express databases

### *Drilling Data Migration Utility*

The migration of pre-2003.5 COMPASS and WELLPLAN legacy data to the EDM database is a three-step process using the Data Migration Toolkit provided with the Engineer's Desktop 5000.1 release. Legacy DIMS data can also be migrated using this toolkit. Tubular casing design data from StressCheck and CasingSeat applications is not migrated using this process. After installing EDM, CasingSeat and StressCheck software, users may import legacy data sets in either .SCK, .PDI, or .XML format from previous versions directly into the EDM database using the File > Import menu within the applications. To accomplish the migration of data from pre-2003.5 databases to the EDM database, the following tools are used:

- Drilling Field Mapping Tool
- Drilling Data Migration Tool
- EDM Data Merging Tool

This data migration process is critical to ensure integrity of the EDM data set created. Further information of the Data Migration process is available in the *EDT™ Drilling Data Migration Guide* document included with the EDT 5000.1.0 Release.

After the data migration, the first time that the COMPASS application is launched it re-calculates definitive surveys for new data based on the survey program and survey station data.

If you install WELLPLAN software, the "WELLPLAN 2000 wfw Migration" utility will also be installed. This utility allows you to migrate .wfw transfer files from WELLPLAN 2000 into the EDM database.

### **Drilling Engineering Applications**

#### **COMPASS Software**

The COMputerized Planning and Analysis Survey System software is a comprehensive tool used by oil companies and directional drilling contractors for directional well design and construction. COMPASS software offers a fast and accurate means of well planning and identification of potential directional drilling or anti-collision problems at the earliest possible stage.

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It includes all the features required for complex well trajectory design, survey and anti-collision monitoring, and analysis. COMPASS software also includes tools for survey data management, multiple planning methods, torque-drag optimization, anti-collision plotting, and analysis, and platform optimization.

Click [here](#) to view the COMPASS enhancements, fixed issues, and known issues for 5000.1.13.1.

### *CasingSeat Software*

Landmark's CasingSeat software is used to design viable schemes consisting of casing shoe setting depths and casing sizes. It provides rigorous shoe selection calculation routines to optimize shoe locations based on pore pressure, fracture gradients and user-defined design constraints. It features inventory-based management of permissible hole and casing size combinations. The application provides layer- and lithology-based characterization of subsurface boundary conditions and operating constraints, including those associated with wellbore stability, minimum overbalance, and differential sticking.

CasingSeat software is fully integrated with StressCheck software, enabling a precise engineering workflow for more detailed design and stress load analysis of the casing design.

Click [here](#) to view the CasingSeat enhancements, fixed issues, and known issues for 5000.1.13.1.

### *StressCheck Software*

Landmark's StressCheck software is a graphics-based casing design product for Microsoft Windows. It incorporates an array of attributes to enable the user to quickly, systematically, and accurately evaluate casing wear limits, minimum cost design, and working-stress design for burst, collapse, axial installation, and service-life load cases.

StressCheck software is based on casing design principles that are broadly accepted and employed in the petroleum industry. CasingSeat and StressCheck software are referred to as 'Tubular' applications.

Click [here](#) to view the StressCheck enhancements, fixed issues, and known issues for 5000.1.13.1.

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### Well Cost Software

Landmark created Well Cost software so that Drilling and Completion Engineers could quickly perform accurate and efficient cost and planning operation analysis throughout the life of a well. Well Cost software provides engineers with the ability to generate cost estimates for either low-level budgeting purposes (such as during initial project scope), or the more detailed Authorization for Expenditure (AFE).

Well Cost is Landmark's replacement for DrillModel™ software, a tool that provides deterministic Cost AFE analysis but does not offer probabilistic modeling and is not integrated with other applications or databases. Well Cost software places a powerful tool in the hands of engineers that is:

- integrated with OpenWells and EDM software
- capable of performing deterministic and probabilistic analysis
- flexible and easy to configure
- intuitive and easy to use with an interface that is similar to other Engineer's Desktop applications.

Click [here](#) to view the Well Cost enhancements, fixed issues, and known issues for 5000.1.13.1.

### WELLCAT Software

WELLCAT™ software provides precise solutions for both wellbore analysis and integrated casing and tubing design. The software calculates accurate downhole temperature and pressure profiles which can be used for pipe-body movement and casing and tubing load analysis. WELLCAT software is the tool of choice for many companies operating in high-pressure, high-temperature (HPHT) deepwater or heavy oil drilling and production environments. The software integrates five modules into a common environment to provide more accurate and reliable solutions to complex design problems. Thermal effects are modeled for drilling and production operations. A comprehensive analysis of loads and stresses on casing and tubing is provided, including service life analysis. Detailed analysis of the entire casing system is provided to understand the effects of annular pressure buildup and the interaction in the casing and tubing systems within a well. Loads and their resulting wellhead movement are evaluated to determine the integrity of the well tubulars.

Click [here](#) to view the WELLCAT enhancements, fixed issues, and known issues for 5000.1.13.1.

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### ***WELLPLAN Software***

WELLPLAN software is a drilling engineering analysis system designed for use at the rig site and the office to provide both well planning and operations analysis. The different engineering modules of WELLPLAN software are seamlessly integrated and address aspects of data collection, analysis, well planning, and modeling.

WELLPLAN software can be used to improve well designs, prevent stuck pipe and BHA failures, prevent drilling problems, and essentially drill the right wells the first time at a lower cost. General well information is entered through common editors to enable basic Case data components to be entered (e.g., wellbore editor, string editor, fluid editor, and survey editor). These editors are generally available in most WELLPLAN modules depending on which module or mode of analysis is being used. Additional data required for particular analyses are entered using editors available within each analysis module (e.g., Torque/Drag Actual Loads, Cement Job Editor, etc.).

Click [here](#) to view the WELLPLAN enhancements, fixed issues, and known issues for 5000.1.13.1.

### ***Data Management Applications***

#### ***Data Analyzer Software***

Data Analyzer software provides an easy-to-use, powerful tool for EDT Drilling & Completions users, which enables them to realize maximum value from their captured well operations and engineering information. Data Analyzer software provides all user levels the ability to quickly and easily build simple and complex ad-hoc queries against drilling and well services data. Ad-hoc queries can be generated, with the user selecting from the same user-defined labels and data input structure that they are familiar with in the applications.

Click [here](#) to view the Data Analyzer enhancements, fixed issues, and known issues for 5000.1.13.1.

#### ***OpenWells Software***

OpenWells software is our latest Drilling, Completions, and Well Services—and now Construction and Reclamation—operations reporting application. It is a fully integrated and comprehensive, communications, analysis and corporate engineering information data management system. It is used to capture information for all operations across the entire well life cycle.

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Wellsite operations reporting offers a new look and feel by taking advantage of the flexibility of a new Java-based architecture and our Engineers Data Model (EDM) software to provide integration between Drilling, Completions, Well Services, and Production products. OpenWells software shares a common database with the CasingSeat, StressCheck, COMPASS, WELLPLAN, WELLCAT, Data Analyzer, PROFILE, Well Cost, and Real-Time View applications. All products also have consistent Data Management, Navigation, Security, Data Synchronization, Unit Management, Geodetic, and Depth Reference Datum Elevation systems. Consistent user interface components and methods have been implemented wherever possible between all EDM applications to provide the user with a consistent experience across applications.

You can configure the OpenWells application to meet the specific needs of a company through customizable Data Entry Forms, Preview Panes, Output Reports, and the Unit Management System.

Click [here](#) to view the OpenWells enhancements, fixed issues, and known issues for 5000.1.13.1.

#### *PROFILE Software*

PROFILE software enables any engineer, from a rig supervisor to a completions engineer to a business analyst, to quickly visualize currently installed and historical wellbore information and downhole equipment in the form of wellbore schematics and reports. This allows them to be updated quickly with the current well configuration and history.

Click [here](#) to view the PROFILE enhancements, fixed issues, and known issues for 5000.1.13.1.

#### *Real-Time View Software*

Real-Time View software is a new time-based log viewing environment integrated into the Engineer's Desktop software. The Real-Time View application provides operators with the ability to display and output configurable drilling, completions, and workover data logs integrated with operations report information entered at the rigsite. Using WITSML, real-time data can be imported into the EDM database via the OpenWire® application. LAS or ASCII log data can also be imported into the EDM database. The Real-Time View application provides a user-configurable log viewing environment with various display options available to enable engineers to review rig and downhole equipment operations in context with the rigsite supervisor's interpretation of the rig operation. Therefore, the Real-Time View application enables operations and well-planning teams to review decisions taken at the wellsite, perform detailed after-action reviews, and identify situations that may lead to NPT.

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Click [here](#) to view the Real-Time View enhancements, fixed issues, and known issues for 5000.1.13.1.

### *OpenWells Performance Reviews*

OpenWells Performance Reviews software assists operators, performance engineers, supervisors, and system administrators to extract, edit and manage drilling performance information for review and submission to the Rushmore Reviews operations performance benchmarking system. Engineers are able to quickly extract, modify and manage Rushmore submissions sourced directly from their OpenWells operations reports saving them time and money.

Using Rushmore Drilling Performance Reviews (DPR), operators are able to measure and compare their known drilling performance, for all wells in a given region or country over a given year, against the drilling performance of their peers in the industry. This enables operators to determine best-in-class performance as well as improve benchmarks for future well planning processes. OpenWells Performance Reviews provides engineers with a valuable utility to populate their submissions direct from their well operations reports. This first release of Performance Reviews is limited to the Drilling Performance Reviews (DPR) submission only. A future release (2007) will extend the offering to support Rushmore's Completions Performance Review (CPR).

A separate application developed on the OpenWells software framework, OpenWells Performance Reviews enables the user to create a new DPR data set for one or more selected operations (Events). This includes the ability to segment an Event by date where it includes multiple operations e.g., 'Drill & Complete'. Once the operations and wellbores have been selected for the new DPR extract, the operations performance data is extracted from the OpenWells-entered reports and saved to a separate DPR data set. An editor enables the engineer to review the extracted performance data, make additions to Rushmore-specific areas and save the data. To support Rushmore reporting, the Wellbore Properties area of OpenWells Well Explorer in Performance Reviews (only) has also been extended to support two new data entry tabs:

- **Details** - Performance Indicators (Yes/No values)
- **Drilling** - Drilling Methods and Techniques

Once the performance data has been prepared for Submission, a DPR Submission Wizard enables the user to generate an Excel spreadsheet to the

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Rushmore Reviews DPR format. Data can be submitted to 'ft' or 'm' depth units. Once generated, the Excel spreadsheet is saved with the submission data set as an internal attachment which can be opened up within the module.

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# System Requirements

The 5000.1.13.1 update release supports the following platforms and databases.

## Supported Platforms and Databases for 5000.1.13.1

- Windows 7 SP2, 64-bit  
(note that Windows XP is not supported)
- Windows Server 2008 R2 SP1, 64-bit
- Citrix XenApp 6.0
- Citrix XenApp 6.5
- Oracle 11.2.0.2 Server, 64-bit (must connect through 32-bit Oracle Client)
- Oracle 11.2.0.2 Client, 32-bit (64-bit Client not supported)
- Oracle 11.2.0.3 Client, 32-bit (64-bit Client not supported)
- Oracle 10.2.0.4 Server, 64-bit (must connect through 32-bit Oracle Client)
- Oracle 10.2.0.4 Client, 32-bit (64-bit Client not supported)
- SQL Server 2008 R2 SP1, 64-bit (must connect through 32-bit SQL Native Client)
- SQL Server Express 2005, SP3, 32-bit

## Testing Platforms for 5000.1.13.1

### *Primary Testing Platforms*

- Citrix XenApp 6.5 on Windows Server 2008 R2 SP1, 64-Bit with Oracle 11.2.0.3, 32-Bit Client against Oracle 11.2.0.2, 64-Bit Server
- Windows 7, 64-Bit SP2 against SQL Server Express 2005, 32-Bit

### *Secondary Testing Platforms*

- Windows 7, 64-Bit SP2 with Oracle 11.2.0.3 32-Bit Client against Oracle 11.2.0.2, 64-Bit Server

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## Hardware Requirements

The minimum and recommended system requirements for these platforms follow.

### Network Clients or Standalone

Recommended for Windows 7 64-Bit Platform		Minimum for Windows 7 64-Bit Platform
• Windows® 7Enterprise, 64-Bit, SP1		• Windows® 7 Enterprise, 64-Bit, SP1
• 2 GHz processor or greater		• 2 GHz processor
• 4 GB RAM or greater		• 4 GB RAM
• SVGA Color Monitor		• SVGA Color Monitor
• 106-key Windows-ready integrated keyboard		• 106-key Windows-ready integrated keyboard
• MS-compatible mouse or pointing device		• MS-compatible mouse or pointing device
• TCP/IP based network connection 100 Mbps, or • FLEXid dongle (bitlock), FLEXnet Publisher version 11.4 (for licensing)		• TCP/IP based network connection 100 Mbps, or • FLEXid dongle (bitlock), FLEXnet Publisher version 11.4 (for licensing)
• 3 GB or better disk space		• 2.1 GB disk space (with everything installed)
• CD-ROM drive (not required if installing from a network location)		• CD-ROM drive (not required if installing from a network location)
• For Standalone systems, should have parallel port or USB port if dongle/bitlock license used		• For Standalone systems, should have parallel port or USB port if dongle/bitlock license used

A video card with 3-D rendering capability is required, with a minimum of 128MB video RAM. This should be an actual video card (not a motherboard clip). Note that the graphics card *must* reside on the server if you are using PROFILE™ software.

For DecisionSpace® Well Engineering, video card must be a minimum of 1024 X 768 resolution, DirectX 9.0 compatible or better, with DirectDraw Acceleration Enabled.

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## Servers

Recommended for Windows Server 2008, 64-Bit Platform	Minimum for Windows Server 2008, 64-Bit Platform
<ul style="list-style-type: none"> <li>• Windows® Server 2008, R2 SP1, 64-Bit</li> <li>• 2 GHz or greater</li> <li>• 8 GB RAM or greater</li> <li>• VGA Color Monitor</li> <li>• 106-key Windows-ready integrated keyboard</li> <li>• MS-compatible mouse or pointing device</li> <li>• TCP/IP based network connection 100 Mbps</li> <li>• 2-4 GB or better disk space</li> <li>• CD-ROM drive (not required if installing from a network location)</li> </ul>	<ul style="list-style-type: none"> <li>• Windows® Server 2008, R2 SP1, 64-Bit</li> <li>• 2 GHz processor</li> <li>• 4 GB RAM</li> <li>• VGA Color Monitor</li> <li>• 106-key Windows-ready integrated keyboard</li> <li>• MS-compatible mouse or pointing device</li> <li>• TCP/IP based network connection 10 Mbps</li> <li>• 2 GB disk space</li> <li>• CD-ROM drive (not required if installing from a network location)</li> </ul>

A video card with 3-D rendering capability is required, with a minimum of 128MB video RAM. This should be an actual video card (not a motherboard clip). Note that the graphics card *must* reside on the server if you are using PROFILE™ software.

## Citrix

The 5000.1.13.1 Engineer's Desktop applications have been tested with Citrix thin-client environments. The following Citrix platforms are supported:

**Primary Test Environment: Citrix XenApp 6.5 on Windows Server 2008 R2 SP1, 64-bit with Oracle 11.2.0.3, 32-bit Client against Oracle 11.2.0.2, 64-bit Server:**

Server 1 (Database server, SAM server)	
Operating System:	<ul style="list-style-type: none"> <li>• Windows Server 2008 R2 SP1 Enterprise Edition — 64-Bit</li> </ul>
Services:	<ul style="list-style-type: none"> <li>• Oracle 11g — 64-bit Server (11.2.0.2 with patch 7 — 12429531)</li> <li>• EDM database</li> <li>• (SAM) Simultaneous Access Monitor (Note that the SAM server <i>should not</i> be on the same server with Citrix and the published applications)</li> </ul>

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<b>Server 2 (Citrix and Applications)</b>		
	Operating System:	<ul style="list-style-type: none"> <li>Windows Server 2008 R2 SP1 Enterprise Edition — 64-Bit</li> </ul>
	Services:	<ul style="list-style-type: none"> <li>Citrix XenApp 6.5 with recommended Citrix Hotfixes and Windows Hotfixes</li> <li>EDT 5000.1.11.0</li> <li>Oracle 11g — 32-bit Client (11.2.0.3)</li> </ul>
<b>Citrix Client</b>		
	Version:	11.00; do not use earlier versions, because there will be issues with XenApp)

## **Secondary Test Environment, running Citrix XenApp 6.0 against Oracle 11.2.0.2:**

<b>Server 1 (Database server, SAM server)</b>		
	Operating System:	<ul style="list-style-type: none"> <li>Windows Server 2008 R2 SP1 Enterprise Edition — 64-Bit</li> </ul>
	Services:	<ul style="list-style-type: none"> <li>Oracle 11g — 64-bit (11.2.0.2) with patch 7 — (12429530)</li> <li>EDM database</li> <li>(SAM) Simultaneous Access Monitor (Note that the SAM server <i>should not</i> be on the same server with Citrix and the published applications)</li> </ul>
<b>Server 2 (Citrix and Applications)</b>		
	Operating System:	<ul style="list-style-type: none"> <li>Windows Server 2008 R2 SP1 Enterprise Edition — 64-Bit</li> </ul>
	Services:	<ul style="list-style-type: none"> <li>Citrix XenApp 6.5 with recommended Citrix Hotfixes and Windows Hotfixes</li> <li>EDT 5000.1.11.0</li> <li>Oracle 11g — 32-bit Client (11.2.0.2 with patch 7 — (12429530))</li> </ul>
<b>Citrix Client</b>		
	Version:	11.00; do not use earlier versions, because there will be issues with XenApp)

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**Note: Citrix can be configured in a number of different ways. We have only tested the configurations outlined above.**

When no C drive is present on the system, Microsoft® Windows® Installer (MSI) requires you to run the install from a command line, with a switch. The syntax is:

```
setup.exe /v"DIRPROPERTY5=[DRIVE]:\\"
```

where [DRIVE] denotes the destination drive letter. For example, if your drive is M:

```
setup.exe /v"DIRPROPERTY5=M:\\"
```

For more details on Citrix issues, refer to the *EDT™ Software on Citrix Guide* (EDT\_Citrix.pdf).

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## ODBC Drivers and Database Server Versions

The following table lists ODBC Drivers and Database Server versions and their corresponding version numbers used during our testing of the Engineer's Desktop 5000.1.13.1 release. This table describes which ODBC drivers our test labs have certified and which drivers we support for use with EDT applications.

Operating System	ODBC Driver	Version
Windows 7, 64-bit	SQL Native Client	2005.90.4035.00
Windows Server 2008 R2 SP1, 64-bit	SQL Native Client	2005.90.4035.00*
Oracle 10g Client, 32-bit ODBC Driver	Oracle Client	10.2.0.4
Oracle 11g Client, 32-bit ODBC Driver	Oracle Client	11.2.0.2 (Note: this is the ODBC driver obtained from Oracle 11.2.0.2 Patch 7)

### \*SQL Native Client Driver Issue

If Windows update installs the SQL Native Driver 2005.90.500.00, you must uninstall this driver prior to installing the EDT™ applications. The 2005.90.500.00 version of this driver causes the installation to enter an endless loop. To leave the loop press **Crtl+C**, uninstall the driver, and run the installation again.

Server	Version
Oracle 11g Server, 64-bit (requires 32-bit Oracle Client to connect)	11.2.0.2.0
Oracle 10g Server, 64-bit (requires 32-bit Oracle Client to connect)	10.2.0.4.0
SQL Server 2008 R2, 64-bit (requires 32-bit SQL Native Client to connect)	10.50.2500.0
SQL Server Express 2005, SP3, 32-bit (or systems <b>without</b> SQL Server Express installed)	9.00.4035

No longer supported: Oracle 9i, Microsoft MSDE, Microsoft SQL Server 2000, Windows 2000, Windows XP.

**Not supported** for EDT 5000.1.13.1 are:

- OpenWire® Client supports up to EDM 5000.1.8

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- OpenWire® Server supports up to EDM 5000.1.4

### ***Third-Party Applications***

A number of third-party applications must be installed for Engineer's Desktop applications to function properly. These were installed as part of the EDT version 5000.1.0 full installation.

The third-party applications that were installed in the 5000.1.0 installation are listed below. (Refer to the *EDT™ Version 5000.1.0 Summary Level Release Notes* for complete details.)

- Microsoft Data Access Components 2.8 (MDAC)
- Crystal Reports 11.5, SP3
- Microsoft .NET Framework 2.0
- Landmark LAM 5000
- Microsoft Visual J# .NET Redistributable Package 2.0

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## Third-Party Software

Landmark uses various third-party applications in the development of its software.

Landmark acknowledges that certain third party code has been bundled with, or embedded in, Landmark's software. The licensors of this third party code, and the terms and conditions of their respective licenses, may be found at the following location:

[InstallDir]\Documentation\Third\_Party.pdf

The following table describes the third party applications that are installed by Release 5000.1.13.1.

Installed Product/Package	Version for all supported Operating Systems
Apache/XML Xerces	1.4.x
Blue Marble Geographic Calculator	6.2
Commons BeanUtils	1.4.1
Commons Collections	2.0
Commons Logging	1.0.2
ComponentOne LLC Chart™	7.0
Crystal Project, © 2008 The Yellow Icon. All rights reserved.	N/A
Crystal Reports™ (note that one Crystal Reports™ Developer license per site is required if you want to customize reports)	11.5 SP3
DEX	2003.14.3.70
Geobase® (Digital Elevation Data, and Satellite Imagery)	N/A
Hewlett-Packard Development Company, L.P., Compaq Visual Fortran	6.1a
Infragistics NetAdvantage for WPF	12.1
iText	2.1.6
Macrovision™ Corporation FLEXnet Publisher™	11.4
Macrovision™ InstallShield Admin Studio™	6.0
Microsoft® Data Access Components (MDAC)	2.8 SP1
Microsoft® J# FrameWork	1.1
Microsoft® SQL Server 2005 Express Edition (replaces MSDE)	SP2
Microsoft® .NET Framework 2.0	2.0

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Installed Product/Package	Version for all supported Operating Systems
Microsoft® Visual C++ 2005 Service Pack 1 Redistributable Package ATL Security Update (filename: vcredist_x86.exe)	2005 SP1 (v. 8.0)
Rogue Wave	6.0.4
Rogue Wave™ Software, Inc., Stingray Studio – Objective Grid PRO	8
Rogue Wave™ Software, Inc., Stingray Studio – Objective Grid Standard	8
Rogue Wave™ Software, Inc., Stingray Studio – Objective Toolkit Standard	8
SCGrid.com, SCGrid Active X grid Control	4.5.0.3
Silicon Graphics®, Inc. OpenGL®	1.2
Sun Microsystems, Inc., JOGL (Java Bindings for OpenGL). Copyright © 2003-2007 Sun Microsystems, Inc. All rights reserved.	1.1.1a
TCL Library (Tclib)	8.2.3

The following table describes *prerequisite* applications (these are not included in the release 5000.1.13.1 install). Some are required for all features (for example, operating system, Adobe Acrobat, Microsoft® Internet Explorer) and some are required only for certain applications or to enable specific features.

Prerequisite Product/Package	Version
Certified operating system	<ul style="list-style-type: none"> <li>• Windows® 7 Enterprise, SP1, 64-bit</li> <li>• Windows® 2008 Server Enterprise, R2 SP1, 64-bit</li> </ul>
Adobe® Systems Inc., Adobe® Reader®	7.0.9 or later
Hummingbird® Ltd., Exceed®/Exceed 3D	<p>2007</p> <p>If OpenWorks Basic is installed (instead of the Full install), then not required</p>
Microsoft® Internet Explorer	7.0 or later (Windows 7 requires 8.0)
Microsoft® SQL Server 2008	SP2
MKS Inc., MKS Toolkit® for Enterprise Developers (formerly known as NuTCRACKER)	<p>9.2.0100</p> <p>If OpenWorks Basic is installed (instead of the Full install), then not required</p>

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Prerequisite Product/Package	Version
Oracle Corporation, ORACLE® Server	11g, 64-bit
Sun Microsystems™ Inc., Java™ 2 Runtime Environment, Standard Edition	1.6.1

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## Other Requirements

### ***Space Requirements for Individual Applications and Tools***

The table below shows the minimum disk space requirements for various installation combinations (this includes space needed for Installation temporary files):

Applications	Approximate Disk Space Needed to Install
<b>Engineer's Data Model (EDM)</b> • Administration Utility (required) • SQL Server Utility (required) • Drilling Data Migration • Database Upgrade Utilities	780 MB  (Required support files will be copied into the Windows installation directory; the installation of EDM software and SQL Server 2005 support and temporary installation files requires 400 MB of disk space)
<b>Drilling &amp; Completions: Engineering</b> • COMPASS • CasingSeat • StressCheck • Well Cost • WELLCAT • WELLPLAN	335 MB
<b>Drilling &amp; Completions: Well Data Management</b> • OpenWells • PROFILE • Data Analyzer • Real-Time View	250 MB
<b>TOTAL: Everything</b>	~2.0 GB

### ***Screen Resolutions/Video***

Recommended	Minimum
• 1024 x 768 or higher	• 1024 x 768

A video card with 3-D rendering capability is required, with a minimum of 128MB video RAM. This should be an actual video card (not a motherboard clip). Note that the graphics card *must* reside on the server if you are using PROFILE software.

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If you experience display problems when running PROFILE, PROFILE Symbol Manager, or graphs in WELLPLAN Critical Speed module, upgrade your video driver to the latest version.

**Important for Windows 7:** Make sure that you have the latest Windows 7 video drivers; some plots may not render properly if your drivers are not up to date.

## **Miscellaneous**

- Applications require you to install a current Landmark LAM or a FLEXnet Publisher dongle (bitlock) for licensing purposes. Landmark does not distribute FLEX dongle bitlocks for use on application servers.
- You need Internet Explorer 7.0 or higher for a successful installation. If you are running Window 7, you must use Internet Explorer 10.0.
- You need Acrobat Reader to view the release notes and other documentation in .PDF format. If you already have version 7.0.9 or higher of the Reader installed, you do not need to re-install it. You can download the latest Reader from Adobe's web site: <http://www.adobe.com/products/acrobat/readstep2.html>.

## **Upgrading the EDM Database**

This installation is an upgrade from the 5000.1.0 Engineer's Data Model version. If you are currently using a pre-2003.14 version of the EDM database, you must upgrade your EDM database to at least 2003.14 prior to running the Multi-Version Database Upgrade Utility (EDMPatchDB.exe) to upgrade to the 5000.1.0 release. Once you are on version 5000.1.0 (or higher), you can install EDT 5000.1.13.1.

Once the EDM database has been upgraded to 5000.1.9, you will no longer be able to access it using the earlier applications.

## **Installing With Previous Versions**

EDT 5000.1.13.1 software is an update—it will update your EDT 5000.1.0 through 5000.1.6 software. 5000.1.13.1 can co-exist with previous versions of EDT software on the same machine. However, LAM 5000 *will not* co-exist with earlier versions of LAM (FLEXlm license server) on the same machine.

To run EDT 5000.1.13.1 applications and a previous version of the EDT applications on the same machine, you must point one or both versions of EDT software to a LAM server located on a remote machine, since only one version of LAM can run locally. Refer to the *EDT™ Version 5000.1.0 Summary Level Release Notes* for details.

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## Microsoft Security Warnings When Installing

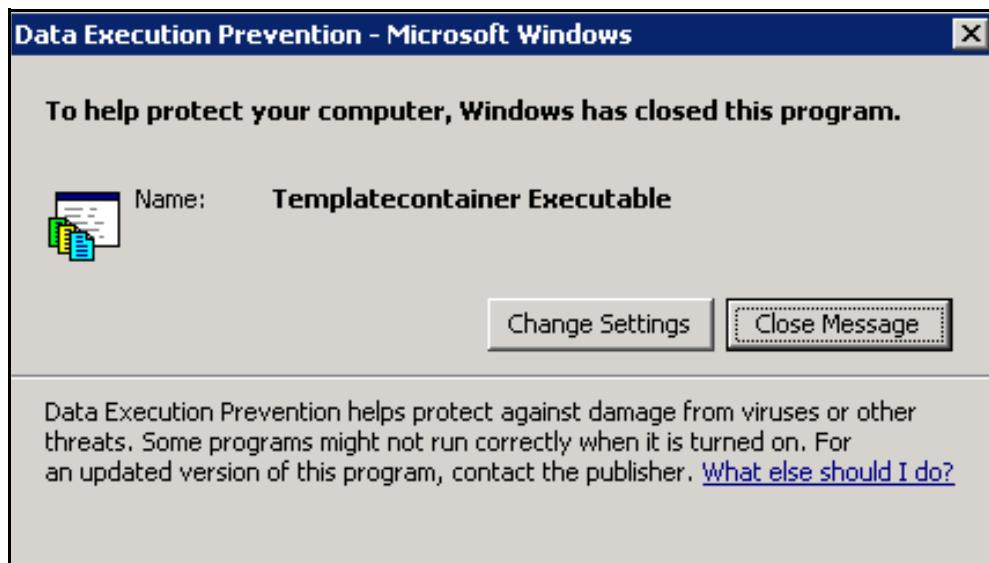
A security warning may appear when trying to install software, due to security restrictions imposed by recent Microsoft security updates:

"Security Warning: Do you want to run this software?"

Simply click **Run** to proceed with the EDM software installation.

## Data Execution Prevention

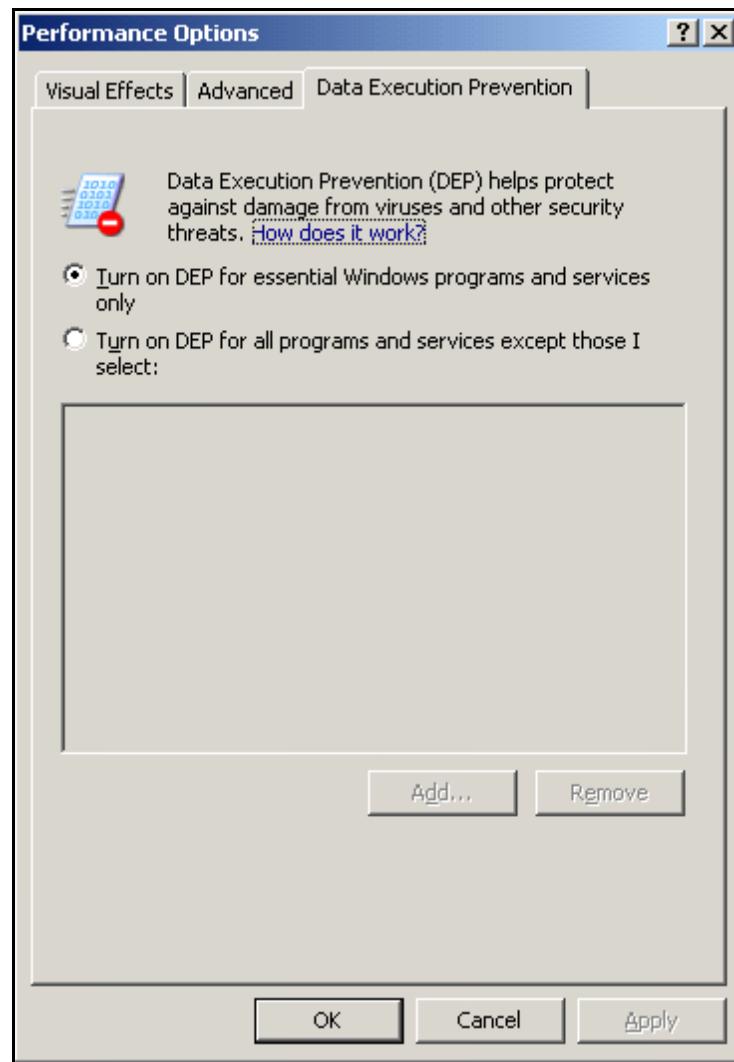
Data Execution Prevention helps protect against damage from viruses and other threats. However, some programs may not run correctly when this is turned on. If there is a conflict, you will see an error similar to this:



It is recommended that Data Execution Prevention be set to "**Turn on DEP for essential Windows programs and services only**"

To set DEP:

1. Right-click **My Computer**.
2. Select **Properties > Advanced tab**.
3. Under **Performance**, click the **Settings** button. Select **Data Execution Prevention** tab.
4. Select **Turn on DEP for essential Windows programs and services only**.

[Go To "What's In This Release?"](#)5. Click **OK**.

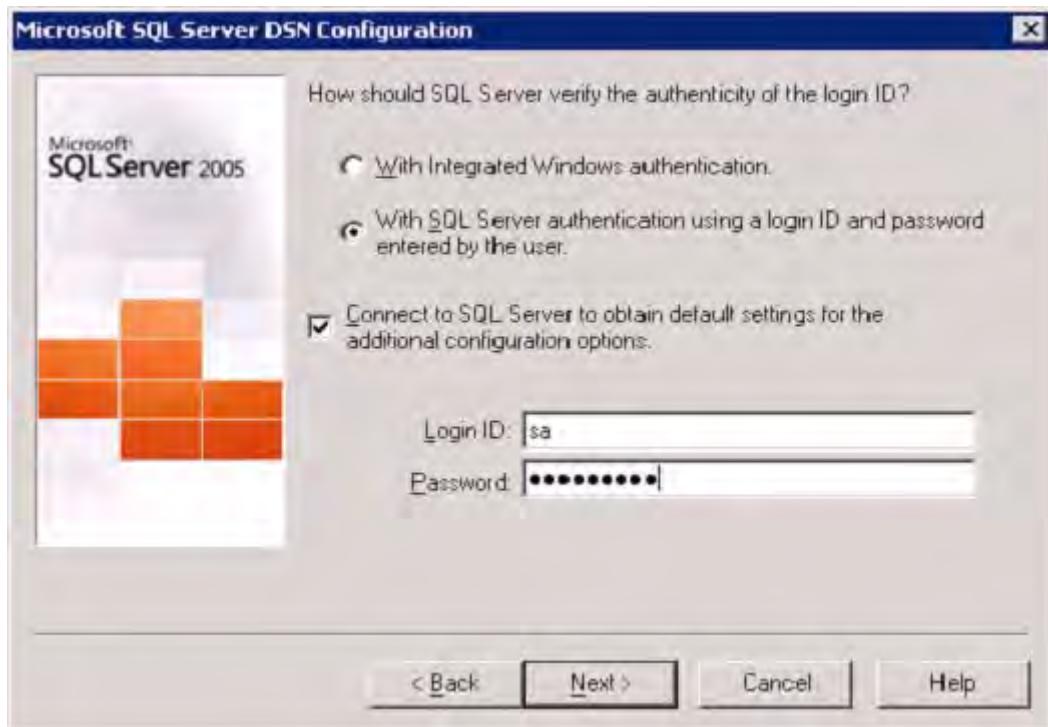
[Go To "What's In This Release?"](#)

## Windows Authentication Issue With Certain SQL Server Configurations

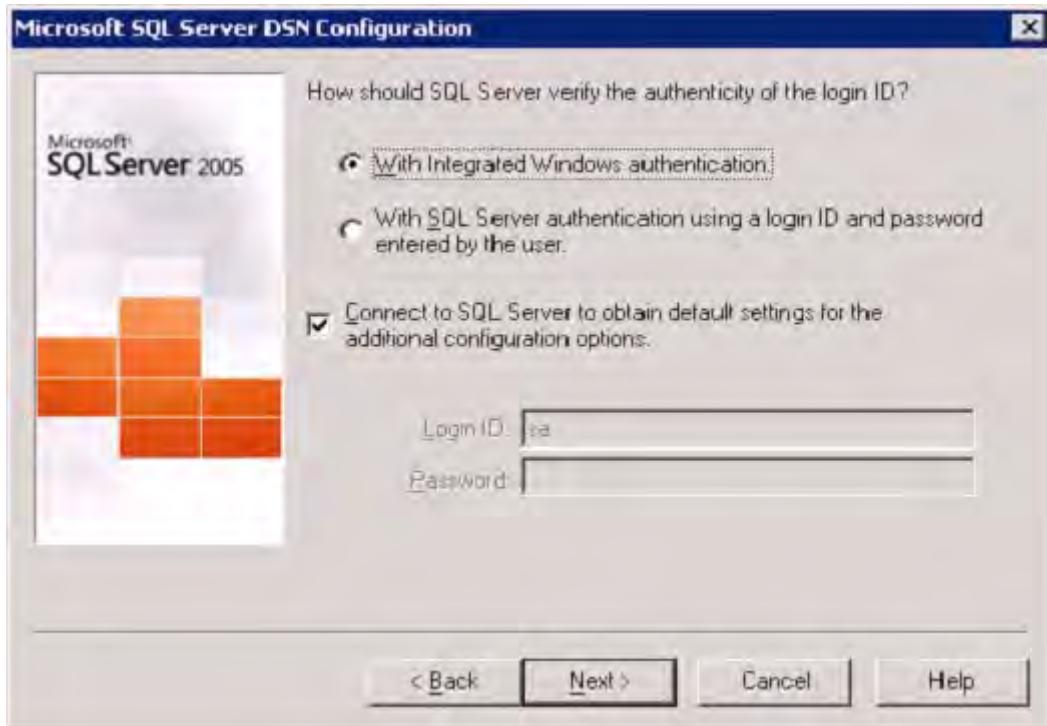
Windows Authentication on an EDM SQL database fails on ODBC configured as SQL Server Authentication. The issue is, SQL Server 2008 logins using Windows Authentication do not support all applications/utilities when the ODBC data source is configured to login using SQL Server Authentication.

Some applications work with a Windows Authenticated user with the ODBC data source configured with SQL Server Authentication. Some applications (primarily COMPASS and WELLPLAN) do not. Most of the utilities do not support Windows Authentication at all, and require a user name and password in order to log in.

*Workaround:* If a user needs to run EDT Tools, he/she will need an EDM user name and password and will need to use a data source configured for SQL Server authentication using a login ID and password. The DSN should be configured as:



However, this configuration will not work for users logging into COMPASS or WELLPLAN with a Windows Authenticated user. For Windows Authenticated users, the data source needs to be configured for Integrated Windows Authentication. The DSN should be configured as:

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For shared environments such as a shared Citrix environment, using SQL Server and Windows Authenticated users, it is likely that you will need to have two separate DSNs for some users. Users requiring access to the Tools/Utilities will need a DSN configured for SQL Server authentication using a login ID and password. Users running COMPASS or WELLPLAN with Windows Authenticated users must have a DSN configured for Integrated Windows Authentication. Other applications (for example, OpenWells, WELLCAT) support Windows Authenticated users under either configuration.

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## Windows 64-bit Install Issues

Perform the following steps when installing on Windows 64-bit:

1. Log in as the Administrator.
2. Disable hardware-based DEP (Data Execution Prevention) in the BIOS, if the machine has hardware-based DEP.
3. Set the software-based DEP to “Turn on DEP for essential Windows programs and services only” as stated above.
4. Disable User Account Control.
5. If the machine uses SMS (software Management Service), unplug the network cable during the install, because SMS conflicts with EDT installations.
6. Refer to the detailed instructions for a 64-bit install [here](#), and follow them. The install order is below:
  - Install Third-Party 5000.1.0; reboot
  - Install EDM 5000.1.0; reboot
  - Install EDT Drilling and Completions 5000.1.0; reboot
  - Install EDT 5000.1.13.1 and upgrade database to 5000.1.13.1; reboot

Note that there is an ODBC Utility for 32-bit and an ODBC Utility for 64-bit on Windows 64-bit. Use the ODBC Utility for 32-bit with EDM. Create a shortcut on the desktop for the ODBC 32-bit Utility executable (C:\Windows\sysWOW64\odbcad32.exe), and use it. The ODBC Utility in the Windows Control Panel is 64-bit.

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## Before You Install

**EDT 5000.1.0 or higher must be installed *before* installing this release.**

The 5000.1.13.1 release is an update release. You must have 5000.1.0 or higher installed on your machine to install 5000.1.13.1.

Before installing Engineer's Desktop 5000.1.13.1, review these release notes *entirely*. The release notes provide you with necessary information about:

- the applications in Engineer's Desktop 5000.1.13.1 software
- the hardware and operating systems on which you can run Engineer's Desktop 5000.1.13.1 software
- product dependencies

### ***Installation on Windows 7***

5000.1.8 is the first version of EDT software that supports Windows 7. You must install 5000.1.0 as a first step (logged in as Administrator); you can then install the 5000.1.13.1 update.

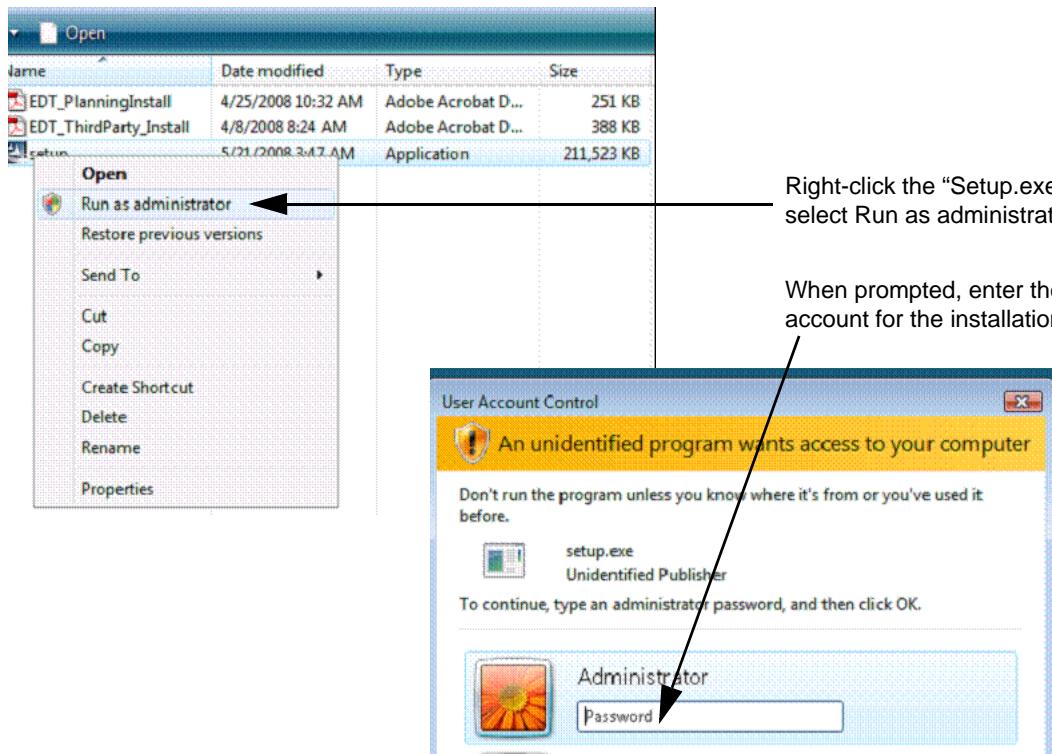
**\*SQL Native Client Driver Issue**

If Windows update installs the SQL Native Driver 2005.90.500.00, you must uninstall this driver prior to installing the EDT™ applications.

### **EDT 5000.1.0**

When installing EDT 5000.1.0 on Windows 7, you must run the executables with the "Run as administrator" option. To run as Administrator, right-click the "Setup.exe" for EDM, Drilling, and Third-Party Tools. You must enter the password for the installation machine's Administrator account.

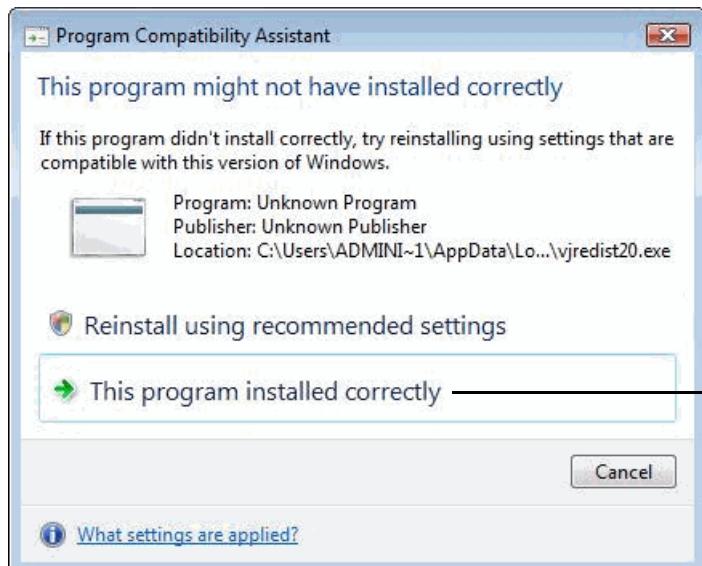
[← Go To “What’s In This Release?”](#)



Right-click the “Setup.exe” file, and then select Run as administrator.

When prompted, enter the Administrator account for the installation machine.

**Note:** During the 3rd Party Tools installation on EDT 5000.1.0, the following screen may appear:



click “**This program installed correctly**”

click the “This program installed correctly” option and continue with the installation.

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## Installation Checklist

The following checklist outlines the phases of the installation process.

1. Upgrade the Operating System, if necessary. For Windows 7, SP1 must be installed; for Windows Server 2008, R2 SP1.
2. In Windows Programs and Features, check the version of the Microsoft SQL Native Client Driver. If the driver is version 2005.90.500, you must uninstall this version prior to running the EDT installation.

### \*SQL Native Client Driver Issue

The 2005.90.500.00 version of this driver causes the installation to enter an endless loop. To leave the loop press **Ctrl+C**, uninstall the driver, and run the installation again.

3. Install Oracle client. 64-bit Client is not supported. For Oracle 11g you need the 11.2.0.3 version, 32-bit. For Windows 7 SP1, you need Oracle 11g client, 11.2.0.2.
4. Set Data Execution Prevention status to “Turn on essential Windows programs and services only.” [Here](#) is the procedure.
5. Before installing products you must have Adobe Acrobat Reader (you can download the latest Reader from Adobe’s web site: <http://www.adobe.com/products/acrobat/readstep2.html>.) to read the available documentation.
6. Run the ZIP file to install the updated files.
7. Your 5000.1.0 product licenses are still valid for the 5000.1.13.1 release.
8. If you don’t have an existing EDM database and want to create one on Oracle, see the *EDT™ Drilling Database Guide* (EDM\_Drilling\_Database.pdf) for details.
9. You need to upgrade existing 5000.1.0 or higher databases to 5000.1.13.0. The Multi-Version Database Upgrade Utility will upgrade your database automatically. The utility will upgrade your database from 5000.1.0 (database version 09.00.00.115) or higher to 5000.1.13.1.

### **IMPORTANT: If you have *ever* upgraded from a 2003.11 Oracle database...**

then you cannot run the upgrade utility to upgrade to 5000.1 (due to a significant 2003.14 tablespace definitions change). In this case, call Landmark Support.

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10. Before attempting to run the PROFILE application, if you need to export PROFILE WallPlot Composer schematics to JPG file format, Windows color depth should be adjusted to a resolution higher than 256-bit.
11. If you have an Oracle Database: Before attempting to run the StressCheck or CasingSeat applications, you need to upload StressCheck and CasingSeat templates to the database manually.

### ***Official 5000.1.13.1 Database Version***

The official 5000.1.13.1 release database version is **09.07.00.202**.

### ***Contents of the EDT 5000.1.13.1 Release Software Download***

Engineer's Desktop 5000.1.13.1 software download contains:

- **A .ZIP file comprising the 5000.1.13.1 update.** The update will add new files and update existing EDT 5000.1.0 and higher files. Applications to be installed are described [here](#).
- **EDT™ Software Version 5000.1.13.1 Release Notes.** This document, which also includes enhancements, fixed issues, and known issues for all EDT applications.

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# Installation

Note that 32-bit operating systems are no longer supported.

## ***Installation Instructions (64-bit Only)***

These instructions are for 64-bit systems.

There are two major steps in this process: install 5000.1.0, then install 5000.1.13.1.

**Important:** Read "Windows 64-bit Install Issues" on page [30](#) before beginning the install.

Check the version of the Microsoft SQL Native Client Driver in Windows Programs and Features, prior to running the installation. If the driver is version 2005.90.500, you must uninstall this version before running the EDT installation.

### **\*SQL Native Client Driver Issue**

The 2005.90.500.00 version of this driver causes the installation to enter an endless loop. To leave the loop press **Ctrl+C**, uninstall the driver, and run the installation again.

## **Step 1. Install EDT 5000.1.0**

If you already have EDT 5000.1.0 installed on your 64-bit machine, skip this Step and go to Step 2.

Because Engineer's Desktop did not previously support 64-bit operating systems, you will have to first install the EDT 5000.1.0 release before you can apply the 5000.1.13.1 update. Order of installation is:

- Third-Party Components
- EDM
- Drilling and Completions applications

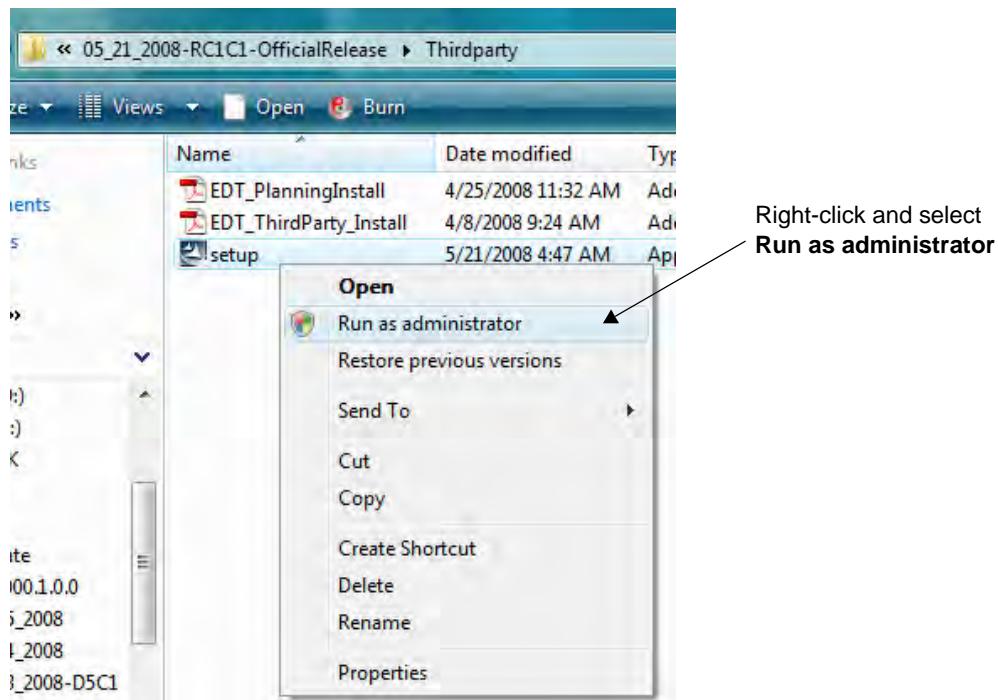
Refer to the 5000.1.0 *EDT Drilling Installation Guide* for more detailed procedures.

Because the 5000.1.0 release was not developed for 64-bit, you will encounter a number of error messages. These errors are shown below, using a 64-bit Vista SP2 system example.

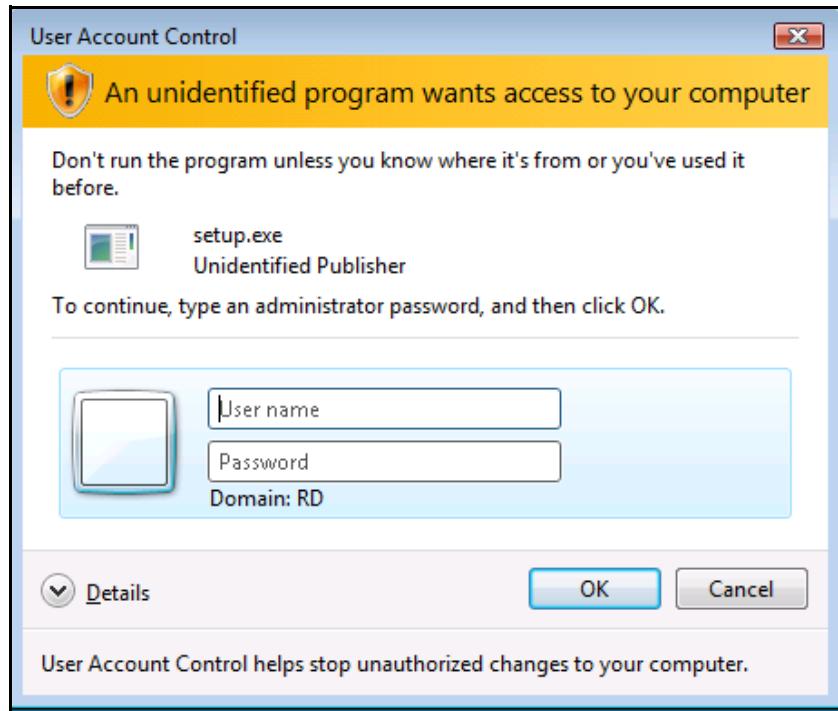
[Go To "What's In This Release?"](#)

## Third-Party Install: Logged in as Non Admin, Not Administrator

- Right click **Third Party Setup.exe** and Run as **Administrator**:

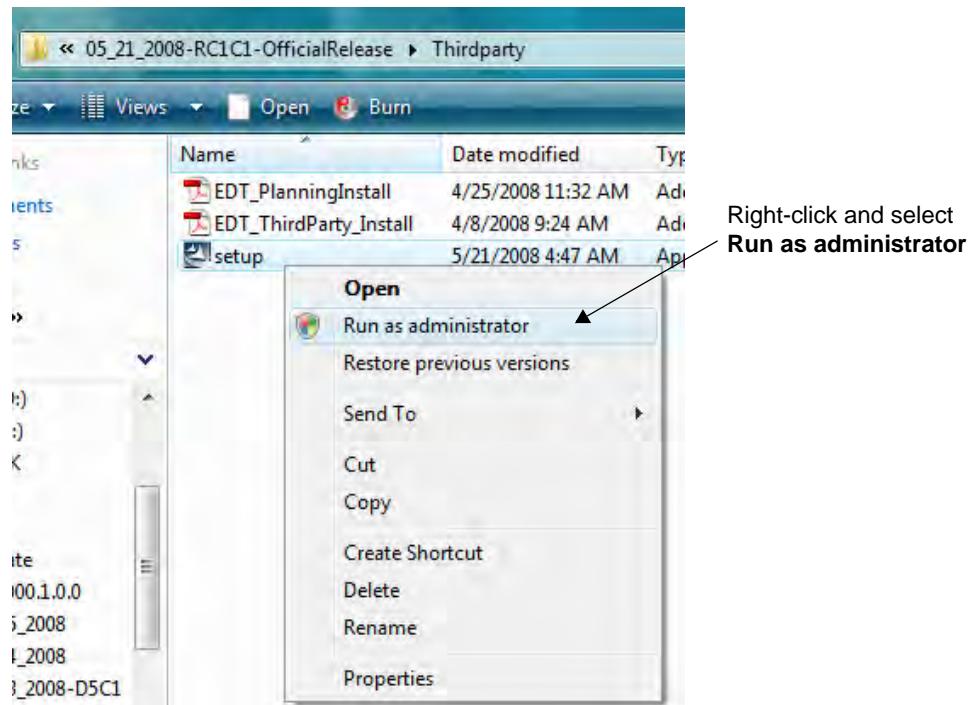


You are still prompted for Admin login:

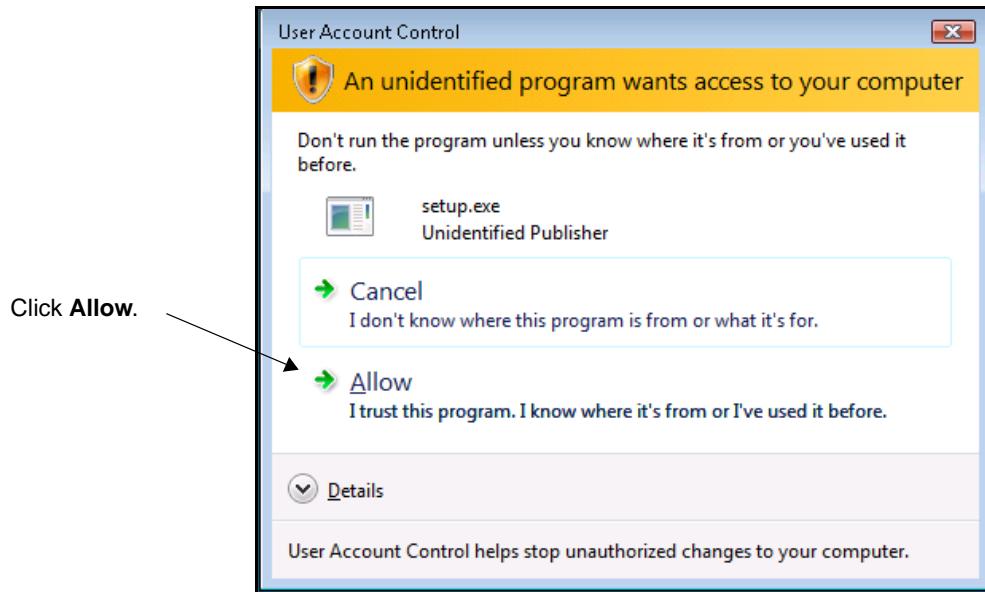
[Go To "What's In This Release?"](#)

### Third-Party Install: Logged in as Admin, Not Administrator error

- Login again, this time as an Admin, not Administrator.
- Right click **Third Party Setup.exe** and Run as **Administrator**:

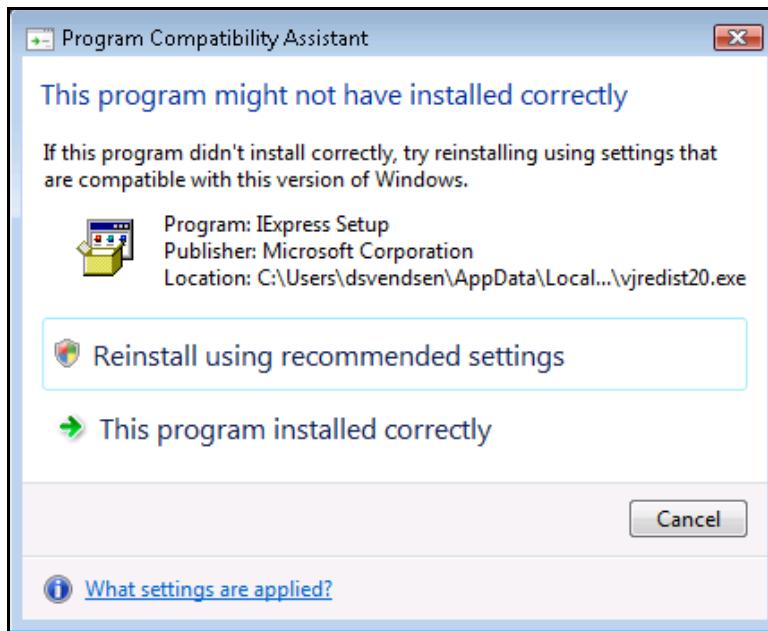
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- You are still prompted for Admin login, but no login is required. Click **Allow**.

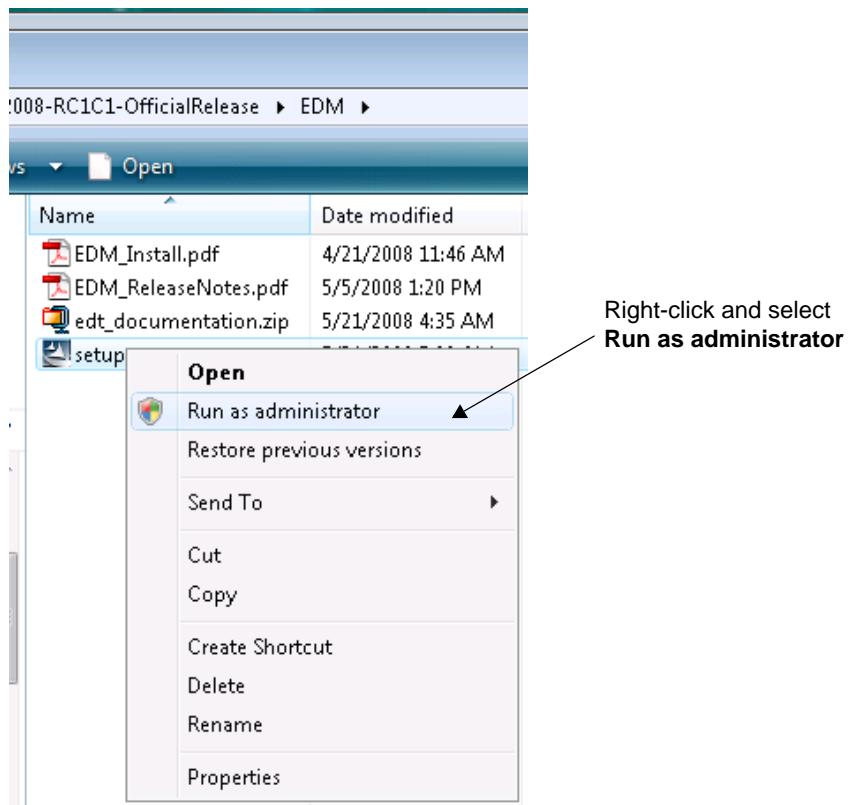


### Third-Party Install: Program incompatibility error

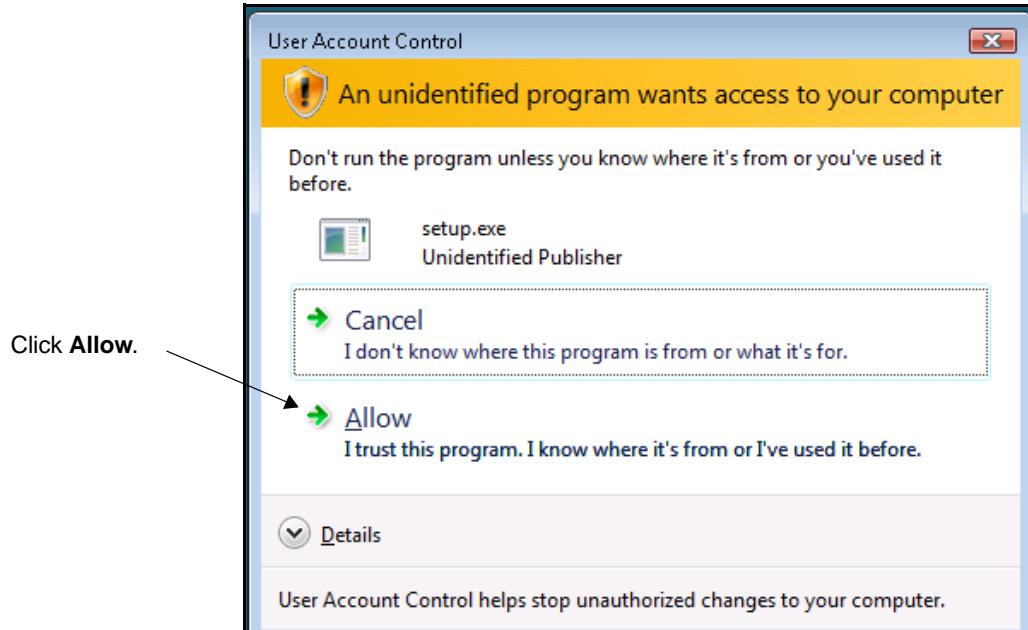
You may see this error, indicating a Program incompatibility.

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- Click **This program installed correctly**.
- Right click **EDM Setup.exe** and **Run as Administrator**.

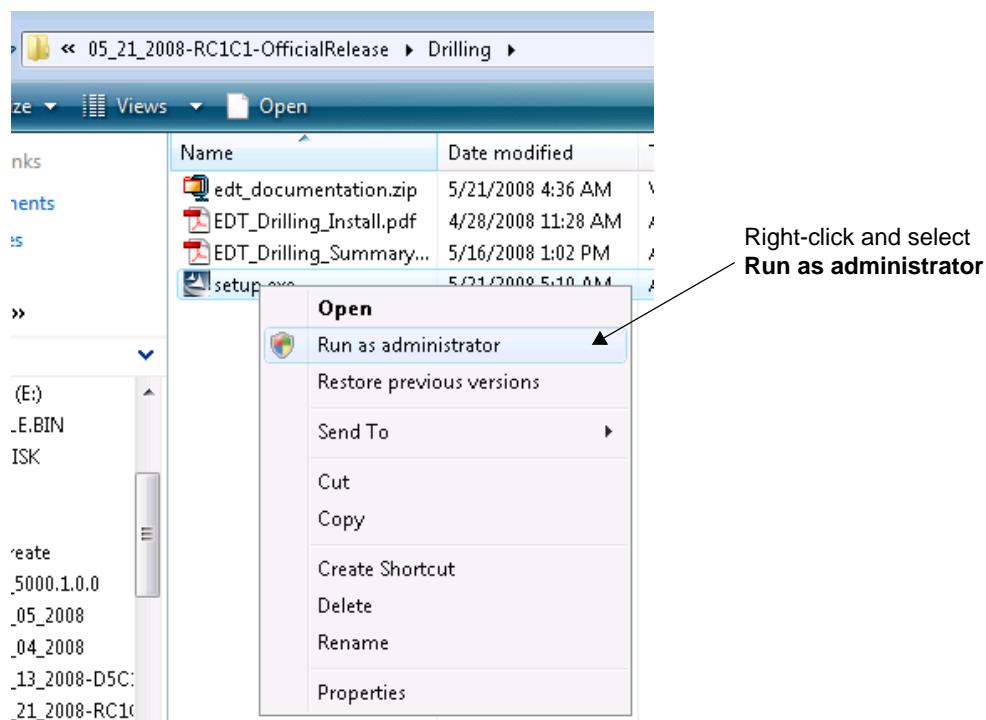
[Go To "What's In This Release?"](#)

- You are prompted again for permission. Click **Allow**.

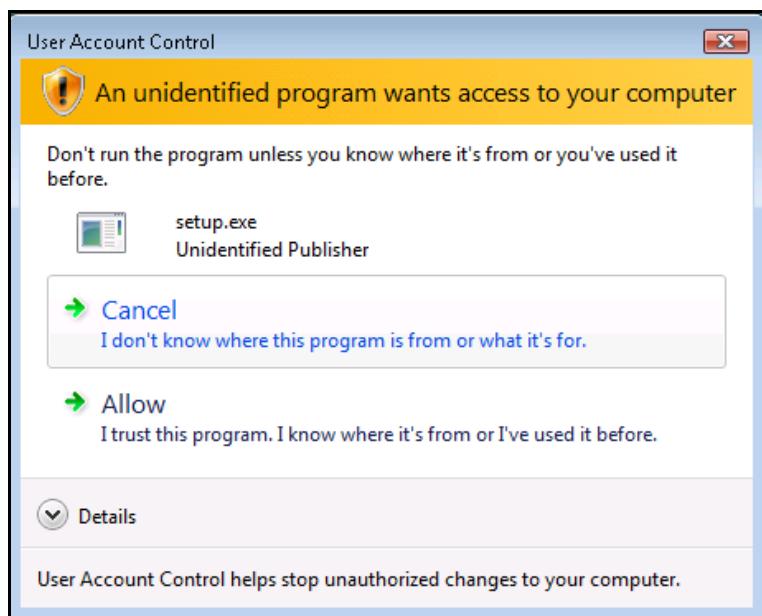


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- Right click **Drilling Setup.exe** and **Run as administrator**.



You are prompted again for permission. Click **Allow**.

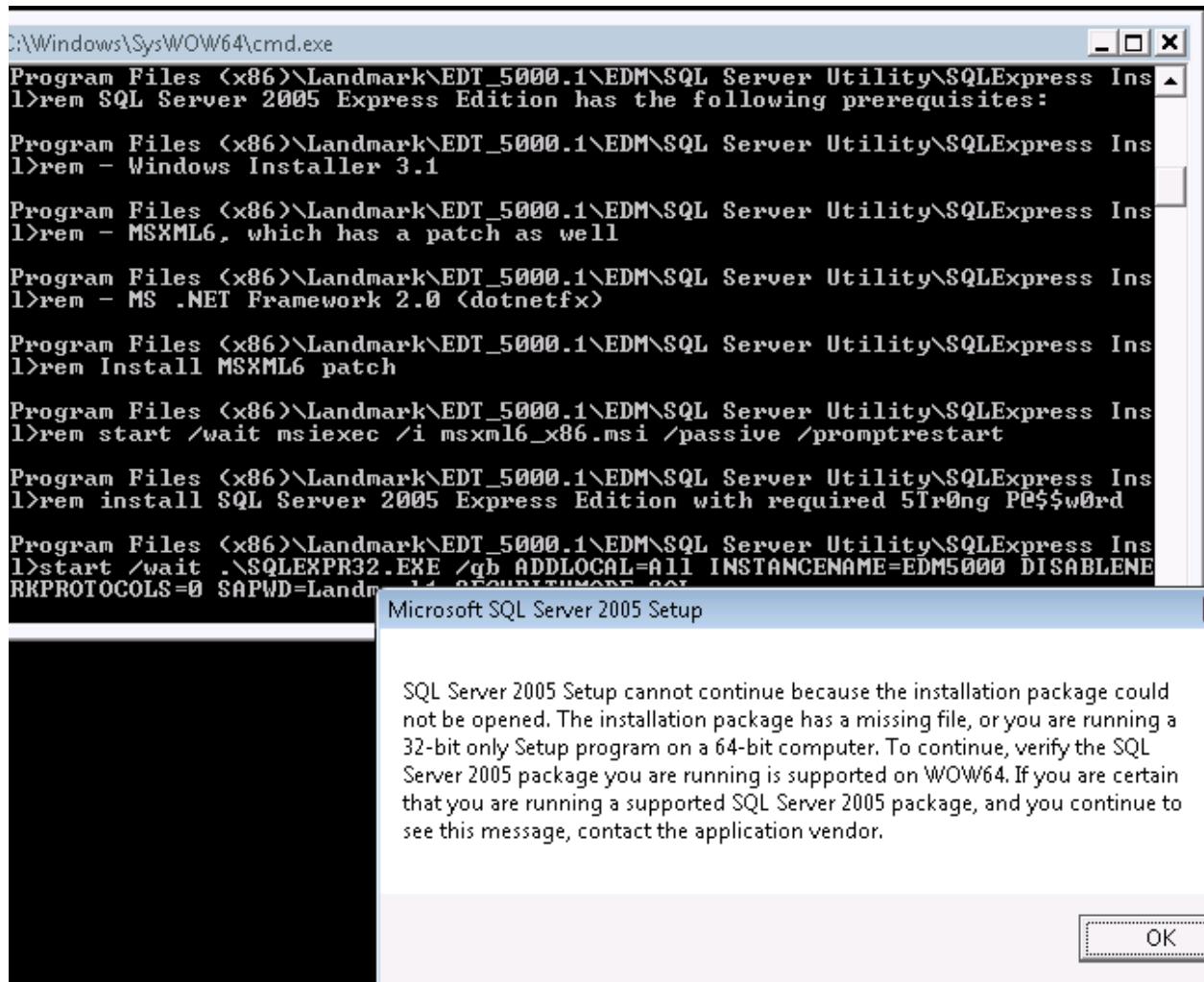


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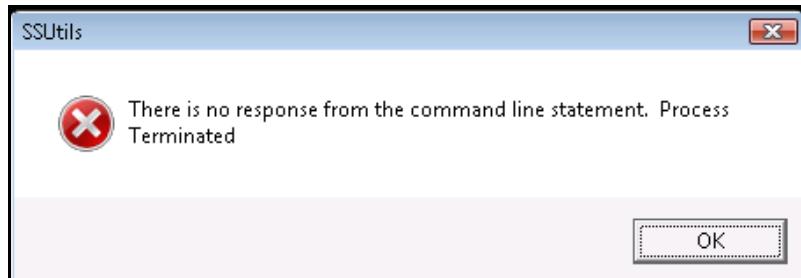
## Drilling and Completions Install: on reboot errors

After the Drilling and Completions Install, click **Yes** when prompted to reboot. On reboot, the following errors occur:

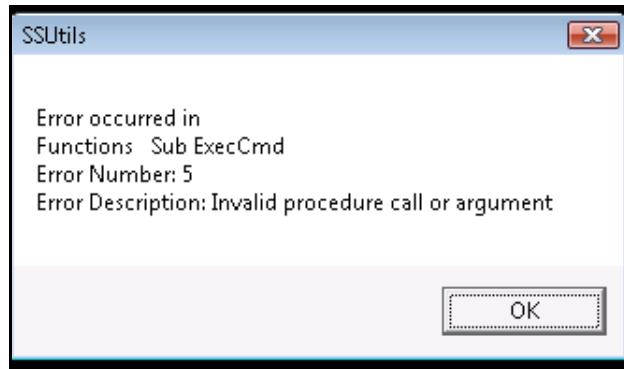
- After reboot—SQL Server fails (64-bit only):



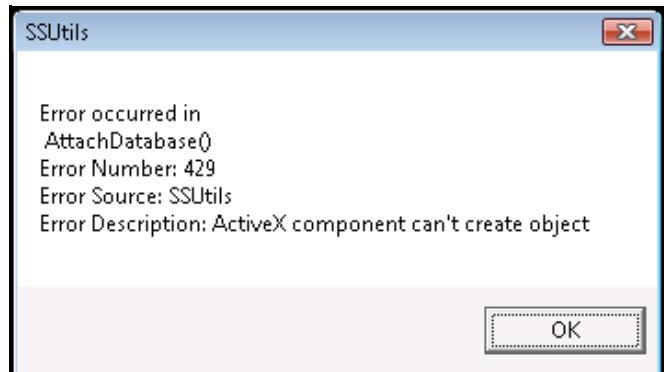
and

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and



and



- After reboot—Applications fail to launch (64-bit only). That's OK; it will all be fixed after you install the 5000.1.13.1 update.

## Step 2. Install EDT 5000.1.13.1

This install consists of a self-extracting WinZip® file which includes all the updated files to apply the required files to your system.

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1. Make sure that EDT 5000.1.0 or higher has previously been installed. It is prudent to make a back up of your database files at this time.
2. Make sure that no EDT applications are running when you run this install including Windows Services e.g., SAM, EPS.
3. Run **EDT\_5000.1.13.0\_Update.exe**. and log in as an admin user (*not* the machine Administrator). You are still prompted for Admin login:



4. Wait for the "5000.1.13.0 Install" window to appear. Click the **OK** button to begin or **Cancel** to cancel the installation.
5. A second "WinZip Self-Extractor" window will open. Select **Setup** to proceed, **Cancel** to stop the installation.

This application will extract the updated and additional files required to a temporary directory. and install the files being updated. A DOS Window will appear prompting you to continue (start) the install process. **Press any key** to start the install. The DOS window will then show patch install progress for each file updated in this patch.

6. The next screens involve an End-User License Agreement (EULA) between Landmark and you, the licensee. Follow the prompts to read the agreement. At the end of the agreement, you are asked whether you accept or decline the terms within the EULA.

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Specify **A** to accept the agreement, and then press **Enter**.

**IMPORTANT: Specific keyboard input is required to complete the installation**

Only “A”, “a”, “ACCEPT”, “Accept”, or “accept” (without the quotation marks) is allowable input to continue the installation.

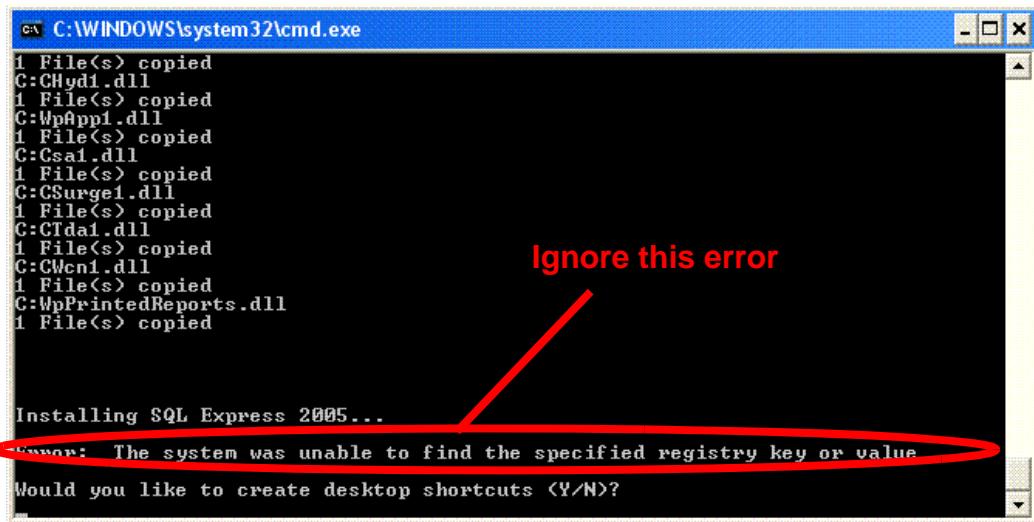
To decline the agreement, press **D** and then **Enter**. This will cancel the installation and abort the EDT update.

7. The pertinent updated files will be installed. This will take a few minutes.
8. Your system will be checked to see if you have Microsoft Visual C++ 2005 SP1 and 2005 Runtime Libraries installed. If not found, you will be prompted to read and accept an End User License Agreement for these packages. Click **Yes** to proceed and install them (if you do not accept, the install will abort).
9. Your system will be checked to see if you have MSXML 4.0 SP2 Parser and SDK. If not found, you will be prompted to set it up by clicking **Next** in the Wizard and **accepting the EULA** (if you do not accept, the install will abort). Follow the Wizard prompts to install this package now. Click **Finish** when complete.
10. Your system will be checked to see if you have Crystal Reports 11.5 SP3 installed. If not found, it will be installed.
11. After a few minutes, your system will be checked to see if you have SQL Server Express 2005 (32-bit) installed:
  - If it is found, you will skip to Step 12.
  - If it is not found, your system will be scanned for SQL Server 2008 (64-bit). If SQL Server 2008 (64-bit) is found, you will skip to Step 12. If neither SQL Server 2005 Express nor SQL Server 2008 are found, you will be prompted “Would you like to install SQL Server 2005 Express on this machine Y(yes) or N(No)?” Type **Y** to install 32-bit SQL Server 2005 Express. Note: if you only use Oracle for your database, you may elect *not* to install SQL Server Express 2005. If you type **N**, the EDT installation will continue, without installing SQL Server Express and Management Studio components.
12. Your system will be checked to see if you have SQL Server Management Studio installed.
  - *If not found:* You are prompted to install the SQL Server 2005 Express/Management Studio components.

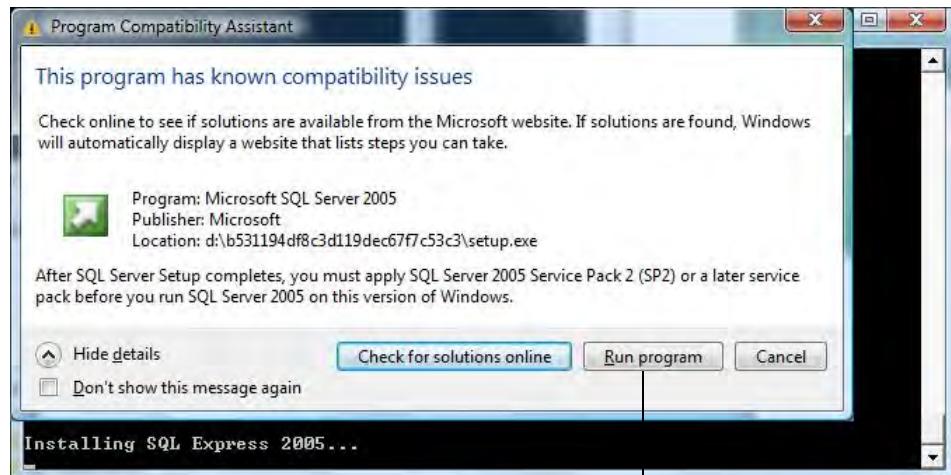
[Go To "What's In This Release?"](#)

When the 'SQL Server Management Studio Express' wizard opens, click **Next**. When the EULA appears, accept it and click **Next**; when the Registration Information screen appears, fill in your information and click **Next**; when the Feature Selection screen appears, click **Next**; when the Install screen appears, click **Install**. When the installation is complete, click **Finish**.

Rarely, a registry error might appear, which you should ignore:



During the SQL Server Express 2005 install, you may see this error message:



SQL Server Express 2005 will install correctly if you click the **Run Program** button

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13. Your system is checked for the SQL Server Backward Compatibility fix. If not found, the 'SQL Server Backward Compatibility Setup' wizard opens. Click **Next**. When the EULA appears, accept it and click **Next**; when the Registration Information screen appears, enter your information and click **Next**; when the Feature Selection screen appears, click **Next**; when the Install screen appears, click **Install**. When the installation is complete, click **Finish**.
14. You are prompted "Would you like to create desktop shortcuts (Y/N)?" Specify **Y** to create shortcuts; specify **N** if you don't want shortcuts placed on the desktop.
15. Next you are prompted "Would you like to install EDM Historian now (Y/N)?", which is required by the OpenWells and PROFILE Data Approval feature. Specify **Y** to install EDM Historian; specify **N** if you do not want to install EDM Historian.

Just for your information, you are informed that you may need to update your database to support the 5000.1.13.1 release. (The location of the appropriate .exe scripts used to upgrade the SQL and/or Oracle databases, respectively, are displayed.)

16. You are prompted "Would you like to run SQL Server Utilities (SSUTILS) now (Y/N)?" This allows you to create a SQL Server Express database instance. If you just need to update the database, specify **N** and proceed to the next prompt. (Note that specifying **Y** and electing to **replace** a database file **will overwrite an existing attached database.**) Specify **Y** if you have another SQL Server/SQL Server Express database that you want to attach, or if this is a new database.
17. You are prompted to run the update for SQL Server and/or Oracle databases; specify **Y** (yes) or **N** (No) options appropriately each time you are prompted.

If you select **Y** for either database type, a WinZip Self-Extractor window opens. Click **Unzip** to unzip files; click **OK** when finished unzipping.

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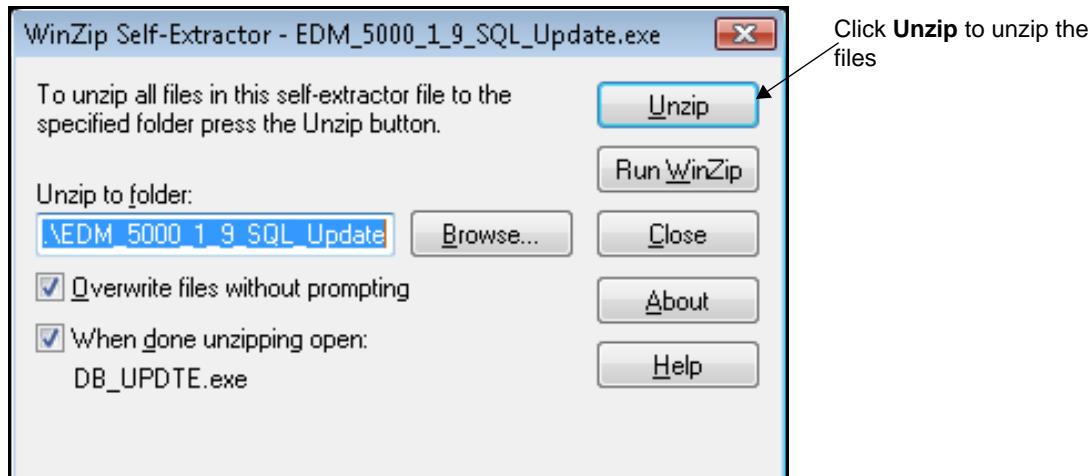
### Upgrading your SQL Server Database

Note that 5000.1.3 was the first time that 64-bit operating systems were supported for an EDT release; prior to that release there were no previously existing SQL Server Express 2005 installations on the box—so there was nothing to update.

#### If you did not elect to run SSUTILS earlier in the install

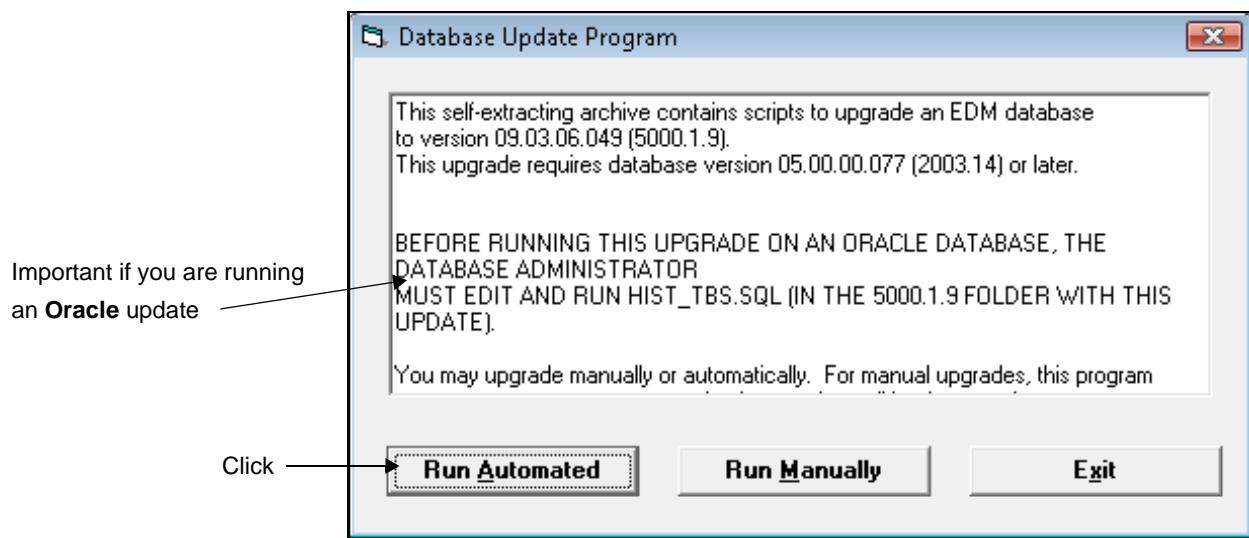
Once the EDT 5000.1.13.1 patch has finished running, if you want to have a SQL Server Express 2005 database installed locally, you need to go to **Start Menu > Programs > Landmark Engineer's Desktop 5000.1 > Tools** and select the **SQL Server Utility**. All you do is enter the Database Name, i.e. 'edm' or any other name, and then press **OK**, accepting the default values for all the other selections.

If you have SQL Server 2008, you will have to attach the EDM database to your SQL Server 2008 instance using the EDM Database Creation tool (refer to the 5000.1.0 version of the *EDM Drilling Database Guide* for details).



The Database Update Program window opens (it may open *behind* the open Cmd.exe window).

18. If you are updating an Oracle database, you must run the HIST\_TBS.SQL script prior to upgrading the database. The script is extracted to the EDT installation directory in the EDM\Updates\Oracle\EDM\_5000\_1\_11\_Update folder.

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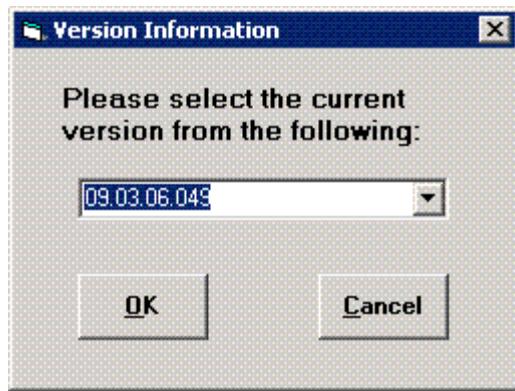
19. For either SQL Server or Oracle, click **Run Automated** to update your 5000.1.0 or higher database to 5000.1.13.1.
20. You will be prompted to login as System Administrator to update the database (for SQL Server 2005 Express, this is **sa**; for Oracle, you will be prompted to login as the schema owner, which is **edmadm** by default).



Enter the System Administrator User Name and Password. The default password for **sa** user is **Landmark1**; for Oracle the default user name shipped by Landmark was **edmadm** and the password was **Landmark1** (check with your system administrator to see if the user name and password have been changed). Select the **DSN** (Data Source Name) from the drop-down list (e.g., **EDM 5000.1 Single User Db** for SQL Server) and click **OK**.

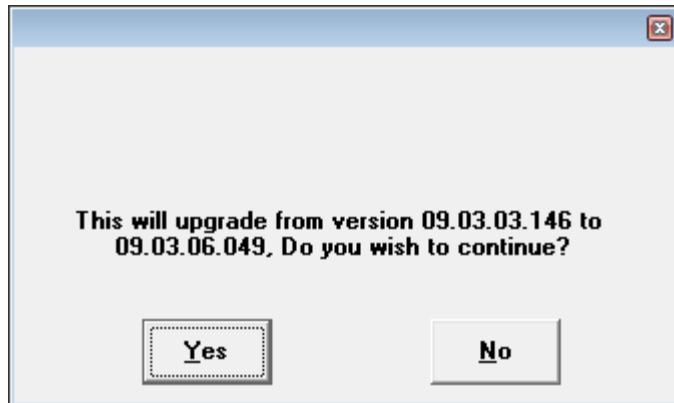
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21. For some installation scenarios, you *may* be prompted as follows (version numbers will differ depending on what version you currently have):



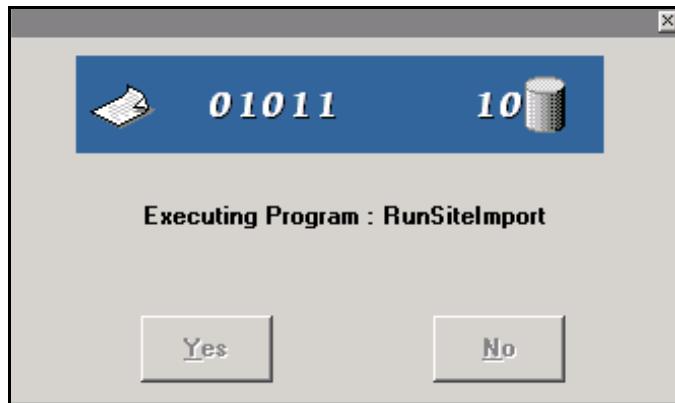
Select the database version you want to upgrade to from the drop-down list, and click **OK**.

22. Next, you will be prompted as follows (version number will change depending on what version you currently had installed):



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23. Click **Yes** to continue. The following screen opens, showing the update in progress:



When the update concludes, click **OK**. The DOS window reports that the 5000.1.13.1 code changes were successfully installed.

24. You are prompted to press any key to exit out of the DOS session. Please review the information in the DOS window to ensure no errors were reported. After pressing any key, the temporary patch install directory will be deleted.

**Note:** While the database is updated, you may see the following error messages. These error messages can be ignored.

```
ERROR at line 1:  
ORA-01408: such column list already indexed  
ERROR at line 1:  
ORA-01408: such column list already indexed  
ORA-06512: at line 5
```

25. This concludes the patch/update installation. Next, perform the required post-installation tasks, outlined on [page 52](#).

## **Troubleshooting the Installation**

If you run into problems, please refer to the "Installation Troubleshooting" section of the *EDM™ Software Installation Guide* or the *EDT™ Drilling Software Installation Guide*.

 Go To "What's In This Release?"**Microsoft SQL Server Express 2005 Install Behavior With SQL Server 2008 Client/Server 2008**

Microsoft SQL Server Express 2005 (Microsoft's replacement for MSDE) is the standalone database provided with the Engineer's Desktop 5000.1.13.1 release. Microsoft SQL Server Express 2005 is a technology that provides local data storage that is compatible with Microsoft SQL Server 2008. It is designed and optimized for use on smaller computer systems, including a single-user computer or small workgroup server.

Microsoft SQL Server Express 2005 installation issues impacting PCs with SQL Server installed are listed in "Microsoft SQL Server Express 2005 Installation Issues" in the EDM Installation Guide.

***Post-Installation Required Tasks***

1. Before attempting to run the PROFILE application, if you need to export PROFILE WallPlot Composer schematics to JPG file format, Windows color depth should be adjusted to a resolution higher than 256-bit.
2. Remember to reboot your computer before attempting to use the Engineer's Desktop.

**Note: On 64-bit machines, you still need to select 32-bit drivers for EDT software.**

On 64-bit machines, you need to go to a different location than in the past to launch the ODBC Administration dialog box. Do not use the Control Panel> Administrative Tools> Data Sources (ODBC)—instead, browse for and launch the ODBCADC32.EXE from the WINDOWS\SYSWOW64 folder.

\Windows\SysWOW64\odbcad32.exe

***Site Configuration File Import Required Post-Install***

Landmark configurations (site configuration files) are contained within the EDM database and installed with the Microsoft SQL Server 2005 Express database. These files contain default and customized configurations for EDM Output Reports, OpenWells Preview Panes, OpenWells Data Entry Forms, OpenWells Shortcut Bars, and Administration Utility input screens.

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If you are **upgrading** from a previous version of the database, both Oracle and Microsoft SQL Server 2005 Express (replacement for MSDE) users will have the latest configuration files imported automatically; you do not have to do anything. Skip to "Workspaces and Templates Import Required Post-Install" on page [54](#).

If you have a **new Oracle or Microsoft SQL Server** installation, you must import site configuration files after creating a new database. Site configuration files are imported using the EDM Administration Utility. The files are located in the following folder once the installation is complete: <install directory>\EDM\Site Configuration Files. The procedure to import these files follows.

1. Launch the EDM Administration Utility.
2. Create a database connection for the upgraded database (i.e., use the **File > New > Data Source** command).
3. Login to the installed database as *edm/Landmark1* (user name/ password).
4. Select the Database icon in the hierarchy for the opened EDM Data Source.
5. Follow the menu path, **Tools > Import and Export**.
6. Select **Import configuration data from local directory**.
7. Click **Next**.
8. Use the **Browse** button to navigate to the top level directory (i.e., <install directory>\EDM\Site Configuration Files) and click **OK**.
9. Leave the path to the XML file descriptor blank. This will cause the default files\_descriptor.xml file to be used. The XML file descriptor (files\_descriptor.xml) populates specific columns in the table that would normally not be populated.
10. Activate the checkbox to overwrite existing files in the EDM database.
11. Click **Finish**. Once the import is complete, the *ImportResults.log* file appears. This file summarizes the results of the import. The beginning of the file states how many Site Configuration files are to be imported (e.g., 659 files). The end of the file states how many files were imported. These two numbers should be the same. If there is a discrepancy between these numbers, contact Landmark Support. The *ImportResults.log* file is located in the <EDM install directory>\Common Files folder.
12. Close and then re-open the to view the newly imported files, which are now visible.

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## Workspaces and Templates Import Required Post-Install

Following the installation of EDT 5000.1.13.1, system workspaces and templates for applications such as WELLPLAN, StressCheck, CasingSeat, and WELLCAT are automatically uploaded to SQL Server databases, but will need to be imported to **Oracle** databases.

1. In the EDM Administration Utility, select the Oracle database in the tree, then select **Tools > Import and Export**. The Import and Export Wizard will open.
2. Use the "**Import System Workspaces**" option in the Wizard to import workspaces and templates.

This concludes the installation of EDT software on 64-bit systems.

 Go To "What's In This Release?"

# Licensing

Landmark's Application Manager (LAM) is the license system used to control access to Landmark applications. LAM is based on Macrovision's FLEXnet Publisher. LAM version 5000 is required for release 5000.1.0 and higher. You do not need to re-license for this release; your 5000.1.0 licenses will work. Refer to the *EDT™ Software Version 5000.1.0 Summary Level Release Notes* for licensing details.

## **Accessing Both 2003.x and 5000.x EDT Releases**

**Only one LAM server can run per machine.** If access is desired to both 2003.x and 5000.x Engineer's Desktop applications, then LM\_LICENSE\_FILE must point to two distinct LAM servers: either one local and one remote, or two remote servers. The license path to the LAM 2003 Server *must* precede the path to the LAM 5000 Server, separated by a semi-colon, in LM\_LICENSE\_FILE. For example (all on one line):

```
LM_LICENSE_FILE : c:\landmark\lam\license2003.dat;  
\\remote_machine\c:\landmark\lam\license5000.dat;
```

Make sure that the 2003 license is the *first* one specified in the path.

## **Special Instructions for Windows 7**

Please note that in order for a **license server** to work as expected on Windows 7, you MUST manually open the ports for communication for lmgd.exe, licsrv.exe, and lgcx.exe.

The instructions are:

1. There are some manual security steps that need to be done (in addition to running the server installation scripts) in order to enable a FLEX server to communicate on the network. Go to **Control Panel > System and Security > Windows Firewall > Allowed Programs**.
2. Select **Allow a program or feature through Windows Firewall**.
3. Verify that the following LAM 11.7 Windows Server components are allowed on Windows 7: lmgd.exe, licsrv.exe, and lgcx.exe (you may have to browse for these and **Add** them). This workflow must be completed in order to enable network communications.

 Go To "What's In This Release?"

# Enhancements, Fixed Issues, and Known Issues

Descriptions of Enhancements, Fixed Issues, and Known Issues for the applications in the EDT software suite are provided.

**To go directly** to the enhancements, bug fixes, and known issues for individual applications, click the blue links below:

[CasingSeat™](#)

[COMPASS™](#)

[Data Analyzer™](#)

[EDM™](#)

[Engineer's Desktop™  
\(EDT™\)](#)

[OpenWells®](#)

[PROFILE™](#)

[Real-Time View™](#)

[StressCheck™](#)

[WELLCAT™](#)

[Well Cost](#)

[WELLPLAN™](#)

[Go To "What's In This Release?"](#)

## CasingSeat™ Software

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are no changes in the CasingSeat software for the 5000.1.13.0 release.

### CasingSeat Enhancements and New Functionality

The CasingSeat enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

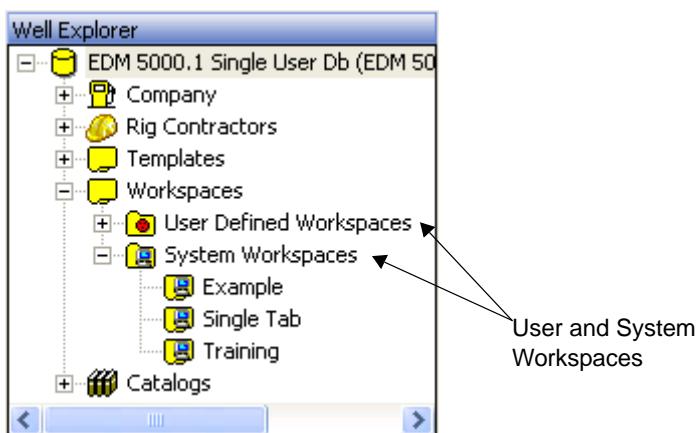
#### **Release 5000.1.7 through 5000.1.13.1**

There were no enhancements to CasingSeat for these releases.

#### **Release 5000.1.6**

##### *Workspaces*

Workspaces—User and System workspace functionality previously available only in WELLPLAN has been added to WELLCAT, StressCheck, and CasingSeat. A workspace is a layout that defines how you want tabs, panes, arrangement of plots within panes, etc. to appear in the software application.



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Unlike templates, workspaces do not include data, but only the display configurations that control the look and feel of the interface.

System Workspaces are read-only, and are shipped with the EDM database. You may apply them, but not alter them. Additional System workspaces can be imported using the EDM Administration Utility. When you import System workspaces, the existing System workspaces are retained.

User Workspaces can be created, changed, or deleted at any time. Importing user workspaces is an add/replace function; that is, if the name already exists on the target, the imported workspace will overwrite it.

### **Release 5000.1.5**

There were no enhancements to CasingSeat for this release.

### **Release 5000.1.4**

There were no enhancements to CasingSeat for this release.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

There were no enhancements to CasingSeat for this release.

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the CasingSeat software.

 Go To "What's In This Release?"

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For the CasingSeat application, there are no additional enhancements.

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## **CasingSeat Fixed Issues**

The CasingSeat issues fixed for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13.1**

There are no CasingSeat issues fixed for this release.

### **Release 5000.1.13**

There are no CasingSeat issues fixed for this release.

### **Release 5000.1.12**

There were no CasingSeat issues fixed for this release.

### **Release 5000.1.11**

The following issues were fixed for the 5000.1.11.0 release of CasingSeat software.

Defect No.	Description
83739	Design Constraints Upper curve is not drawn correctly
900216	Allowable Hole Sizes section is not updated after a different design was selected from Recent combo
900268	The last open design item is removed from Recent combo.

### **Release 5000.1.10**

There were no CasingSeat issues fixed for this release.

### **Release 5000.1.9**

The following issues were fixed for the 5000.1.9 release of CasingSeat software.

Defect No.	Description
848455	CasingSeat Detailed Report creation failure "cropping".

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Defect No.	Description
850883	Active Unit System set in Project Properties not being respected.
851146	Changing the Active Unit System in the Project Properties when a Design is open, results in the Design not updating to the new Active Unit System as expected.

### **Release 5000.1.8**

There were no CasingSeat issues fixed for this release.

### **Release 5000.1.7**

There were no CasingSeat issues fixed for this release.

### **Release 5000.1.6**

Defect No.	Description
819193	CasingSeat fails to launch/display "no valid license" with expired bitlock/node-locked license file.

### **Release 5000.1.5**

There were no CasingSeat issues fixed for this release.

### **Release 5000.1.4**

The following issues were fixed for the 5000.1.4 release of CasingSeat software.

Defect No.	Description
810162	Update current message in reference to well inclination higher than 90 degrees.
810332	Modify CasingSeat template to allow selecting pore and frac tables in read-only mode.

### **Release 5000.1.3**

CasingSeat fixes from the 5000.1.2 release are included in the 5000.1.3 release. No additional fixes have been made.

 [Go To "What's In This Release?"](#)

### **Release 5000.1.2**

CasingSeat fixes from the 5000.1.1 release and the 5000.1.1.1 patch are included in the 5000.1.2 release.

Defect No.	Description
785576	Right-click Save from the Well Explorer causes CasingSeat to crash. (fixed in 5000.1.1 Build 1598)
788402	CasingSeat checks out an EDM license when other EDT applications already have a license checked out. (fixed in 5000.1.1 Build 1598)

### **Release 5000.1.1**

CasingSeat fixes from the 5000.1.0 release are included in the 5000.1.1 release. No additional fixes have been made.

### **Release 5000.1.0**

The following CasingSeat issues were either fixed or have workarounds for the 5000.1 release.

Defect No.	Description
753088	Differences in Layer Type of Lithology causes application crash.
768242	Datum Shifts - Slant Well Behavior - Design incorrectly opens at a new datum although a warning correctly tells the user that the Design can be opened at the original datum only.
770521	Licensing - EDT software Licensing does not take advantage of the functionality that will warn users that their license is set to expire in x days
770907	CasingSeat software does not remember custom changes to spreadsheet column widths unless the Defaults checkbox is deactivated. Workaround: To preserve custom column width configurations, deactivate the Column Widths "Defaults" checkbox on spreadsheet Properties.
779007	Save As - Crash when performing a Save As operation with some Designs.
782288	File Import (PDI file) does NOT respect EDM security tokens

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## CasingSeat Known Issues

The following CasingSeat known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13.1

There are no additional CasingSeat known issues for this release.

### Release 5000.1.13

There are no additional CasingSeat known issues for this release.

### Release 5000.1.12

There were no additional CasingSeat known issues for this release.

### Release 5000.1.11

The following are CasingSeat known issues for the 5000.1.11 release.

Defect No.	Description
83739	Design Constraints Upper curve is not drawn correctly
900216	Allowable Hole Sizes section is not updated after a different design was selected from Recent combo
900268	The last open design item is removed from Recent combo.

### Release 5000.1.1 through 5000.1.10

There were no additional CasingSeat known issues for these releases.

 [Go To "What's In This Release?"](#)

## **Release 5000.1.0**

The following were the CasingSeat known issues for the 5000.1.0 release.

Defect No.	Description
83739	Design Constraints Upper curve is not drawn correctly.
105286	Switching to metric with manual x-scale settings yields a blank Design Plot.
105652	Need validation for X Grid Steps on Scaling Tab of Properties for Design Plot.
105659	Need more validation for True Vertical Depth in Design Parameters.
139659	Some casing schemes are being generated w/ 2 strings the exact same length.
153225	F1 brings up wrong Help topic on the Print Preview window.
155298	CasingSeat software does not allow users to delete cells in the Drilling Parameters table.
155753	CasingSeat software should not display the Datum Adj. Warning Message if the New Datum = Old Datum.
161353	Unnecessary error message appears when tabbing from cleared field in Pore Pressure spreadsheet.
161354	Unnecessary error message appears when tabbing from cleared field in Fracture Gradient spreadsheet.
161626	The Design Plot pore pressure curve still plots although a blank record is inserted in the Pore Pressure spreadsheet.
161630	Design Constraints Lower Curve displays in Design Plot displays when it should not.
621698	Changing unit systems changes casing names in the Well Schematic but not in the solutions drop down list (prior unit system displays).
625032	Help dialog boxes no longer dismiss with the Escape key.
625041	Inconsistent 'Always on Top' behavior for HTML Help dialog boxes.
625067	The Print dialog box now has a non-working Help button where there had been no Help button before.
625069	The Print Setup dialog box now has a non-working Help button where there had been no Help button before.
625805	CasingSeat software fails to release about 5 MB memory after closing a Design.
630745	Well Schematic leaves a PROFILE.log file in the current working directory.
700006	CasingSeat software grabs an additional 5 to 20 MB memory for each Save As operation performed.
700110	Section View - Vertical scaling does not work correctly when the view is split vertically.

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Defect No.	Description
721022	Missing item in dialog box list.
724265	Cannot successfully save Audit Info under Well or Wellbore when a Design is open.
728689	Missing data dictionary button and menu item in CasingSeat software.
728867	CasingSeat software uses 6 to 8MB more memory at any given state than it did in version 2003.14.1.0.
729354	Find toolbar button stays depressed and the Find menu item appears checked for a long time after the Find dialog box is closed.
729360	Non-results dependent report items should print only once instead of repeated for each solution.
729857	Unwanted Well Explorer movement - loss of focus with Unit System changes.
730379	Casing and Hole Size Selector - Context menu lacks Maximize and Restore functions.
730900	Adding a new casing to the highest (48") hole causes CasingSeat software to crash.
730984	Casing and Hole Size Selector - There is no report item for this new view.
731048	Accessing the Unit System Editor dialog box can later cause the Open Template dialog box to hang or prevent Designs from opening.
731054	Crash applying a newly imported template to a particular newly imported Design in a new, empty database.
741673	Well Schematic overlaps into any neighboring pane in Print Preview of Current Tab.
744925	Hole Sizes entered in PROFILE software are not displayed in CasingSeat software.
744945	Changes in the Hole Size made in PROFILE software are not displayed in CasingSeat software or COMPASS software.
745832	First hole section MD Top depth displayed in PROFILE software is incorrect and should start at the depth where the earth begins.
745843	All MD Top and MD Base depths displayed in PROFILE software are greater than they should be by the value of the Datum.
746660	Updating the Active Casing Configuration in CasingSeat software can cause old Hole Section records to be left behind.
746696	In the Well Schematic, casings appear to violate the boundaries of surrounding casing strings when the Non-Deviated option is unchecked.
747254	Missing menu command: Virtual Folders.
747733	Correct delimiter is not immediately displayed in the plot views. Possible refresh issue.
747737	Date format in reports header does not change based upon selected Regional Settings.

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Defect No.	Description
748555	Odd Registry entry appears in HKCU when using Norwegian (Nynorsk).
753078	Refresh is required in Well Schematic to display it correctly.
753388	Applying a template to a Design does not set the state of the Design as one that contains unsaved changes.
753399	In the Casing and Hole Size Selector, nodes can be drug into invalid locations when a template is applied to a Design.
757396	Undo button active just after a Design is opened.
760391	CasingSeat software does not set CD_ASSEMBLY.plan_depth_type.
762310	CasingSeat software crashes when attempting to add additional temperature data.
768882	No exclamation sound is heard as expected when the application prompts the user to save.
769218	Well Schematic does not generate until the user deliberately re-selects it from the menu when running CasingSeat software on Microsoft Vista.
769740	Border Thickness in Well Schematic in CasingSeat application is different from the 2003.16.1.0 release.
771513	CasingSeat software crashes when performing an export via DEX™ software from some Designs.
773629	The symbol size of Casing Shoe shows twice the size of the 2003.21.0 release in the CasingSeat and StressCheck™ applications.
776574	Allowable Hole Size and Allowable Casing OD's spreadsheets are not validated after a Template import unless the user knows to press the Calculate button.
776700	Print Range is no honored when printing reports.
778773	CasingSeat software does not load a wellpath trajectory created in PROFILE software.
779367	Differences in Well Schematic and Casing and Tubing Schemes.
783812	Intermittent "Memory could not be read" error while running CasingSeat software on Citrix.

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## **COMPASS™ Software**

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are enhancements and bug fixes in the COMPASS software for the 5000.1.13.1 release.

### **COMPASS Enhancements and New Functionality**

The COMPASS enhancements and new functionality for 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13.1**

##### *Earth Curvature Correction*

COMPASS™ software now provides an option in the Project Properties dialog to make full corrections to the project data conversions.

##### *KLM Export from COMPASS to Google Earth*

COMPASS™ software now supports export of KML files for Google Earth. If Google Earth is installed, then it will launch showing the data in context.

##### *Improvements in the Magnetic Interference Correction*

The Survey Corrections dialog is enhanced to support raw magnetic data.

##### *Additional Surface Import Formats*

This release supports new file formats for importing surface:

- GXF Grid
- ZMAP Grid
- Contours
- XYZ Points

 Go To "What's In This Release?"

## **Release 5000.1.13**

### *ISCWSA Survey Tool Error Models Upgrade*

COMPASS™ software now supports the ISCWSA (Industry Steering Committee on Wellbore Survey Accuracy), OWSG (Operators Wellbore Surveying Group) survey tool error model standard sets A, B, and D. For more information, check the [ISCWSA.org](http://ISCWSA.org) website and look for the OWSG section.

### *Improvements in the Definition and Selection of Survey Tools*

A number of improvements have been made to survey tools selection in COMPASS™ for this release.

- Survey Tools OWSG Tab

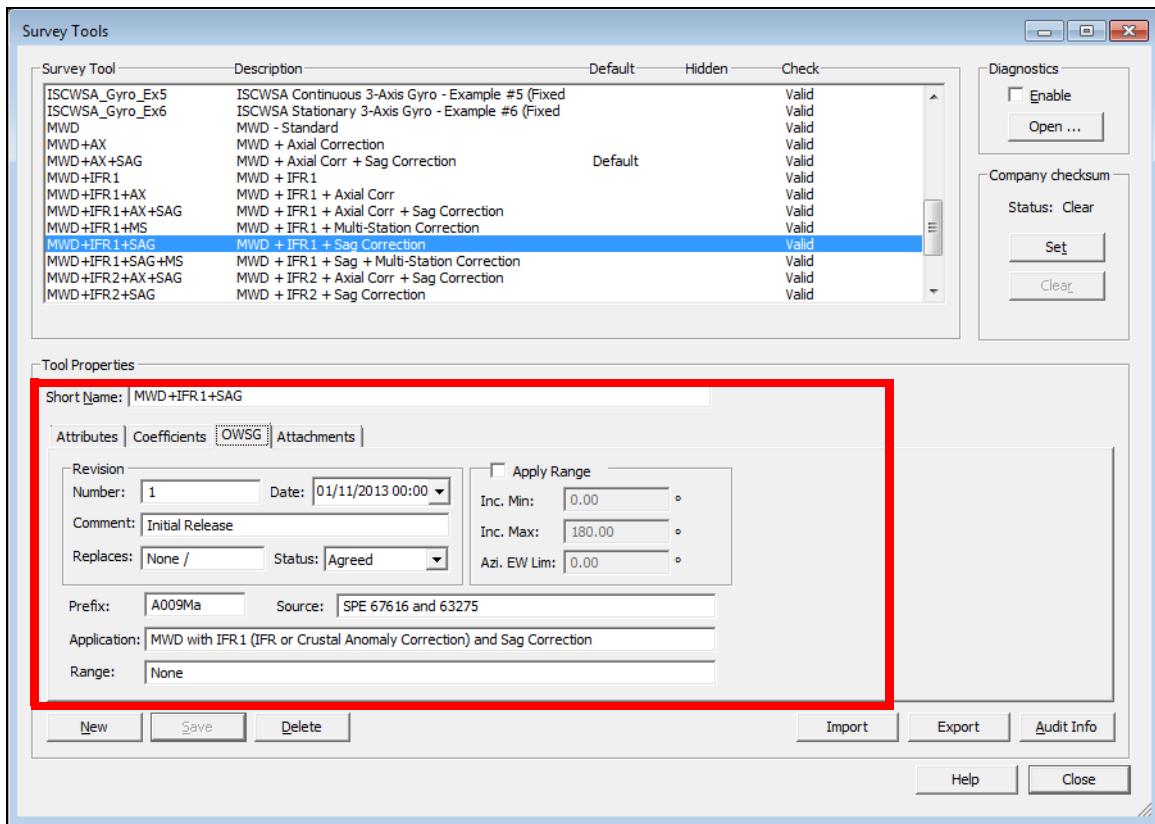
In order to offer better support to the OWSG set of uncertainty models, the Survey Tools dialog box now offers an OWSG Tab. From this tab OWSG Sets A, B, and D survey tool error model templates can be reviewed for additional information about the error models.

The OWSG tab contains additional attributes required by this ISCWSA sub-committee to identify and classify each survey tool error model. For non OWSG tool error models, these fields can be left in blank.

Although, these OWSG error models are backward comparable with previous versions of COMPASS™, much of the supporting information is lost.

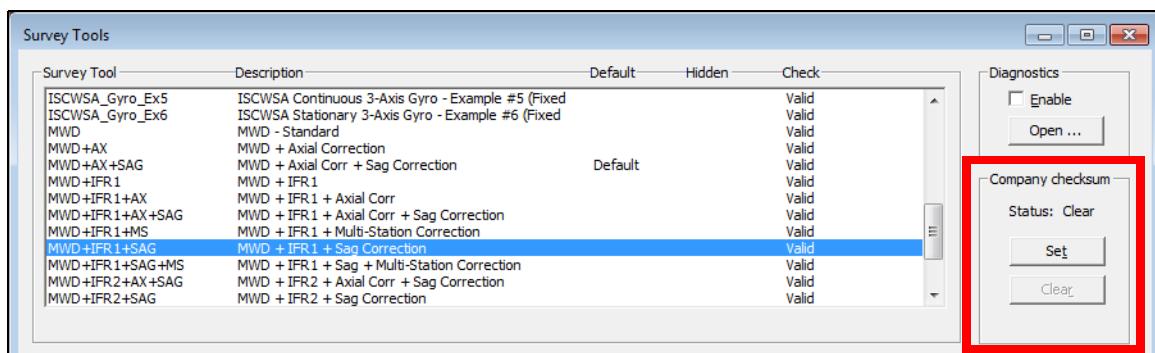
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COMPASS™ can now load supporting information, such as derivation, revisions, and usage from the OWSG tab in the Survey Tools dialog.



- Company Checksum

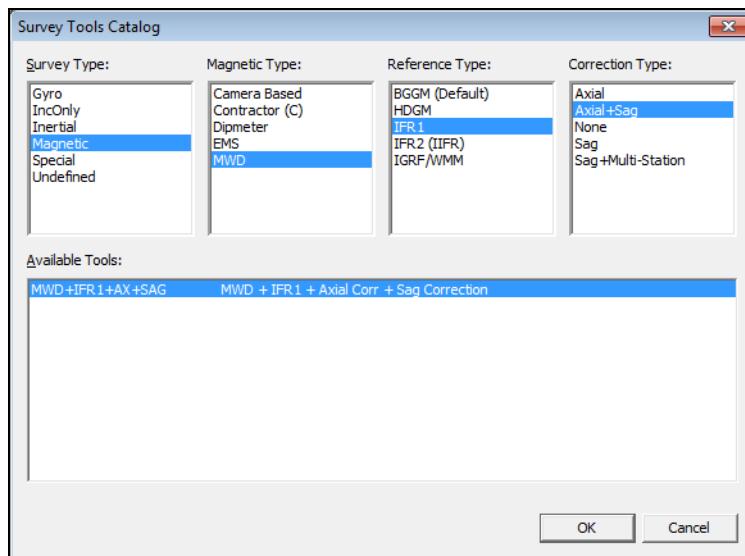
To protect the integrity of the new survey tool set from external changes, a checksum can be applied to individual survey tools and to the company set.



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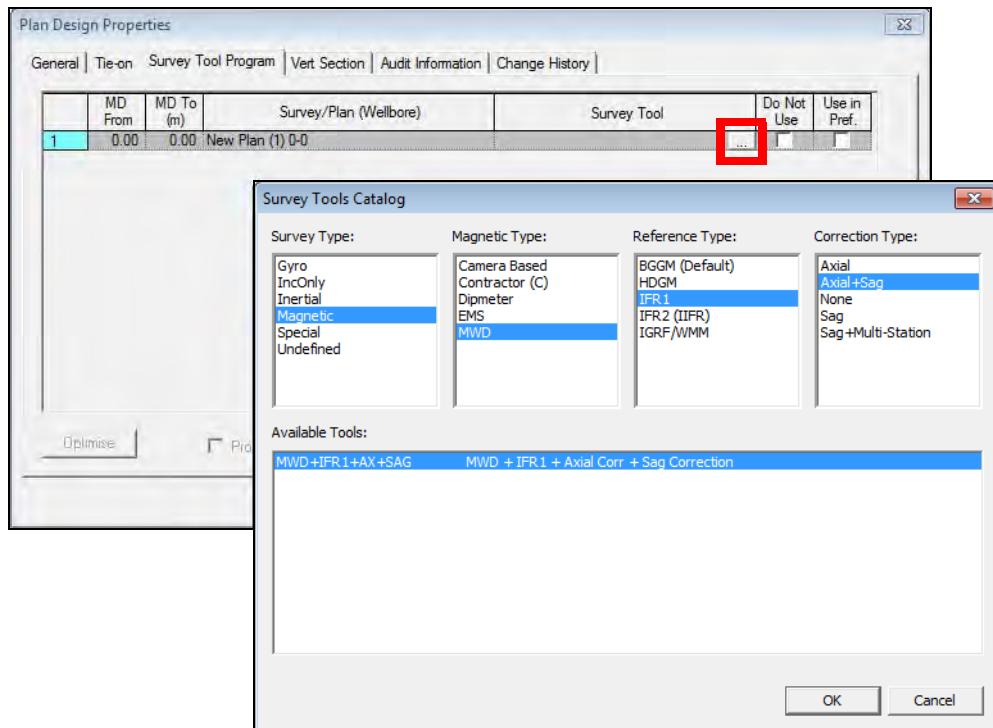
- Survey Tools Selection Dialog Improvements

The new Survey Tools Catalog dialog allows the selection of a survey tool by filtering the Survey Tools catalog.



- Plan Design Survey Tool Catalog

An ellipse button is now available in the Plan Design Properties, Survey Tool Program spreadsheet, which allows you to select survey tools from the Survey Tools Catalog.



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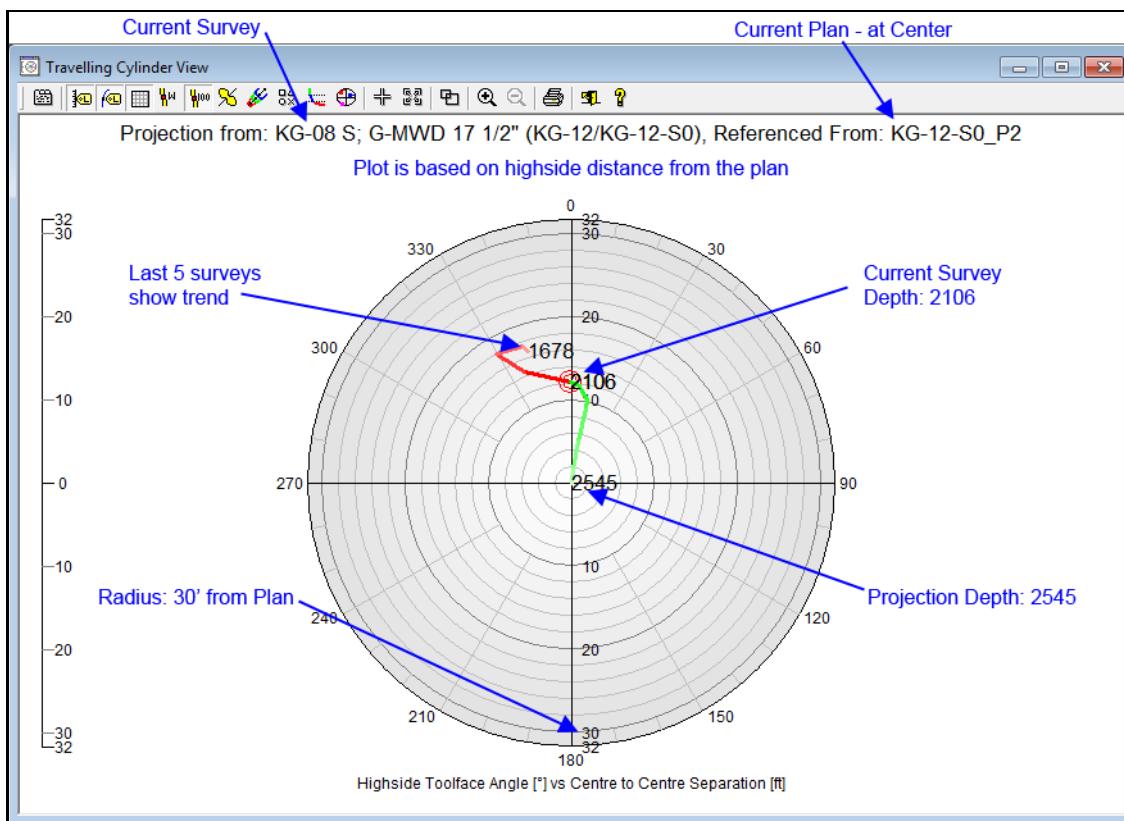
## Release 5000.1.12

### *Well in a Tunnel*

The Well in a Tunnel feature allows engineers to spend less time and effort steering and more time rotating. Using the Well in Tunnel feature you can visualize the correct position and trajectory of the well relative to the plan. Well in a Tunnel shows only the allowable distance the survey can move from plan and the acceptable tolerance of offset wells and maximum deviation at specified depths. Plots are automatically updated as surveys are entered in COMPASS™ software.

For this feature to work, you must have a survey from an actual design, as well as a plan.

The Well in a Tunnel feature uses the Traveling Cylinder and Ladder plots.



Reference axes show a Travelling Cylinder plot based on the 'bit face' view from the plan. The diameter of the plot can change with depth and is set with the anti-collision color bands.

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The 'approved' plan will be used as the reference. The Y axis is Highside, X axis is Left Right.

When the well is inclined (on the plan) then highside is used as reference. If the section of the plan is vertical then North is used for the Y axis (X for east).

Position of current survey point (and maybe previous 1-5 stations to show trend) will be plotted. A projection from the bit will be shown: Either straight line for 100-200', or back on track to the plan.

Hardlines show 'no-go' lines based on compass anti-collision against the plan of offset well. The hardline is a composite of the minimum separation ( $SF=1.0$ ) against all chosen wells radially 0-360 degrees. The no-go lines are only computed for offset wells from the current survey depth to the end of the projection.

#### *Required COMPASS™ Data*

To show the above plot and have it update automatically when a new survey is entered, the following data must be entered in COMPASS™ software.

- **Survey Stations** - Survey stations must be entered in the Survey Editor
- **Anti-collision** - Anti-collision settings must be defined so the plot automatically updates.
  - **Last X survey stations** - defines the number of surveys you are interested in. For example, if you enter 5, then only the last 5 survey stations are shown.
  - **Distance After** - defines the depth interval, after the last survey station, in which surveys are to be project up to the new depth. For example, if you enter 100ft, then the next survey will be created 100ft after the last survey station.
  - **Center Distance** - defines the diameter of the Travelling Cylinder plot
  - **Offset Datum** - adjusts the vertical depths on offset wellpaths by datum.
  - **Highside Toolface** - defines the direction from the reference well to the offset well at the reported depth

#### **Offset Bearing Note:**

Offset bearing will change to Highside automatically if the interpolated inclination on the plan for the current survey depth is > 1 degrees. Otherwise it will show North referenced TC plot. This change over angle is shown as the 3<sup>rd</sup> data field after Survey Stations.

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— **Planned Design** - sets the planned design as the reference design.

**Planned Design Note:**

When you select Planned Design, the Distance to Plan, Toolface HS to Plan, Y Offset to Plan, and X Offset to Plan columns read "from Plan", in the Survey Editor.

The Travelling Cylinder and Ladder plots are now updated when a survey station is added.

Anti-collision is automatically recalculated for the survey stations and projections.

- **Offset Wells** - Offset Wells to be included in the scan must be selected.

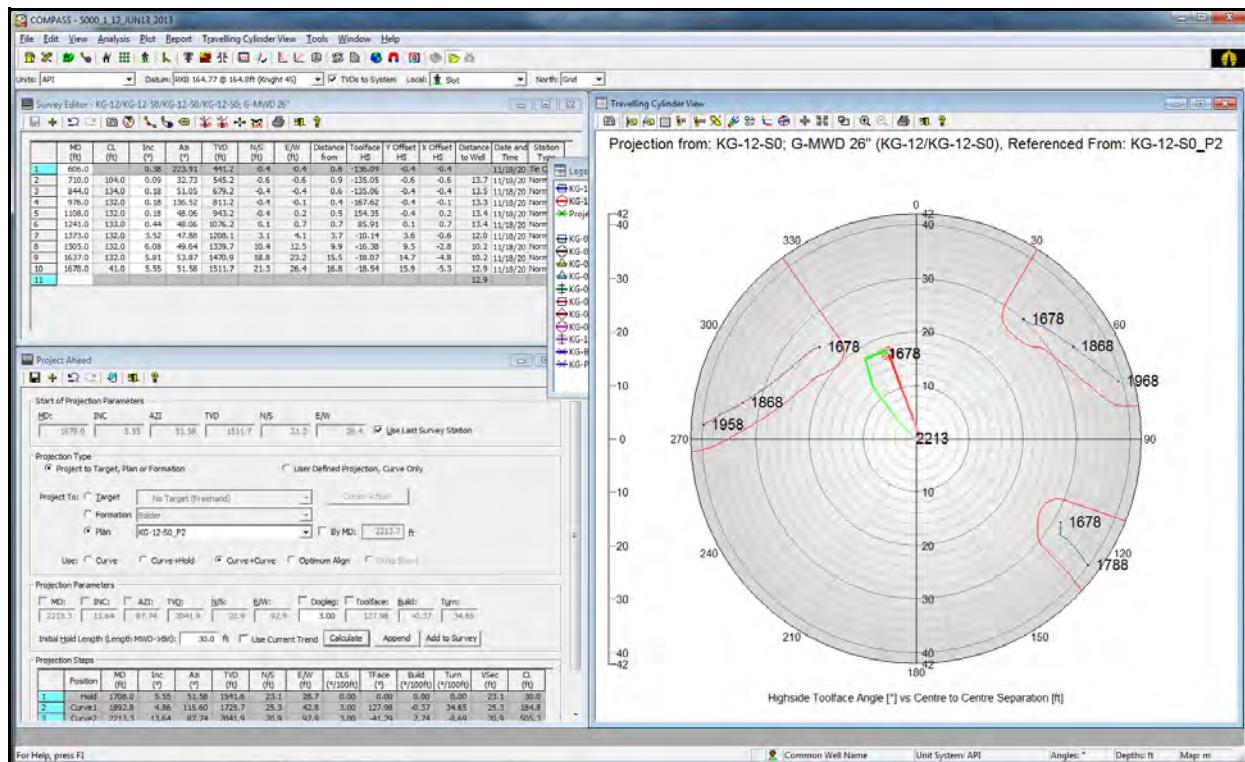
**Offset Wells Notes:**

Select only "Actual" designs and do not select the plan on the same wellbore.

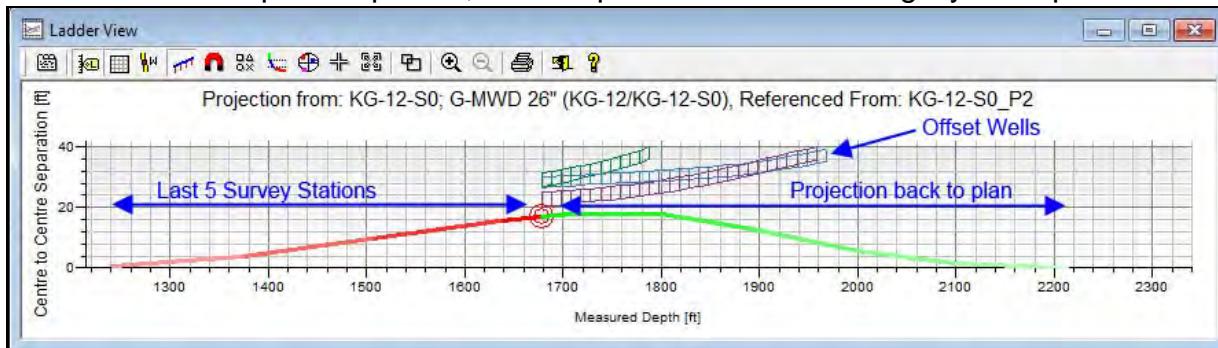
- **Project Ahead** - COMPASS™ software provides project ahead of the survey calculations. These update when a survey station is added. Generally, for complex trajectories, it's easiest to project back to the plan, even if this is not immediately required.

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The following shows a suggested window layout in COMPASS™ software, when using the Tunnel in a Well feature.



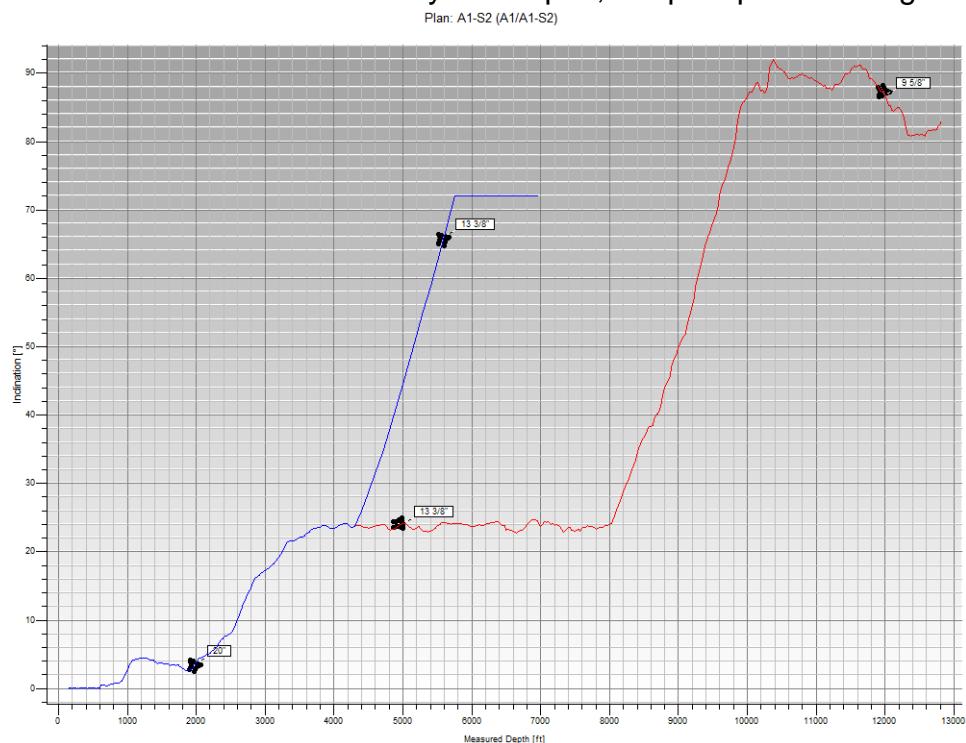
The Ladder plot is optional, but complements the Travelling Cylinder plot.



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### Offset Well Casing Shoes displayed in Analysis Views

Casing shoes can now be included in Offset Wells, by selecting the Casing and On Offset Wells check boxes in Analysis Graphs, Graph Options dialog



### Radioactive Source Enhancement

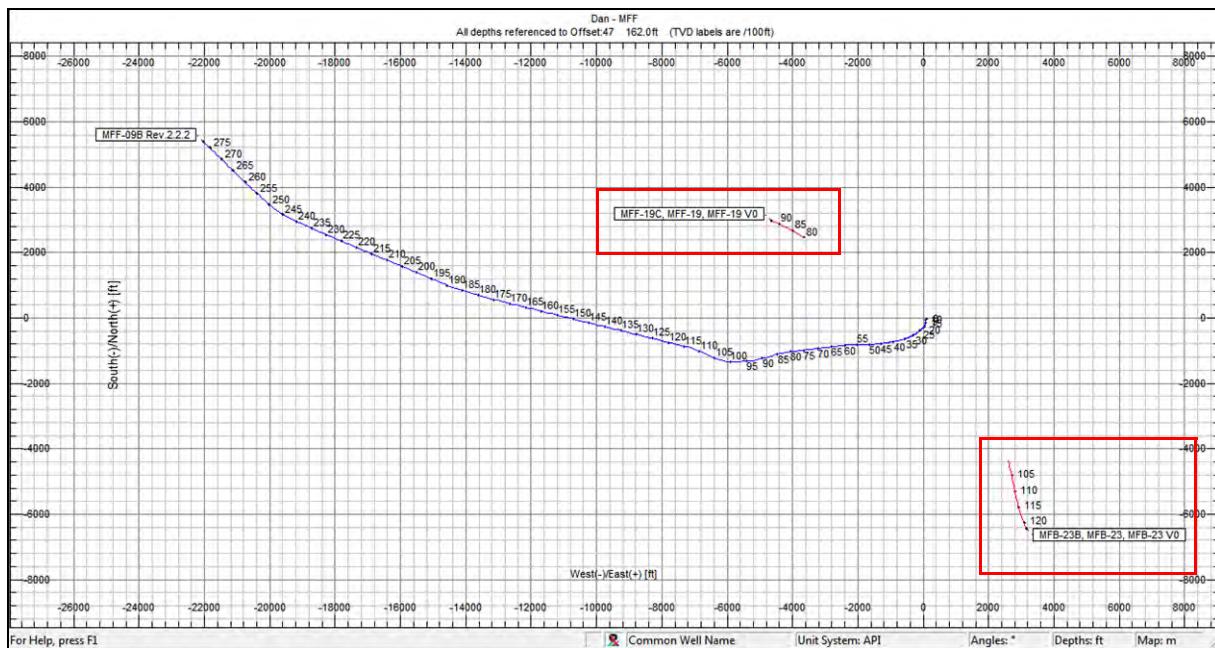
A number of wellbores can have a Nuclear source left as a fish in the hole, e.g. lost MWD tool. In practice these 'fish' are cemented back (plugback) and sidetracked. It is important to avoid these fish, but it is not normally required to avoid the depths above the cement plug (which could go back to surface). The requirement is to run a special anti-collision report or plots against these sections.

The Nuclear Source is configured in the:

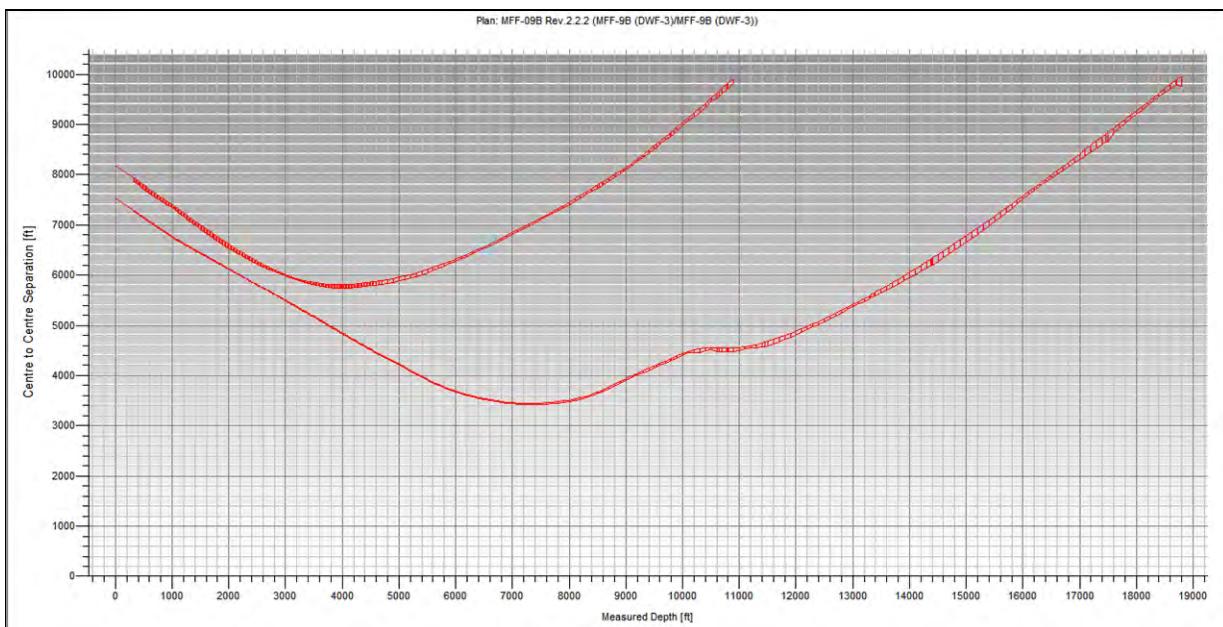
- **Wellbore Properties** dialog - define the depth at which the radioactive source occurs
- **Anticollision Settings** dialog - configure Offset Wells with a Radioactive Source specified, to be shown on plots only below the depth at which the source has been specified. Otherwise, the entire well path to surface will be displayed on plots.
- **Offset Design Selection** dialog - filter for any Wellbores that have been specified as Radioactive.

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The following plot shows a spider plot with two radioactive sources (MFF19 OH – below 8000'md and MFB23 OH below 10,000'MD highlighted in red).



The following shows a ladder view of the same reference versus the two radioactive source wells



The scan limit is set at 10,000'. Notice that the lines are continuous, because the 3D scan shows the 3D distance from the depth in the reference to the source. This could be an end point (start/end) of the source. Therefore the convergence/divergence is quite often 1:1 (45 degrees).

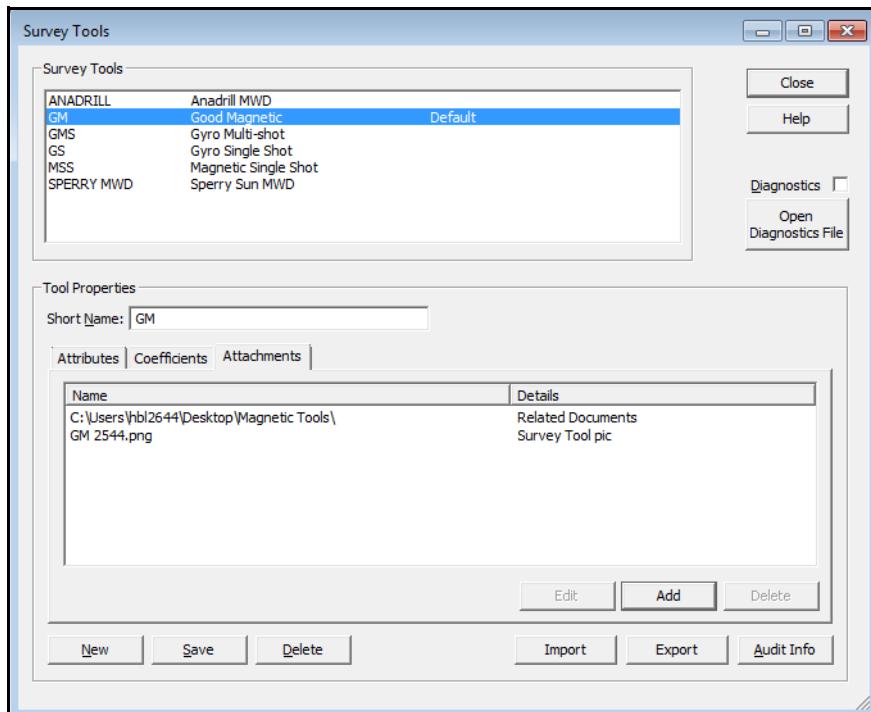
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### Saved layout

COMPASS™ software now retains the window layout when closing or switching Designs.

### Survey Tool File/Folder Attachments

Files and folders can now be attached to individual survey tools through the Survey Tools dialog.



### Bottom Hole Coordinate Recalculation

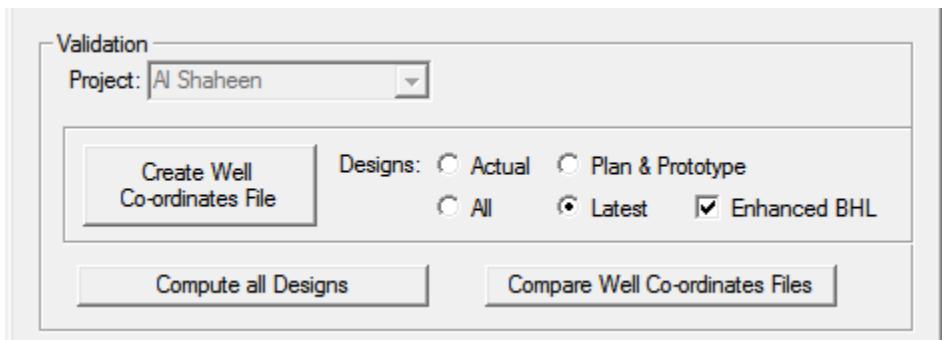
When a Geographic Reference System is changed, COMPASS™ gives four options: Keep Map, Keep Geographic, Keep Location, or Cancel. If you selected any of the Keep options COMPASS™ will now recalculate the Bottom Hole Coordinate fields. Recalculated data can be verified in the Wellbore Properties dialog.

**CAUTION:** Only advanced administrator and engineers very familiar with COMPASS and EDM should attempt changing the Geographic System. The consequence of changing the Geographic System incorrectly can have detrimental affects on your data.

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## Release 5000.1.11

### *Enhanced Well Coordinates (addresses DE 852010)*



An enhancement was required to expand the well-coordinates file to the extent of the CFWPowerTools.exe (VB6) and comparison capability of BHLCheckMaster.xls

Enhanced BHL will report a lot more columns. The columns (over 100 of them) show all the possible variables in the hierarchy of COMPASS that could affect anti-collision calculations.

Compare Well Co-ordinates files – will generate a comparison between two versions of the co-ordinates log. This was previously done in BHLCheck.xls, but was complicated because of the involvement of Excel macros.

### *Sliding Sheet and SAG Calculation: Survey Correction (addresses DE 897135)*

This works on new surveys and existing surveys (existing surveys must be unlocked first). Graph area allows the display of Inclination, Azimuth, and Dogleg Severity for Before and After surveys. A bar is shown to indicate Slide and Rotate intervals. The bar has various graph options for labels and zooming.



A SAG correction is a correction to inclination due to drill collar bending (attributable to dogleg or weight) in the region of the measurement, so that the collar angle is different from the hole angle. The correction relies on a mechanical stiffness model for the lower BHA. Calculate Apply SAG will apply the changes to

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the survey. You may see changes of up to 0.2 degrees in inclination. There will be very small changes in the inclination plot, and zooming is required to see the differences. The SAG/BHA Deflection plot will show the effect.

*Ladder Plot Depth Slice and Enhancements To Depth Slice Views (addresses DE 897142, 897143)*

These enhancements are for Traveling Cylinder, 3D anti-collision, and Ladder views.

*Allow Users to Choose License Type on Startup*

When a company has mixed network license types, the first users normally take the more extensive licenses, and other users will get what remains.

*Stop COMPASS From Creating a Default Zero Depth Datum (addresses DE 906344)*

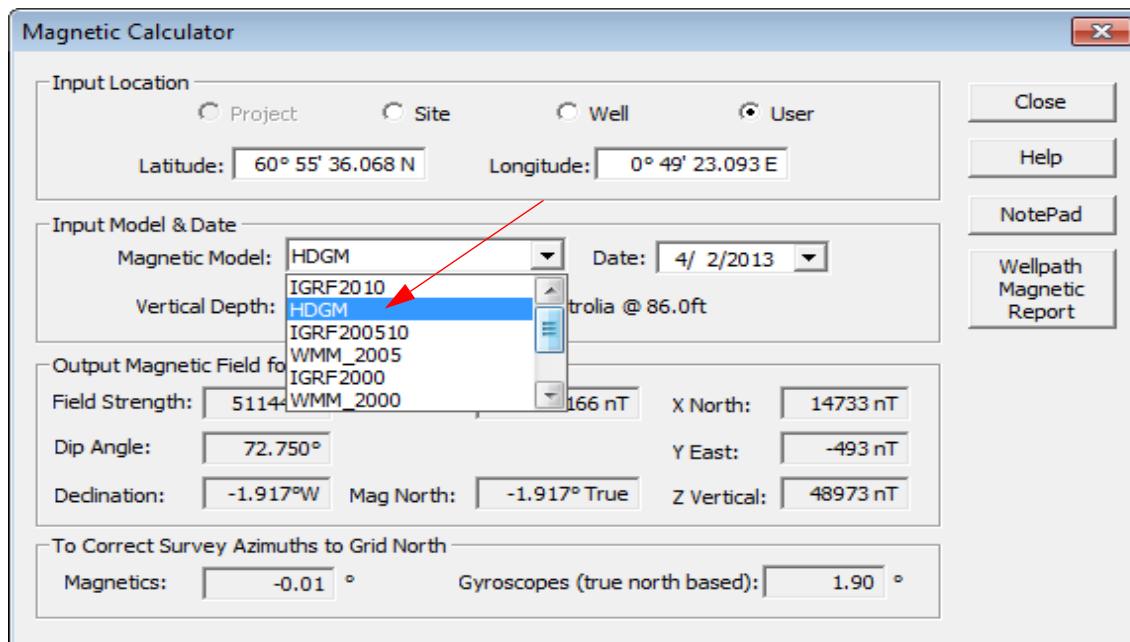
This used to break the workflow with StressCheck; now COMPASS doesn't create a zero default datum, solving the problem.

*XY Offsets in Survey Editor Not Relative To High Side (addresses DE 896690)*

Fixed conflicting output issue that occurred when one system used Highside Toolface and another used North Reference.

*Support For High-Definition Geomagnetic Models (HDGM from NOAA)*

Added support for high-definition geomagnetic models (specifically HDGM from NGDC/NOAA). HDGM model will be shown as an Input Model option in the Magnetic Calculator dialog and Wellbore Properties in the COMPASS software if the customer has separately purchased and installed the HDGM model.

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#### *Diagnostic File Open Dialog (addresses DE 880285)*

An Open button was added to the Survey tools dialog to make it easier for Citrix users to open diagnostic files.

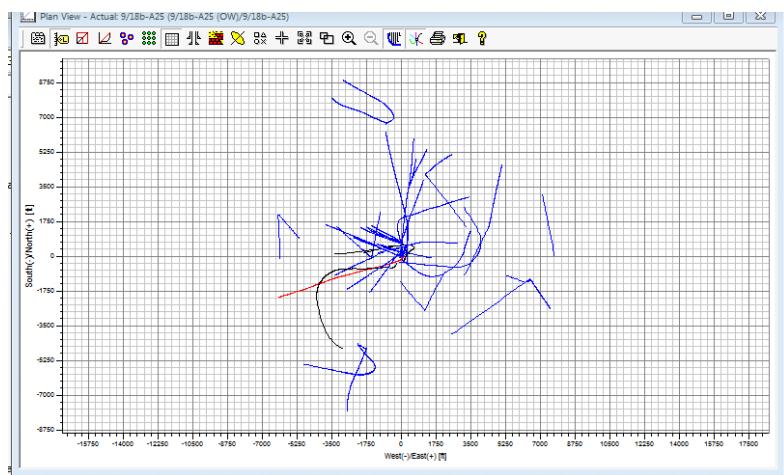
#### *Populate Borehole Coordinates in the Database (addresses DE 883380)*

Borehole Coordinates were added as a field in the EDM database.

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### Add Radioactive Nuclear Sources (addresses DE 897326)

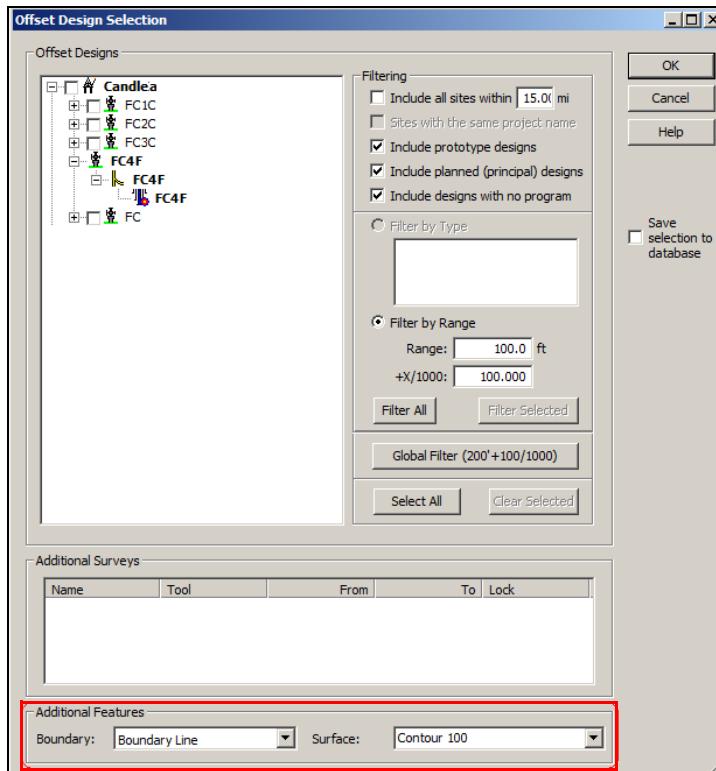
Radioactive source is selected in Wellbore Properties. Plot coloring is done in the Graph Setup dialog, by selecting Wellbore Type (select Radioactive); all plots will color this wellpath red (user must make sure no other wellpath types are defined as red). For example:



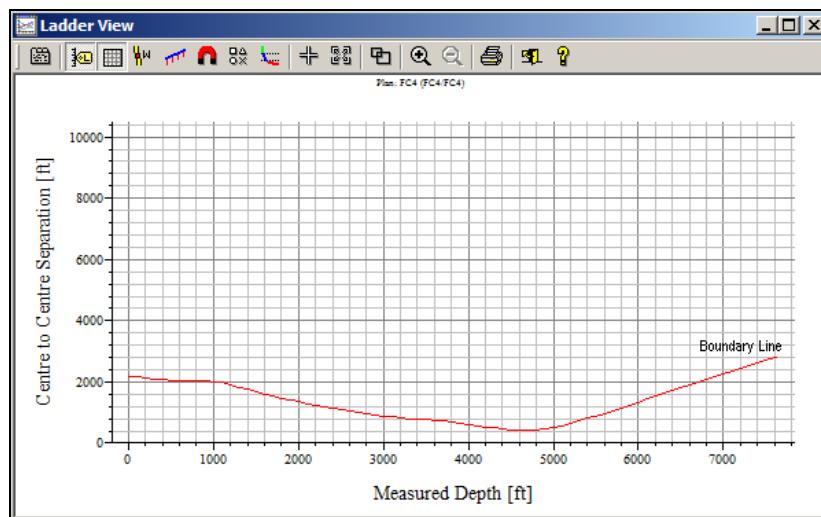
### Release 5000.1.10

- Proximity to a boundary (poly line) or surface grid can now be displayed on the Ladder view. Added to the Offset Design Selection dialog are drop-down boxes to select the boundary (poly line) and/or surface you want to display on the Ladder view.

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The following is an example of a Ladder view displaying the proximity of the a well to the boundary line.



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### **Release 5000.1.9**

The new 3D Solids view has been added to COMPASS™ software. This view allows for enhanced viewing of error ellipse for anti-collision analysis. 3D representation of offset wells, error ellipses, targets, casings, and formations can all be displayed on this view. View settings include options to control the detail, transparency, and rendering of objects included in the view.

### **Release 5000.1.6 through 5000.1.8**

There were no enhancements to COMPASS for these releases.

### **Release 5000.1.5**

Includes a new Report Manager version, which will reduce memory consumption and contains various improvements for report generation.

### **Release 5000.1.4**

- The COMPASS software can be configured to send an email notification indicating when an anticollision alert has been triggered. This functionality allows you to:
  - Specify the required anticollision criteria for generating anticollision email notifications using the Anticollision Alerts Tab.
  - Define Partners and Contacts using the Partners Tab (Company Properties dialog box).
  - Indicate which Contact(s) should receive an email anticollision notification for a particular well using the Associated Partners Tab (Well Properties dialog box).
  - Determine the offset well generating the alert using several methods, including:
    - The name of the offset well is included in the email notification. (The separation distance, reference datum, and the measured depth where the alert is triggered is also provided in the email notification.)
    - The name of the offset well is included in a message dialog box the COMPASS software displays when an alert is triggered. (The separation distance and measured depth where the alert is triggered is also provided in the message.)
    - The name of the offset well will be listed in the **Offset Well** column in the Survey Editor. Look for yellow cells in the **Offset Distance** column indicating when the distance between wells is small enough to trigger the email notification. **Note:** If these columns are not displayed on the

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Survey Editor, use **View > Show Columns** to display the columns.

- Ranging tools can now be used in the COMPASS software. To use a ranging tool, specify the accuracy of the tool (as a %) over a specified radial distance. When the distance between the wells is less than the specified radial distance, the ranging tool accuracy will be used on the anticollision reports and plots. If the distance between the wells is greater than the specified radial distance, the accuracy of the tool specified in the Survey Program will be used. For more information, refer to 'Using Ranging Tools' in the online Help.
- It is now possible to specify the MD, Inclination, Azimuth, TVD, N/S, and E/W for one or more survey stations within the Survey Editor. The remaining survey stations can be input using MD, Inclination, and Azimuth.

To specify MD, Inclination, Azimuth, TVD, N/S, and E/W for one or more survey stations:

- First select Normal (SAGD Wells) on the Survey Properties dialog box.
- Then using the Survey Editor, select Tie On as the Station Type for the survey data point.
- BGS has published code and data for a new 20 coefficient model. This has been incorporated into the COMPASS software.
- A BGS license feature has been added to the COMPASS software. If you are using the BGS model in the COMPASS 5000.1.4 software, or later you must have a license from the BGS to use the model, and a license from Landmark (the COMPASS license feature is CFWBGS). Note that a Landmark BGS license will be issued only after verification with the BGS.
- Default values can be automatically used for data entry fields left blank on the Survey Editor by setting a configuration option on the Tools > User Setup dialog box.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

There were no enhancements to COMPASS for this release.

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### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the COMPASS software.

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For the COMPASS application, the following enhancements were made:

- Formation surfaces are now supported; this includes GOCAD Tsurf files, OpenWorks faults and fault planes
- Live graphs have been replaced with Wall Plot Composer-based plots
- Changes made to Data Boxes will simplify target data selection and add additional options and controls.
- The COMPASS application will add appropriate default values if values are not specified.
- Definitive Survey locking implemented (see General Integration Enhancements for details).
- Implemented the 'Draw Wellpaths From Sidetrack Depth' feature for the 3D View.

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## **COMPASS Fixed Issues**

The COMPASS issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13.1**

Defect No.	Description
894391	Compass: Plan View Options not saving - unable to save to the defaults file.
897666	TC Survey Report not displaying values Measure Depth on Plan, Distance to Plan, and Toolface to Plan in Compass
907567	Anti-collision Settings: Entering no data value for Separation Factor causes Compass to go into a loop that you cannot exit from.
911673	Users can view Survey Properties without opening the parent design
916156	Live Views Ladder & Travelling Cylinder not updating when the AC settings are adjusted if Depth range limits fall outside Survey range.
928548	Anti-collision giving differing results.
934873	Anti-collision Reports Ellipses size differently
939494	Pasting values from excel into compass survey editor loses values on save.
944431	Survey program wipes out when perform anti-collision with side-track field
944818	Recalculating SESTEM inclination only survey will reset the type to normal
945763	In the anti-collision report the distance between centres is incorrect.
946660	Tie-on inconsistency., Tie-on issue leading to different anti-collision Separation Factor results.
949123	Geodesy: Whole Earth Curvature correction for Map to Local Conversions
950637	Interpolated plan and reports show wrong azimuth.
951101	Include Geomagnetic models for 2015 (WMM and IGRF)
951377	Change to User settings registry for Company Name and User Name

### **Release 5000.1.13**

Defect No.	Description
903067	Message appears prompting that the data should be recalculated. User is added to the Change History journal.
904708	Unable to add Casing information through drag and drop.
906584	Template data is saved only if you use the save option from the tool bar.

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Defect No.	Description
909862	Survey/SESTEM Tool Editor Help - Directory for diagnostic file needs to be updated.
915139	Request to have a warning message to restart Compass after changes in survey tool editor.
923548	Compass error message when importing an IPM file with a long remarks section.
926623	Survey Editor crashes when entering blank inclination on first line.
929623	Compass does not recognize folders from other EDM applications at database level.
933903	Wall plot composer freezes when opening a template in Wall plot Composer with the HDGM error model.
935720	Compass help file update: Document that Ellipsoid Separation error surface was formerly called Sperry Type.
938329	SAM is sending large numbers of "invalid message argument" messages which is affecting the performance in the EDM applications.
941289	The "Use Definitive" check box is altering the survey tool program in plans.

### **Release 5000.1.12**

Defect No.	Description
788825	Error message: "You cannot enter a blank name", incorrectly appearing when you try to rename a Well Explorer node
902292	Latitude/Longitude only displays in decimal degrees in columns 10 and 11 of the Compass Standard Survey Landscape report
910121	Parent casing is display incorrectly in sidetrack well
918142	WPC VS Plot - Formation lines fill page beyond plot area
918255	Casings drawn in wrong orientation in Plan view when Y axis is inverted
918257	Pasting map coordinates in slot template editor does not work
918259	Various problems in traveling cylinders plot
918380	Scenario Effective Date does not save in the Design Properties, General tab
919458	Formations not showing on AC Graphs in the Wall Plot Composer
921518	Wall Plot Composer, Text box contains an excessive amount of white space on either side of the text
922006	Add instructions to Help on how to implement HDGM model
923326	Discrepancy between Compass HDGM Magnetics and MagVAR calculator
923822	When resizing the section view in the Wall Plot Composer, a line appeared from the landing plane to the left edge

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## **Release 5000.1.11**

The following issues were fixed for the 5000.1.11.0 release of COMPASS software.

Defect No,	Description
860100	COMPASS Live Graphs - Defaults - Save / Apply options in context menu need to be documented.
862127	You cannot enter a non-zero azimuth at zero inclination.
876710	Plan view plot is showing wrong interpolated survey.
878861	Wellbore diagram issue when showing multiple wellbores. 5000 compared to 2003.21
883099	Section boundaries not showing up
883380	COMPASS Support for Populating BHL Coordinates
884779	User logo displays in both left and right positions.
888373	COMPASS unable to interpolate CD_DEFINITIVE_SURVEY_HEADER.ko_tvd
888695	Label default configuration in wallplot composer does not work.
892833	Problem with Geodetic datum shift
896690	X Y Offsets in Survey Editor Not Relative to Highside
897117	Lat-Long and Northing changing because of mouse clicks
897728	Wellpaths truncated at edge of views, annotations not displayed
898398	COMPASS crashes when adding an offset boundary to a polyline
899835	Configuring and Using Anti-collision Email Notifications - Online Help update
901004	Starting the Wall Plot Composer sometimes hangs COMPASS
904807	Ground Elevation incorrect in COMPASS after creating well in OpenWells
906097	Error vector of 's' will cause a crash on some sub-sea wells.
906344	For a new well COMPASS creates a zero datum & this causes problems in integration.
907406	Importing an IPM file without CR at end causes the last term to be missing from the imported model
909048	Update default IPM files with current Hal/ISCWSA Rev 3 models
911669	Gyro Model Templates contain errors.

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## **Release 5000.1.10**

The following issues were fixed for the 5000.1.10 release of COMPASS software.

Defect No.	Description
844379	COMPASS crashes whenever the offset option is enabled and then disabled, or when you try to modify the settings too much.
854504	Entering a Boundary Offset Distance that exceeds the Polyline dimensions causes Compass to terminate.
855746	Travelling Cylinder plot option not readily accessible when using the "Report Options" dialog scroll bar.
856792	COMPASS now supports Survey Export for UWIs (Unique Well Identifiers along the survey stations).
857392	Ground Elevation below MSL causes the Well Diagram to be incorrect.
858701	COMPASS now supports use of the Czech S-JTSK Geodetic.
861509	Graphs do not automatically rescale to show all assigned targets.
861587	Axes need to cross at major tick marks with labels.
861610	Turning off Include on Offset Wells does not affect designs on same wellbore.
861623	Open button always defaults to the COMPASS\Config folder.
861965	COMPASS crashes whilst using the following plots and switching between offset designs selected and no offset designs selected. (Travelling Cylinder View, Separation Factor View Ladder View).
861976	Annotation improvements in Vertical Section Graphs: Annotations that are out of the graph's scale are automatically hidden.
866064	Target datum reference in target edit does not change with unit system change.
870396	Live views do not auto-scale around all targets.
870539	COMPASS_SURV_PLAN_AC license checkout, when a user logs in taking both an advanced and a basic license.
871802	Cannot set non-zero azimuth on tie line at zero inclination.

## **Release 5000.1.9**

The following issues were fixed for the 5000.1.9 release of COMPASS software.

Defect No.	Description
808404	OpenWells-defined Planned Trajectory deleted by COMPASS, when changing Prototype Design to Planned.

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Defect No.	Description
832492	Enabling 'TVDs to System' changes offset values in Survey Editor.
833132	Hard coded strings - can't be translated to Russian.
833133	North Reference drop-down is too narrow for some translated text.
834877	Offsets from a project with different system/zone but same geodetic datum as the reference project will give incorrect results.
836387	Target Editor - COMPASS crashes when Target Editor is launched.
838866	Section details not holding.
840982	COMPASS is corrupting Casing reports. When opening Designs, it sometimes removes records from CD_ASSEMBLY_T.
841439	COMPASS 5000.x is slow when updating Definitive Surveys.
842764	COMPASS overwriting OpenWells data - Well Properties (Partners).
843266	Enhancement - COMPASS - Include Travelling Cylinder View Plot to Travelling Cylinder Anti-Collision Report.
843333	Survey Export not including Footer portion.
843969	Enhancement - It is desirable to have the coordinates values of the offset polylines.
844129	Saving well properties causes the time component of the spud date/time field to be lost; overwrites data entered in OpenWells.
844910	Cannot get the last annotation to display on the Well Plot Composer.
846426	COMPASS 3D View Wellbore Labels issue.
846835	Using True North as azimuth reference, two wells planned to the same target location from widely separate surface locations do not converge in anti-collision calculations as expected.
848261	AC graphs jump when using TC North scan and small scan intervals.
849903	Need validation for invalid Datum/GL combination.
850652	Plan - an incorrect survey program depth causes missing sections in definitive path.
851393	Crash accessing Company Properties.
853202	COMPASS terminates when using data reader in plots when anticollision interpolation interval is less than 10 (feet).
853538	COMPASS terminates with no error message on using 'File > Export >Graph Export > DXF File...' menu option for an Anticollision plot.
854747	Alt+F+D to export a graph doesn't lead to exporting a DXF File.
855783	WPC Updated Plan Sections Data Box/Data Type not including 'Annotation' Column.

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Defect No.	Description
856147	Changes to Tab formatting for Annotations data boxes are not preserved in WPC file.

### **Release 5000.1.8**

There were no COMPASS issues fixed for this release.

### **Release 5000.1.7**

The following issues were fixed for the 5000.1.7 release of COMPASS software.

Defect No.	Description
825653	Wallplots do not remember the size of casing shoes.

### **Release 5000.1.6**

The following issues were fixed for the 5000.1.6 release of COMPASS software.

Defect No.	Description
737187	Issues with low-angle projection
818744	Input and Output Error Confidence Ranges
823645	Wellbore intercepts are not being calculated correctly
825617	Plan Editor: Can't do free-form editing (insert and edit cells to compute)
825619	Undo Button in plan editor does not work more than 1 undo.
825623	The new method of zooming and tracking of well trajectory is not convenient in COMPASS 5000.1.5 (Toggle Cross, Toggle Wellbore Center, Set Center).
825646	Template Slot Editor: can't change names of individual slots.
825655	Survey Editor AC Columns: Toolface, XY offset columns are wrong (inverted)
825656	Sperry-Type Ellipse separation is wrong when the ellipses overlap
825657	Problem with Inertial surveys tied and spliced in survey program, incorrect coordinates
825658	Sperry want Project Ahead to work against driller's target (where present), not standard target

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## **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of COMPASS software.

Defect No.	Description
807857	COMPASS does not update SC_WELLCASE.ko_md (Kick Off MD), resulting in PROFILE updating CD_DEFINITIVE_SURVEY_HEADER.ko_md (the definitive survey MD Kick Off) with the wrong value.
810813	Some XY Graphs show jagged lines with Wellpath Smoothing turned on.
812030	Nudging a locked target ignores user input inclination or azimuth.

## **Release 5000.1.4**

The following COMPASS issues were either fixed or have workarounds for the 5000.1.4 release:

Defect No.	Description
613899	Vertical Section will let you save a null azimuth
613901	Vertical Section: allows duplicate entries for the same TVD
726056	Crash when entering a very large MD in Plan Editor
752848	Unit Editor not showing the COMPASS active unit set in drop-down menu
770416	Live Link: not importing "manual planning" sections from TracPlanner when Auto Export Plan on save is active
772293	COMPASS crashes when plots containing polylines are selected and deleted
775804	Surface Properties widgets should be disabled until a surface is selected
780204	Wall Plot Template: Default settings are not saved
781831	AUTO: Icons in the 3D View menu are not displayed properly
783908	Delete Point from Line functionality in Section and Plan views can disable plots.
783919	Wellpath selected in Legend is not highlighted in Section / Plan or 3D view
784293	Data Box in a Wall Plot Composer file that includes a 'Plan Section Annotations' Data Type from 2003.16 is not parsed in 5000.1
784318	Data Box in a Wall Plot Composer file that includes a 'Wellbore Targets Map TVDSS' Data Type from 2003.16 is not parsed in 5000.1
784361	Error models can be imported into a locked Company.
784429	When a gyro survey is run back into the original well, COMPASS 2003.16 doesn't seem to work properly.

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Defect No.	Description
784852	Reference design is not shown in offset selection dialog box if it has no program and you filter out designs with no program.
785487	Plots don't show the current Plan row selected in red
785489	Plots don't change if Unit System is changed in main application drop-down menu
785497	Systematic Error tied onto ISCWSA gives incorrect depth error component
786495	COMPASS crashes when user displays graph objects properties in the Wall Plot Composer.
786574	Large number of change history records slows down the Well Explorer
786726	For new surveys, the default tie-on for a survey is from wellhead; it should be from the last survey (when present)
786730	Use of TBR is inconsistent in anti-collision calculations with different error models
786733	For a sidetrack, if the Tie Back option is chosen, so that user can enter sidetrack depth, it's not possible to recover the original hole surveys in the survey program
786736	Multiple datums are allowed with the same name--this is an integration issue
786739	With new wellbore, the tie sidetrack is not filled in (default) like in COMPASS 2000
786741	Oracle: Unable to see projects in COMPASS Well Explorer tree when use_risk field is not NULL.
786743	Locking a survey via the properties dialog box in the Survey Editor does not save or enable the Save button.
787280	Risk Separation Factor and Probability of Collision columns are blank in the report.
787284	Change a line in the Wellpath Editor - Azi from 50 to 47 deg in line 7.
788322	Plan Editor MD should retain MD not CL for projections if ST depth changes (as an option)
788401	COMPASS Recalculate truncates some WELLPLAN/StressCheck Prototype Designs to RKB
788458	Standard wall plot data boxes are poor quality - need to be improved
792404	Need Help with COMPASS
793027	COMPASS is overwriting time portions of stored date with midnight
796927	Horizontal Drillers Target Different in 2003.21
796931	Projection created from Survey Editor - Project Ahead will not compute when saved and opened in Plan Editor
796943	COMPASS plots go out of bounds when sent to a printer or a PDF printer
799256	Magnetic Model not using NADCON type calculations for Lat/Long to WGS84
800938	COMPASS Survey Editor does not refresh after a SAM reload message is accepted

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Defect No.	Description
800966	COMPASS crashes when Survey Properties OK'd after receiving SAM notification that the survey header was changed by another application.
802796	Need support for the MGRS geodetic system
803558	When casings are added to the error radii in the ratio calculation, we need to display this on the AC report
803612	Map <--> Lat/Long conversions are incorrect for geodetic systems with a PM shift.
804053	Targets do not get imported when plan is imported over an existing plan
804687	Unit set selection not staying selected.
804688	Shifting associated site data message on the site properties
804689	Cannot un assign a target on a plan after Save As
804690	BP engineer (who does not have rights to create a Principal Plan) is able to do so within EDM COMPASS 2003.16.1.17
804691	Datum shifts from default to another datum when create a new plan by using LookAhead (Actual+Plan)
805204	Depth Ratio is not working correctly. No one uses it, should be eliminated.
805214	The maximum dogleg is stored in the CD_SURVEY_HEADER_T table, it's depth CD_SURVEY_HEADER_T.maximum_dls_depth needs to be stored as per System datum (usually MSL).
805497	A plan created using Optimum Align option in the Project Ahead dialog box doesn't get saved properly and gives error message on reopening. Note: this problem is also seen in EDM 5000.1.2, COMPASS build 33.
805807	Multi-Design Export using Interpolate Interval TVD has issues; first well's data OK, the ones to follow do not interpolate or contain no data at all.
806175	The planning method (Nudge) DLS, INC, AZI (Const-TFO) does not work properly above 60 AZM.
807291	Cannot control color of Additional Survey wellpath lines.
807434	When you interpolate local coordinates from the plan editor, you get incorrect results
807570	Project Ahead option in Design generates a design labeled as 'No Planned Data' containing only a tie-on line.
807573	The 'Make Definitive ...' option in the Actual Design Survey Program Tab generates a 'Survey do not tie back to surface' error
807654	Sperry Ellipse reports wrong North and East error columns - not including surface error
807659	Re-survey functionality to update dependent wellbore programs with re-survey from sidetrack

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Defect No.	Description
807661	Magnetic notepad report shows depth below datum, which is confusing; should show elevation above MSL
807665	When you interpolate local coordinates from the Plan Editor, you get incorrect results
807666	COMPASS 2003.11 used to do pie-shaped target; COMPASS 2003.16 and 2003.21 cannot do it.
807668	Magnetic equivalent distance line does not include convergent points
807669	Survey Editor Quickscan feature. For SAGD DDs want to be able to select the well as offset.
807728	Anti-Collision scanning using different plan methods produce different separation factor results.
807735	Changing the confidence level does not refresh the Anti-Collision report
807770	Error shadow distance in traveling cylinder has issues.

### **Release 5000.1.3**

There were no COMPASS issues fixed for this release.

### **Release 5000.1.2**

A COMPASS fix from the 5000.1.1.1 patch was rolled into the 5000.1.2 release.

Defect No.	Description
798462	COMPASS deletes planned survey from other applications (fixed in 5000.1.1.1 Build 33)

### **Release 5000.1.1**

There were no COMPASS issues fixed for this release.

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## **Release 5000.1.0**

The following issues were either fixed or have workarounds for the COMPASS 5000.1.0 release:

Defect No.	Description
781765	2D Varying Curvature plot missing data.
767507	Change History can be turned off using EDM System Setting.
752507	When you perform an Instant Survey in COMPASS, the Well Explorer does not display anything below Well level. Wellbore and Design are missing until the user refreshes the Well Explorer tree.
753689	User comments in Change History are not saved.
754232	When saving a Wall Plot Composer template, changes to the lease line color or adding fill patterns are not saved.
734201	COMPASS does not retain the slot assignment when the slot name is changed.
757457	COMPASS does not honor regional settings for decimal mark.
754687	COMPASS loses survey data when hiding the CL column.
752569	Crash after copied folder is deleted.
753209	Depth slice view in traveling Cylinder incorrectly displays errors.
730000	Survey program optimizer incorrectly handled confidence limits for horizontal drilling targets.
783888	Error in project ahead calculations.
754229	Fill functionality needed on lease line import.
748519	Data will not be imported when using Field Office Transfer to import data created using Instant Plan in COMPASS because COMPASS does not assign a Tight group.
754218	Plan data is lost when a target is updated with the Plan Editor open.
749440	Saved well slot assignments created using Optimize are lost when Template Editor is closed.
781759	Indicate in the online help that Angus Jamieson's algorithm for Varying Curvature is used.

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## **COMPASS Known Issues**

The following COMPASS known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13.1**

There are no additional COMPASS known issues for this release.

### **Release 5000.1.13**

There are no additional COMPASS known issues for this release.

### **Release 5000.1.12**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.11**

The following were the known issues for the COMPASS 5000.1.11.0 release:

Defect No.	Description
897666	TC Survey Report not displaying values Measure Depth on Plan, Distance to Plan, and Toolface to Plan in Compass 5000.1.10 Build 58
907567	Anti-collision Settings: Entering no data value for Separation Factor causes Compass to go into a loop that you cannot exit from.
910532	Save button is disabled after filling data into Survey Editor
912780	Value of NS column on Plan Editor table is 118.7 instead of 118.8.

### **Release 5000.1.10**

The following were the known issues for the COMPASS 5000.1.10 release:

Defect No.	Description
854294	WITSML import function in the Survey Editor causes COMPASS to crash.
878462	Windows Authentication on EDM SQL Server database fails on ODBC configured as SQL Server Authentication. See workaround on page <a href="#">28</a> .

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### **Release 5000.1.9**

The following were the known issues for the COMPASS 5000.1.9 release:

Defect No.	Description
760929	Help does not show correct info for target import wizard.
783984	Keyboard control for manipulating 3D view no longer functional.
795618	Cannot specify Checkshot if depth above survey tie-in.
845682	Survey tool properties are disabled.
853513	Options for left logo and right logo in Tools > Report Logo Setup do not save when registry keys are not present.
854504	Entering a Boundary Offset Distance that exceeds the Polyline dimensions causes COMPASS to terminate.
854582	COMPASS hangs during post-migration processing on some data sets.
854803	Potential problem with optimize wells in Template Editor.
855746	Travelling Cylinder plot option not readily accessible when using the "Report Options" dialog box scroll bar.
856159	The 3D view Fields and Controls not working as designed.
857392	COMPASS -ve Ground Elevation (below a NAP (below MSL), make the Well Diagram incorrect for the rare (but common in parts of Holland) situation. They drill wells several M's below MSL (large dammed back areas).
858701	Upgrade: Support the Czech S-JTSK Geodetic System.

### **Release 5000.1.8**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.7**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.6**

There were no additional COMPASS known issues for this release.

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### **Release 5000.1.5**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.4**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.3**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.2**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.1**

There were no additional COMPASS known issues for this release.

### **Release 5000.1.0**

The following are known issues for the COMPASS 5000.1.0 release:

Defect No.	Description
716966	Negative air gap for offshore wells when sea level is below MSL (Caspian Sea).
720317	User locked out of properties dialog box when another application has a design open in the case of same user same machine.
726056	Crash when entering a very large MD in plan editor.
729931	COMPASS MD plots do not shift with Datum flip in Datum toolbar.
737594	Cannot create pie-shaped targets.
742632	When a sidetrack is open, original hole annotations are not visible on plots.
753642	COMPASS crashes when adding offsets to lease lines in WPC while working in hosted environment (i.e. Team Workspace).
754449	Target section missing from COMPASS Custom Survey Report when Design Targets selected.
754840	Some annotations close to TD are not displayed on plots.

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Defect No.	Description
755115	COMPASS crashes after about every 9 to 10 imports.
761308	Survey program optimization not giving correct results.
763154	Deleted Actual plan appears when choosing offset design.
764048	Application crashes while activating wellbore with two surveys open.
765422	COMPASS hangs if deleting a company with large number of projects.
765426	Anticollision results are affected if zero casing is entered.
765480	9i OpenWells causes COMPASS to crash upon closing it.
766902	COMPASS hangs when exporting a site with the find dialog box open.
770416	Live Link, not importing “manual planning” sections from TracPlanner when Auto Export Plan on save is active.
772293	COMPASS crashes when plots containing polylines are selected and deleted.
773397	Oracle: Unable to see projects in COMPASS well explorer tree when use_risk field is not NULL.
775102	COMPASS crashes on Citrix when creating a lookahead plan or doing a project ahead from a survey.
777898	Draw wellpath from sidetrack option is not working for 3D Live view.
779594	Using intermediate survey station as “tie in point” has problems.
779656	Locking a survey via the properties dialog box in the survey editor does not save or enable the save button.
782153	Error models can be imported into a locked Company.
782441	Unable to delete a project with a large number of pads, wells and targets.
782875	Cannot save or append a projection when you project ahead from an existing plan.
783908	Delete Point from Line functionality in Section and Plan views can disable plots.
784187	Size of fonts in background plots increases each time the active plot is displayed in print preview or print option selected.
784429	When a gyro survey is run back into the original well, COMPASS doesn't seem to work properly.
784358	Exported DXF file cannot be loaded into AutoCad.

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## Data Analyzer™ Software

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are no changes to the Data Analyzer software for the 5000.1.13.1 release.

### Data Analyzer Enhancements and New Functionality

The Data Analyzer enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13**

There are no enhancements to Data Analyzer for this release.

#### **Release 5000.1.4 through 5000.1.12.0**

Support for a variety of new tables and fields added during the development of EDT™ software were added to Data Analyzer software for these releases.

#### **Release 5000.1.3**

- New platforms are supported.

#### **Release 5000.1.2**

There were no enhancements to Data Analyzer for this release.

#### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the

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integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the Data Analyzer software.

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For the Data Analyzer application, the following enhancement was made:

- Find in Tree Feature: User now has the ability to run a text search against the Selection Tree. When performing a search of the Selection Tree, you must enter text that is applicable to the currently selected Tree View.

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## Data Analyzer Fixed Issues

The Data Analyzer issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13

There are no Data Analyzer issues fixed for this release.

### Release 5000.1.12

There were no Data Analyzer issues fixed for this release.

### Release 5000.1.11

The following issues were fixed for the 5000.1.11.0 release of Data Analyzer software.

Defect No.	Description
854232	Add functionality to record comments in Data Analyzer for each data element
863049	Expression Builder changes capitalization around periods in name and returns no result from SQL
893688	Data Analyzer - Main application tabs display Cyrillic symbols wrong
900441	Data Analyzer Templates Launch Excel changes date format from dd/mm/yyyy to mm/dd/yyyy for those dates where dd < 13, resulting in a mixture of date formats with the excel output.

### Release 5000.1.10

There were no Data Analyzer issues fixed for this release.

### Release 5000.1.9

The following Data Analyzer defects were fixed in the 5000.1.7.1 patch and ported to the 5000.1.9 release.

Defect No.	Description
839070	Ability to save changes to another user's query
840787	Data Analyzer unit selection drop down is not wide enough to show all characters

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### **Release 5000.1.3 through 5000.1.8**

There were no Data Analyzer issues fixed for these releases.

### **Release 5000.1.2**

For the 5000.1.2 release, the following Data Analyzer fix was done.

Defect No.	Description	Comp Level 1	Comp Level 2
727822	Users need to be able to change Query Time-out value (reported in 2003.14.1.0).	Core App	

### **Release 5000.1.1**

There were no Data Analyzer issues fixed for this release.

### **Release 5000.1.0**

The following Data Analyzer issues were either fixed or have workarounds for the 5000.1.0 release.

Defect No.	Description	Comp Level 1	Comp Level 2
736669	Find Function on Data Analyzer Selection Tree	Selection Tree	
746136	Add Stimulation Flow Backs to "DA/DV Well Explorer mode" tree	Selection Tree	Tree View
763839	Data Analyzer EDM help refers repeatedly to DIMS	Help/ Documentation	Online Help
770529	Licensing - EDT Licensing does not take advantage of the functionality that will warn users that their license is set to expire in x days	Licensing	
771959	Data Analyzer Graph wizard dies not recognize derived or grouped numeric fields as numeric.	Graphics	Graph Wizard
775701	Table linkage between DM_OPER_EQUIP_FAIL and DM_ACTIVITY is wrong.	Core App	
776401	Update the Data Analyzer Metadata for Hole Plan section in the Well Planning Report	Selection Tree	

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Defect No.	Description	Comp Level 1	Comp Level 2
776936	Update Data Analyzer for the new fields added to the Daily Operation Report's general section.	Selection Tree	
782756	Data Analyzer Selection Tree - Closing a query before closing the Tree Find dialog box can cause DA to shut down.	Selection Tree	

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## Data Analyzer Known Issues

The following Data Analyzer known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.1 through 5000.1.13

There were no additional Data Analyzer known issues for these releases.

### Release 5000.1.0

The following Data Analyzer known issues were reported for the 5000.1.0 release.

Defect No.	Description	Comp Level 1	Comp Level 2
772574	Need "find" function in Open query windows	Query	
782031	Waste Management Tree in Hierarchy should show the recycling icon used in the OpenWells	Selection Tree	Tree View
783193	Graph Wizard - Just walking through all the steps enables the Save button even though no	Graphics	Graph Wizard
762100	OpenWells stimulation report copied from library is not displaying in Data Analyzer	Query	Filter
764319	Data Analyzer - User request ability to break/ stop large query process	Query	
771228	2nd (NPT free) line in TvD graph	Graphics	Graph Properties
761014	User option under OPTIONS in Data Analyzer to allow the user to re-map the excel path if the	Core App	
720335	Data Analyzer should record and display the creation and modification date of a query along	Core App	
727464	Need a token to allow user to save DA queries as iWellfile queries.	Core App	
727637	Request change to the links between the rig and the well information.	Query	Key Joins
178704	Need multi-graph print option to print all graphs	Graphics	
757262	User wants to add the company logo to the query reports created with Data Analyzer.	Printing	Print Setup
730479	Graphs in iWellFile have different graphs than are configured in Data Analyzer	iDIMS Query	

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Defect No.	Description	Comp Level 1	Comp Level 2
733889	IWellFile not showing Date/Time only Date for Spud Date and Update Date.	Query Results Spreadsheet	

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## ***EDM™ Software***

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases.

### **EDM Enhancements**

The EDM enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13**

There are no enhancements to EDM for this release.

#### **Release 5000.1.12**

Data model changes were made in support of enhancements and/or bug fixes.

#### **Release 5000.1.11**

Data model changes were made in support of enhancements and/or bug fixes.

#### **Release 5000.1.10**

Data model changes were made in support of enhancements and/or bug fixes.

#### **Release 5000.1.9**

Data model changes were made in support of enhancements.

#### **Release 5000.1.8**

There were no enhancements to EDM for this release.

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### **Release 5000.1.7**

Data model changes were made in support of enhancements.

### **Release 5000.1.6**

- Data model changes were made primarily in support of Well Cost, as well as a few enhancements and bug fixes for other products. Contact Landmark Support if you would like the details of the database changes.
- EDM Admin Utility—Workspaces in the form of XML files can now be imported as System Workspaces.

### **Release 5000.1.5**

Data model changes in support of enhancements.

### **Release 5000.1.4**

Data model changes in support of COMPASS enhancements and OpenWells (WITSML) were made, as well as a couple bug fixes.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

For 5000.1.2 there were EDM data model changes to support the OpenWells 5000.1.2 enhancements. EDM 5000.1.0.1 patch bug fixes were also rolled up into the 5000.1.2 release.

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the

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integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the EDM software.

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For EDM software, the following enhancements were made:

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## **EDM Fixed Issues**

The EDM issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13**

The following issues were fixed for the 5000.1.13.0 release of the EDM software.

Defect No.	Description
907745	Autosync is not updating the field status colors in case of a system change.
938052	EDM storage units for covariance are feet instead of feet squared.

### **Release 5000.1.12**

The following issues were fixed for the 5000.1.12.0 release of the EDM software.

Defect No.	Description
926688	Performance issues/long wait times when working in the EDM Administration Utility
926689	The save button in the EDM Administration Utility does not gray out after a save or grays out but users are still prompted to save their data when switching nodes.
924085	EPS Needs to support the '&' character in email addresses
924050	EPS fails to print the second report when using two templates (one per report) setup for processing at different times.
924045	Partners, Drilling Managers and Execs need to see the proper daily or summary report emailed to them by the EPS System in scenarios where the rig supervisors enters a "look ahead" report.
924042	The EPS system will freeze indefinitely in scenarios in which one report (of many) does not generate for any reason.
924030	EPS Admin Utility Fails to Properly Save changes
920034	A new field: how_guns_conveyed is needed on the table CD_PERF_INTERVAL
918640	Request new field: Gauged Annular Volume which is needed for the Cementing Report Fluid Volume Calculations.

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### **Release 5000.1.11**

The following issues were fixed for the 5000.1.11.0 release of EDM software.

Defect No.	Description
883497	Need to change wording on SAM in EDM Admin help.
887662	Defect in Summary Report Production in EPS - EDM Related
901019	Request for Audit columns on table CD_SURVEY_STATION.

### **Release 5000.1.10**

The following issues were fixed for the 5000.1.10 release.

Defect No.	Description
859767	EDM Admin - Site Config File import into SQL Express generates duplicate OpenWells Plan vs Actual MUD records in the Admin Utility. Only one report shows and only one can be printed. Spelling error in one folder.
859990	EDM Admin Utility Version reads 5000.1.6.0
860207	Need to implement new DecisionSpace unit - degrees of arc/second.
862470	Improve Performance wrt Attachments - Use of "Select 1" instead of "Select Count(*)" when possible.
862475	Improve Attachment Performance - Only load attachments from the database when viewing the attachment.
862477	Create a non unique index on CD_ATTACHMENT_JOURNAL.attachment_id to improve the relationship between CD_ATTACHMENT_JOURNAL and CD_ATTACHMENT
862735	REQUEST: Additional currency labels for Cost Unit.
863052	Increase field length for CD_RESERVOIR.district and CD_RESERVOIR.exploration_district to 50 characters
866278	Improve Attachment Performance - Do not use the "big" attachment objects when browsing the common well explorer hierarchy.
869359	UPGRADE: Change BOP Accumulator Capacity Unit Class
870439	Replace the attached openwire client integration jar file in the EDM code
870618	Change unit label for API K Prime (Wellplan)
873563	Need to add new fields to test report and expose them to track load fluids left to recover and satisfy greenhouse gas regulatory requirements
873861	EDM Admin Utility - Users - Users are no longer listed under Oracle 11

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Defect No.	Description
873865	EDM Admin Utility - displays could not refresh tree correctly when refreshing under Oracle 11
874191	Data services change made to 5000.1.10 b1831 causes engineering applications save to database failure
874553	EDM to OpenWorks Link - Throws an "Unable to connect to OpenWorks database!" error when creating a connection between an EDM database and an OpenWorks Project.
875214	Four new stimulation tables need grants.
875222	Error in Data Management on Oracle.
875361	SQL Express - CD_WELBORE records do not update correctly if ko_date is NULL.
875429	CD_WELBORE.license_date can be overwritten when creating a link in EDM OW Link
875431	Creating a link in EDM OW Link updates all other fields in CD_WELBORE.
875686	Errors in Data Management both on Oracle and SQLE.

### **Release 5000.1.9**

The following issues were fixed in the 5000.1.9 release.

Defect No.	Description
809180	EDM configuration Transfer Import All reports a problem when importing.
810866	EDM to OpenWorks link 2003.16.0.0 Build 3 - spud date removed from CD_WELBORE.ko_date when the link is made using EDM to OpenWorks link to link Wellbores in OpenWells with wells in OpenWorks
825266	Unit Converter - Conversions to L/sec are incorrect.
836978	CLONE OF DE 835860 FOR FIX IN 5000.1.7.1: SAM Performance - All users experience temporary slowdown/hang in all EDT apps when under load and one application closes.
836982	CLONE OF 827740 FOR FIX IN 5000.1.7.1 Poor SAM performance causing the applications to hang and/or respond very slowly.
837217	CLONE OF 828891 FOR FIX IN 5000.1.7.1 Roll between log A and B at 50,000 lines (rather than 10,000 lines) for SAM logs.
837221	CLONE OF 828888 FOR FIX IN 5000.1.7.1 SAM Clients are removed from the queue due to failed connection attempts without delaying other clients.
837236	CLONE OF 823386 FOR FIX IN 5000.1.7.1 Improvements to SAM performance.
837305	R5000 - Import/Export Catalog Editor Issue

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Defect No.	Description
837362	Application error thrown when Description field character limit exceeded in CD_SURVEY_HEADER table
838918	Survey Data Lock Problems importing Stimulation Report
839414	CLONE OF 838189 For fix in 5000.1.7 Require ability to log and monitor SAM performance.
841970	Corruption of cd_survey_program.tie_wellbore_id after copying wells
841294	FODT Well Planning report, Tight group validation failed, missing end tag
843995	SAM: Users working within certain data entry forms experience a sudden and unexpected loss of cursor focus in the currently active data entry field.
844513	CLONE OF 703385 FOR VERIFICATION ON 5000.1.7.1 SAM performance problems when two users working on different designs in same wellbore.
846727	Data services returning null when table name (CD_WELLHEAD_COMP) and field name (service_type) is passed

### **Release 5000.1.8**

There were no EDM issues fixed for this release.

### **Release 5000.1.7**

The following issues were fixed or have workarounds for the 5000.1.7 release.

Defect No.	Description
754529	Customizing OpenWells Test data entry form layout results in fields disappearing in form.
800239	Missing alternate currencies against 4 unit classes.
806856	REQUEST: Add new unit to Class 171 aka "Concentration (Chlorides)".
807464	EDM Admin - Property dialog boxes' changes are not being saved/respected.
812940	System Settings are not included in a Configuration Transfer export.

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### **Release 5000.1.6**

The following issues were fixed or have workarounds for the 5000.1.6 release.

Defect No.	Description
820263	Import Workspaces deletes SCK/CS/WELLCAT templates
821897	A number of picklists on Oracle are defined without Primary Key constraints

### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of EDM software.

#### *Funnel Viscosity (sec/liter) Units Conversion Error*

Previous versions of the EDM database incorrectly stored Funnel Viscosity values entered using the SI unit stem (seconds/liter). This was due to the database using the inverse multiplier .94635290 when converting the seconds/liter value to seconds/quart to store in the database. The correct multiplier 1.0566882 is now used to convert second/liter to seconds/quart.

Any data previously entered in SI Units is stored incorrectly and must be manually corrected.

Please contact Landmark support for information on a solution document outlining the steps to identify and correct this data.

The following fields are affected:

- CD\_CEMENT\_FLUID.viscosity
- CD\_FLUID.viscosity\_funnel
- DM\_DST.viscosity
- DM\_PIT\_OP.viscosity
- DM\_WELL\_PLAN\_MUD.funnel\_viscosity\_max
- DM\_WELL\_PLAN\_MUD.funnel\_viscosity\_min

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### *Copy/Paste Performance Improvements*

Enhancements have been made to the Copy/Paste operations to improve performance and memory usage. These issues are most notable in WELLPLAN, CasingSeat and StressCheck.

Defect No.	Description
796635	Catalog Editor: Duplication of Columns in Casing Connector C. One column needs to be removed.
803236	User-created System Templates are lost after running the EDT 5000.1.x SQL database update.
809350	Unit Converter: Funnel Viscosity - incorrect unit conversion.
813922	EDM_GROUP_MEMBERS.child_seq attribute and field names are capitalized in MD_SYS_ATTR_DICTIONARY.
815211	Copying a well with Tubular applications and WELLPLAN data is taking 10+ hours.

### **Release 5000.1.4**

The following EDM issues were either fixed or have workarounds for the 5000.1.4 release.

Defect No.	Description
810985	The default precision for K' (consistency index) for the unit lb*s^n'/ft^2, is not precise enough. Fixed: The default precision for K' when using the unit lb*s^n'/ft^2 has been increased by 2 decimal points.
811205	When using SI unit system, default unit for K' was displayed in lb*s^n'/ft^2. Fixed: The default SI unit for K' is now Pa*s^n'.

### **Release 5000.1.3**

There were no EDM issues fixed for this release.

### **Release 5000.1.2**

The following EDM issues were either fixed or have workarounds for the 5000.1.2 release.

Defect No.	Description
175051	Changes to OpenWells status colors do not prompt for Save.

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Defect No.	Description
728457	Localization (Russian, Chinese), Creating a Group, and Tight Group in MSDE as edmadmin/landmark shows ??
782534	EDM Output Reports Visible picklist changed value, Display text modified values are not updating in the report Config xml file.
783800	WITSML Log Object import and export unit test failing with latest source in StarTeam
784311	EUROLAMBERT geodetic system has incorrect parameters
784588	Clone to add min and max standpipe pressure to DM_BIT_OP and DM_BHA_OP
785078	The function that deletes the temporary files in Working Directory should be added in Email Configuration of FOT.
785173	Clone of 743415- Need support for Perf Gun w/ Stim Sleeve, Stim Gun Wellbore Equipment component types. Need to add to default lists and provide PROFILE symbol for.
785178	Clone of 725892 - Add a new field for "Construction Date". - DM_CR_CONSTRUCTION.access_construction_date (date/time - date only).
785180	Clone of 754211 - Need 'OPEN' & 'CLOSED' items added to MD_PK_COMPONENT_STATUS system picklist.
785187	Clone of 705972 - Cement Fluids Calculated Sacks does not have a unit defined - should be 'sacks'
785189	clone of 625250 - Need CO2 Concentration field for DST Rates
785192	clone of 731491 - Need Top and bottom TVD for Annular Fluids
785193	clone of 734660 - Could you please increase the length of the field DM_PERSONNEL, squad_member, in Daily Operations, Personnel.
785195	clone of 760710 - CD_ASSEMBLY_COMP.grade_name and CD_EXTERNAL_COMP_UMB VIRTUAL FIELD is only 16 chars long where as the Grade length is 60 chars long
785197	clone of 760725 - CD_WEQP_GAS_LIFT_MANDREL.assembly_comp_name IS 50 chars, but the hard coded picklist's
785200	clone of 731977 - Field for liner top md
785202	clone of 725648 - Nowhere to enter #wellheads on pad or wellhead requirements description
785203	clone of 721800 - Require new fields in Test Form
785268	clone of 630078 - Need additional Duration columns (3) for Planned Operations
785301	clone of 632731 - Additions for Offshore Marine Currents tracking
785308	clone of 726251 - Need additional equipment components supported for certain Section Types

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Defect No.	Description
785310	clone of 622388 - Field for Max OD in Casing Report
785312	clone of 623207 - Please add Rate of Penetration to the Peak Gas tab of Daily Geolog Report.
785315	clone of 622729 - Need additional Tubing Pressure field for Flowing Test Sheet
785317	clone of 756041 - Allow zone order in the wellbore properties to be saved
785322	clone of 623206 - Need range of depths for peak gas.
787426	Enhancement request For Field office Data Transfer
787540	clone of 760179 - Additional fields required for Material Transfer
784600	In EPS, If there is a filter selected, there is an Exception pops up when select Interactive tab. 5) 774368 - In EPS, Filtered as Company name, cannot generate all reports (fixed in 5000.1.0.1 patch)
787559	Data Migration Tool won't build java classes on a machine where the time zone is + GMT (fixed in 5000.1.0.1 patch)
787711	Migrating into an R5000.1 EDM Oracle 10G database counts special characters as more than 1 character when staging (fixed in 5000.1.0.1 patch)
788088	Postmigration Query #111b in Oracle has SQL Server function calls (fixed in 5000.1.0.1 patch)
788711	Enhancement - EPS Service -User wants option to print files to directory based on report date and not system date
790077	EDM Data Receiver File Processing during Network Outages
790401	SQL Server Utility failing to attach database for non-English Windows and returning an overflow error
791175	Is there anywhere in OpenWells where you can enter information about "prefrac"?
791272	EDM - JDataServices. getUserTightGroupInfo() method NOT work for Win-Authentication.
792714	MD_SITE_USER.user_name needs to be changed to NVARCHAR to store Unicode characters
792949	Increase the width of CD_WELLCASE.api_suffix to 4 characters
794604	Add command line option to EDM Custom Transfer to hide Success dialog box
794647	When we delete a user through EDM Administration Utility, the token assignments for that user are not getting deleted in database.
794915	EDM - Audit Trail Not Registering Imports
795957	Increase CD_WELL.well_purpose to 40 char long to support WITSML types
797065	WITSML Survey Import: phase is not populated with 'ACTUAL'

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### **Release 5000.1.1**

There were no EDM issues fixed for this release.

### **Release 5000.1.0**

The following EDM issues were fixed for the 5000.1.0 release.

Defect No.	Description
738209	Users Full name should be shown in list of users.
748640	Need additional units added to Volume and Density Unit Class.
749650	Wrong label in CD_DATUM.well_name.
751815	WITSML Import/Export need support for Barite field.
754455	Group properties update performance is very poor when custom DEF's are used extensively.
754566	In EDM User Security, Application Tokens Section, the Column Headers for Application Tokens should not scroll; they should be a fixed row.
755612	Wellbore equipment component spreadsheet and properties capturing and displaying different fields for component Min ID.
759742	Drop CD_ASSEMBLY_COMP.min_id field from 5000.1 onwards.
760984	Weight per Unit in Mud Inventory should be unitless.
761671	Need to include Mudbase Type for WITSML import.
761801	WITSML Fluid import issues (Testing from Shell Group).
762833	A DEX file from the Summit application has fields in the unit Ibm. However, the Field Mapping option in EDM Administration under Stimulation specifies that the unit is ton (FPS) for these fields which caused the fields to be multiplied by 2 which is incorrect.
765063	CD_GRADE records that have no relevant data to them are affecting the performance of casing catalogs.
766202	The current association of Grade material and temperature deration in EDM software requires you to create multiple material pseudo names to handle multiple temperature deration schedules (for the same grade).
766392	Landed Weight & Weight in Slips fields should be associated to Large Force unit class, not Force.
768779	Redundant <TOPLEVEL> XML Export/Import Issue around XML Catalogs.
768780	Use only the Grade, Class, Materials, Temp Deration/Lithologies tables that are a part of the Entity being exported via XML Export.

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Defect No.	Description
769205	Import Export Config dialog box title bar is confusing: the title bar says error even after a successful import or export. Change the title bar to "Status."
769677	Changes in Grade_Material_Temp Deration dependency.
770922	Clone of 759603-Database upgrade: load CD_ASSEMBLY_COMP.min_id to id_min instead.
771157	CD_STRAT_UNIT, CD_ZONE & CD_RESERVOIR data in <TOPLEVEL> data set of EDM Transfer files should be included in the body of the data set being exported.
771454	Need 5000.1 database update wrapper called EDM_5000_1_0_0_DB_Update.exe.
772458	Data Services - Need to create new pipe name: Scab Liner pipe VIT pipe.
772537	Need two new fields in CD_LOCATION_CONGRESS to record quarter/quarter.
772629	Missing 2 lithology types: Avg. Permafrost and Silty Sand.
773489	Add a new field to CD_RIG.
773881	Create all iWellFile Tokens for iWellFile R5000.1 software.
773960	UNIT CLASS = Create a new unit class "Gas Production rate (Large)" unit.
774020	Request Operator and Reporting Time fields in the Event Properties.
774021	NPT Title in NPT dialog box is a memo, but in Time Summary spreadsheet it is 255 only.
774023	Need 'Formation Gradient' field to support alternate MASICP workflow.
774025	Need to change some default labels in stimulation form.
774026	Gas Concentration (class_id=186).
774028	No place to record Off Bottom Circulating Pressure.
774029	'Actives Stages' should be labeled 'Active Stages'.
774031	Require Communication Y/N and Communication Remarks field in Stages section.
774189	Unit of measure MEASURE_Mft3_d has issues.
774811	User needs creation of 6 new units in EDM (GL/L, L/ SK 100LB, KVA).
775375	Some fields in CD_ASSEMBLY_COMP need to have labels updated.
776307	String Fluids Export should only export relevant data just like Catalogs - In <TOP LEVEL> as well as in the body.
776716	New location code for US ROCKIES for MD_PK_LOCATION_TYPE_CODE.
777251	DM_EVENT.event_no needs to be increased from 20 characters to 30 characters.
777279	(Clone of 777235) In oracle materials exp. coeff. are incorrect for non-steel materials.

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Defect No.	Description
777497	Additional tokens needed for Definitive Survey Locking support.
778798	Table linkage between DM_OPER_EQUIP_FAIL and DM_ACTIVITY is wrong.
779358	Copy/Paste needs to handle COMPASS link tables.
779885	New displayed units for EDM software.
780365	- Support new RPG field in Bit Operations(DM_BIT_OP.rpg - double (rev/volume e.g. rev/gal).
780791	Need "Sampling Depth Interval" added to the following tables CD_WELLBORE->rt_samp_depth_interval - CLASS_DEPTH.
782048	Change the class_id from Flow Rate (Cement) to Flow Rate (Mud).

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## EDM Known Issues

The following EDM known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13

There are no additional EDM known issues for this release.

### Release 5000.1.12

There were no additional EDM known issues for this release.

### Release 5000.1.11

The following are EDM software known issues for the 5000.1.11.0 release.

Defect No.	Description
911401	Error when exporting transfer file at company level in WellCat, StressCheck, CasingSeat, Well Cost, WELLPLAN.  <b>Workaround:</b> The error that occurs when exporting data from an EDT application, will not cause any issues with the exported file. To remove the error, run the database upgrade a second time. When the <i>Version Information</i> dialog opens, select the previous database version (e.g. 09.04.09.170) and run the update.  

### Release 5000.1.10

There were no additional EDM known issues for this release.

 Go To "What's In This Release?"**Release 5000.1.9**

The following are EDM software known issues for the 5000.1.9 release.

Defect No.	Description
859767	EDM Admin - Site Config File import into SQL Express generates duplicate OpenWells Plan vs Actual MUD records in the Admin Utility. Only one report shows and only one can be printed. Spelling error in one folder.
859990	EDM Admin Utility Version reads 5000.1.6.0

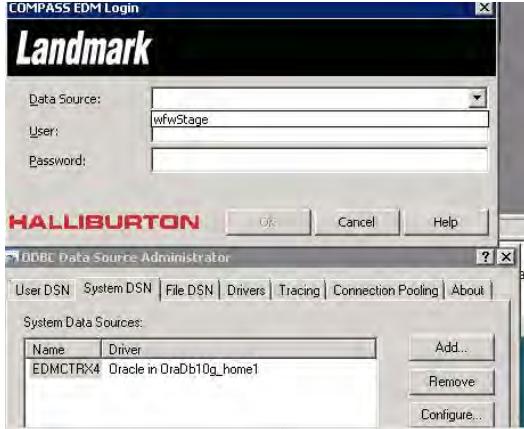
**Release 5000.1.4 through 5000.1.8**

There were no additional EDM known issues for these releases.

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### **Release 5000.1.3**

The following is a known issue for the 5000.1.3 release.

Defect No.	Description
800234	<p>General: On a 64-bit machine, when you try to configure the data source as you normally would in a 32-bit environment, the 32-bit ODBC drivers are not showing as a valid Data Source on the login screens--only 64-bit drivers are shown. When you launch an application, the Data Source drop-down does not include the ODBC entries as expected. See screen shot with both the ODBC window and the login window displayed:</p>  <p>WORKAROUND: On 64-bit machines, you now go to a different location than in the past to launch the ODBC Administration dialog box: \\Windows\SysWOW64\odbcad32.exe.</p> <p>EDM currently works only with 32-bit drivers.</p>

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Defect No.	Description
804333	<p>EDM Admin Utility, Picklist Editor, Oracle databases: When you edit a Picklist and then Save, there is an exception in the log file regarding “insufficient privileges.”.</p> <p><b>WORKAROUND:</b></p> <pre>grant EDMROLE to &lt;user&gt;; alter user &lt;user&gt; default role ALL;</pre> <p>Example:</p> <pre>grant EDMROLE to EDM; alter user EDM default role ALL;</pre> <p>Example:</p> <pre>grant EDMROLE to EDMADMIN; alter user EDMADMIN default role ALL;</pre> <p><b>Explanation:</b></p> <p>EDMROLE contains the required permissions to update picklist contents. It must be granted to the database user, and enabled. The two statements above will do that.</p> <p>Note: These statements require administrative privileges. To run them, log in to Oracle as SYSTEM or another sufficiently privileged user. For security reasons, log out (of Oracle) immediately after.</p>
807180	<p>Database Update: Running a dbUpdate against a SQL Server Express database having a space in the file name, after the install, the template table (WP_WORKSPACE) is completely blank. Preexisting templates are deleted and the updated/new ones are not added.</p> <p><b>WORKAROUND:</b> Workspaces and templates can be loaded from the EDM Admin utility. DT tables (migration mappings) can be loaded by running dt_data_tables.sql using  <code>osql.osql -U sa -P Landmark1 -D EDMDB -n -i dt_data_tables.sql</code></p>

### **Release 5000.1.2**

There were no additional EDM known issues for this release.

### **Release 5000.1.1**

There were no additional EDM known issues for this release.

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## **Release 5000.1.0**

The following were the known issues for the EDM 5000.1.0 release.

Defect No.	Description
762579	On the Field/Office Transfer process, EDM Data Receiver is not working as expected in it that it does not check the directory AND its subdirectories for new transfer files but only the root directory.
761665	WITSML import does not import certain mud check data into OpenWells software such as time of mud check, and mud check depths.
767436	Footage Depths are .01 to .03 different from v2003.16 to Release 5000.1.0. The default US Survey Feet is not correct, its Depth, Distances, Heights has unit selected to standard feet not US survey feet.
754529	Customizing OpenWells Test data entry form layout may result in fields to be hidden so that only one sub-sections is left.
761801	WITSML Fluid import may have issues with daily operations report in EDM software.
754965	Exporting/Importing picklists does not work correctly when numeric fields are being set to Integer format, and when non values are not being set regardless of original format.
765990	Catalogue export files contain may data which should not be present in this type of transfer file.
751252	One Chinese character is handled as two Latin characters in OpenWells software.  1. Launch OpenWells software. 2. Go to Lesson Properties > Input 128 Chinese characters in Summary/Comments and click Apply.  There is an Exception generated in the log file. However, highlight Summary/Comments in Properties page >Press F7 > Check the field length is 255. It means 255 Chinese characters should be input normally.
631277	ImportTightGroup system setting description inadequate
635520	Problem formatting BINARY_DATA (attachments) in EDM Data Transfer File leads to Import Validation Error
699865	Duplicate Company names allowed via import
717189	Rename select MD_SITE entities that store system metadata that customers are changing
719171	The well reference point has to be added at well level
720091	A second pipe catalog with same Properties as the API Casing/Tubing catalog does not appear as expected in the Import from Catalog dialog box.
720297	Uncaught Java Exception when attempting database back-up in COMPASS software

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Defect No.	Description
721230	Creating new folder in WITSML file export dialog box does not retain focus
721417	EDM Data Services not deleting BHA Operations and Bit Operations records when Drillstring deleted
729872	WITSML Wellbore level Import/Export. Fields not getting imported
733293	Can not copy/paste site level
740882	Documentation - Database - dbUpdate - SQL Server - Unable to run update from Client. The workaround for this problem is as follows: If the user selects 'Run Manually', the resulting script requires the following filled in:  - username, password, ODBC data source name, and server name.  If the server name is filled in correctly, these tables will be loaded correctly.
766372	SQL Server Utility throws Run-time error 75 (Path/file access error) at launch. Non-Administrator windows users do not have rights to create an ODBC Data Source. This is a Windows restriction.
777277	If you install full SQL Server 2005 with an instance NOT named EDM5000, database will fail to attach because it is expecting an instance named EDM5000. To prevent this error, please create an EDM5000 instance.  
784122	EDM Software Installation: EDM Database "Restore" functionality does not work for <i>edadmin</i> user, because <i>edadmin</i> does not have the proper rights (dbcreator) assigned by default. WORKAROUND: Before attempting to do an EDM database Restore, either login as Database Administrator or grant dbcreator rights to the <i>edadmin</i> user.

- EDM Table Extensions are currently implemented to support upcoming ARIES® software functionality and is restricted to selected ARIES tables only at this time. To create ARIES table extensions you must be logged in as the schema owner, EDMADMIN.
- Other EDM applications will not recognize the extension columns for update or display.
- Windows Authentication on Oracle: If you have Oracle Wallet (Used by the OpenWorks client in conjunction with the EDM to OpenWorks Link utility) installed on a client, Windows Authentication for Oracle will not work.

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## **EDT™ Software**

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are bug fixes in the EDT™ software for the 5000.1.13.1 release.

### **EDT Enhancements and New Functionality (Integration)**

The EDT integration enhancements and new integration functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13**

There are no enhancements to EDT for this release.

#### **Release 5000.1.12**

Enhancements and bug fixes were made for COMPASS, EDM, OpenWells, StressCheck, Well Cost and WELLCAT. Changes were made to the EDM data model in support of the above changes. Enhancements from the 5000.1.7.1 patch (OpenWells, PROFILE, and EDM) were ported to the 5000.1.9 release.

- EDM Unit Systems
  - A new unit class “Motor Speed Ratio” was added to the EDM database, to support DecisionSpace™ Well Engineering.
- EDM Administration Utility:
  - Copy Group Settings - This feature allows the administrator to copy EDM Group settings from one group to one or more existing groups.
  - Report Visibility Tab - This tab in the EDM Groups configuration node allows the administrator to decide which all reports will be visible for a specific Event type.
  - EDM Groups Configuration Area - The EDM Groups configuration area has been reworked into a tabular format for easier navigation and configuration. The new interface has the following tabs:
    - General
    - Tokens

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- Report Visibility
- Data Entry Forms
- Canvas Assignments
- EDM Users Configuration Area - The EDM Users configuration area has been reworked into a tabular format for easier navigation and configuration. The new interface has the following tabs:
  - General
  - Tokens
- The following system settings have been added to the EDM Administration Utility:
  - *AutoPopulateBHA* - This setting allows the administrator to enable auto-populating of the Time field in BHA Operations and Bit Operations.
  - *DepthVSDaysPlanByOps* - This setting allows the administrator to change the Depth vs Days Planned curve in Today's Wells to use planned operations.

### **Release 5000.1.11**

- The following system settings have been added to the EDM Administration Utility to improve performance:
  - ShowPreviewPane - This setting allows the administrator to disable the OpenWells Preview Pane.
  - EnableReportCaching - This system setting allows the administrator to disable the OpenWells "pre-query" and "pre-load" features. This is recommended for Citrix deployments.

### **Release 5000.1.10**

Enhancements were made for COMPASS, EDM, and OpenWells software for the 5000.1.10 release.

### **Release 5000.1.9**

Enhancements and bug fixes were made for COMPASS, PROFILE, StressCheck, WELLCAT, Well Cost, and WELLPLAN. Changes were made to the EDM data model in support of the above changes. Enhancements from the 5000.1.7.1 patch (OpenWells, PROFILE, and EDM) were ported to the 5000.1.9 release.

Also, the following changes were made to the EDM Administration Utility:

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- **New Daily Cost Summary System Setting** - The system setting DailyCostSummationFields has been added to define the fields used to identify the Line Item costs for a selected row, when the Total Cost (Cost Summary) button is selected in the Daily Cost Spreadsheet.
- **New Data Validation System Setting** - The system setting AddDVScriptingTab has been added to turn on a Scripting tab in the Data Validation utility, where administrators can define or enhance rules using JavaScript.
- **New Validation Text Format System Setting** - The system setting UseRegexOnDVTextFormat has been added to enable text format matches based on regular expressions.
- **New Output Reports** - A number of new output reports have been added with this release. For a complete listing of output reports see the Output Reports List topic.
  - Planned vs Actual Casing Report
  - Planned vs Actual Cementing Report
  - Planned vs Actual Coring Report
  - Planned vs Actual Hole Section Report
  - Planned vs Actual Logging Report
  - Planned vs Actual Mud Report
  - Planned vs Actual Perforation Report
  - Planned vs Actual Stimulations Report
  - Planned vs Actual Tests Report
  - Planned vs Actual Wellbore Formations Report
  - Project Lesson Summary Report

### **Release 5000.1.8**

There were no enhancements to EDT for this release.

### **Release 5000.1.7**

Enhancements and bug fixes were made for OpenWells. Bug fixes were made for PROFILE. Changes were made to the EDM data model in support of the above changes.

#### *EDM Administration Utility Enhancements*

For 5000.1.7, the following enhancements were made to the EDM Administration Utility:

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- **Well Site Canvases** - To support the new OpenWells® Interactive Well Site, a number of "pre-configured" canvases are shipped with the EDM database. Administrators can also create their own within the EDM Administration Utility. Canvases can be assigned to EDM Groups based on Event Type.

For more information, see "OpenWells Enhancements and New Functionality" on page 161.

- **Improvements to performance for EDM Publishing Service** - Report generation performance was improved by an average of greater than 85% for all reports.
- **Improvements to WYSIWYG Layouts** - WYSIWYG form layouts can now be build and configured directly in the EDM Administration Utility's Layout Manager. These layouts can be assigned to the OpenWells Classic Data Entry Forms or to the new Interactive Well Site canvases. A number of WYSIWYG layouts are shipped:
  - WYSIWYG form layouts used in OpenWells Classic are located in the Daily Operations, Stimulations, Casing and Cementing folders.
  - WYSIWYG form layouts used in the Interactive Well Site are found in the Casing, Cementing, Recordings and Rig Equipment folders.
- **Bi-directional Data Synchronization** - EDM AutoSync Client addresses the problem of discrepancies in data updates between the Rig and the Regional Office and determines whose data to keep by way of policies set at the Regional level. These policies are configurable by EDM Administrators to conform to company policies. Several policy templates are provided as starting points; configurations may be saved and imported to apply to new Rig connections.

AutoSync is used in the new OpenWells Interactive Well Site and can be turned on in Classic OpenWells, using the AutoSync system setting. In addition AutoSync requires access to a number of security tokens and roles to operate.

For more information refer to the documentation shipped with EDM AutoSync software.

- **Access Online Help from a Server** - OpenWells Client installation now automatically calls the Online help from the Server location.
- **Picklist Security Levels** - Administrator can now restrict an EDM Group or User's ability to edit picklists in the Picklist Editor.
- **Internal Picklist Filter Clause** - Administrators can now further filter Internal picklists using the And Filter Clause field in the Data Dictionary.
- **Internal Picklist Configuration Additions** - Users can now edit some areas of an Internal Picklist.

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- **Date Picklist Support** - Date fields can now be configured as Data Driven picklists allowing for more flexibility in defining data entry parameters.
- **New Unit Type Format for Time** - A new format has been added to the Unit Management System and applied to the Small Time units Class. This format displays time as HH:MM.
- **Caching Output Report Files** - Administrators are no longer required to delete the Output Report cache when an Output Report file has been replaced or changed. EDM now recognizes changes to the Output Report files and reloads automatically.
- **Calculate Cement Stage Top/Base MD based on the Pumping Schedule** - Two new system settings have been added to the EDM Administration Utility that determines the Top and Base MD of a Cement Stage, based on the Fluids entered in the Pumping Schedule.
  - TopBaseSlurryAndTestsCodes
  - TopBaseSlurryAndTests
- **Non Productive Time (NPT) Administration Tokens** - New tokens have been added to the EDM Administration Utility to allow administrators to restrict a user's rights to add, edit, view, delete and lock NPT data. The tokens are:
  - OpenWells.NPT.add,
  - OpenWells.NPT.delete,
  - OpenWells.NPT.edit,
  - OpenWells.NPT.view
  - EDM.Explorer.NPT.lock.
- **New System Settings** - A number of new system settings have been added to the EDM database. For more information see the Shipped Parameters topic.
  - AutoIncrementSurveyMD
  - AutoSync
  - AutoCatalogSelect
  - CheckRigAssociation
  - ComponentOrder
  - DisableFishTubular
  - DisablePicklistReadonly
  - FluidProduced
  - OpenHolePlug
  - TopBaseSlurryAndTestsCodes
  - TopBaseSlurryAndTests
  - WbEquipAutoInsCompStatus

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## **Release 5000.1.6**

Enhancements were made for CasingSeat, StressCheck, WELLCAT, and WELLPLAN. Major enhancements and GUI changes were made for Well Cost. Bug fixes were also made for these applications, and bug fixes only were made for COMPASS.

### *Well Explorer Enhancements*

For 5000.1.6, Well Explorer has been enhanced to support Workspaces for CasingSeat, StressCheck, and WELLCAT; these Workspaces operate exactly as they have always done in WELLPLAN in the past.

## **Release 5000.1.5**

### *Report Manager Enhancements*

For 5000.1.5, Report Manager has been optimized to greatly reduce the time and memory consumption needed to generate reports. Of all EDT applications that use the EDM Report Manager, OpenWells software benefits the most from the performance improvements.

### *General Benefits*

- **Memory consumption**—In previous versions, EDT applications load the Crystal Reports engine into memory when invoking the first report. This memory (about 50MB) is not released until you close the EDT application. In EDT 5000.1.5, the EDM Report Manager is solely responsible for all Crystal Reports operations related to report generation, thus freeing 50 MB of memory from any hosting EDT application.
- **Stability**—Because EDM Report Manager is solely responsible for any Crystal Reports related operation, no EDT application crashes related to reports will occur. If the EDM Report Manager crashes, the hosting EDT application will launch it again for next report generation.
- **Performance**—In general, there is a minimum of 1 – 2 seconds or 10 – 20% performance improvement (if cache is present) due to the simplified interface redesign between the EDM Report Manager and the calling EDT application. OpenWells software can achieve a greater performance improvement with additional optimization.
- **Cache Issues**—Individual Report Cache files are now shipped with the EDT installation and loaded into EDM database. This greatly reduces the time to generate the first report of any type if the cache is deleted from user's local

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folder. The time saved with this change is between 10 seconds to more than 1 minute.

- 3rd party reports benefit from this change when they manually generate each report once from any user's workstation, and then import all files into each EDM database with the site import feature.

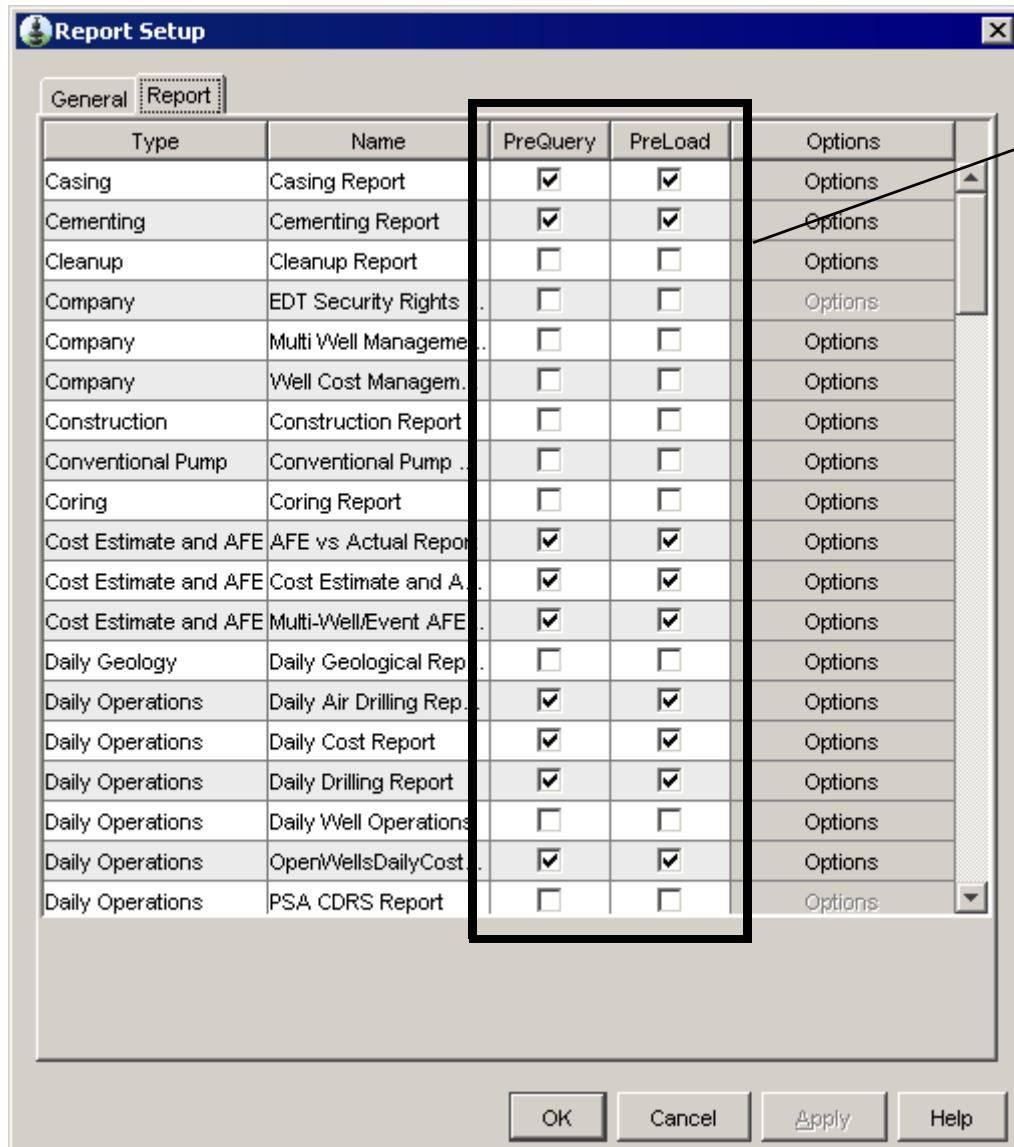
#### *Benefits to OpenWells Software*

For a single report, two additional optimizations now exist in the OpenWells application: 'PreLoad' and 'PreQuery'.

It was observed in the past that the first report of any type typically took more time than the second report, even from a different well. The two causes for this delay were that the database needs to compile the queries for the specific type reports (PreQuery), and the EDM Report Manager needs to load the Crystal Reports file into memory (PreLoad).

PreQuery and PreLoad settings are configured from the Report tab on the "Report Setup" dialog box in OpenWells software, which is accessed from the **Tools menu > Report Setup** command. On the Report tab, each report can be configured independently as seen below.

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PreQuery and  
PreLoad  
individual report  
options

Because of the specific nature of each report, not all reports will see an observable reduction in time if the PreQuery or PreLoad options are applied. Landmark includes a configuration of PreQuery and PreLoad options, which apply settings that maximize optimization of reports that benefit most from the features.

#### Optimize only the reports you need

If you select all reports to Pre Load and Pre Query, expect a 1-2 minute wait after launch before you preview any reports. Therefore only enable those reports you frequently use.

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In order to apply any changes made to the PreQuery or PreLoad options, you must restart the OpenWells application.

PROFILE software takes advantage of the PreQuery and PreLoad options, but uses the configuration settings applied in OpenWells software.

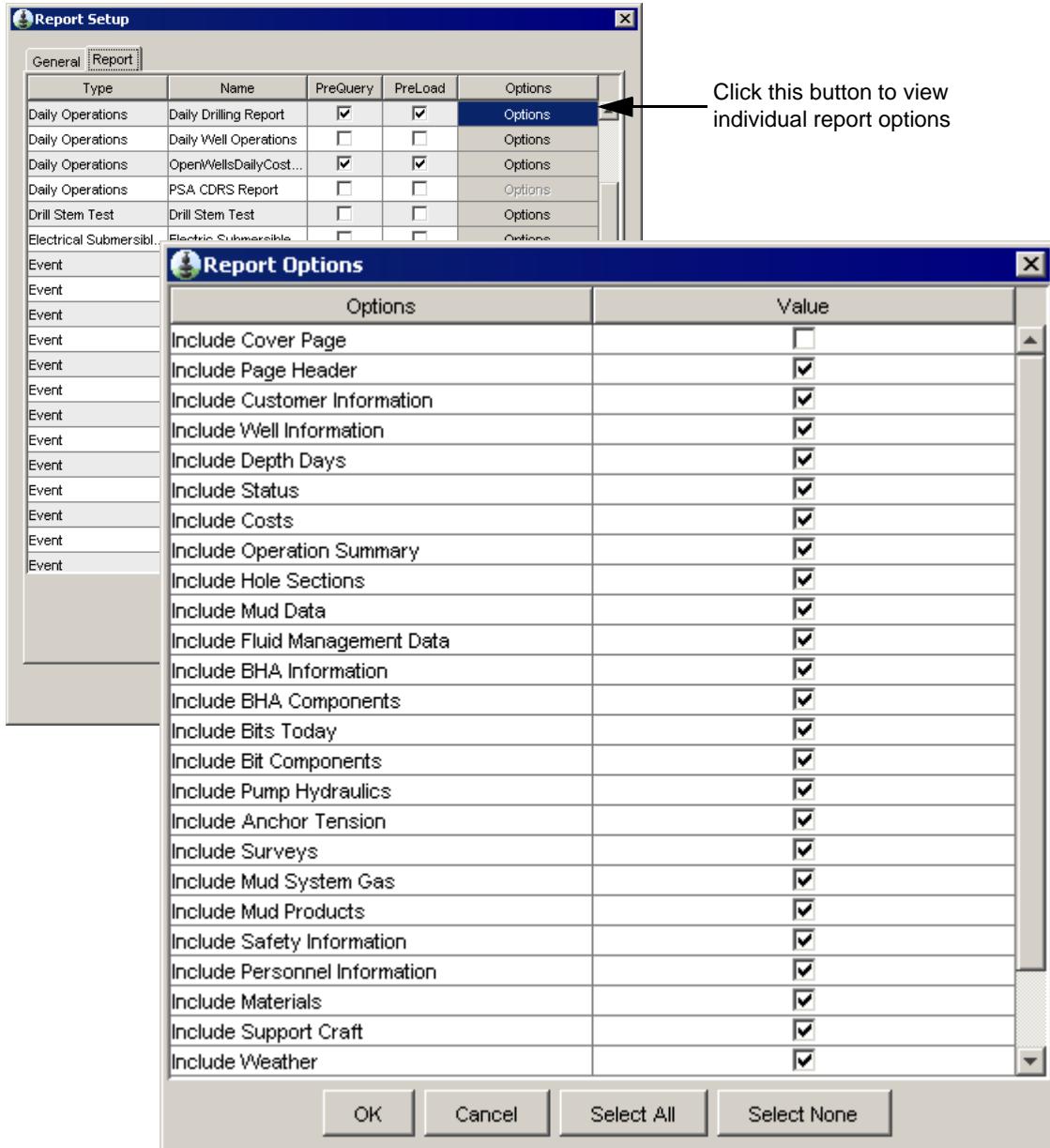
In addition to the PreQuery and PreLoad optimizations for individual reports mentioned above, OpenWells software's batch options also benefit when sorting reports by type. The batch Export to PDF and batch Print features now balance performance and memory consumption by restarting the EDM Report Manager after every 10 reports.

The Preloading option significantly improves OpenWells software's performance. However, this may result in excessive memory consumption by EDM Report Manager. Memory consumption greatly increases when you either manually preview or batch preview a lot of reports (for example, 20 reports) without closing the report window. If the report window is closed after a batch preview, the EDM Report Manager will automatically restart to release the consumed memory.

Beginning with EDT 5000.1.5, the OpenWells application will restart the EDM Report Manager automatically for every 10 reports during a batch printing and batch export job and release the memory. Thus, when EDM Report Manager restarts it will preload the reports you previously selected again and there should not be any memory issues related to batch printing and batch export.

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OpenWells software allows you to configure each type of report to display specific sections with the Tools menu > Report Setup command. Once the view options are set, reports will print with the same sections all the time. PROFILE uses the options configured in OpenWells software.



### Benefits to Other EDT Software Applications

- WELLPLAN reports that used to crash the WELLPLAN application when invoked for the first time after installation no longer cause a crash.

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- Over 100 known issues in EDM Publishing Service were re-verified and any failing verification were fixed.
  - All EDM Publishing Service 5000.1.2.x fixes were included in EDT 5000.1.5.
  - iWellFile 5000.1.5 Report invocation logic/architecture has also changed to support the new EDM Report Manager.
  - If using Adobe Writer Pro 9 to print a report in English text, the Table of Contents will print on the first page rather than on the last page. Due to limitations with Adobe Reader, the TOC will continue to print on the last page.

#### *General Integration Enhancements*

For 5000.1.5, various integration improvements were made for this release. These features include:

- COMPASS, OpenWells, PROFILE, Well Cost, and WELLPLAN applications have added enhancements, including the new version of Report Manager which reduces memory consumption, increases report generation speed, and adds other improvements (described above).
- Bug fixes were made for most applications.
- Changes were made to the EDM data model in support of the above changes.

#### *EDM Administration Utility Enhancements*

For 5000.1.5, the following enhancements were made to the EDM Administration Utility:

- **Catalog Editor System Settings** - Two new Catalog Editor system settings—*GenerateAssemblyItemDesc* and *AlternateCCNConfig*—can now be added to the EDM database. Used together these system settings allow administrators to define whether the component's item description is populated by the concatenated catalog data or with the description only. To only use the item description, both system settings must be added to the EDM Administration Utility and configured as follows:
  - *GenerateAssemblyItemDesc* must be set to NO
  - *AlternateCCNConfig* must be set to YES
- **Approval Process Tokens** - New tokens have been added to the EDM Administration Utility to support the new OpenWells and PROFILE Approval feature. `EDM.Explorer.approve`, `EDM.Explorer.Well.prepare`,

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EDM.Explorer.Event.prepare, EDM.Explorer.Report.prepare and EDM.Explorer.Well.viewapprovalhistory.

- **Approval Point Stamp Location** - The location of the Approval Point PDF stamps in the OpenWells and PROFILE applications can be configured using a system setting.
- **PROFILE Schematic Tokens** - Three new PROFILE system settings can now be added to the EDM database.
  - Dual Centered Components - assign specific components to always draw centered on dual completions.
  - Low Priority Components - assign lower priority to certain components drawn in a schematic that can be smaller than others to make more room for the more important symbols.
  - Use 2D Symbol Scaling - render the 2D packer symbols, expand the casing so it doesn't need to bend the dual completions and also use a few other options only normally needed by the 2D symbol set.
- **AutoSync Well Assignment** - OpenWells users are now able to assign Wells to an AutoSync Client for bi-directional updates between Rig and Regional EDM databases. New tokens have been added to support AutoSync and its integration with OpenWells software. AutoSync.AssignWell, AutoSync.Requestwell, AutoSync.remoteConnect and AutoSync.start.

#### **Release 5000.1.4**

- COMPASS enhancements and bug fixes were made.
- OpenWells enhancements and bug fixes were made.
- Changes were made to the EDM data model in support of the above changes.

#### **Release 5000.1.3**

- New platforms are supported.

#### **Release 5000.1.2**

There were no enhancements to EDT for this release.

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## **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions.

### *Well Explorer Enhancements*

- Tubular Properties Changes—Temperature Deration, Anisotropic Radial Yield, and Anisotropic Hoop Yield moved from Material Properties to Grade Properties. Also, XML import(exports enhanced to not carryover unnecessary tubular properties that are not used by corresponding assemblies. This simplifies the process of copying tubular grades, pipes, and connections between the EDM database and StressCheck or WELLCAT software inventories.
- Casings/Tubing Catalog—Added Critical Dimensions (Collapse, Axial, Triaxial Longitudinal and Triaxial Hoop) to the Casings/Tubings Catalog.
- Grades spreadsheet—Added Cost Factor
- Materials spreadsheet—Added Thermal Conductivity and Specific Heat Capacity.
- Catalogs—Catalogs were added for Well Completion components, and support for these catalogs was added to OpenWells, PROFILE, WELLPLAN, and Catalog Editor.

## **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release.

In addition to EDM database changes, a number of workflow improvements and usability enhancements were made to the Drilling & Completions applications to provide for consistent data management and user interaction with these products. More complete enhancement descriptions for each of the Engineer's Desktop applications are provided in their respective sections. This section will detail new EDT software functionality and user interface components shared between the Drilling applications.

Enhancements for EDT release 5000.1 include the following:

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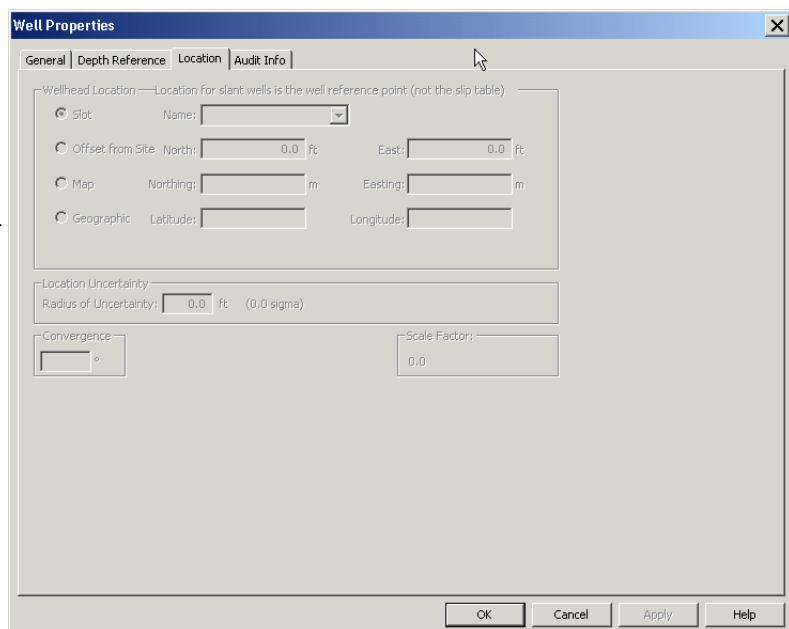
### EDT 5000.1.0 Common Well Explorer Enhancements

Located by default on the left side of the application window, the Well Explorer functions much like the Microsoft® Windows Explorer. Specifically, it is organized as a hierarchical data tree, and you can browse the EDM database at seven descending levels, though this varies between applications.

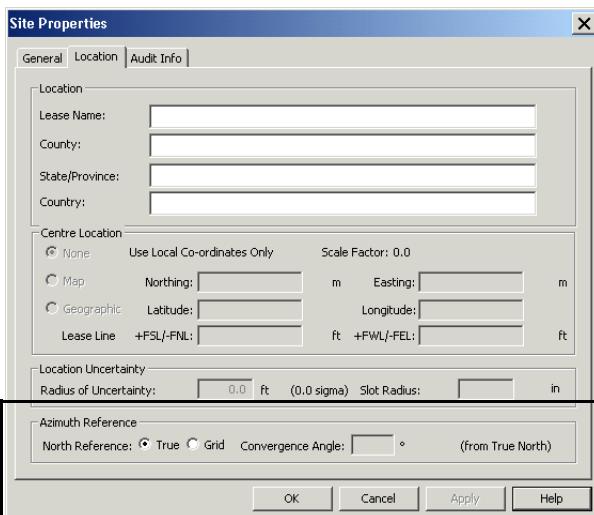
For 5000.1.0, the following new features were added to Well Explorer:

- **Location Information**—Added a ‘Location’ tab to Site and Well Properties dialog boxes. This tab displays any location information that was added in the COMPASS application.

Location tab added to Well Properties dialog box  
(read only in all applications except the WELLPLAN application)

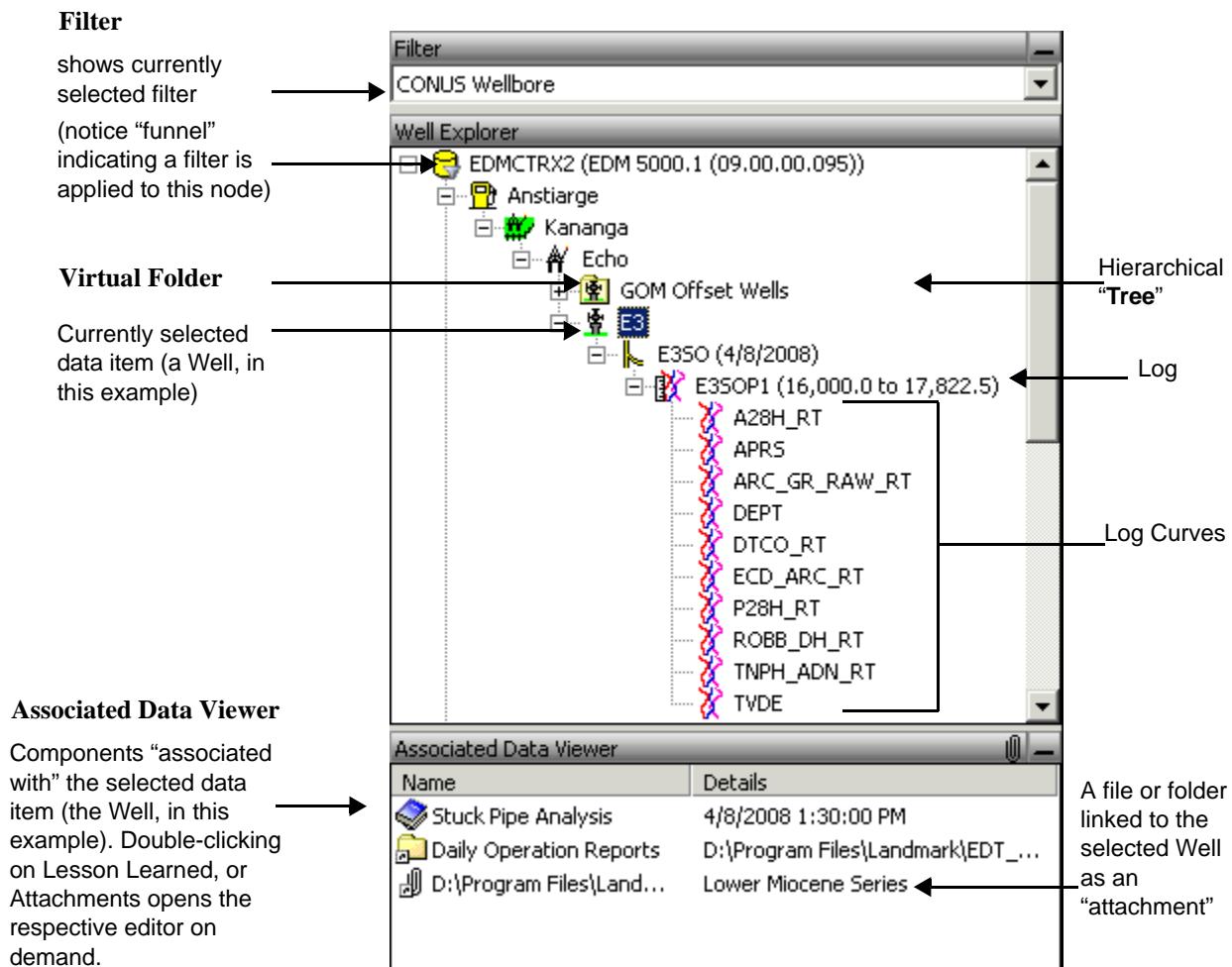


Location Uncertainty and Azimuth Reference added to Site Properties dialog



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- **Tubular Properties Changes**—Anisotropic Radial, Hoop Yields, and Temperature Deration have been moved from Material Properties to Grade Properties. Also, XML imports/exports have been modified so that they don't carry unnecessary tubular properties that are not used by the corresponding assemblies.
- **Implementation in Real-Time View**: The Well Explorer implementation in Real-Time View software exposes logs, and any associated curves, from the Wellbore level.



**Figure 1:** Well Explorer, shown in the Real-Time View application

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- **Well Explorer was added to Real-Time View with the following special features:**

- New icons added for log (  ) and log curves (  ). Logs can now be opened by double-clicking on the Log icon in the Well Explorer.
- Also, logs can now be opened from a right-click menu command on the Log icon in the Well Explorer.
- Drag and Drop individual log curves onto the log viewing area
- ASCII, LAS (Time), and LAS (Depth) log import from the Wellbore level right-click menu. The functions are now accessed via context menu commands from the Well Explorer.
- Logs can be opened, imported, renamed, and deleted from the Well Explorer

### *General Integration Enhancements*

For 5000.1, various integration improvements were made for this release. These features include:

- **License Expiration**—Users will now be warned when their product license is about to expire. This option is configured through the LAM Environment variable.

License expiration information shown in the **Help > About** dialog box.

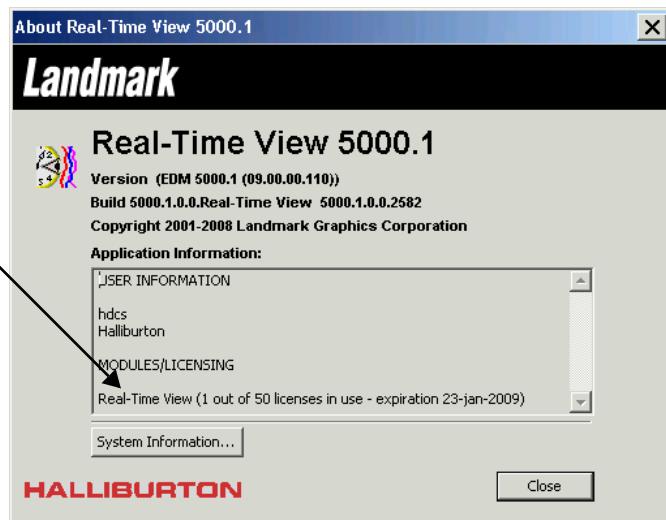


Figure 2: License Expiration

- **Password Expiration**—Password Expiry option now available for EDM users, configured through the EDM Administration Utility. EDM Administrators have the option to set an expiration on user passwords. This option is configured in

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the EDM Administration Utility. Starting 14 days prior to the password expiry, the user receives the following message each time they log in, and can change the password or defer the notification an additional day.

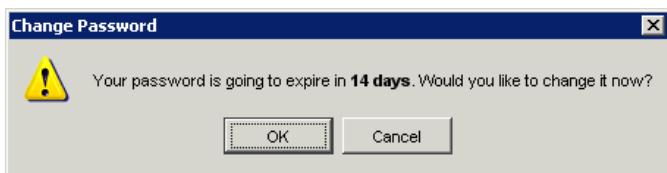


Figure 3: Password Expiration Notice

- **Definitive Survey Locking**—The Definitive Survey is the composite survey for a wellbore from surface to bottomhole (TD). It is used as the reference survey in anti-collision calculations, which are regarded as safety critical in well operations. The Definitive Survey is shared across several applications (OpenWells, PROFILE, StressCheck, WELLPLAN) but can only be edited in the COMPASS application, which is the main application for managing directional survey information. To improve security of the definitive survey, a two-pronged approach has been taken: (1) Token-based locking mechanism, and (2) Definitive Survey locking mechanism.

The Token-Based Lock mechanism is an alternative to the password protected method of managing and using the ‘Lock’ checkboxes in the Well / Contractor Explorer property dialog boxes. This new mechanism makes it possible to define who can lock any particular item within the Well / Contractor explorer hierarchy on a per group and/or user basis.

- The Token-Based Lock mechanism is enabled by setting the ‘UseLockSecurityTokens’ system setting to ‘TRUE’.
- To support this new method ‘lock’ tokens have been added to EDM for each property dialog box. If a group or user is granted the ‘lock’ token for a property dialog box they will have the ability to lock the information within that dialog box. If the token is revoked the lock field for that property dialog box will be disabled for that user or group.

The Token-Based Lock mechanism operates independently of any ‘Locked Data’ passwords set at the Company level. Users will not be prompted with warning or password dialog boxes when enabling or disabling a locked field.

The Definitive Survey Lock field is a new checkbox added to the Survey Program tab in the Actual Design properties dialog box. Enabling the Definitive Survey Lock performs the following actions:

- The Survey Program for the Actual Design is locked
- The Vertical Section for the Actual Design is locked

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- Any Survey that contributes to the Survey Program is locked. This includes surveys in parent wellbore designs that contribute to the sidetrack definitive path defined by the locked survey program.

The Definitive Survey Lock field is only available within the COMPASS Actual Design properties dialog box. If the Definitive Survey Lock has been set in the COMPASS application, the OpenWells application will treat the affected survey data as read only.

- **Upgraded WITSML support**—Ability to import/export WITSML 1.2.0 and 1.3.1 objects supported by the OpenWire application. (For the file based WITSML 1.2.0 and 1.3.1 Import/Export, only five objects are supported: Well, Wellbore, Trajectory, Fluids, Target. OpenWire software supports many more. The attribute mapping has greater coverage for 1.3.1. Well, Wellbore, and Trajectory can be imported and exported through the COMPASS and OpenWells applications. Fluids can only be imported and exported through the OpenWells application. Targets can only be imported and exported through the COMPASS application.)
- **Geodetic Information transfer**—Geodetic information is now exported in transfer files.

#### *EDM Administration Utility Enhancements*

For 5000.1, the following enhancements were made to the EDM Administration Utility:

- **Survey Locking**—Configuration to support Definitive Survey Locking was added.
- **Password Expiration**—Administrator can set expiration on user password, forcing the user to change their passwords at regular intervals.
- **Enhanced User Management**—Added EDM Security > Users node > Sort Users right-click menu command to the EDM Administration Utility. EDM Administrators can now sort users by User Name or Full Name.
- **Security Tokens**—these were added to support Sub-Assemblies in the PROFILE application.
- **New System Setting**—NPD\_CDRS\_LOG\_TEMPTYPE has been added to support CDRS Report Generation (for the OpenWells application).
- **Rig Type Images**—Administrators can assign the four available OpenWells Rig Equipment Editor images to any Rig Type Code (for the OpenWells application).
- **Shakers in WYSIWYG**—Shaker Operations have been added to the WYSIWYG layout (for the OpenWells application).

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- **Custom WYSIWYG**—Administrators can add custom WYSIWYG forms that can be assigned to OpenWells report layouts.

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## **EDT Fixed Issues (Integration)**

The EDT integration issues fixed for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13**

There are no additional EDT integration issues fixed for this release.

### **Release 5000.1.12**

There were no additional EDT integration issues fixed for this release.

### **Release 5000.1.11**

The following issue was fixed for the 5000.1.11 release.

Defect No.	Description
884054	Improved memory performance when using the simple find dialog in EDT applications.

### **Release 5000.1.10**

The following integration issues were fixed for the 5000.1.10 release.

Defect No.	Description
864825	Per-role.config file missing from server in 5000.1.9.0
866910	EDT 5000.1.9 release notes indicate an incorrect Oracle 11 client driver for Windows 7.
880049	COMPASS: Casing depth field in Casings Form displaying md_assembly_top and not md_assembly_base. Existed in 5000.1.9 release.

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### **Release 5000.1.9**

The following integration issues were fixed for the 5000.1.7.1 patch and ported to the 5000.1.9 release of EDT software.

Defect No.	Description
839553	Clone of 821751: 'Load Selected' feature for log curve is not working when the pipeline is created directly from WellPlan.
838761	Install issue - files and directory missing
844387	Viewing design properties in Common Well Explorer causes update to design (recorded in Audit tab) even when locked.
848783	SAM server sends multiple close messages for scenarios when OpenWells closed. Happens when OpenWells closes after having opened and closed a given design in "read only" mode multiple times.
853732	OpenWells: SAM: Surveys: Screen jumped and my survey and survey stations disappeared due to SAM message that other user had corrected survey in Compass

### **Release 5000.1.8**

There were no additional EDT integration issues fixed for this release.

### **Release 5000.1.7**

The following issue was fixed for the 5000.1.7 release of EDT software.

Defect No.	Description
828886	Remove any parameters that are no longer valid logging items for SAM.
830469	EDT 5000.1.5.x and higher upgrade unpacks Historian files to Temp folder irrespective of whether user wants to install Historian or not.

### **Release 5000.1.6**

The following issue was fixed for the 5000.1.6 release of EDT software.

Defect No.	Description
826558	EDM AutoSync has problems with text data that contains ASCII control codes.

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### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of EDT software.

Defect No.	Description
813355	Well Explorer: Drilling applications should search filter file (*.qry) from the default shared folder (\Documents and Settings\All Users\Application Data\Landmark\OpenWells\Queries\Drilling).
814584	EDM Publisher: EDM Publisher will not generate reports or send emails if the service is running on Windows 2003 Server.

### **Release 5000.1.4**

There were no additional EDT integration issues fixed for this release.

### **Release 5000.1.3**

Defect No.	Description	Product	Version Reported	Comp Level 1	Comp Level 2
786220	Fails to install SQL Server Express 2005 successfully for 64-bit operating system. This has been fixed in 5000.1.3.	EDT	5000.1.0	EDM	Installation

### **Release 5000.1.2**

The following EDT integration issues were either addressed or have workarounds for the 5000.1.2 release.

Defect No.	Description	Product	Version Reported	Comp Level 1	Comp Level 2
633125	BHA Summary Report performance improved by producing exact Schematic plots	EDT	2003.14.0.0	Reporting Engine	
786220	Install: Update the EDT installation to handle 64-bit OS. Fixed for the 64-bit versions of Windows Vista and XP in the 5000.1.3 update release.	EDT	5000.1.0	Install	
788983	Need to reduce Report Manager memory footprint	EDT	5000.1.0	Reporting Engine	

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Defect No.	Description	Product	Version Reported	Comp Level 1	Comp Level 2
796814	OpenWells reports are read only when actual design is open in PROFILE	EDT	2003.16.1.17	Integration Requirements	
796814	OpenWells reports are read only when actual design is open in PROFILE	EDT	2003.16.1.17	Integration Requirements	
797041	Add the ability to place a {today's} date in the Reports config file	EDT	5000.1.0.002	Reporting Engine	Data Generation
797044	Ability to store "partner" email list in the xml config	EDT	5000.1.0.002	Reporting Engine	
797702	Request for EDT R5000 that all the Application login screens display only ODBC Data Source Names that are using the ODBC Driver: SQL Native Client.	EDT	5000.1.0	General	
798156	Request for EDT R5000 and above versions that all C/C++ Application login screens display only ODBC Data Source Names that are using the ODBC Driver: SQL Native Client.	EDT	5000.1.0	General	
799430	SQL Server Utility - No longer launches after installing the Windows Update Hotfix 3073 for MS SQL Server 2005 SP2.	EDT	5000.1.0	General	

### Release 5000.1.1

There were no additional EDT integration issues fixed for this release.

### Release 5000.1.0

Defect No.	Description
161642	Integration: SAM indicator stays green after the SAM service has stopped. (Fixed)
634540	Reporting Engine: Report Manager not staying active for reports run in PROFILE. (Fixed)
701247	Runtime: A number of picklists get deleted from the database after a migration. (Fixed)

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Defect No.	Description
702735	Well Explorer: Hazards selection interface in Well Properties implemented inconsistently. (Fixed)
703081	Data Services: WELLPLAN software crashes on deleting (in OpenWells software) an Instant Case created in WELLPLAN software. (Fixed)
703379	Reporting Engine: Web/scroll wheel doesn't work when previewing the COMPASS reports. (Fixed)
715048	Data Services: COMPASS software crashes when you do a backup at the default location. (Fixed)
719181	Data Services: Daily Operations Data Entry forms Arrive/Depart Checklist data not visible after Wellbore level export. (Fixed)
721451	Data Model: Manual run of database update (Oracle) throws missing or invalid option error. (Fixed)
721543	Data Model: MEASURE_GAL_HR unit is incorrect on database update. (Fixed)
722852	Data Model: Coring report fields DM_CORE.interval_base and DM_CORE.interval_top need to be flagged as depth datum affected. (Fixed)
725895	Data Services: Copying wellpath from another design creates duplicate 0 depths. (Fixed)
723612	Data Synchronization: OpenWells and Field/Office Data Transfer track Report Transfer status differently. (Fixed)
726576	Citrix: Error generated in Citrix environment when migrating data (COMPASS For Windows software import). Workaround: Assign read/write rights to the data transfer properties file on the Citrix server. (Fixed)
727011	Reporting Engine: After a few reports are open in Report Manager, additional reports fail with "out of memory" issues.
727988	Citrix: Citrix Virtual Memory Optimization incompatible with some applications; applications fail to launch; the logon dialog box does not appear. This is a known issue with Citrix MetaFrame Presentation Manager 4's new "Virtual Memory Optimization" feature. Workaround: Either turn off the Virtual Memory Optimization feature, and re-install the applications. Applications will now launch properly. Alternatively, a list of specific DLLs and executables can be disabled without requiring Virtual Memory Optimization to be turned off (refer to the EDT Citrix Guide). Citrix may address this issue in future releases. (Fixed)
728606	Localization: For Chinese localization, OpenWells software hangs while changing language in status bar when OpenWells Well Explorer dialog box is open. Workaround: Add the following environment variable—EnableMultiLanguage (MUST be set to the value 'true')—to allow multi-language input system, such as Chinese, to work correctly with OpenWells software. Other Drilling applications that re-use parts of OpenWells software (Lessons Learned and Find dialog boxes, for example) will also need this environment variable. (Fixed)

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Defect No.	Description
728802	All applications: System filters for the new "Find" feature in the Well Explorer tree are only available for the <i>installed</i> user. Other users (for example, Citrix or client-server users who did not install the software using their userid) will have to copy the system filter *.query files to their local user directory. The local user directory is where the applications look for the *.query files used for by the Find feature. These *.query files can be copied from the following location (which is the local user directory of the person who installed the software):  C:\Documents and Settings\ <InstallUserID>\ApplicationData\Landmark\OpenWells\Queries\Drilling. (Fixed)
729229	Runtime: Data Migration Tool shuts down automatically during post-migration process (Oracle only). No errors. (Fixed)
729949	Runtime: For the 2003.14.1.0 to 2003.16 Oracle 9i upgrade, EDM system settings - Project Data Locking setting information is lost. (Fixed)
730051	Field/Office Data Synchronization: Custom configuration import doesn't create picklists. (Fixed)
733747	Reporting Engine: Report Manager should filter fields used in .rpt file. (Fixed)
737110	Admin Utility: When importing Site Configuration files, the Date is invalid. (Fixed)
775560	Installation: "Error 1718: File <filename> was rejected by signature policy." This Windows 2003 Server issue occurs when the Windows Installer has insufficient memory allocated and therefore cannot verify that the *.msi or *.msp package contains a valid digital signature. WORKAROUND: Install Microsoft hotfix KB925336 at <a href="http://support.microsoft.com/kb/925336">http://support.microsoft.com/kb/925336</a> .
781431	A SQL Server/MSDE/SQL Server Express Database Name cannot have a dot (.) in it. If your EDM Database Name has a dot (.) in it, the Database Upgrade will not work properly. (For example, the Database Name 'EDMDB' will work, 'EDM.DB' will not). This does not affect your database <i>Description</i> (for example, 'EDM 2003.21')

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## **EDT Known Issues (Integration-related)**

The Engineer's Desktop software release has been a significant development effort intended to realize the primary strategy of supplying integrated applications to the client that enable engineering workflows. For each product, changing the application to support a new data model was a significant challenge.

Engineer's Desktop software is being released with some outstanding issues that are known, but not thought to prevent users from achieving the efficiency gains provided by these applications. The following list of issues enables clients to compare observed application behavior against issues known to us at the time of release. These issues will be addressed in future releases of EDT software together with any additional issues reported by clients.

### **Release 5000.1.13**

The following EDT integration known issues were reported for the 5000.1.13.0 release.

Defect No.	Description
942774	Errors will be displayed during copy/paste workflows if the database upgrade was run when logged in as "edmadmin" rather than "sa". To prevent this issue run the database upgrade as a system administrator.

### **Release 5000.1.12**

There were no additional EDT integration known issues for this release.

### **Release 5000.1.11**

There were no additional EDT integration known issues for this release.

### **Release 5000.1.10**

The following EDT integration known issues were reported for the 5000.1.10 release.

Defect No.	Description
864825	Pe-role config file missing from server in 5000.1.9 release.
866910	EDT 5000.1.9.Release Notes indicate an incorrect Oracle 11 client driver for Windows 7.

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Defect No.	Description
870534	Update Help About dialogs and Splash Screens in all EDT applications per the detailed specifications in the MS Word document attached to the Notes
872677	DB update script failed to create DM_STIM_TREATMENT_PROPANT table.
875782	[Oracle][ODBC][Ora]ORA-01460: unimplemented or unreasonable conversion requested Error on Design export.
876304	[Oracle][ODBC][Ora]ORA-01008: not all variables bound Error on Multi Version Import
878994	EAS 5000.1.9.1 Constraint for sync_resource_root needs to be altered

### **Release 5000.1.9**

The following EDT integration known issue was reported for the 5000.1.9 release.

Defect No.	Description
860311	Install - DS Compatibility platform - unexpected unable to access errors - install does complete successfully

### **Release 5000.1.8**

There were no additional EDT integration known issues for this release.

### **Release 5000.1.7**

There were no additional EDT integration known issues for this release.

### **Release 5000.1.6**

The following EDT integration known issue was reported for the 5000.1.6 release.

Defect No.	Description
831966	Uncaught Java Exception (Java heap space) error on applying 'COMPASS Designs' filter to a large data set in Well Explorer

### **Release 5000.1.5**

There were no additional EDT integration known issues for this release.

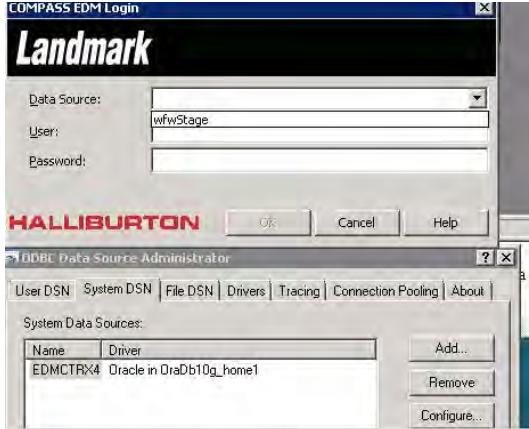
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### **Release 5000.1.4**

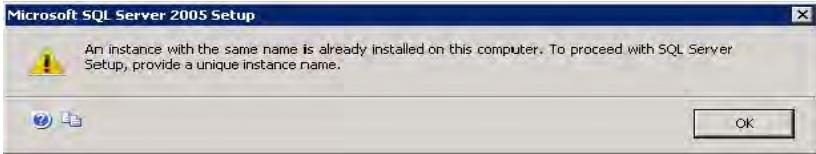
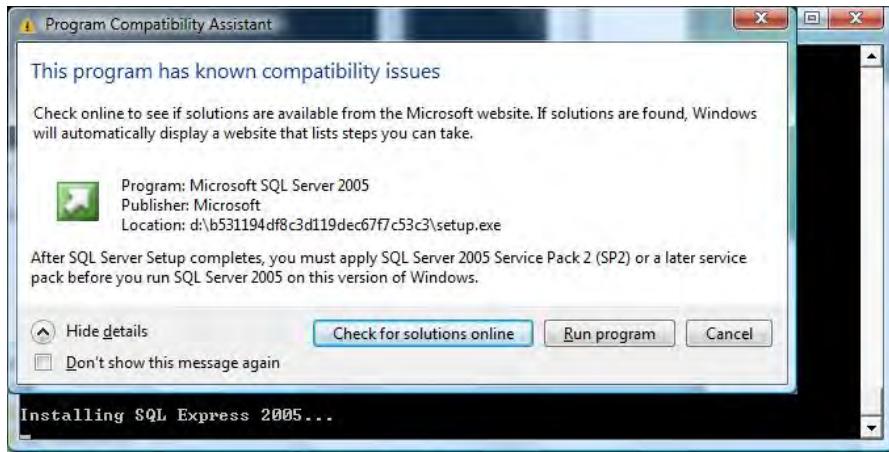
There were no additional EDT integration known issues for this release.

### **Release 5000.1.3**

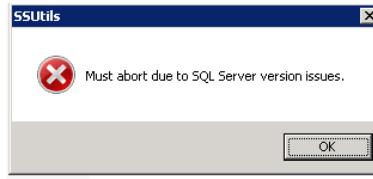
The following EDT integration known issues were reported for the 5000.1.3 release.

Defect No.	Description
800234	<p>General: On a 64-bit machine, when you try to configure the data source as you normally would in a 32-bit environment, the 32-bit ODBC drivers are not showing as a valid Data Source on the login screens--only 64-bit drivers are shown. When you launch an application, the Data Source drop-down does not include the ODBC entries as expected. See screen shot with both the ODBC window and the login window displayed:</p>  <p>WORKAROUND: On 64-bit machines, you now go to a different location than in the past to launch the ODBC Administration dialog box:    \\Windows\SysWOW64\odbcad32.exe.</p> <p>EDM currently works only with 32-bit drivers.</p>
804750	EDT 5000.1.3 does not support COMPASS Live Link on Vista 32-bit or 64-bit (because OpenWorks is not officially supported in these environments).

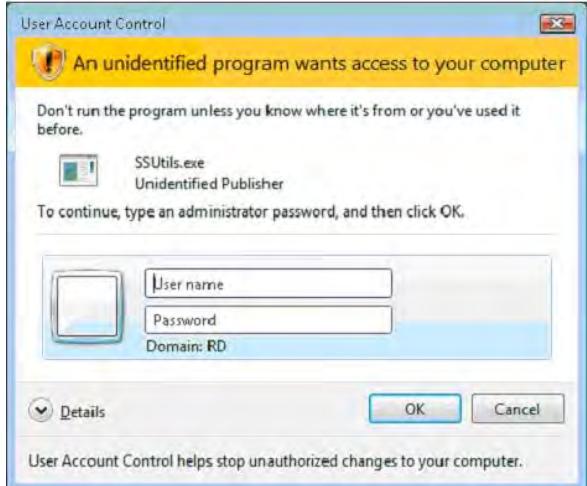
[← Go To "What's In This Release?"](#)

Defect No.	Description
804781	<p>Install: With SQL Server installed (<i>not</i> SQL Server 2005 Express) with the EDT required EDM5000 Named Instance, when the user runs the EDT 5000.1.3 install, an error is thrown with:</p> <p>"An instance with the same name is already installed on this computer. To proceed with SQL Server Setup, provide a unique instance name."</p> <p>SQL Server Express install then fails and is not installed.</p> 
804878	<p>Install: On 64-bit systems, during SQL Server Express 2005 install, error message is thrown citing "known compatibility issue".</p>  <p>SQL Server Express 2005 will install correctly if you click <b>Run Program</b> button.</p>
804913	<p>VISTA 64 / W2K8 SERVER 64 -Inform user how to launch the correct version of the ODBC administrator for creating 32-bit DSNs. EDT applications require 32-bit DSNs. On 64-bit OS's such as Vista and Windows Server 2008, the ODBC Administrator launched by default is the 64-bit version. In addition, the ODBC administrator exe (ODBCAD32.EXE) is called the same name for both the 32 and 64 bit versions.</p> <p>When adding 32-bit DSNs on 64-bit OS's such as Vista and Windows Server 2008, user should not use the Control Panel-&gt;Administrative Tools-&gt;Data Sources (ODBC) and instead browse for and launch the ODBCAD32.EXE from their WINDOWS\SYSWOW64 folder.</p>

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Defect No.	Description
805460	Citrix XenApp: Drilling Data Migration hangs upon login with a “Using default log file” message. Pressing OK on the message does not clear it, so the utility is effectively hung and must be killed. WORKAROUND: Use a non-Citrix environment, or be the Administrator.
805461	Citrix XenApp: Drilling Data Migration hangs upon exit with a “Using default log file” message. Pressing OK on the message does not clear it, so the utility is effectively hung and must be killed. WORKAROUND: Use a non-Citrix environment, or be the Administrator.
805467	Citrix XenApp: EDM Publishing issues a “file privileges” error upon exit. This happens when logged in as a non-Administrator user. Pressing OK on the message does not clear it, so the utility is effectively hung and must be killed. WORKAROUND: Use a non-Citrix environment, or be the Administrator.
806236	<p>Install: With SQL Server 2008 installed (<i>not</i> SQL Server 2005 Express) on user’s machine: during the install and afterwards, when you try to launch SSUTILS (SQL Server Utility) from the Start Menu, an error is thrown with:</p> <p>“SSUtils Must abort due to SQL Server version issues. This may be expected in this environment. Environment is Windows Server 2008 - 64 Bit SQL Server 2008 - 64 Bit installed”</p> <p>With SQL Server already installed, the 5000.1.3 install detects it and skips installing SQL Server Express. When you try to launch SQL Server Utility, the utility tries to launch with SQL Server 2008 and that fails with this error:</p>  <p>SQL Server Utility is not compatible with SQL Server 2008.</p>

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Defect No.	Description
806348	Install: Vista systems: On Vista systems, running with User Access Control on, a standard user is not able to run SQL Server Utility (SSUtils). Running SSUtils prompts the user for an Administrator login (username/password). A standard user is unable to run SSUtils without an Admin login with UAC enabled.  

### **Release 5000.1.2**

There were no additional EDT integration known issues for this release.

### **Release 5000.1.1**

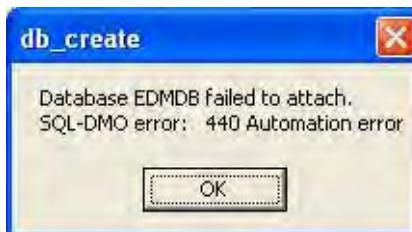
There were no additional EDT integration known issues for this release.

### **Release 5000.1**

The following EDT integration known issues were reported for the 5000.1.0 release.

Defect No.	Description
724913	Data Services: Some Data Services operations fail with long user names.
725544	Installation: None of the EDM/Drilling and Completions applications launch if installation folder contains Russian, Chinese character set.
726641	Installation: Uninstalling Drilling will prevent EDM Publishing Service from launching.

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Defect No.	Description
728737	Installation: Regarding 2003.14.1.0 to 2003.16 peaceful co-existence, 2003.16 installation renders 2003.14.1.0 COMPASS Report Manager non-functional after uninstalling 2003.16.
729311	Installation: Real-Time View and Field/Office Data Transfer are not removed when the single application install they are identified with is removed.
729667	Data Services: Long datum names causes Wellbore Copy/Paste to fail with error.
730135	Well Explorer: When working in the Well Explorer between applications (for example, WELLPLAN and StressCheck), each application does not recognize the others' changes in the Change History until the tree is refreshed. Workaround: refresh the tree before looking at Change History properties.
730283	Targets are not imported when a plan is imported over an existing plan.
761495	Catalogs imported with custom tubular properties will display INVALID in the custom tubular properties field.
765781	Data Migration: The second application that is migrating data from R2000 within the same session of the Data Migration Utility fails, throwing multiple errors. WORKAROUND: If the customer wants to migrate data from more than one legacy application, they must close the Data Migration Utility in between migrations.
775560	On Windows 2003 Server (specifically systems running Citrix; not known if Citrix is related or not), an error is thrown during the install with:  Landmark Engineer's Desktop 5000.1 (EDM) Installer I... Error 1718.File C:\WINDOWS\Installer\2a9142e.msi was rejected by digital signature policy  WORKAROUND: see the <i>EDT Drilling Installation Guide</i> 's Troubleshooting section. The workaround includes creation of a local Security policy to allow for these bad digital signatures
777277	If you install full SQL Server 2005 with an instance NOT named EDM5000, database will fail to attach because it is expecting an instance named EDM5000. To prevent this error, please create an EDM5000 instance.
	
781795	Windows Vista Only—Integration issue: The connection to the SQL database via the OpenWire Server panel in the Admin Utility fails. WORKAROUND: Do not run OpenWire software through the links in the COMPASS or WELLPLAN applications.

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Defect No.	Description
785258	Windows Authentication on Oracle: If you have Oracle Wallet (Used by the OpenWorks client in conjunction with the EDM to OpenWorks Link utility) installed on a client, Windows Authentication for Oracle will not work.
786220	Install: EDM - Update the EDT installation to handle 64-bit OS when installing SQL Server Express 2005.

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## OpenWells® Software

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 through 5000.1.9 releases. There are enhancements and bug fixes in the OpenWells® software for the 5000.1.13.1 release.

During stabilization some OpenWells configuration files were added to the installation, which were not included in the final database build. For this reason we recommend that you run an import of EDM Site Configuration Files. Importing these files will address cosmetic problems such as alignment and labels. Failing to import these files may cause problems in the OpenWells WYSIWYG forms. For instructions on importing these files, see "Site Configuration File Import Required Post-Install" on page [52](#).

### OpenWells Enhancements and New Functionality

The OpenWells enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13**

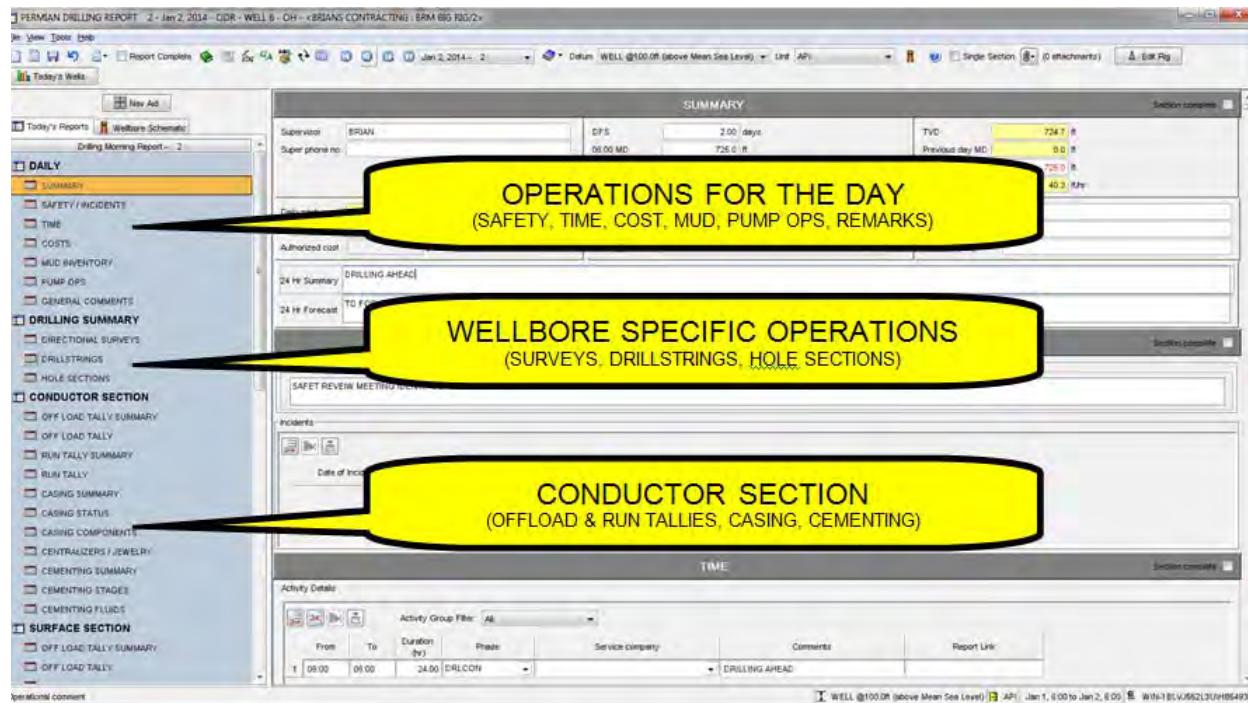
##### *Reporting by Workflow – One Report Per Day at the Rig*

To ensure accurate field reports, your supervisors need a system that is easy to use and that matches their workflows.

OpenWells now supports reports that follow the field's workflow thus reducing the time taken to enter the data and to look up that information in future operations.

Below is an example of a workflow-oriented report for drilling supervisors. This one report now combines the details traditionally associated with individual daily operations, pipe tally, casing and cementing reports for a typical shale well which involves a conductor, surface, intermediate, and horizontal section.

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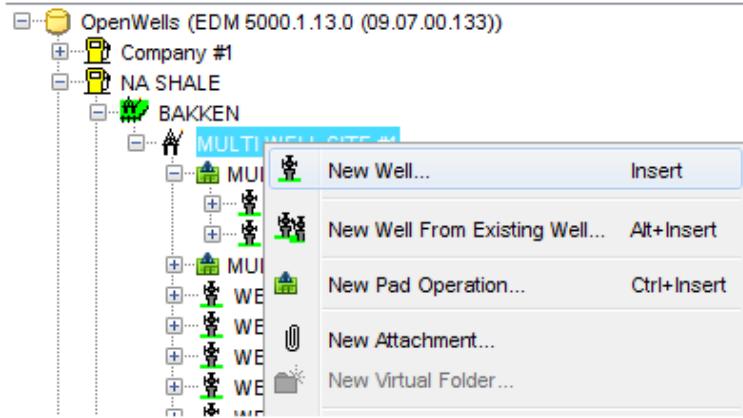
By default OpenWells comes with drilling, completions, and workover reports that are configured for typical workflows at the rigsites. Additional workflow-oriented reports can be created by administrators using the EDM Administration Utility tool.

#### *Recording Multi-Well/Pad Operations*

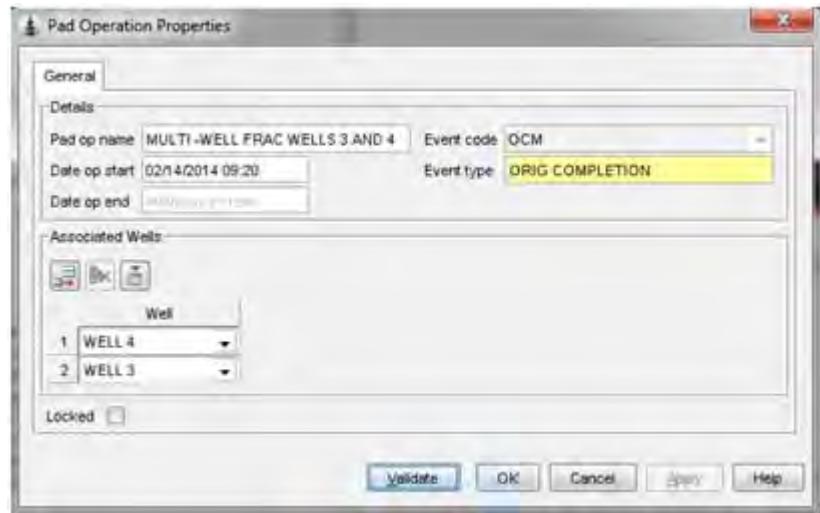
Recording costs, activity, bulk usage, and material transfers are unique challenges for supervisors of multi-well or pad operations.

OpenWells now supports “pad operations” which simplify the entry of costs, activity, bulk usage and material transfers for these types of operations.

To create a pad operation, right-click on a site node within the OpenWells hierarchy and select **New Pad Operation**.

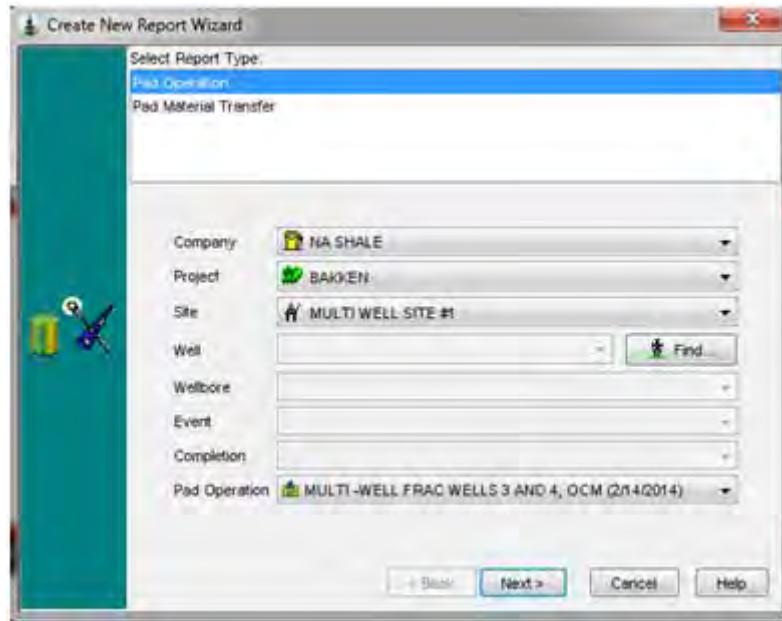
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Provide a name for the pad operation, the start date for the operation, the type of operation via an event code and associate the wells which are part of the pad operation to the list of associated wells.



A pad operation will then be created in the well explorer. With the pad operation node selected, press the **Create New Report** button and select the “Pad Operation” report from the list.

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The Pad Operation Report allows simplified entry for costs, activity and bulks across multiple wells in a single report:

## Costs

MULTI WELL COSTS					
Class	Code	Description	WELL 1 (\$)	WELL 3 (\$)	Total Amount (\$)
1	0	LABOR - INSTALL MANIFOLD TO TREATERS AND TANKS	3,000.00	3,000.00	6,000.00
2	0	EQUIPMENT - TANKS/TREATERS MANIFOLD	8,000.00	8,000.00	16,000.00
3	0	LABOR - INSTALL FLOW LINE TO WELL 1 AND TIE IN TO MANIFOLD	10,000.00	0.00	10,000.00
4	0	EQUIPMENT - WELL 1 FLOWLINE, METER AND CONNECTORS	45,000.00	0.00	45,000.00
5	0	LABOR - INSTALL FLOW LINE TO WELL 3 AND TIE IN TO MANIFOLD	0.00	12,000.00	12,000.00
6	0	EQUIPMENT - WELL 3 FLOWLINE, METER AND CONNECTORS	0.00	36,000.00	36,000.00
7	1	MATERIALS AND SUPPLIES	1,500.00	1,500.00	3,000.00
8	1	PERSONNEL AND TRANSPORTATION	500.00	500.00	1,000.00
9	1	ROADS AND LOCATION	3,000.00	3,000.00	6,000.00
10	C	SEPARATORS/TREATERS	26,000.00	0.00	26,000.00
11	S	V1 SITE PREP	2,000.00	2,000.00	4,000.00
12	S	V1 SUPERVISOR	500.00	500.00	1,000.00
13	S	V2 PERMITS	1,200.00	1,800.00	3,000.00
14	S	V2 PRESSURE TESTING	800.00	800.00	1,600.00

### Multi-Well Cost Entry:

- Allocate shared costs to one or more wells.
- Avoids duplicate cost entry

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## Activity

Well	From	To	Duration (hrs)	Code	Operation	Service company
1 WELL 3	06:00	12:00	6.00	25	FRAC STAGES 12-18	HALLIBURTON
2 WELL 4	12:00	18:00	6.00	21	FRAC STAGES 6-8	HALLIBURTON
3 WELL 3	18:00	06:00	12.00	22	FRAC STAGES 6-12	HALLIBURTON

**Multi-Well Time Entry:**

- Easily record activity by well in a single spreadsheet
- Enter duration and have time's calculate to speed up data entry.

## Bulk Usage

Product name	Unit size	Quantity start	Quantity adjusted	Quantity received	Quantity returned	Quantity used	Quantity end	Remarks
1 WATER, DRILLING	BBL	0.0	0.0	1,500.0	0.0	200.0	1,300.0	
2 BARITE SACKS	SAK	0.0	0.0	150.0	0.0	50.0	100.0	
3 DIESEL	BBL	0.0	0.0	1,800.0	0.0	350.0	1,450.0	
4 CEMENT	SAK	0.0	0.0	2,000.0	0.0	0.0	2,000.0	

**Bulk Usage at the Site:**

- Easily record bulk usage as measured at the site/pad.
- Avoids the need to maintain separate bulk volumes and usage on a per well basis.

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## Material Transfers

The screenshot shows a software application window titled "Transfers". At the top, there is a toolbar with icons for file operations. Below the toolbar, a header row displays "Transfer number", "Transfer type", "Ticket", and "Legal id number". The first row of data in the main grid shows values: Transfer number 186549, Transfer type RECYCLE, Ticket 136113, and Legal id number 23232332.

The main form is divided into several sections:

- General:** Contains fields for Transfer number (186549), Transfer code (0), Transfer type (RECYCLE), Legal id number (23232332), Origin (STAUFFER RECYCLING FACILITY), Destination (WELL # - CLEARWATER COUNTY), Departure date (01/01/2014 00:00), Arrival date (02/02/2014 00:00), and Total value (\$3,250.00).
- Responsible Parties:** Shows Contractor (WASTE HAULERS) and Agent (FRED FLINTSTONE). It also lists Department (WATER HAULING) and Toopusher (JOHN SMITH).
- Ship To:** Shows Ship to contact name (JOHN SMITH) and Ship to address (123 Main Street).
- Transfer Method:** Shows Transportation type (Trucking).
- Trucking:** Shows Trucking driver name (None), Trucking telephone (555-555-5555), and Trucking driver telephone (555-555-5555).
- Instructions:** A text area containing instructions.
- Manifest Details:** A section with icons for file operations.

A large yellow callout bubble points from the bottom left towards the "Transfer Details" section of the form, highlighting it. Inside the bubble, the following text is displayed:

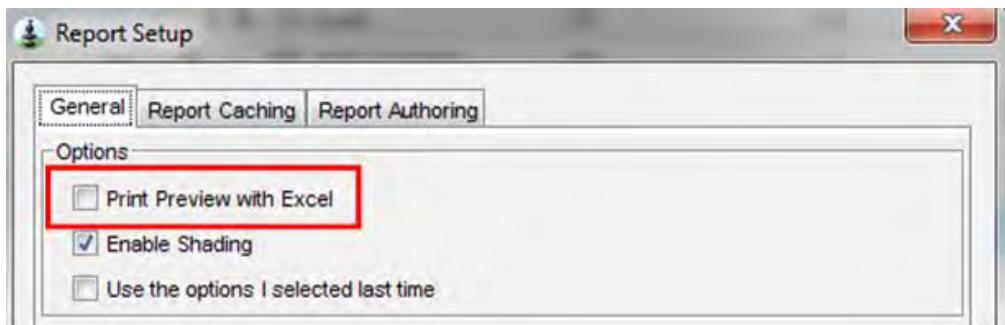
**Material Transfers To/From Multi-Well Sites**

- Site level record of all materials transferred to/from the site in one location.
- Saves time by eliminating the need to record material transfers specific to each well, all manifests are located at the site level.

## New User Preferences

### Print Directly To Excel

Users now have the option to print reports from OpenWells directly to Microsoft Excel. Select **Print Preview with Excel** to enable this option from the Tools > Report Setup menu.

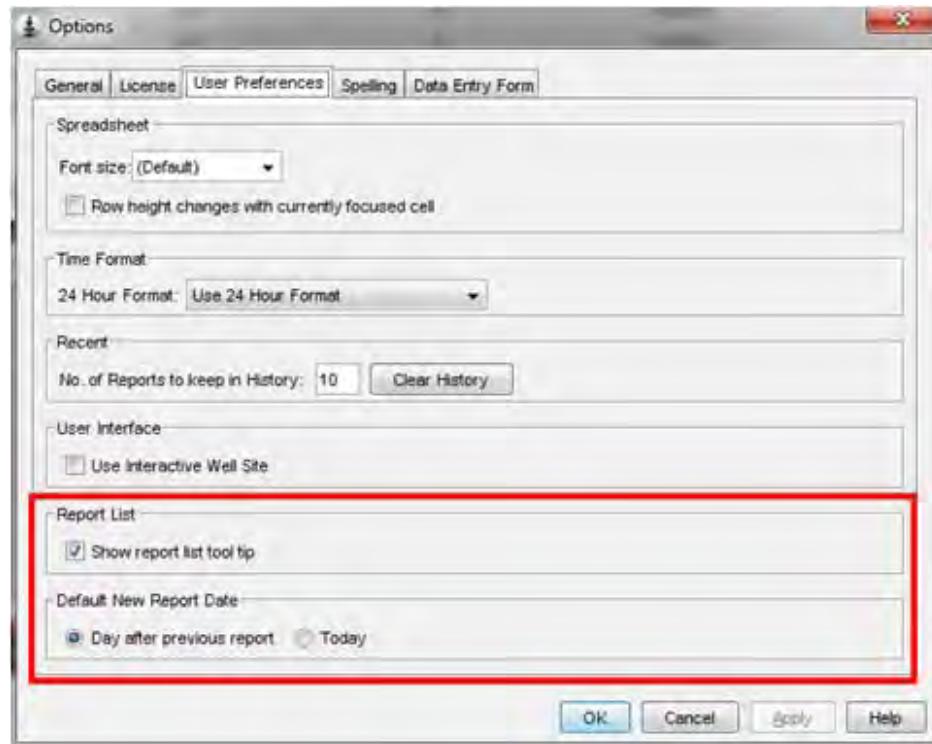
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Once enabled, any printed report based on the traditional “Crystal Reports” system will print directly to Microsoft Excel.

### Preference to Default Report Date and to Enable/Disable Tool Tips

OpenWells users now have access to the following user preferences from the Tools > Options menu.

- The “Default New Report Date” allows users to specify the date for newly created reports. Available options are “Today” and “Day after previous report”.
- The “Show report list tool tip” preference allows users to enable/disable the tool tip that appears in the OpenWells reports list window.



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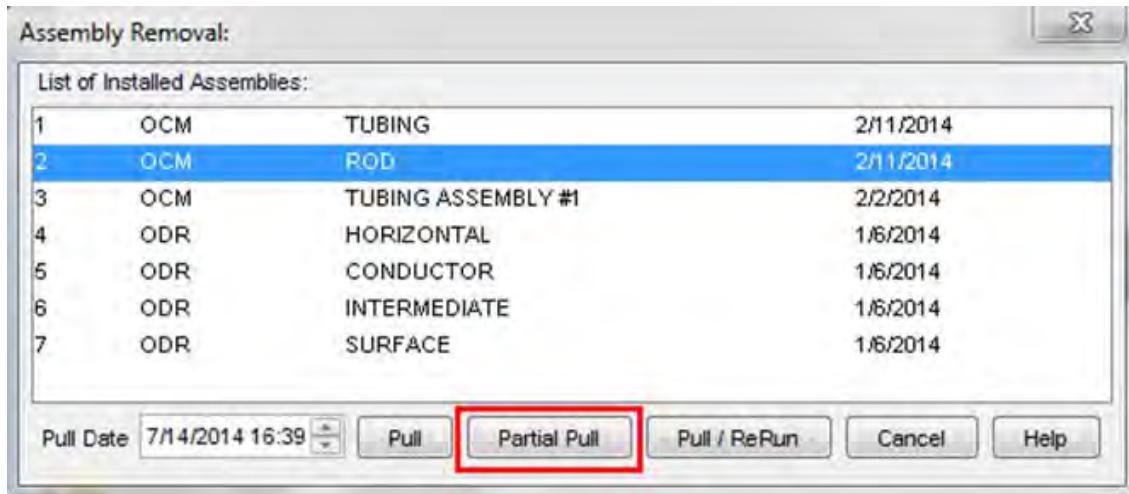
### Simplified Hole Section Entry

A new simplified entry format for hole sections is now available in OpenWells. This screen is applicable to operations that do not require records of complex hole section details necessary for engineering analysis.

HOLE SECTIONS						Section complete <input type="checkbox"/>
Section	Hole Diameter (in)	Start Date/Time	MD top (ft)	End Date/Time	MD base (ft)	
1 CONDUCTOR	8.750	01/02/2014 00:00	0.0	01/02/2014 12:00	250.0	
2 SURFACE	7.000	01/03/2014 00:00	250.0	01/04/2014 12:07	2,000.0	

### Simplified Workflow When Partially Pulling a String

Supervisors now have the ability to designate a “Partial Pull” when pulling a portion of an assembly.



After designating a partial pull, supervisors are presented with a list of all the components that make up the tubing or rod string being pulled.

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The screenshot shows a Windows-style dialog box titled "Partial Pull". The main title bar says "Partial Pull" with a close button. Below it, a sub-header reads "Select Deepest Component Pulled". The dialog contains a table with columns: "Section type", "Component type", "MD TOP (ft)", "MD base (ft)", "Body OD (in)", and "Body ID (in)". The table lists various components pulled from the string, including Tubing, Casing, and Wellbore Equipment. The last row shows "Electrical Subm." and "ESP Pump". At the bottom right of the dialog are "OK" and "Cancel" buttons.

Section type	Component type	MD TOP (ft)	MD base (ft)	Body OD (in)	Body ID (in)
Tubing	Tubing Pup Joint	0	5.79	2.375	1.75
Casing	Blast Joint(s)	6.78	9.64	3.062	1.75
Tubing	Tubing	9.64	42.35	2.375	1.75
Tubing	Tubing Pup Joint	42.35	44.5	3.062	1.75
Tubing	Tubing Pup Joint	44.5	47.51	2.375	1.75
Tubing	Tubing Pup Joint	47.51	51.56	2.375	1.75
Tubing	Tubing Pup Joint	51.56	61.66	2.375	1.75
Wellbore Equipm.	Ball Shear Sub	61.66	62.66	2.375	1.75
Wellbore Equipm.	Re-entry Guide	62.66	63.01	2.375	1.75
Tubing	Tubing Pup Joint	63.01	73.21	2.375	1.75
Tubing	Tubing Pup Joint	73.21	83.37	2.375	1.75
Tubing	Tubing Pup Joint	83.37	91.52	2.375	1.75
Tubing	Tubing	91.52	124.07	2.375	1.75
Tubing	Tubing	124.07	680	2.375	1.75
Casing	Blast Joint(s)	550	599.88	2.375	1.75
Tubing	Tubing	599.88	631.58	2.375	1.75
Tubing	Tubing Pup Joint	631.58	634.62	2.375	1.75
Tubing	Tubing	634.62	794.82	2.375	1.75
Tubing	Tubing Pup Joint	794.82	795.88	2.375	1.75
Wellbore Equipm.	Seal Assembly	795.88	799.58	2.375	1.75
Wellbore Equipm.	Sliding Sleeve	799.58	802.4	3.125	1.75
Wellbore Equipm.	Profile Nipple	802.4	803.6	2.375	1.75
Casing	Blast Joint(s)	803.6	823.48	2.375	1.75
Wellbore Equipm.	No Go Nipple	823.48	824.83	3.062	1.75
Casing	Blast Joint(s)	824.83	844.71	3.062	1.75
Packer	Packer	844.71	847.72	4	1.75
Tubing	Tubing	847.72	16,847.72	2.375	1.75
Tubing	Tubing Pup Joint	16,847.72	16,850.83	2.375	1.75
Tubing	Tubing	16,850.83	16,916.01	2.375	1.75
Slotted Pipe	Slotted Casing	16,916.01	16,416.01	1.75	1
Electrical Subm.	ESP Pump	16,416.01	16,419.01	1.75	1

Supervisors then select the deepest component pulled to complete the partial pull workflow. OpenWells will then create a new string describing the components left in hole and update the statuses of the original string and its components to indicate they were pulled.

#### *Simplified Entry of Stimulation & Improved WITSML 1.4.1 Support*

Entry of multi-stage stimulations has been greatly simplified in this release of OpenWells.

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Treatment type	Zone	Interval top (ft)	Interval base (ft)	Wellbore formation
1 FRACTURE TREATMENT	ZONE 1	17,500.0	16,500.0	Lower Bakken
2 FRACTURE TREATMENT	ZONE 2	18,000.0	17,000.0	Middle Bakken "A" Sandstone (Base of target)
3 FRACTURE TREATMENT	ZONE 3	14,000.0	13,000.0	Middle Bakken "B" Sandstone (Target)
4 FRACTURE TREATMENT	ZONE 4	10,500.0	12,500.0	Middle Bakken "C" Sandstone

General details, Fluids, Proppants, Chemicals and the treatment steps are now grouped in one location for each treatment interval.

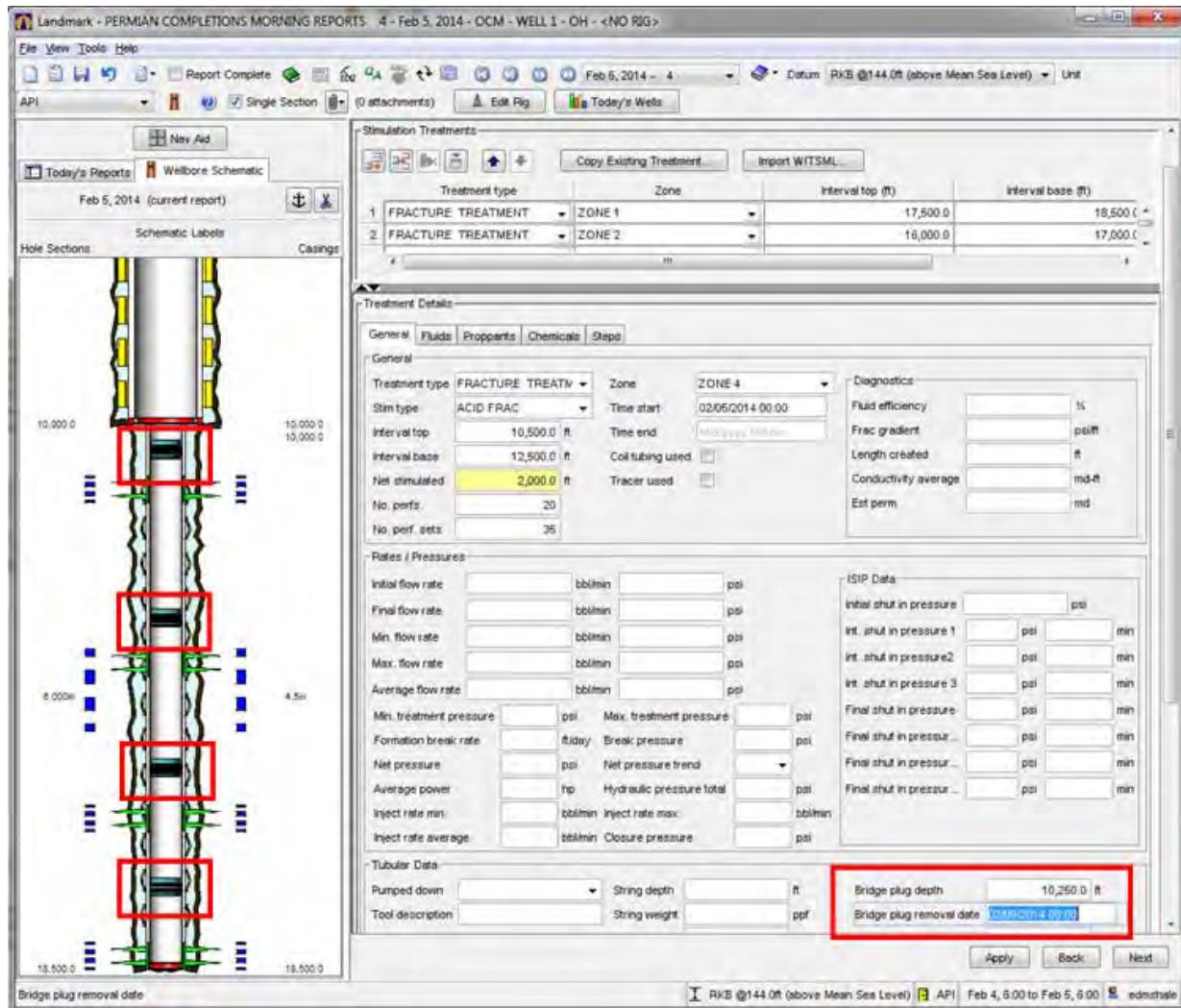
The new Import WITSML button now appears in the Fluids section of the Daily Operations report, and in the General and the Treatments sections of the Stimulation report. This button allows you to import WITSML objects into the report.

The ability to import stimulation jobs from vendors providing data in the WITSML 1.4.1 format has also been improved in this release

#### *Ease of Recording Bridge Plugs During a Stimulation Job by Supervisors*

Supervisors can easily record bridge plug depths and the date those plugs were removed as part of a stimulation job. The OpenWells wellbore schematic will display the plugs based on the date and depths entered in the stimulation report.

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*Supervisors can Enter and Review “Lessons Learned” Directly from the Daily Operations Report*

Entering and reviewing “Lessons Learned” is easier through the use of the new lessons learned section available in the daily operations report. Instead of having to move away from the operations report into a separate lessons dialog supervisors can now enter all pertinent information directly into their morning report.

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The screenshot shows the 'Daily Operations Lessons' window with the title bar 'Daily Operations Lessons' and a 'Section complete' checkbox. The main area is titled 'General' and contains four dropdown fields: 'Drilling Supervisor' (set to 'FRED FLINTSTONE'), 'Super1 Name' (set to 'BARNEY RUBBLE'), 'Super2 Name' (set to 'JOHN H.'), and 'Reference no.' (set to '1566489'). Below this is a toolbar with icons for save, print, and other operations.

Below the general section is a tabbed navigation bar with tabs: General, Lesson, Incident, Status, Discussion, Actions, Bibliography, Author, and User Defined. The 'General' tab is selected. Under the 'General' tab, there is a 'Details' group containing several input fields and checkboxes:

- 'Drilling Supervisor': FRED FLINTSTONE
- 'Reference no.': 1566489
- 'Super1 Name': BARNEY RUBBLE
- 'Drilling plan/prog. ref.' (empty)
- 'Super2 Name': JOHN H.
- 'Externally Reported':
- 'Responsible Party' (empty)
- 'External Reference': FIELD OPERATIONS MANUAL
- 'Vendor Name': ABC VENDOR
- 'Change Mgmt. Required':
- 'Change Mgmt. Reference' (empty)

Below the details section is a 'Summary' field containing the text 'COMPLETE ALL PAD PREP WORK PRIOR TO RIG MOVES'. There is also a 'Comments' field which is currently empty.

Under the 'Approval' section, there are fields for 'Reviewer' (JEFF), 'Approval status' (Approved), 'Lesson Review Date' (06/13/2014 14:54), and 'Lesson Approval Date' (06/13/2014 14:54). At the bottom left, there is a link '(0 attachments)'.

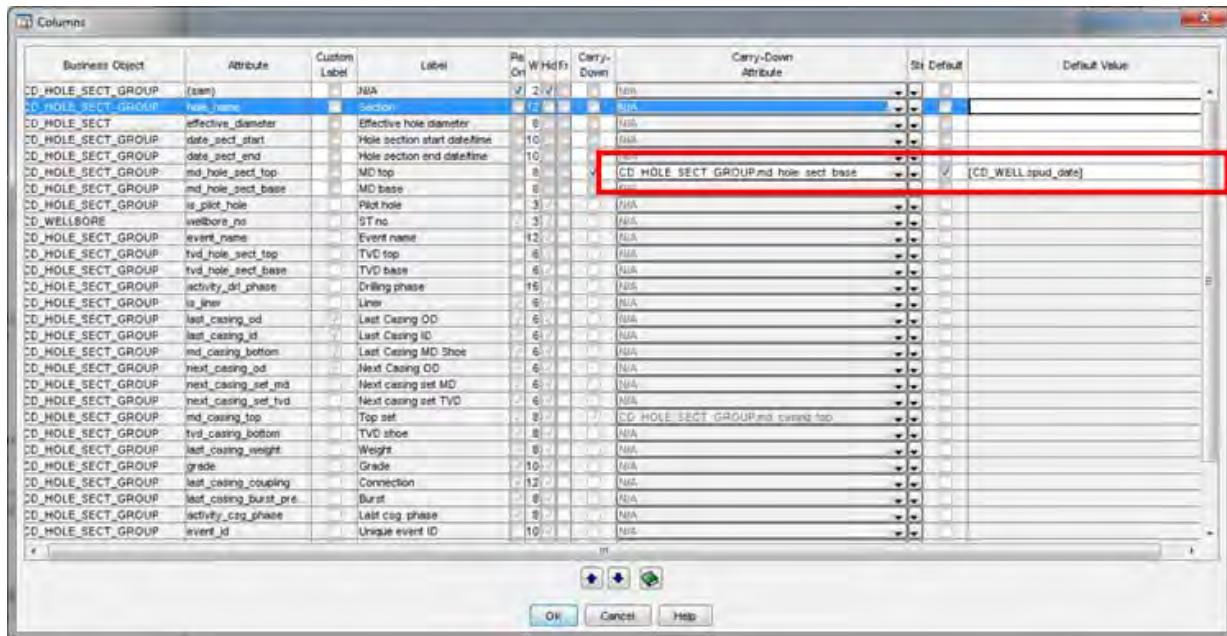
### Reduce Duplicate Entry Through the Use of Default Values

Supervisors will have less repetitive entry through the use of “default values” within OpenWells. One such example is a scenario where the start date of the very first hole section is the same date as the spud date for the well.

The configuration below shows the default and carry-down rules setup for the hole sections spreadsheet. In this configuration the start date of the very first hole section will default to the spud date as entered in the well properties. Subsequent hole section records will use the carry down attribute, meaning that the second hole section’s start date will default to the previous hole sections end date.

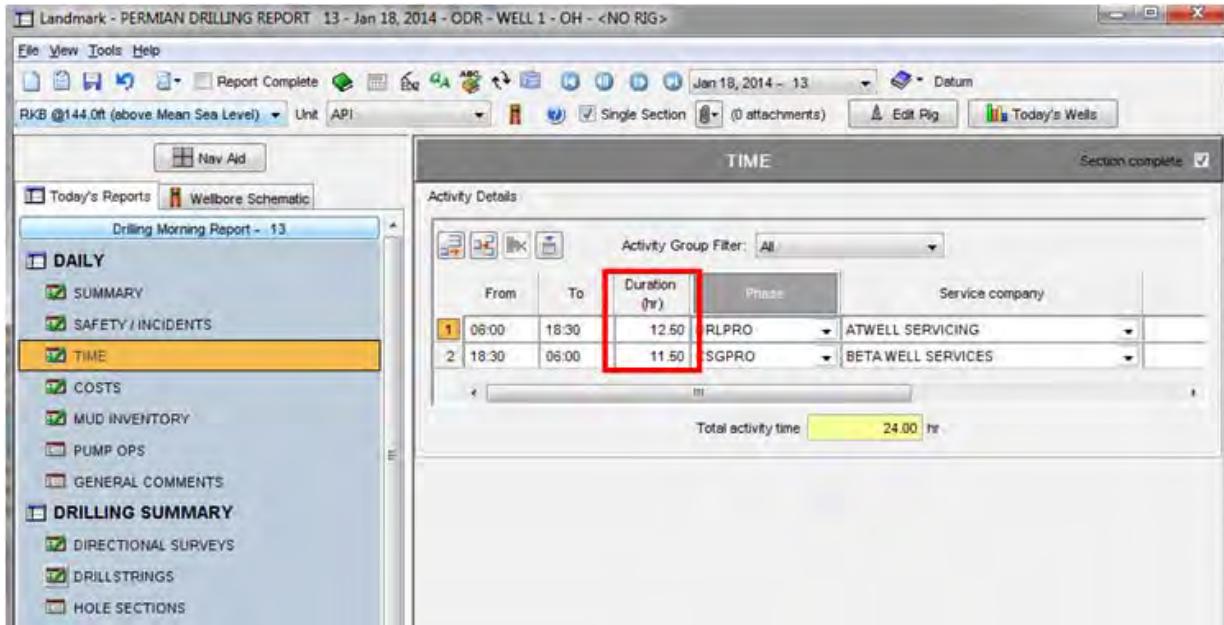
[Go To "What's In This Release?"](#)

Default values can be configured for any spreadsheet column and are able to reference information within a particular reports hierarchy, such as well and wellbore properties.



### Enter Durations Instead of from/to Times When Entering Time Summary into the Morning Report

Supervisors can now save time by simply entering the duration of an activity instead of having to type the from and to times for each time summary record. In the example below the from time of the first activity defaults to the starting time based on the reporting standard. The supervisor simply enters 12.5 hours in the duration field and the “to” time is automatically updated. Supervisors can also override the initial “from” time if operations for non 24 hour operations.

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*Easily View Hole Sections and BHA Strings Using the “today”, “wellbore”, and “all” Filters*

Supervisors now have the ability to filter the BHA's and hole sections displayed in the current morning report by using filters which will show the active hole section/BHA for the day, all sections/BHA's in the wellbore or all sections/BHA's associated with the well.

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**DRILLSTRINGS**  Section complete

BHA Run Summary

ST no.	BHA no.	Hole size (in)	Date/Time in	MD in (ft)	Date/Time out	MD out (ft)
1 OH	15" SURFACE BHA	15.000	01/08/2014 00:00	100.0	01/09/2014 00:00	2,000.0
2 OH	10" INT BHA	10.000	01/10/2014 07:00	2,000.0	01/15/2014 00:00	10,000.0
3 OH	6" HORIZ BHA	6.000	01/16/2014 05:00	10,000.0	01/18/2014 04:00	18,500.0

**Show All** **Show Selected Wellbore** **Show Today**

**Summary** **Components** **BHA Operations** **Bit Operations**

**General**

BHA no.	6" HORIZ BHA	Date/Time in	01/16/2014 05:00	MD in	10,000.0 ft
Hole size	6.000 in	Date/Time out	01/18/2014 04:00	MD out	18,500.0 ft

**Progress Summary**

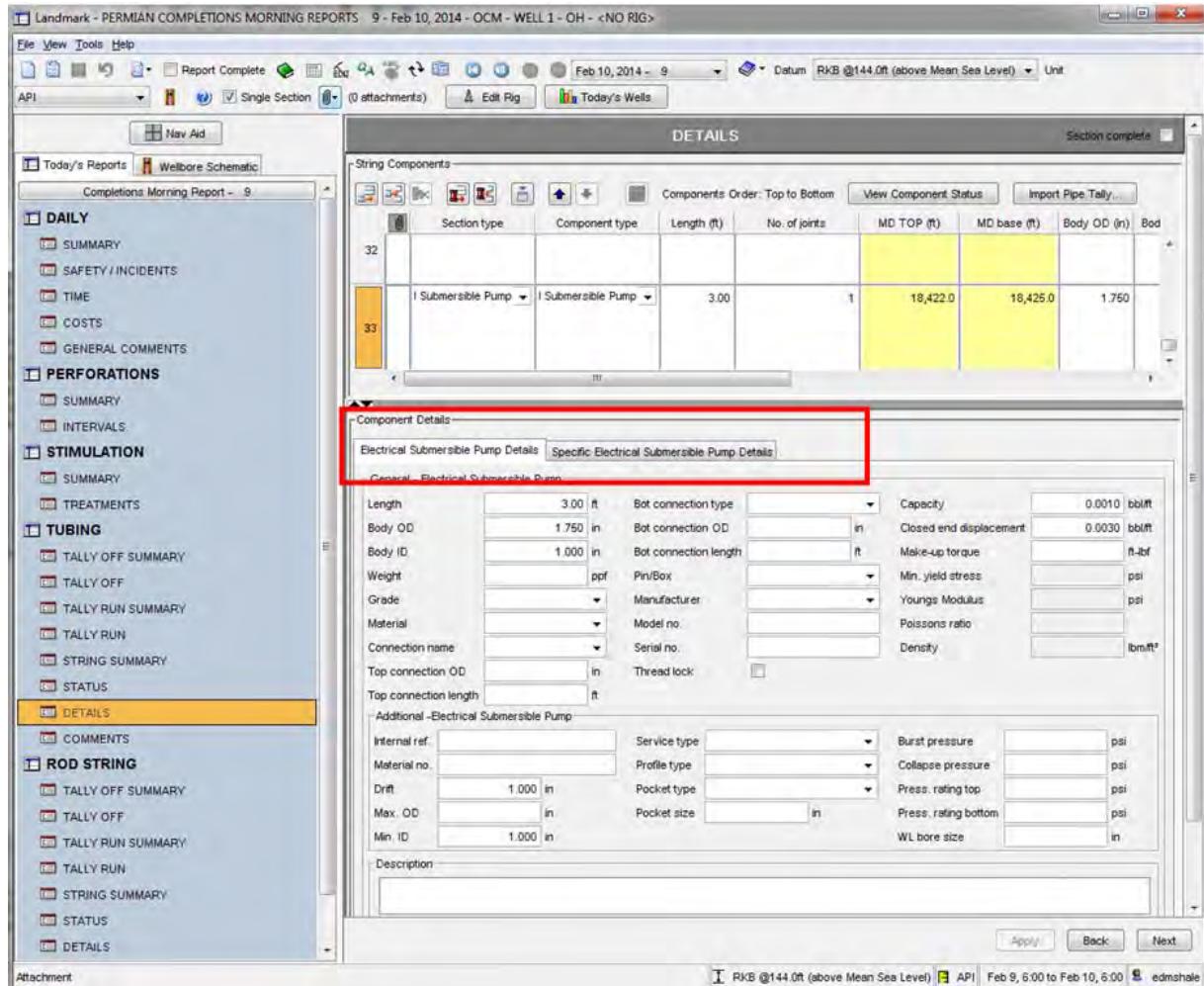
Total sliding hrs	0.00 hr	Total rotating hrs	0.00 hr	Total Circulating hrs	0.00 hr
Total sliding footage	0.0 ft	Total rotating footage	0.0 ft		

**BHA Run Comments**

*Artificial Lift Equipment can be Documented From the Tubing/Rod String in the Completions Morning Report*

Supervisors are now able to enter a comprehensive summary of artificial lift equipment in a single Completions Morning Report. The relevant details for equipment such as an ESP are now available from the Wellbore Equipment report and therefore supervisors no longer need to create a separate report specific to the artificial lift system.

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### New Microsoft Word Reports

This release of OpenWells includes three reports which use Microsoft Word templates to define the layout of the report:

#### The Texas W2 Completions Report

The Texas W2 Completions report is available from the wellbore node in the OpenWells well explorer.

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### RAILROAD COMMISSION OF TEXAS

Oil and Gas Division

Tracking No.:	This facsimile W-2 was generated electronically from data submitted to the RRC.		API No.	7. RRC District No.	
Status:					
<b>Oil Well Potential Test, Completion or Recompletion Report, and Log</b>					
1. FIELD NAME (as per RRC Records or Wildcat) SHALE FIELD NO. 1		2. LEASE NAME WELL 6		9. Well No. OH	
3. OPERATOR'S NAME (Exactly as shown on Form P-5, Organization Report) NA SHALE		RRC Operator No.		10. County of well site BURKE	
4. ADDRESS					
5. If Operator has changed within last 60 days, name former operator					
6a. Location (Section, Block, and Survey)		6b. Distance and direction to nearest town in this county.			
12. If <u>workover</u> or <u>reclass</u> , give former field (with reservoir) & Gas ID or oil lease no.		GAS ID or OIL LEASE #	OIL-G GAS-G	Well #	
13. Type of electric or other log run		14. Completion or recompletion date			

**SECTION I - POTENTIAL TEST DATA IMPORTANT:** Test should be for 24 hours unless otherwise specified in field rules.

15. Date of test	16. No. of hours tested	17. Production method (Flowing, Gas Lift, Jetting, Pumping, Size & Type of pump)	18. Choke size		
19. Production during Test Period ►	Oil - BBLs	Gas - MCF	Water - BBLs	Gas - Oil Ratio	Flowing Tubing Pressure PSI
20. Calculated 24-Hour Rate ►	Oil - BBLs	Gas - MCF	Water - BBLs	Oil Gravity-API-60 <sup>4</sup>	Casing Pressure PSI
21. Was swab used during this test? Yes <input type="checkbox"/> No <input type="checkbox"/>	22. Oil produced prior to test (New & Reworked wells)			23. Injection Gas-Oil Ratio	
REMARKS:					

### The Shale DDR Single Page Report

The “Shale DDR Single Page” report is a single page summary of drilling operations available from daily drilling reports.

Shale Daily Drilling Report Single Page																																	
Project name	BARRIER	Site	MULTI WELL SITE #	Well	WELL 6	Spud Date	Report Date	1/3/2014	Event	DRILL DRILLING																							
Wellbore	OH	Rig	HLL 3	Well Type		Progress	750 ft	Engineer																									
24 Hr ROP	34.1/min	Last Casing	(in)	TVD	(ft)	Next Casing	(in)	East Days		Hole Size	Time																						
Formation	Upper Silurian Shale	Formation MD	2550 ft	Current Status																													
<b>EHA Information</b>																																	
24 Hr Summary: DRILL SURFACE SECTION																																	
24 Hr Forecast:																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">EHA Name</td> <td style="width: 25%;">Purpose</td> <td style="width: 25%;">MD In (ft)</td> <td style="width: 25%;">MD Out (ft)</td> <td style="width: 25%;">Date In</td> <td style="width: 25%;">EHA Length (ft)</td> <td style="width: 25%;">Components</td> </tr> <tr> <td>Drilling</td> <td></td> <td>0.0</td> <td>250.0</td> <td>1/1/2014 5:59:00 AM</td> <td>218.76</td> <td>Hole Opener/Positive Displacement Motor/Cross Over/Tri-Cone Bit Drill Pipe/Non-Mag Drill Collar</td> </tr> <tr> <td>VERTICAL</td> <td></td> <td>250.0</td> <td></td> <td>1/3/2014 12:00:00 PM</td> <td>137.76</td> <td>Polycrystalline Diamond Bit/Non-Mag Drill Collar/Cross Over/Cross Over/Muleshoe Sub/Stainless Motor/Drill Pipe/Spiral Drill Collar/Non-Mag Drill Collar</td> </tr> </table>													EHA Name	Purpose	MD In (ft)	MD Out (ft)	Date In	EHA Length (ft)	Components	Drilling		0.0	250.0	1/1/2014 5:59:00 AM	218.76	Hole Opener/Positive Displacement Motor/Cross Over/Tri-Cone Bit Drill Pipe/Non-Mag Drill Collar	VERTICAL		250.0		1/3/2014 12:00:00 PM	137.76	Polycrystalline Diamond Bit/Non-Mag Drill Collar/Cross Over/Cross Over/Muleshoe Sub/Stainless Motor/Drill Pipe/Spiral Drill Collar/Non-Mag Drill Collar
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<b>Bit Details:</b>																																	
Bit Runs	Size (in)	TFA (in <sup>2</sup> )	Footage (ft)	HRS	WOB Min (lb/in)	WOB Max (lb/in)	Type	Serial No	Manufacturer	Nozzles	Model No.	Sticks																					
	8.75						Tri-Cone Bit	4002086	Vane	3.0X12.0.3.0X11.0	VM61SP																						
	8.75	1.175					Polycrystalline Diamond Bit	12168042	HALLIBURTD	6.0X16.0	PX650																						
<b>Surveys</b>																																	
Date/Time	MD (ft)	Inc. (°)	Azimuth (°)		Pump Ops		Shaker Ops			NPT, Costs & Depth vs Days																							
					Date Installed	Stroke Length	gpm	Liner Size (in)	Install Date	Type	Mesh Size (per inch)	Max Flow (gpm)																					
												Daily Cost (\$000.00/S)																					
												Cum. Cost(\$2915.15/S)																					
												Planned Cost(\$/S)																					
												Planned																					

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## The Shale Daily Drilling Report Full

The “Shale Daily Drilling Report Full” is a detailed summary of drilling operations available from daily drilling reports.

NA SHALE	Shale Daily Drilling Report Full	1/2/2014																																												
<b>1. Daily Status</b>																																														
<table border="1"> <tr> <td>Well Name: WELL 6</td><td>MD:250.0(ft)</td><td>Abstract:</td><td>Event ORIG DRILLING</td></tr> <tr> <td>State: NORTH DAKOTA</td><td>TVD:250.0(ft)</td><td>People on Location:8</td><td>Rig Type:LAND</td></tr> <tr> <td>County/ Parish: BURKE</td><td>GE:(ft) 12.5</td><td>Spudder STR Date: 2014-05-01</td><td>Big Rig STR Date:</td></tr> <tr> <td>Field: SHALE FIELD NO. 1</td><td>RKB: (ft) 8.5</td><td>Spudder RLS Date: 2014-05-12</td><td>Big Rig RLS Date:</td></tr> <tr> <td>Drilling Rig: H&amp;L 3</td><td>PROGRESS:250.0(ft)</td><td>Spud Date: 2014-05-02</td><td>Re-entry Date:</td></tr> <tr> <td>Drilling Supr(Day): BRIAN</td><td>Planned TD :(ft) 18500</td><td>Prop NO:8</td><td>Days from Spud:1.00</td></tr> <tr> <td>Drilling Supr(Night):</td><td>HRS Drilled:6.00(hr)</td><td>AFE Drilling:(\$)6500000</td><td>Days on Location:2.00</td></tr> <tr> <td>TED:</td><td>Hole Size: 8.750(in)</td><td>AFE Total:2480496.00(\$)</td><td>AFE NO: AFE1234</td></tr> <tr> <td>Drilling ENG: KELLY</td><td>Avg. ROP:41.7(ft/hr)</td><td>Daily Cost:23415.15(\$)</td><td>Directional Co:DIRECTIONAL SERVICES</td></tr> <tr> <td>PH Number:555-555-5555</td><td>Mud Weight:(psig)</td><td>Drilling Total:36915.15(\$)</td><td>MWD Co:MWD SERVICES</td></tr> <tr> <td></td><td></td><td></td><td>MUD Co:MUD SERVICES</td></tr> </table>			Well Name: WELL 6	MD:250.0(ft)	Abstract:	Event ORIG DRILLING	State: NORTH DAKOTA	TVD:250.0(ft)	People on Location:8	Rig Type:LAND	County/ Parish: BURKE	GE:(ft) 12.5	Spudder STR Date: 2014-05-01	Big Rig STR Date:	Field: SHALE FIELD NO. 1	RKB: (ft) 8.5	Spudder RLS Date: 2014-05-12	Big Rig RLS Date:	Drilling Rig: H&L 3	PROGRESS:250.0(ft)	Spud Date: 2014-05-02	Re-entry Date:	Drilling Supr(Day): BRIAN	Planned TD :(ft) 18500	Prop NO:8	Days from Spud:1.00	Drilling Supr(Night):	HRS Drilled:6.00(hr)	AFE Drilling:(\$)6500000	Days on Location:2.00	TED:	Hole Size: 8.750(in)	AFE Total:2480496.00(\$)	AFE NO: AFE1234	Drilling ENG: KELLY	Avg. ROP:41.7(ft/hr)	Daily Cost:23415.15(\$)	Directional Co:DIRECTIONAL SERVICES	PH Number:555-555-5555	Mud Weight:(psig)	Drilling Total:36915.15(\$)	MWD Co:MWD SERVICES				MUD Co:MUD SERVICES
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PH Number:555-555-5555	Mud Weight:(psig)	Drilling Total:36915.15(\$)	MWD Co:MWD SERVICES																																											
			MUD Co:MUD SERVICES																																											
<b>2. Summary of Activities</b>																																														
<table border="1"> <tr> <td>HSE Summary</td><td>No incidents today</td></tr> <tr> <td>Current Activity</td><td>Circulating surface</td></tr> <tr> <td>24 HR Summary</td><td>Rig up, spud.</td></tr> <tr> <td>24 HR Forecast</td><td>DRILL SURFACE SECTION</td></tr> </table>			HSE Summary	No incidents today	Current Activity	Circulating surface	24 HR Summary	Rig up, spud.	24 HR Forecast	DRILL SURFACE SECTION																																				
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24 HR Forecast	DRILL SURFACE SECTION																																													

### New Report – Well Quick Reference Sheet

A new printed report (Crystal) has been added to OpenWells that provides workover supervisors with a quick summary of important information about a completion prior to departing to a job site.

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## WELL QUICK REFERENCE SHEET

### Well Information

Legal well name:	WELL 1	Common well name:	WELL 1
Region:	NORTH AMERICA	State/Province:	
District:	NORTHERN	County:	
API no.:	123456798	Spud date:	1/7/2014
Active datum:	RKB @144.0ft (above Mean Sea Level)	Ground elevation:	132.0 (ft)
Latitude:	72° 45' 21.408 N	Longitude:	134° 53' 14.549 W
Easting:	-3,185,668.50 (m)	Northing:	11,245,349.02 (m)
UWT:	GC-01		

### Well Summary

#### Lesson Learned

Date	Type	Description

#### Events

Event	Objective	Start date	End date	Rig name/no.	Authorized cost	Total Cost	Est days	Actual Days
ORIG DRILLING		1/2/2014	1/20/2014			2,915,940.70		15.00
ORIG COMPLETION	COMPLETION	2/2/2014	2/20/2014			0.00		8.00
WORKOVER	ESP FAILURE	5/2/2014	5/5/2014			0.00		1.00

#### Wellbores

Common name/ST no.	Parent wellbore	Wellbore type	Kick off date	Reason	Top-Base MD (ft)	Bottom hole location
OH/CH	—None—		1/7/2014		0.00 -	

#### Hole Sections

ST no.	Pilot hole	Section	Effective hole diameter (in)	MD top (ft)	MD base (ft)	TVD top (ft)	TVD base (ft)	Start Date	End Date
CH	N	20° CONDUCTOR HS	20.000	0.0	100.0			1/6/2014	1/7/2014
	N	15° SURFACE HS	15.000	100.0	2,000.0			1/6/2014	1/9/2014
	N	10° INT HS	10.000	2,000.0	10,000.0			1/10/2014	1/15/2014
	N	6° HORIZ HS	6.000	15,000.0	18,500.0			1/16/2014	1/18/2014

### *Simplified Deployment for Field/Rig Laptops*

Installation of field/rig laptops is greatly simplified with the OpenWells “Standalone” installer. A single install routine now provides:

- OpenWells
- PROFILE
- Data Analyzer
- EDM Administration Utility

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- A default SQL Server Express database
- Database configuration required for Autosync Client

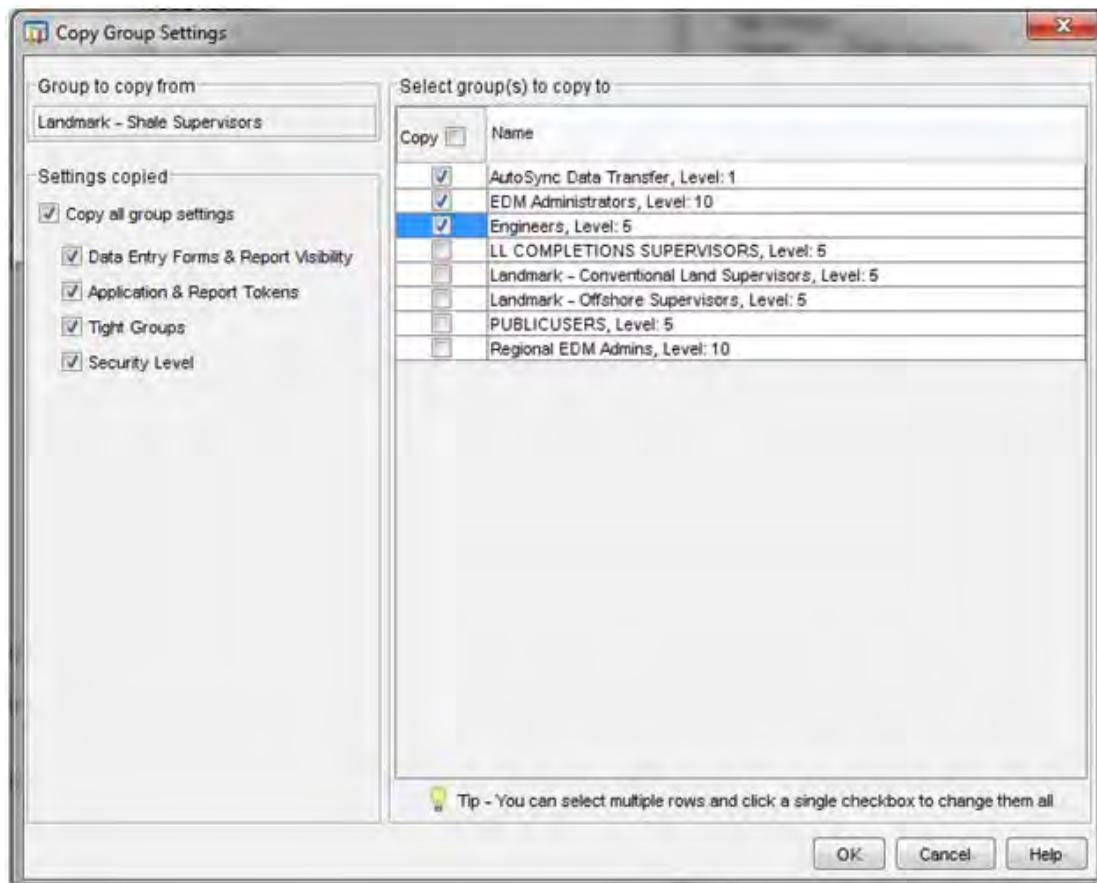
### *Simplified Autosync Installation using an Oracle EDM Database*

Administrators no longer need to run Autosync server scripts when installing an Oracle EDM database. All of the Autosync database configuration is now included in the EDM database installation.

For Oracle installations the Autosync “triggers” are turned off by default so that upgrades and database maintenance can be completed without having Autosync detection. Once upgrade and maintenance work is complete Administrators can simply enable the triggers.

### *Administrators can Easily Copy Configurations Between User Groups*

Administrators have a greatly improved interface which provides them with the ability to easily copy user group settings between groups of users.



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## Release 5000.1.12

### *Configure Printed Reports Using Microsoft Word*

OpenWells now supports the use of Microsoft Word when editing and printing reports. In the 5000.1.12 release OpenWells come with one pre-configured MS Word report, the **Texas-W2 Completions** report (available from the wellbore node in the Well Explorer).

RAILROAD COMMISSION OF TEXAS			
Tracking No.: Status:	Oil and Gas Division This document was generated electronically. Data was submitted to the RRC.	APT No: 3301301443	RRC Lease No:
<b>Oil Well Potential Test, Completion or Recompletion Report, and Log</b>			
1. FIELD NAME (as per RRC Records or Wellsite)	2. LEASE NAME	3. RRC Lease No:	4. Well No:
SHALE FIELD NO. 1	Landmark Graphics	RRC Operator ID: 123456	OH
5. OPERATOR'S NAME (exactly as shown on Form P-3, Organization Report)	6. Address	10. County of well site: <b>CLEARWATER</b>	
Landmark Graphics	107861 Clearwater County	11. Purpose of filing: Initial Potential Revert Relief Well record only (Display is remote)	
7. Operator has changed within last 60 days, name former operator		12. If producer or lessee, give former field (with reservoir) & Gas ID or oil lease no.	
		GAS ID or LEASE #:	Oil ID Gas ID
13. Type of lease or other log gas		14. Completions or accomplishments date	

### *OpenWells Module for Rushmore Reviews DPR, SPR and CPR Workbooks*

Analysts tasked with preparing workbooks for the Rushmore Reviews Drilling, Shale and Completions 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% of the SPR workbook and approximately 10% of the CPR workbook.

The **OpenWells Performance Reviews** module is downloaded separately from OpenWells / EDT and is compatible with all supported R5000 versions of EDM.

### *Import Activity from the Pason Electronic Tour Sheet*

Supervisors can save time and eliminate duplicate entry by importing operations activity from a Pason Electron Tour Sheet.

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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 activity to import.



### *OpenWells Pre-configured for Shale Operations*

OpenWells now comes pre-configured for typical shale operations.

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Typical configurations for Construction, Drilling, Completion, Maintenance, Workover and Surface Equipment/Facilities event types have been assigned to the “**Landmark – Shale Supervisors**” user group, accessible in the Security node of the EDM Administration utility.

Administrators also have a simplified interface for managing group configurations, which has been broken into five tabs:

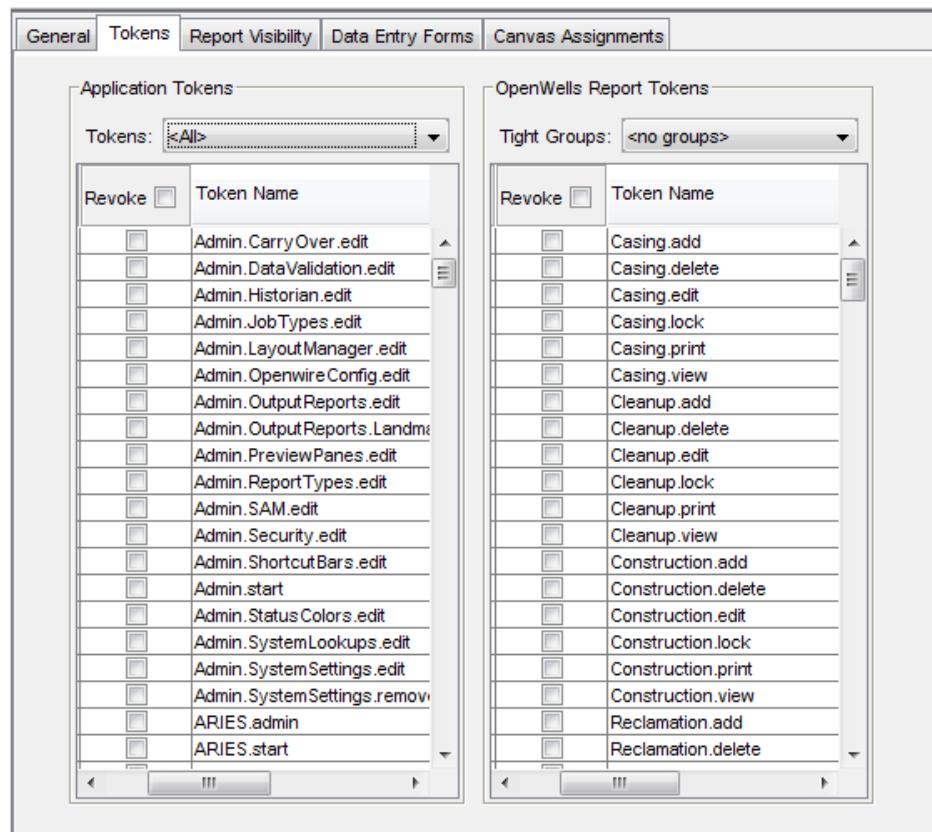
1. Use the **General** tab to define the group name, security level and tight group associations.

The screenshot shows the 'General' tab selected in a dialog box for managing a group named 'Landmark - Shale Supervisors'. The security level is set to 5. A table titled 'Tight Groups' lists one entry: 'UNRESTRICTED' with a checked checkbox under 'Member'. Below this is a section titled 'Users in Group(1)' showing a single user named 'edmshale'.

Member	Tight Group Name	Description
<input checked="" type="checkbox"/>	UNRESTRICTED	Unrestricted

Users in Group(1)	
User Name	edmshale

2. Use the **Tokens** tab to define actions allowed by users in this group.

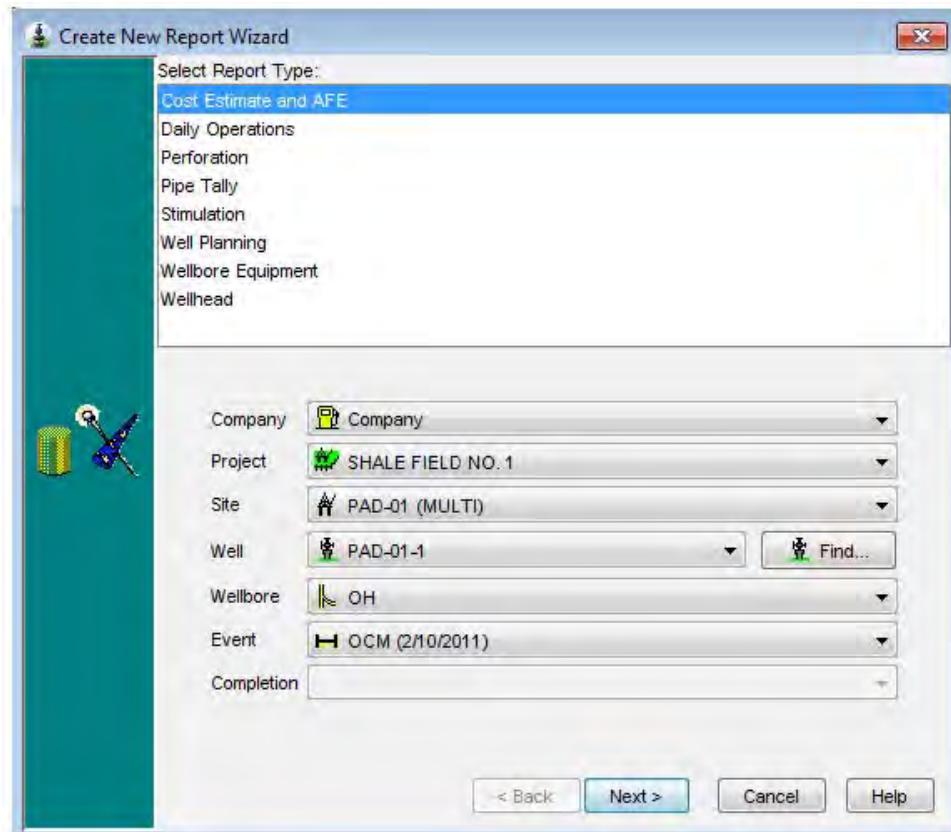
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3. Use the **Report Visibility** Tab to define the types of operations reports an OpenWells user can create when working in a particular type of event.

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The screenshot shows a configuration dialog for report visibility. At the top, there are tabs: General, Tokens, Report Visibility (which is selected), Data Entry Forms, and Canvas Assignments. Below the tabs is a 'Filter By' section with a dropdown menu set to 'Event type: ORIG COMPLETION'. The main area is titled 'Reports for Event Type='ORIG COMPLETION'' and contains a list of reports. A checkbox labeled 'Visible' is checked for the first item, 'Report'. The list includes: Cost Estimate and AFE, Daily Geology, Daily Operations, Drill Stem Test, Electrical Submersible Pump, Fishing, Fluid Hauling, Gas Lift, General Work, Gravel Pack, Kick, Logging, Material Transfer, Perforation, Pipe Tally, Plunger Lift, Pressure Survey, and Production Equipment Failures. A tip at the bottom of the list states: 'Tip - You can select multiple rows and click a single checkbox to change them all'.

**Note:** This new feature in OpenWells defines the reports a user sees when they select "**Create New Report**", for example the above configuration results in the following new report dialog in OpenWells:

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4. Use the **Data Entry Forms** tab to define the configuration layouts to be associated with each type of report.

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Report	Data Entry Form
Cost Estimate and AFE	Landmark - Cost Est. and AFE - Shale
Daily Operations	Landmark - Daily Completion - Shale
Perforation	Landmark - Perforation - Shale
Pipe Tally	Landmark - Completion Tally - Shale
Stimulation	Landmark - Stimulation-Frac - Shale
Well Planning	Landmark - Well Planning - Shale
Wellbore Equipment	Landmark - Wellbore Equipment Co...
Wellhead	Wellhead (Landmark default)

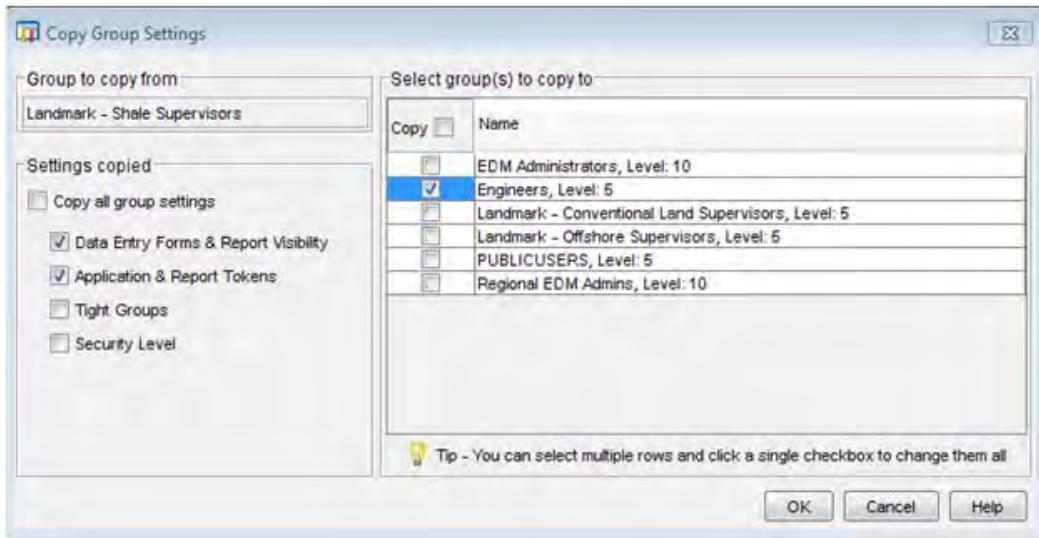
5. Use the **Canvas Assignments** tab to associate event types and canvases when configuring the interactive (Rocket) interface.

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Well Site Canvas Assignments	
Event	Canvas
AUAND OVALITY	Landmark Default
CLEAN UP	Landmark Default
CONVERSION	Landmark Default
DIAGNOSTIC	Landmark Default
ENHANCEMENT	Landmark Default
MAINTENANCE	Landmark Default
ORIG COMPLETION	Landmark Default
ORIG CONSTRUCTION	Landmark Default
ORIG DRILLING	Landmark Default
PLUG BACK	Landmark Default
RE ENTER	Landmark Default
REACTIVATE	Landmark Default
RECLAMATION	Landmark Default
RECOMPLETION	Landmark Default
REDESIGN	Landmark Default
REPAIR	Landmark Default
RIGLESS OPERATIONS	Landmark Default
SITE INVESTIGATION	Landmark Default
SURFACE EQUIPMENT	Landmark Default
SURVEY	Landmark Default
SUSPEND	Landmark Default
TEST	Landmark Default
WORKOVER	Landmark Default

Tip - You can select multiple rows and right click to change assignments on all select...

Administrators can use the new “**Copy Group Settings**”, available in the right click menu on a user group node, to apply some or all of the predefined shale configuration to another user group, or to copy settings between any groups.

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### *OpenWells Available as a Standalone Install*

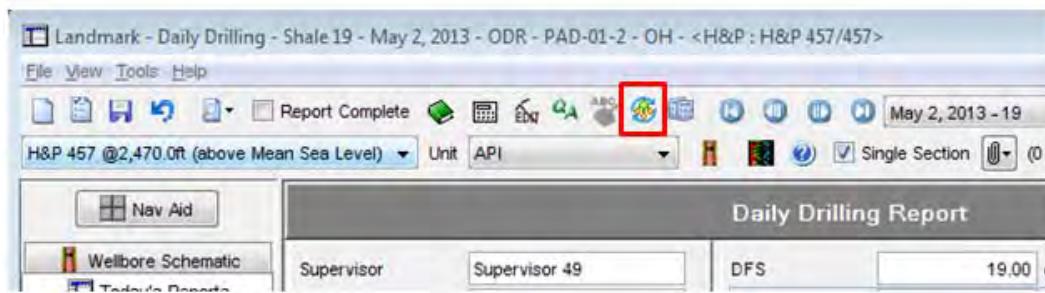
Some deployment scenarios, such as rig site laptops, only require the OpenWells application instead of the full EDT application suite.

In the 5000.1.12 release OpenWells is now available as a standalone installation which saves time and effort during deployment. The standalone installation includes everything required to run OpenWells, is 65% smaller than a full EDT installation and can save 20 minutes per installation.

### *Synchronize a Single Report From OpenWells*

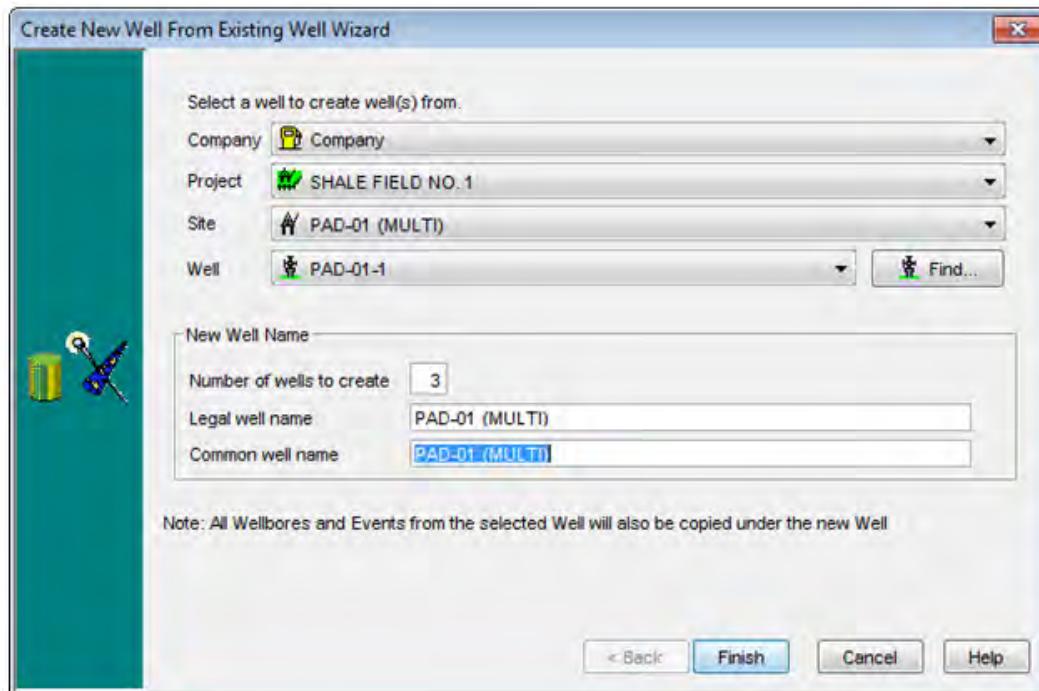
Rig supervisors often have poor field communications and, to save time, wish to transfer only their morning reports and wait until better communications to do a full synchronization which transfers configuration settings in addition to the operations reports.

Using the EDM Autosync button at the top of their operations reports supervisors are now able to send only that report.

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### *Quickly Create Well Headers for Batch Operations*

Administrators and field supervisors now have a “New Well From Existing Well” menu option accessible from the site node in the well explorer. Using this wizard users are able to quickly create one or more well headers using another well as a template.

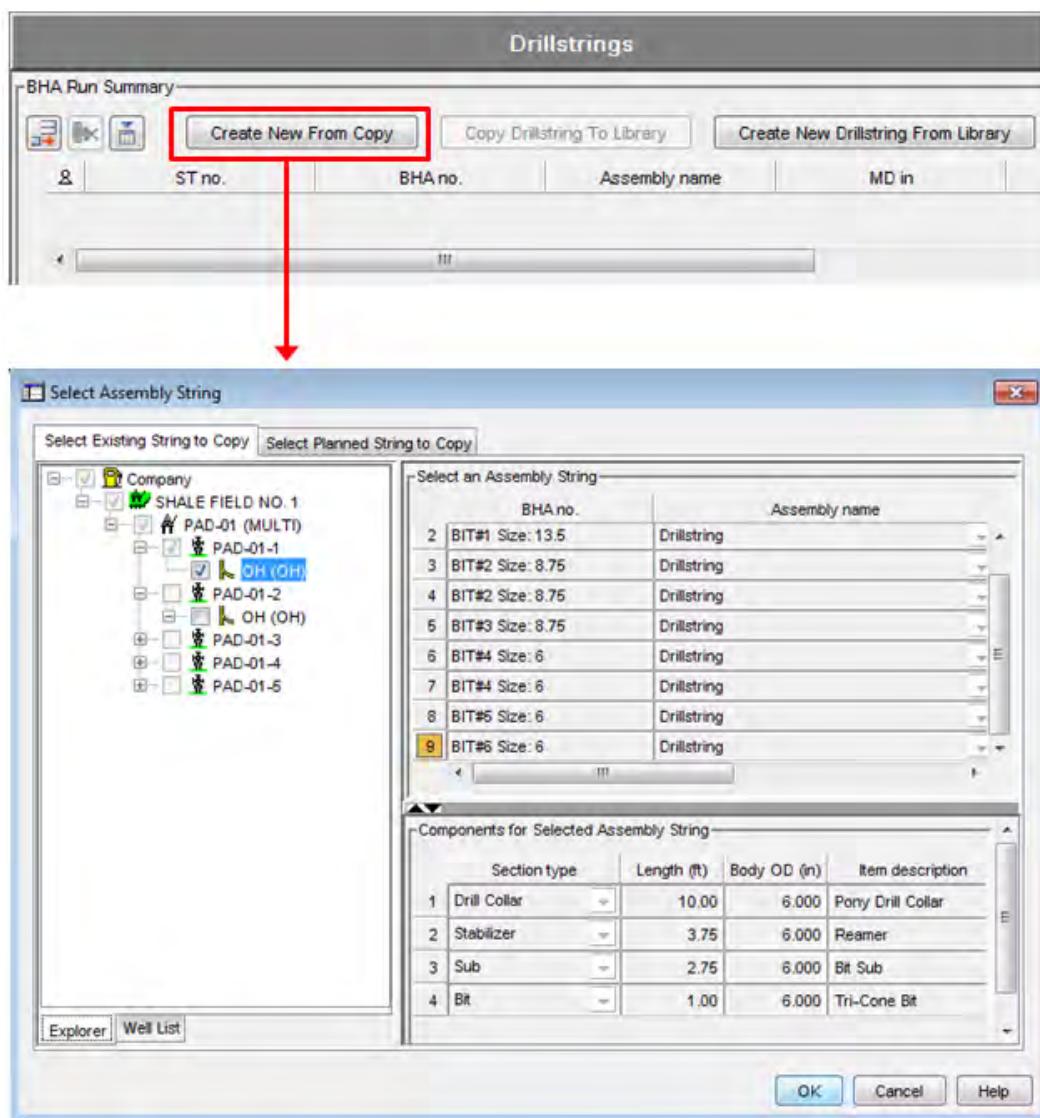


### *Reuse BHA's, Hole Sections and Casings When Entering Batch Operations*

Drilling supervisors often have to enter similar/identical information for each well during a batch drilling operation. Supervisors can now reuse the BHA, Hole Section and Casing configuration between wells as they are constructed during a batch operation.

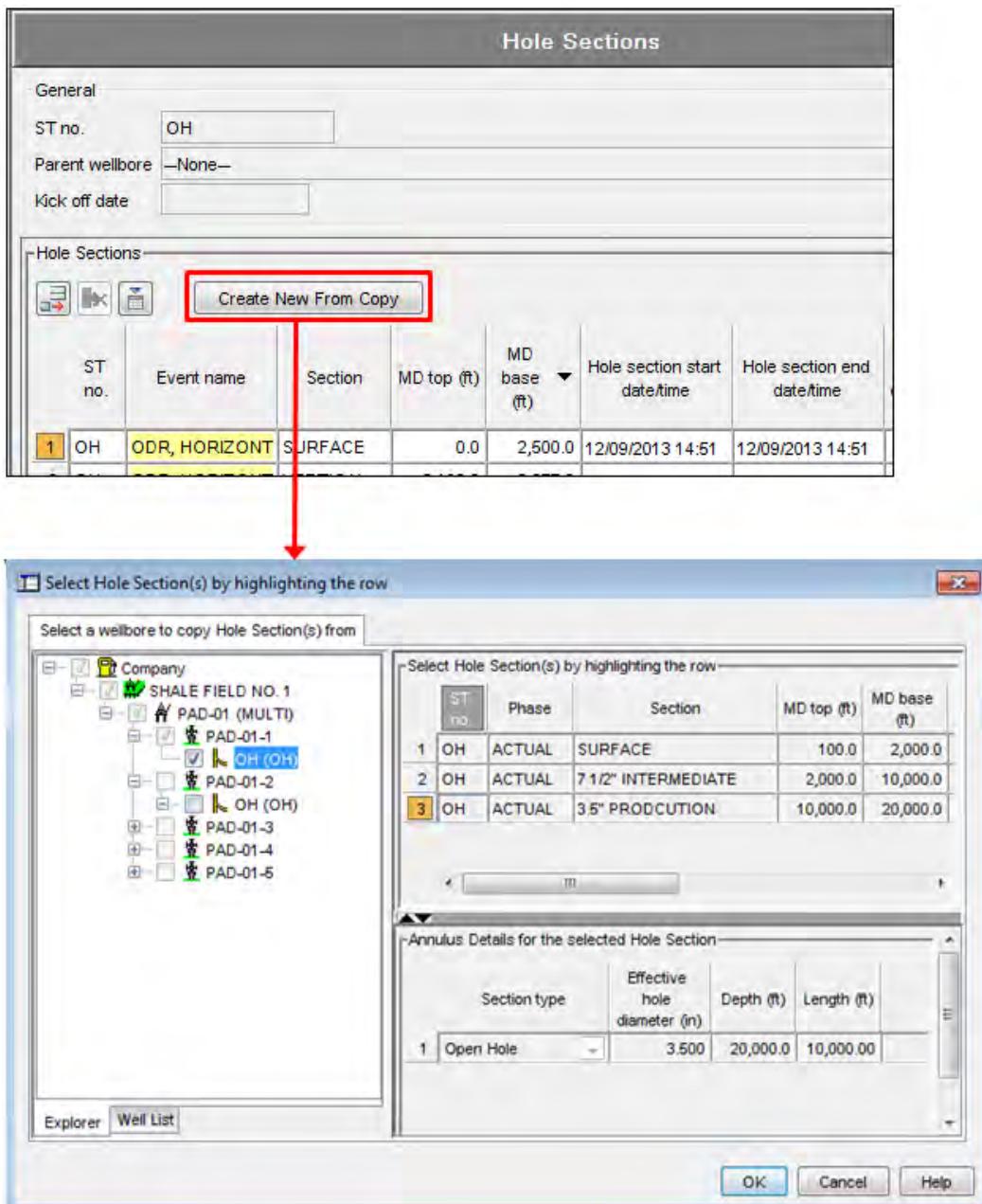
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Supervisors can reuse a BHA run on the previous well by selecting “**Create New From Copy**” in the BHA Run Summary (Drillstrings Section):



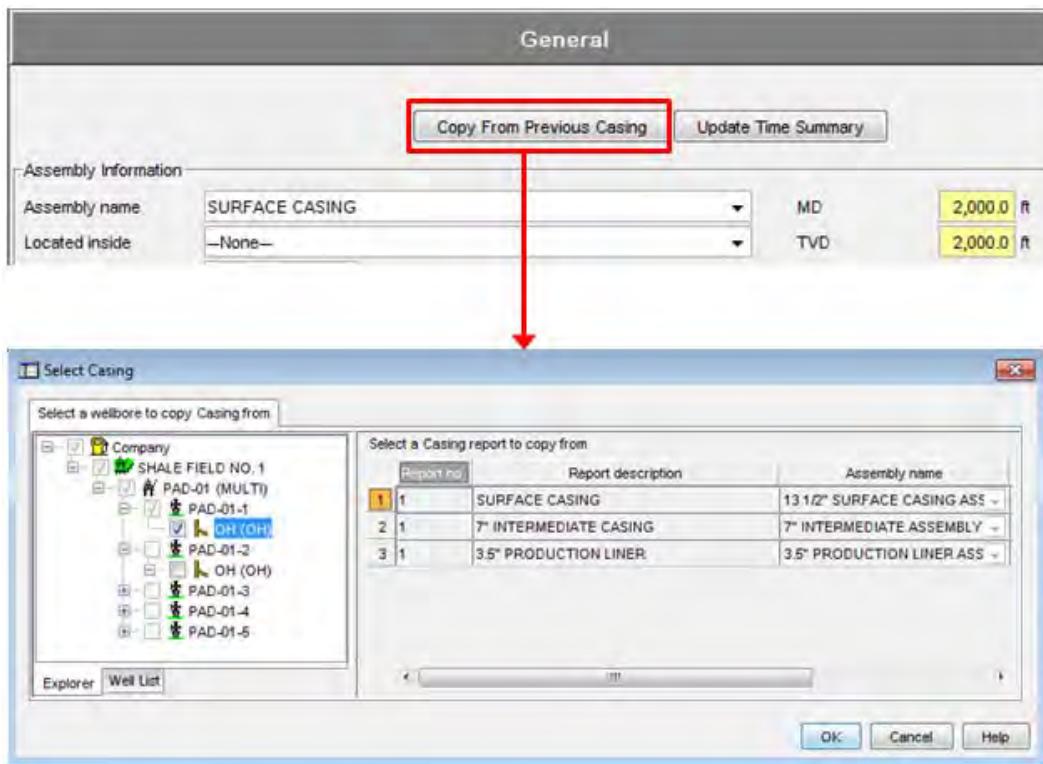
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Supervisors can reuse Hole Section Details from the previous well by selecting “**Create New From Copy**” in the Hole Sections Spreadsheet:



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Supervisors can reuse casing details from the previous well by using the “**Copy From Previous Casing**” button in the General Section of the Casing Report:



#### *BHA & BIT Operations Update Automatically From Rotating Hours*

OpenWells now populates the BHA and Bit Operations *drilling hours* with the *rotating hours* recorded in the General Section of the Daily report in scenarios where only one BHA/BIT Operation are recorded per day.

To enable this behavior the system setting AutoPopulateBHA must be set to YES (default behavior is NO).

#### **Release 5000.1.11**

- In order to show Jewelry components in the wellbore schematic, the Assembly Name field (Casing and Wellbore Equipment, Jewelry spreadsheets) now pulls from the MD\_PK\_COMP\_TYPE table instead of the PK\_CSGASS table.
- Plunger-Lift operations can be recorded against wellbore equipment through a new report: Plunger-Lift.
- Slick Line operations can now be recorded in the Daily Operations report.

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- The following performance improvements have been added to the OpenWells application:
  - Users can expect improved performance when working with large numbers of rig-event operations associations.
  - Improved performance of the OpenWells Preview Pane, as well as the option to disable it by using the *ShowPreviewPane* system setting.
  - Performance and memory use in the “Find” functionality in OpenWells has been improved.
  - Administrators can now disable the OpenWells “pre-query” and “pre-load” features through using the *EnableReportCaching* system setting. This is recommended for Citrix deployments.
- The Copy Fluid to Daily Geology button has been added to the Daily Fluids section. This button allows you to copy a fluid and its properties into a Daily Geology report.
- The new system setting, *DEPTH\_VS\_DAYS\_PLAN\_BY\_OPS*, can be added to the EDM Administration Utility. This setting allows administrators to choose how the Depth vs Days graph (Today's Wells) is generated, when the Days on Location option is selected.

By default, this graph calculates the planned curve using the planned operations, Target Duration and MD To from the Well Planning report.

To calculate the planned curve using the Well Planning report, planned operations Target Duration and the Daily report, hole section MD Base, the *DEPTH\_VS\_DAYS\_PLAN\_BY\_OPS* system setting must be added to the EDM Administration Utility and set to "NO".

## Release 5000.1.10

### *Data Entry*

A number of additional reports and properties dialogs have been converted to the new WYSIWYG layout. EDM Administrators can create their own WYSIWYG forms or customize existing forms in the EDM Administration Utility, and assign them to well site canvases.

WYSIWYG forms help increase data entry ease and efficiency. Each WYSIWYG form can also be printed from the form window and will print out exactly as it appears in the data entry window.

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The following reports and dialogs now support WYSIWYG layouts:

- Well Properties\*
- Create Well\*
- Wellbore Properties\*
- Create Wellbore\*
- Event Properties\*
- Create Event\*
- Rig Properties
- Rig Operations
- Rig Equipment and Operations forms
  - Anchor
  - BOP\*
  - Boiler
  - Centrifuge
  - Degasser
  - Hydrocyclone
  - Motor
  - Pit
  - Pump
  - Riser
  - Shaker
- Daily Operations
  - General
  - Time Summary
  - Costs
  - Safety
  - NPT
  - Environmental
  - Fluid Handling
  - Weather
  - Mud
  - Surveys
  - Leak Off Tests
  - Bulk Inventory
  - Personnel
  - Support Craft
  - Valve Tests
  - Rig Deck Log
  - Hole Sections
  - BHA Runs
  - Work Strings
  - Daily Completions\*
- Casing
- Cementing
- General Work\*
- Kick\*
- Material Transfer\*
- Perforation\*
- Pressure Survey\*
- Stimulation\*
- Wellbore Equipment\*

\* indicates items that are new for the 5000.1.10 release

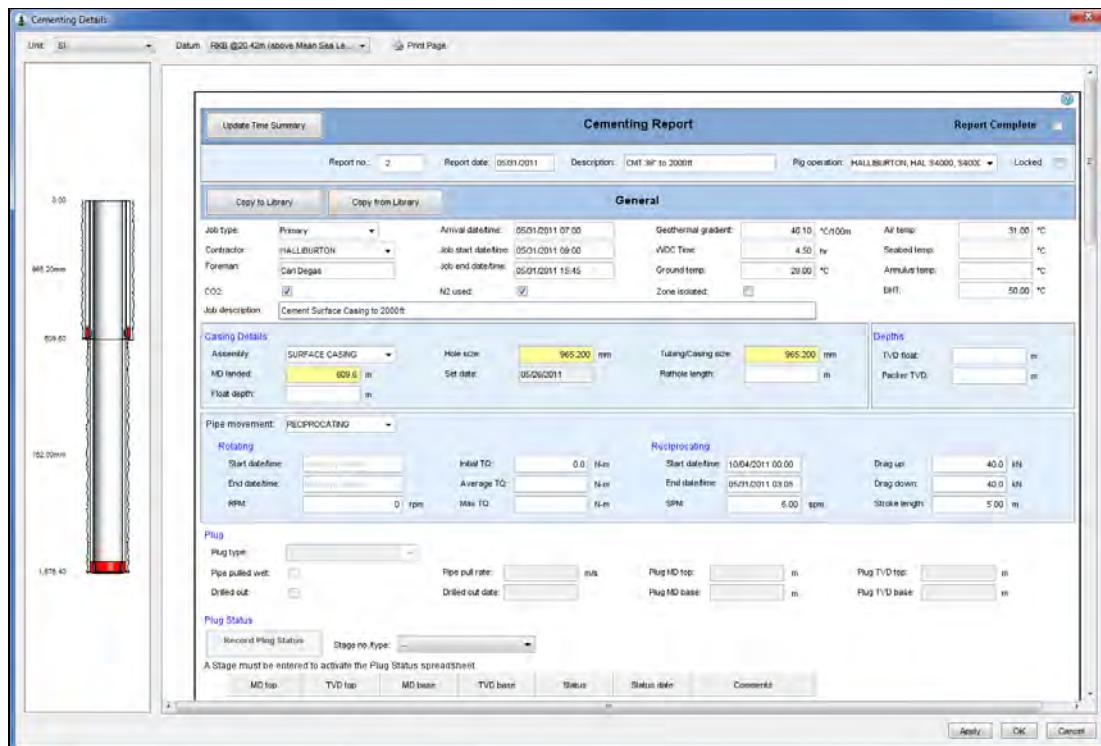


Figure 4: Cementing Report in WYSIWYG layout

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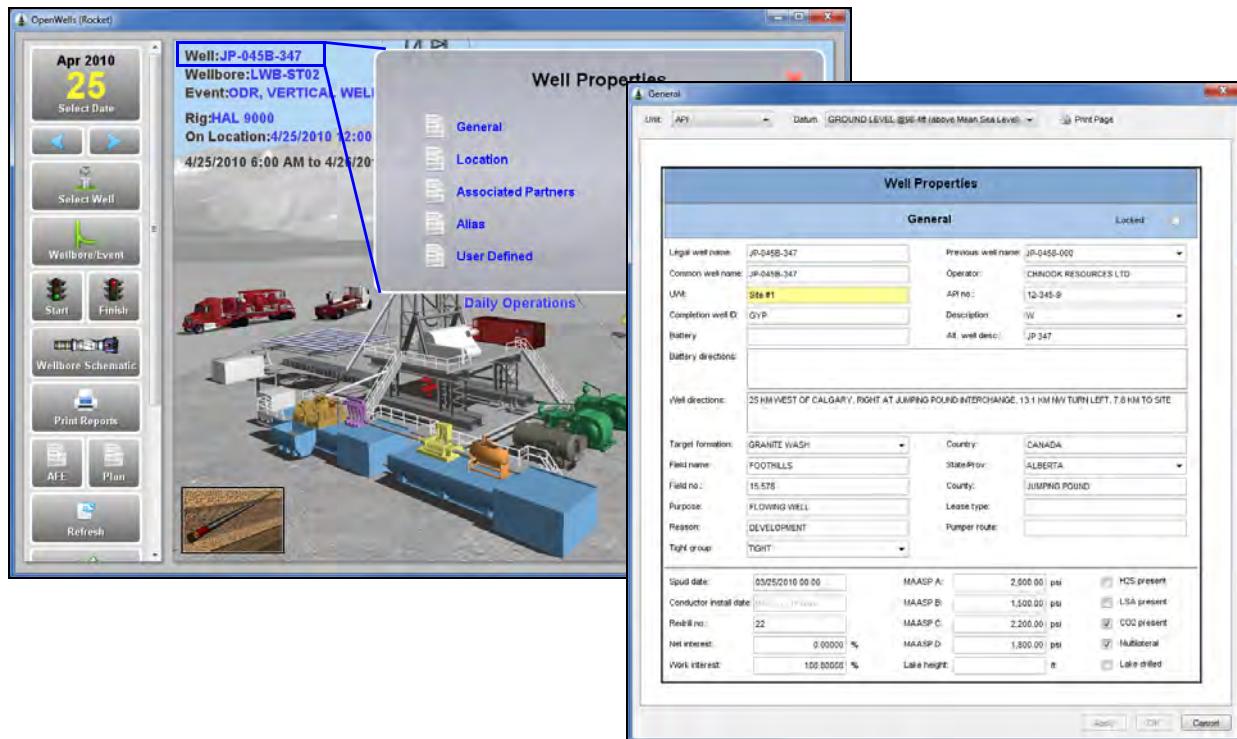


Figure 5: Well Properties link and WYSIWYG layout

EDM Administrators can create new WYSIWYG forms, customize existing forms, and define which forms are accessible on an Interactive Well Site canvas, based on EDM Group membership and Event type.

### Create Well, Wellbore and Event in Interactive Well Site

The Well, Wellbore and Event can now be created from the Interactive Well Site interface. Additionally, new WYSIWYG forms have been configured to speed up the process of creating a Well, Wellbore and Event.

#### Create a Well

The new Create Well feature can be found on the Find Well dialog when the Select Well button is selected in the ribbon.

When this button is selected the user is prompted to select the Company, Project and Site where the Well is to be created.

The default WYSIWYG form has been designed to allow you to enter a summary of information that will get you started quickly and easily from one location. In addition to defining the Well, Datum, and Location this form also allows you to create your Wellbore and Event with minimal data entry.

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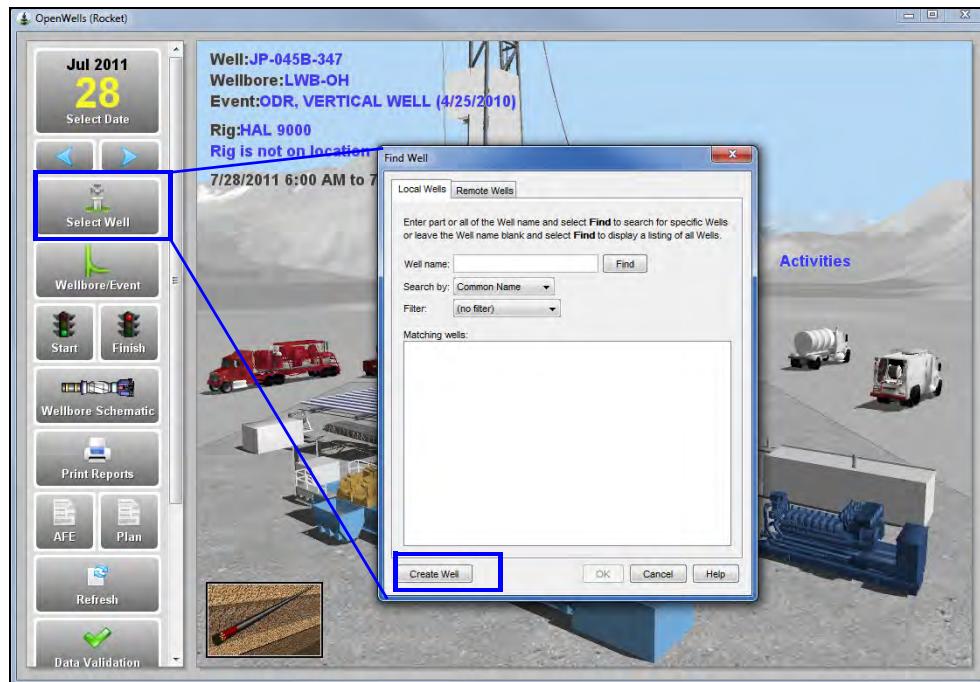


Figure 6: Create Well button on Find Well Dialog

General					
Legal well name:	JP-045B-347				
Common well name:	JP-045B-347				
UVN:	Site #1				
Completion well ID:	GYP				
Battery					
Battery directions:					
Well directions:	25 KM WEST OF CALGARY, RIGHT AT JUMPING POUND INTERCHANGE, 13.1 KM NW TURN LEFT, 7.8 KM TO SITE				
Target formation:	GRANITE WASH				
Field name:	FOOTILLS				
Field no.:	15.578				
Purpose:	FLOWING WELL				
Reason:	DEVELOPMENT				
Tight group:	TIGHT				
Spud date:	03/25/2010 00:00	MAASP A:	2,000.00	psi	<input type="checkbox"/> H2S present
Conductor install date:	03/25/2010 00:00	MAASP B:	1,500.00	psi	<input type="checkbox"/> LSA present
Reefill no.:	22	MAASP C:	2,200.00	psi	<input checked="" type="checkbox"/> CO2 present
Net interest:	0.00000 %	MAASP D:	1,800.00	psi	<input checked="" type="checkbox"/> Multilateral
Work interest:	100.00000 %	Lake height:		ft	<input type="checkbox"/> Lake drilled

Figure 7: Create Well WYSIWYG form

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## Create a Wellbore and an Event

The new Create Wellbore and Create Event features can both be found on the Select Wellbore and Event dialog when the Select Wellbore/Event button is selected in the ribbon.

These features now each include WYSIWYG forms that are specifically designed to speed up the process of creating the Wellbore and creating the Event. This is accomplished by consolidating data entry onto a single screen.

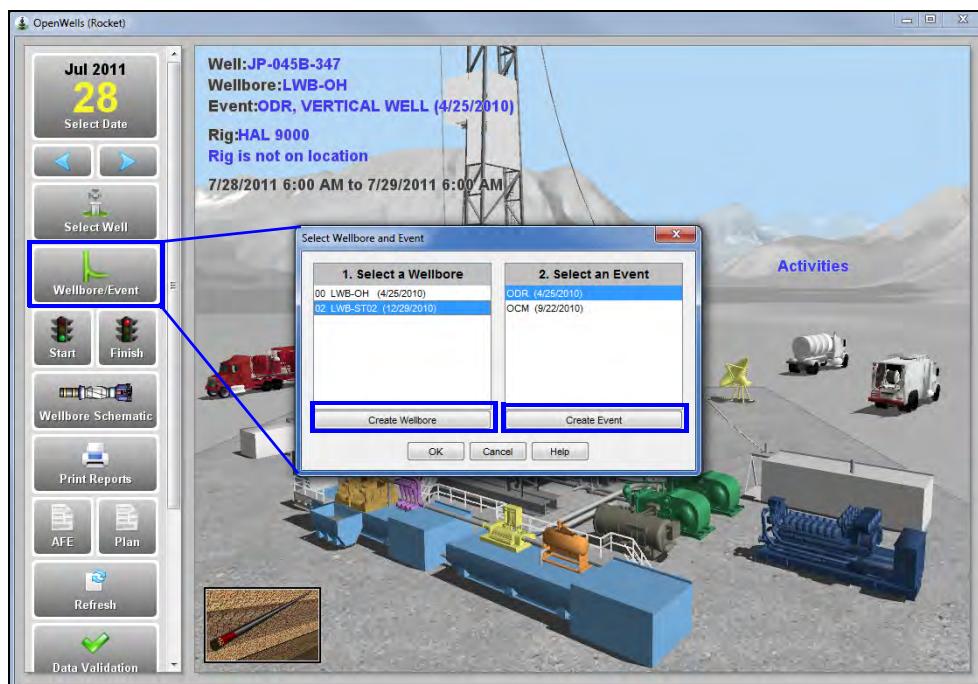


Figure 8: Create Wellbore and Create Event buttons

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The figure displays two software windows side-by-side. The left window is titled 'Create Wellbore' and contains several tabs: 'General' (selected), 'Names', 'Vertical Section - Reference from Well Center', 'Side-track from an Existing Wellbore', 'Record Location', and 'Location Description'. The 'General' tab shows fields for ST no., API no., Legal name, Common name, Wellbore label, Reason, API suffix no., Govt no., Wellbore type, Geological play, Wellbore MM, and Wellbore ID. The 'Vertical Section' tab includes 'Origin N/S', 'Origin E/W', and 'Vertical section angle'. The 'Side-track' tab shows 'Kick off date' (10/05/2011) and 'Parent wellbore' (None). The 'Record Location' tab lists location type code (DLS) and location desc. (2/12/02-014-05wYfHZ). The 'Location Description' tab shows KOP latitude (00°00'00.000N) and KOP longitude (00°00'00.000E). The right window is titled 'Create Event' and also has tabs: 'General' (selected), 'Event Properties', 'Dates', and 'Reporting Standard'. The 'Event Properties' tab shows event no. (U1), event code (ODR), event (DRG DRILLING), objective (RECTORIAL WELL), and event objectives (Objective 2 and Objective 3). The 'Dates' tab shows start date (10/06/2011), end date (10/06/2011), end status (ASSESSMENT), and reporting time (06:00). The 'Reporting Standard' tab shows event operator (Terra Oil Exploration Company), reporting standard (Day 1, hh:mm - Day 2, hh:mm, Using Report Date of Day 1), and reporting time (06:00).

Figure 9: Create Wellbore and Create Event forms

### Stimulations

A new Stimulations WYSIWYG form has been designed to simplify the workflow for entering stimulations data. This new workflow combines many of the previously separate sections of the Stimulation report. A user can now enter the Treatment and define the Fluids, Chemicals, Proppants and Steps for the individual Treatment. In addition Fluids and Proppants defined in each Step, can now be manually pushed out to the Fluids and Proppants tables. To avoid duplication of data in these spreadsheets, Fluids are pushed by Fluid Name and Proppants are pushed by Proppant Type and Concentration.

The Stimulations form is accessed from the Activities link on the Interactive Well Site interface.

The workflow is outlined below:

1. Open the Stimulations WYSIWYG form and enter general information about the stimulation job.
2. Select the Record Treatment button to enter the first treatment and enter data on the treatment.

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3. Select the Fluids link in the treatment spreadsheet and begin recording information about the fluids used in the treatment.
4. Select the Chemicals and Proppants links to record information on the chemicals and proppants used during the treatment.
5. Optionally, select the Steps link to record each step of the pumping schedule and any fluids used during this phase.

Select the **Update Fluid and Proppant Summary** button to push the fluids and proppants defined into the Fluid and Proppant spreadsheets. Using this button will overwrite data entered in the Fluids and Proppant spreadsheet. The data is pushed based on the Fluid Name and Proppant Type/Concentration, so duplicates are not created.

Treatments																					
Start		Zone		Top (ft)	Base (ft)	Net stim. (ft)	No. of perfs.	No. of perf. sets	Total fluid pumped (gal)	CO2 total (ton)	N2 total (Mscf)	Tot. prop. pumped (lbm)	Tot. prop. in form. (lbm)	Min. inj. rate (bbl/min)	Max. inj. rate (bbl/min)	Avg. inj. rate (bbl/min)	Fluid efficiency (%)				
1	08/31/2011 10:28			863.0	10,250.0	9,397.0	12	12	1,100.0			600									
				Min. treating press. (psi)	Max. treating press. (psi)	Avg. treating press. (psi)	Avg. ISIP (psi)	5 min. SI press. (psi)	10 min. SI press. (psi)	15 min. SI press. (psi)	Total hydraulic HP (hp)	Est. perm. (md)	Created length (ft)	Prop. length (ft)	Prop. height (ft)	Avg. prop. width (in)	Avg. prop. conc. (ppg)	Avg. conduct. (md-ft)	Net press. (psi)	Frac gradient (psi/ft)	Closure press. (psi)
				TVD top (ft)	TVD base (ft)	Comments	Wellbore formation	Fluids	Chemicals	Proppants	Steps										
							GB Basin	Fluids	Chemicals	Proppants	Steps										
2	08/31/2011 10:28					0.0				0.0		0									

Figure 10: Stimulation WYSIWYG form

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## Tests

The following new fields have been added to the Test report. These fields can be configured in the layout manager for quick and error free data entry.

### General/Test Summary Section

The following fields are now available in the General and Test Summary sections.

Table	Field	Field Name
CD_TEST	total_load_to_recover	Total load to recover
CD_TEST	previous_day_oil_cumulative	Previous day oil cumulative
CD_TEST	percent_recovered	Percent recovered
CD_TEST	previous_day_water_cumulative	Previous day water cumulative
CD_TEST	current_load_to_recover	Current load to recover

Figure 11: Test General and Test Summary sections

### Test Spreadsheet for Flowing Well Test

The following fields are now available in the Test Spreadsheet, when the Flowing Well test type is selected. By default, these fields appear in the details area of the spreadsheet, but can be added to the spreadsheet by the EDM Administrator for easy data entry.

Table	Field	Field Name
CD_TEST_FLOW	load_water	Load water
CD_TEST_FLOW	load_water_cumulative	Load water cumulative
CD_TEST_FLOW	load_water_total_cumulative	Load water total cumulative
CD_TEST_FLOW	load_to_recover	Load to recover

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Table	Field	Field Name
CD_TEST_FLOW	percent_recovered	Percent recovered
CD_TEST_FLOW	total_oil_per_day	Total oil per day
CD_TEST_FLOW	oil_cumulative	Oil cumulative
CD_TEST_FLOW	total_oil_cumulative	Total oil cumulative
CD_TEST_FLOW	differential_pressure	Differential Pressure
CD_TEST_FLOW	flow_line_temperature	Flow line temperature

Flowing Well Tests							
Test date/time	Final test	Cum. hours (hr)	Wellhead press. (psi)	BH press. (psi)	Load Water (bbl)	Load Water Cumulative (bbl)	Load Cum.
1 M/d/yyyy HH:mm						0.0	

Flowing Well Test Details							
Test date/time	M/d/yyyy HH:mm	Wellhead temp.	°F	Separator temp.	°F	Oil SG	sg
Final test							
Cum. hours	hr						
Wellhead press.	psi						
BH press.	psi						
Casing press.	psi						
Static press.	psi						
Flowing press.	psi						
Tubing press.	psi						
Separator press.	psi						
Choke size	in						
Orifice size	in						
Plate size	in						
Oil rate	bbl/D						
Gas rate	Mcf/D						
Water rate	bbl/D						
Total fluid rate	0 bbl/D						
Total liquid rate	bbl/D						
Water oil ratio	0.00 gal/bbl						
Gas oil ratio	0.000 scf/bbl						
Differential Pressure	psi						
Load Water	bbl						
Oil Cumulative	0.0 bbl						
Total Oil Per Day	bbl						
Total Oil Cumulative	0.0 bbl						

Figure 12: Test Spreadsheet

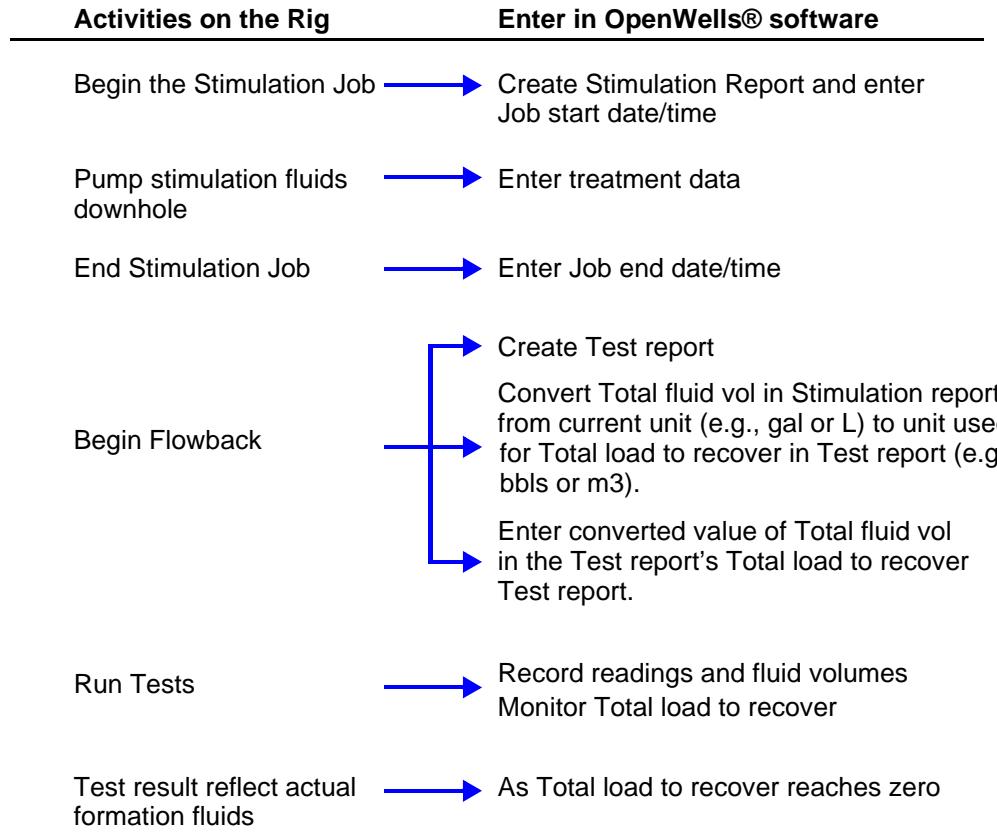
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### Stimulations to Flowback Workflow

During a stimulations job, fluids are pumped into the well. These fluids must subsequently be recovered, so an accurate reading of the formation fluids and the well's production rate can be captured. As fluids are unloaded from the well, the fluid volumes in the Test report are subtracted from the Total load to recover. Once the Total load to recover reaches zero, the readings taken downhole more accurately reflect the formation fluids and not the stimulation fluids that were pumped downhole.

This workflow requires the following data entry:

- Convert the Stimulations Total fluid pumped value (DM\_STIM\_JOB.total\_fluid\_pumped) to the same unit used by the Test report's Total load to recover field (CD\_TEST.total\_load\_to\_recover). For example, gal to bbls or L to m3.
- Copy the converted value for Stimulation's Total fluid pumped into the Test report's Total load to recover field (CD\_TEST.total\_load\_to\_recover).
- The Test start date/time must be entered in order for the application to determine the previous test report and calculate the previous day's cumulative oil, water and load to recover.



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## Lessons Learned

A number of new fields have been added to the Lessons Learned area to improve on knowledge management gathering. These changes are outlined below.

### General Tab

The following fields are now available in the General tab.

Table	Field	Field Name
CD_LESSON	drilling_supervisor	Drilling supervisor
CD_LESSON	super1_name	Super1 name
CD_LESSON	super2_name	Super2 name
CD_LESSON	responsible_party	Responsible party'
CD_LESSON	vendor_name	Vendor name
CD_LESSON	drilling_program_reference	Drilling plan/prog. ref
CD_LESSON	is_externally_reported	Externally reported check box
CD_LESSON	external_reference	External reference
CD_LESSON	is_change_management_required	Change mgmt. required check box
CD_LESSON	change_management_reference	Change mgmt. reference
CD_LESSON	lesson_review_date	Lesson review date
CD_LESSON	lesson_approval_date	Lesson approval date
CD_LESSON	event_no	Event no.
CD_LESSON	event_type	Event type

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**Figure 13:** Lessons Learned General tab

### Lesson Tab

The following fields are now available in the Lesson tab.

Table	Field	Field Name
CD_LESSON	lesson_purpose	Lesson purpose
CD_LESSON	step_no	Step no.
CD_LESSON	actual_value	Actual value
CD_LESSON	expected_outcome	Expected outcome
CD_LESSON	potential_value	Potential value

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Figure 14: Lessons Learned Lessons tab

### Status Tab

A new tab has been added to support a historical record of a lesson's status.

Table	Field	Field Name
CD_LESSON_STATUS_HISTORY	status	Status
CD_LESSON_STATUS_HISTORY	status_comments	Comments
CD_LESSON_STATUS_HISTORY	status_date	Date/Time
CD_LESSON_STATUS_HISTORY	update_person	Updated by

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Status			
Comments	Status	Status date	Update person
1 Created lesson and sent for review	Waiting	06/22/2011 00:00	Fred Smith
2 Started review process	In Review	10/04/2011 16:35	Ken Stack

Figure 15: Lessons Learned Status tab

### Discussion Tab

The following fields are now available in the Discussion tab.

Table	Field	Field Name
CD_LESSON_DISCUSSION	user_defined_date1	Configurable date field
CD_LESSON_DISCUSSION	user_defined_date2	Configurable date field
CD_LESSON_DISCUSSION	user_defined_text1	Configurable text field
CD_LESSON_DISCUSSION	user_defined_text2	Configurable text field
CD_LESSON_DISCUSSION	user_defined_text3	Configurable text field

Discussion					
Comments	Contributor	Date/Time submitted	User Defined Date1	User Defined Date2	User Defined Text1
1 emailed conversation with vendor resulted in decision to...	edm	10/04/2011 17:16	10/04/2011 17:16	12/04/2011 17:16	
2	edm	10/04/2011 17:17	M/d/yyyy HH:mm	M/d/yyyy HH:mm	

Figure 16: Lessons Learned Discussion tab

### Actions Tab

A new tab has been added to support a historical record of actions that have taken place related to a lesson

Table	Field	Field Name
CD_LESSON_ACTION_STATUS	date_submitted	Date submitted

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Table	Field	Field Name
CD_LESSON_ACTION_STATUS	responsible_party	Responsible party
CD_LESSON_ACTION_STATUS	action_reference	Action reference
CD_LESSON_ACTION_STATUS	criticality_priority	Critical priority
CD_LESSON_ACTION_STATUS	percent_complete	Percent complete
CD_LESSON_ACTION_STATUS	date_due	Date due
CD_LESSON_ACTION_STATUS	action_comments	Action Comments
CD_LESSON_ACTION_STATUS	date_closed	Date closed
CD_LESSON_ACTION_STATUS	closed_by	Closed by
CD_LESSON_ACTION_STATUS	close_out_comments	Close out comments
CD_LESSON_ACTION_STATUS	user_defined_date1	Configurable date field
CD_LESSON_ACTION_STATUS	user_defined_date2	Configurable date field
CD_LESSON_ACTION_STATUS	user_defined_text1	Configurable text field
CD_LESSON_ACTION_STATUS	user_defined_text2	Configurable text field
CD_LESSON_ACTION_STATUS	user_defined_text3	Configurable text field

Status Date	Status	Status Comments
1 09/24/2011 16:45	Waiting	Waiting on information from vendor
2 10/04/2011 16:45	In Progress	Adding motor specifications from vendor
3 10/08/2011 16:45	Ready for Review	Verifying vendor specification and testing motor hydraulics

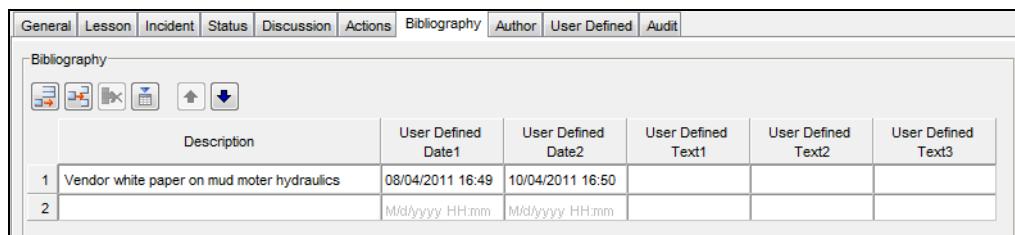
Figure 17: Lessons Learned Actions tab

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## Bibliography Tab

The following fields are now available in the Bibliography tab.

Table	Field	Field Name
CD_LESSON_BIBLIOGRAPHY	user_defined_date1	Configurable date field
CD_LESSON_BIBLIOGRAPHY	user_defined_date2	Configurable date field
CD_LESSON_BIBLIOGRAPHY	user_defined_text1	Configurable text field
CD_LESSON_BIBLIOGRAPHY	user_defined_text2	Configurable text field
CD_LESSON_BIBLIOGRAPHY	user_defined_text3	Configurable text field

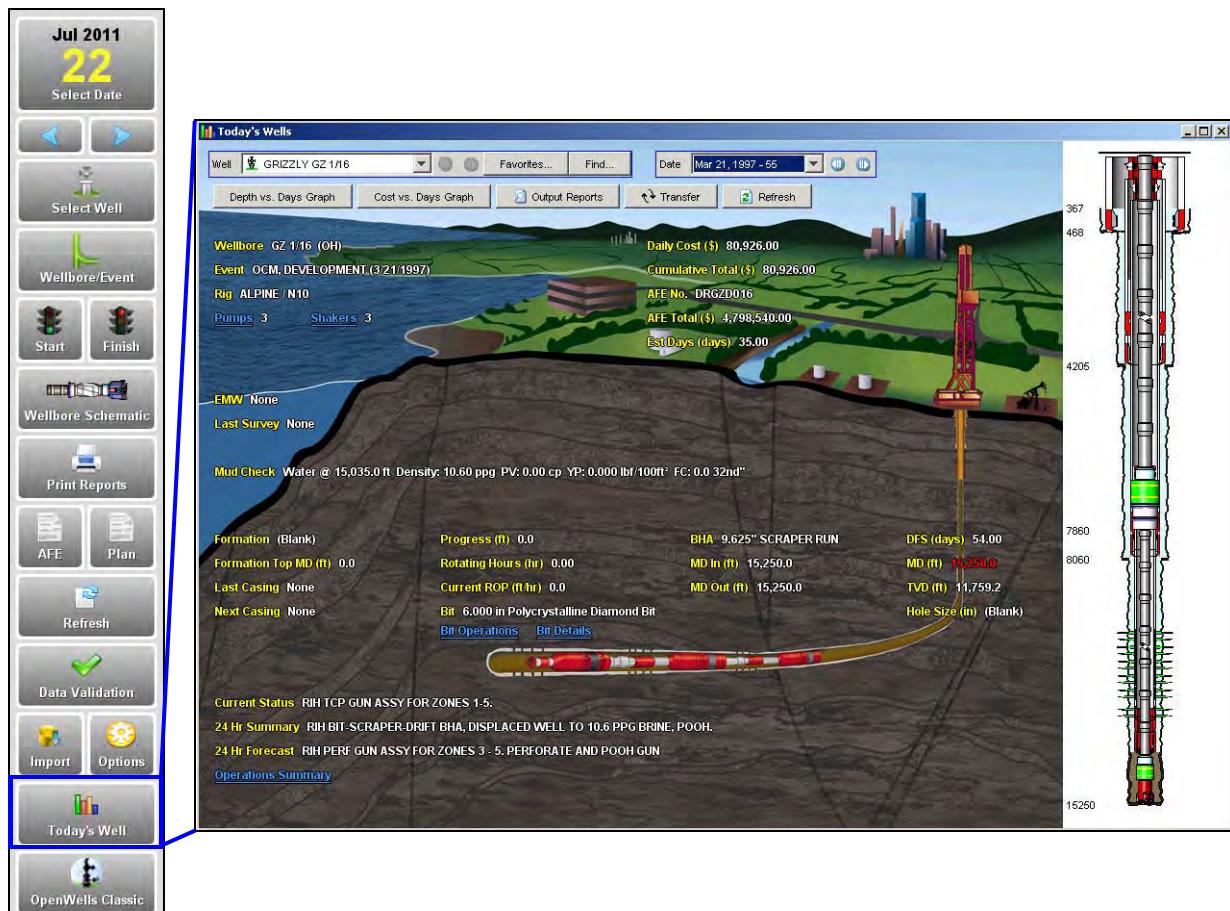


**Figure 18:** Lessons Learned Bibliography tab

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### Today's Wells

The Today's Wells feature can now be launched from the Interactive Well Site's ribbon. This feature allows engineers and rig managers to quickly determine the status of Wells they are involved with from one simplified location.



**Figure 19:** Today's Wells button

### Release 5000.1.9

All enhancements from the OpenWells 5000.1.7.1 release have been ported to the 5000.1.9 release.

- **Conventional Pump Assemblies** - When creating a Conventional Pump report, the application will give the option to pull or pull and rerun currently installed Rod String assemblies.
- **Dual Currency** - Dual Currency support has been improved to make it easier to identify the "alternate" currency that data has been entered in. This includes the

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addition of an Alternate Cost Class in the Unit System Editor and the addition of alternate currency fields.

- **Support Craft** - The Support Craft section of the Daily Operations report has been redesigned to improve workflows and previous limitations, as well as to only show crafts that are active on a given day. Details of a craft are now managed in a dialog box and data recorded in the section now represents the craft's presence onsite for that reporting day. Deleting a row in the spreadsheet no longer deletes the Craft itself; it only deletes the record of its presence at the wellsite on that day.
- **Risers** - Risers have been added to the Rig Equipment section to track the installation and removal of a riser. In addition, a Riser Operations section has been added to the Daily Operations report to record operations performed on the riser. For more information, see Riser Properties and Riser Data topics.
- **Production Equipment Failures Inspection Details** - A new section has been added to the Production Equipment Failures report to record Equipment Inspections. For more information, see the Inspection topic.
- **Improved Spreadsheet Functionality** - New functionality has been added to spreadsheets in OpenWells. Users can now select consecutive and non-consecutive rows for cutting and copying. In addition, rows can now be Inserted above the selected row. For more information, see the Spreadsheet Cut/Copy/Paste topic.
- **Anchor and Support Craft Carryover** - A carryover feature has been added to the Anchor operations, allowing users to automatically copy the operational data and support crafts to the next day's report. For more information, see the Anchor Data and Support Craft Data topics.
- **New Interactive Well Site Features** - New features include: Back and Forward buttons have been added, allowing users to navigate through days consecutively (Navigate Buttons); The Date Selector displays dates containing report data in bold (Select Date).
- **Pipe Tally Attach Section** - The Attach Section workflow in the Pipe Tally report has been improved to allow users to select consecutive and non-consecutive pipe to attach to a section. For more information, see the Run Tally and Off Load Tally topics.
- **Daily Cost Total Cost (Cost Summary) Button** - The Total Cost button's functionality has been changed to clearly identify costs based on the line item or spreadsheet cell selected. For more information, see the Daily Cost and Cost Data topics.
- **Data Validation Improvements** – these include: data validated prior to being saved to the database; Mandatory Field Loop fixed; new Script tab; script errors and timeout; new text format field; reg expression system setting.

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- **Data Validation Improvements** - Improvements have been made to the OpenWells Data Validation feature. These changes include:
  - Data is now validated prior to being saved to the database
  - Rules can now be defined using JavaScript
  - Regular Expressions can be used in a rule to validate text formats
  - During validation, if a mandatory field fails the user now has the option to either fix the field or close the form without saving changes

For more information see the Data Validation application's online help.

- **WITSML 1.4.1 Standards** - WITSML Import of OpenWells Stimulations tables are now compatible with both the WITSML 1.3.1 and 1.4.1 standards. For more information, see the Working with WITSML Objects in SUMMIT topic.

### **Release 5000.1.8**

There were no enhancements to OpenWells for this release.

### **Release 5000.1.7**

#### *The Interactive Well Site*

The OpenWells application can now be launched to an interactive data entry area called the Interactive Well Site. This new view of OpenWells has been designed to enhance and simplify data entry at the Rig site.

The Interactive Well Site simplifies data entry for users at the Rig Site by providing intuitive data entry that is consistent with real-world activity at a well, lending itself to both trained and untrained staff. Users no longer need to understand the OpenWells Well Explorer tree as they can now access data entry areas in one or two clicks.

The Interactive Well Site:

- reduces data entry time and duplication
- applies “surface canvases” based on whether the rig is a land rig or an offshore rig and for offshore rigs the Rig Type
- subsurface canvases are based on the Canvas assigned to Event Types
- creates Classic Reports in the background so users do not have to concern themselves with the Well Explorer tree

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- provides direct access to Well, Wellbore, Event and Rig properties
- clearly displays the current Day's start and end time as defined by the Reporting Standard
- uses WYSIWYG (What You See Is What You Get) and Classic Data Entry forms
- WYSIWYG forms are now customizable in the EDM Administration Utility
- contains visual indicators for where data has been entered and what data entry is completed on a given day
- provides users with easily accessible buttons to begin ( ) or end ( ) Operations
- supports schematics, data validation, batch output report printing and XML data import



Figure 20: The Interactive Well Site showing an Offshore Rig

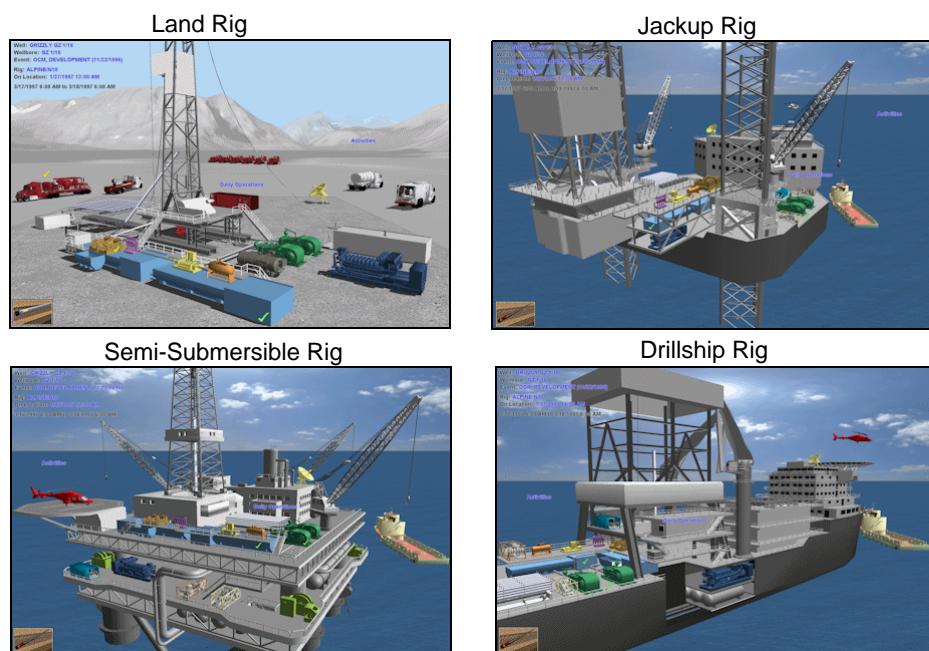
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## Canvases

The Interactive Well Site presents OpenWells data on a graphical interface called a Canvas. Each Canvas is made up of a surface image, a subsurface image and a number of links to data entry areas, such as Properties dialog boxes, WYSIWYG forms and Classic Data Entry forms.

A number of “pre-configured” canvases are shipped with the EDM database. Administrators can also create their own in the EDM Administration Utility. Canvases are assigned to EDM Groups based on Event Type.

The Interactive Well Site uses one of four surface images to represent a well site: Land, Semi-submersible, Jackup and Drillship.

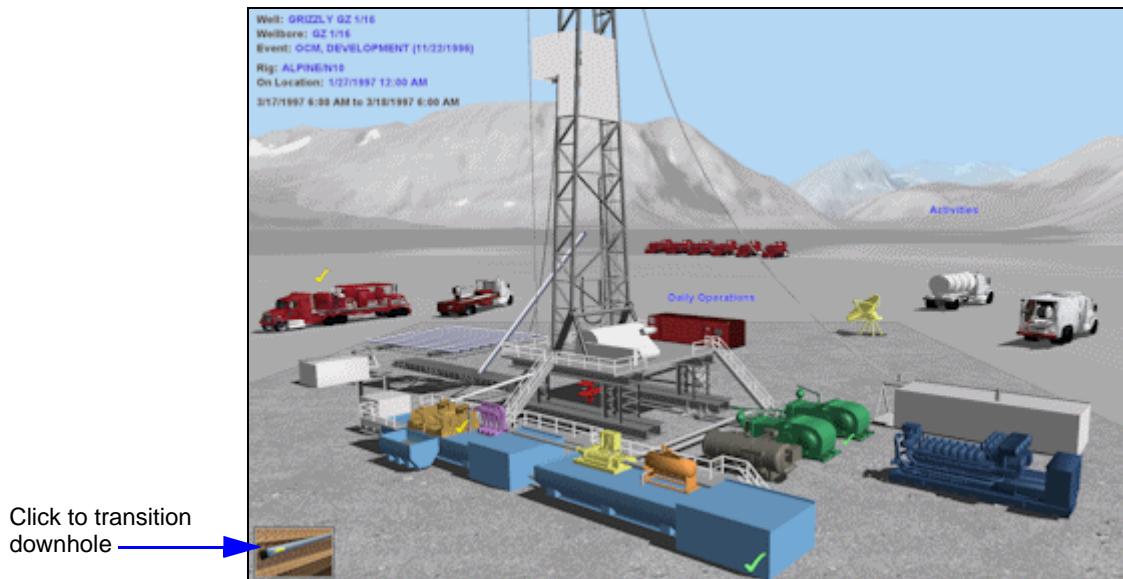


**Figure 21:** Interactive Well Site Canvases

- The Land image appears if the Well's Datum is set to Land (i.e., the Offshore checkbox is not selected in the Well Properties Depth Reference tab).
- The Semi-submersible image appears if the Well's Datum is set to Offshore.
- The Drillship image appears on offshore wells if the Rig Type (in the Rig Properties) selected is Drillship.
- The Jackup image appears on offshore wells if the Rig Type selected is Jackup.

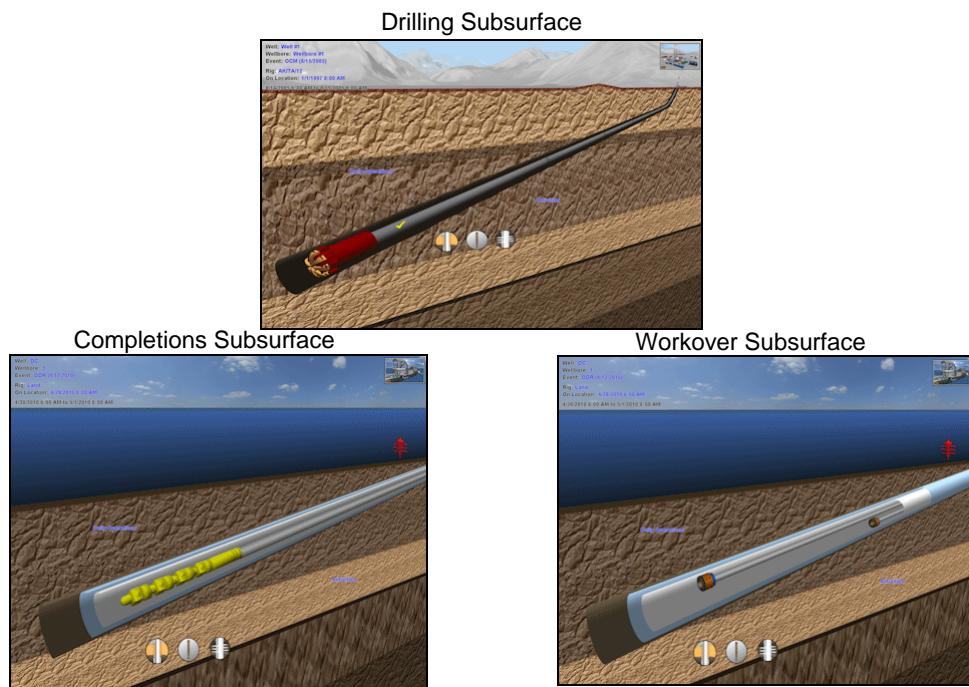
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From the Rig picture the user can select the subsurface image, in the bottom left corner, to transition downhole to the wellbore.



**Figure 22:** Transition downhole

One of the three subsurface wellbore images appear based on the canvas configuration and EDM Group assignment to the Event Type.



**Figure 23:** Interactive Well Site Downhole canvases

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## Toolbar

The toolbar running down the left side of the Interactive Well Site provides users with easy access to navigation, as well as, quick access to a number of OpenWells features.

- **Select Date Button** - Quickly navigate to a specified reporting day. This button also displays the currently selected date
- **Select Well Button** - Search for and select a Well
- **Wellbore/Event Button** - Select the Wellbore and Event
- **Start and Finish Buttons** - Begin or End Operations
- **Wellbore Schematic Button** - Display the Wellbore Schematic
- **Print Reports Button** - Print one or more Output Reports
- **AFE and Plan Buttons** - Open the Cost Estimate and AFE or Well Planning reports
- **Refresh Button** - Get any recent changes made to the EDM™ database
- **Data Validation Button** - Validate data by running a set of rules against it
- **Import Button** - Import data from an EDM data transfer file (edm.XML, rig.XML or .XML).
- **Options Button** - configure the mode OpenWells launches in, Date Preference in the Interactive Well Site, Auto Catalog selection and view SAM connection information.
- **OpenWells Classic Button** - Switch the application to OpenWells Classic mode



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## Properties

The current Well, Wellbore, Event, Rig, Rig On Location date and the reporting interval are displayed at the top left corner of the surface image. The items listed in blue are also links that open various pages when selected. The Well, Wellbore, Event and Rig links open their respective Properties dialog boxes and the On Location link opens the Rig Operations dialog box.

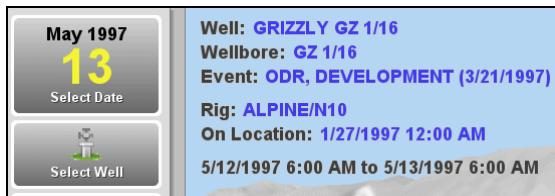


Figure 24: Identify the current context

## Data Entry Links

Each canvas contains links to WYSIWYG and Report forms where data is entered by the users. Clicking on a link displays a form where data can be entered on the item. Forms can be opened in the following ways:

- click one of the colored images

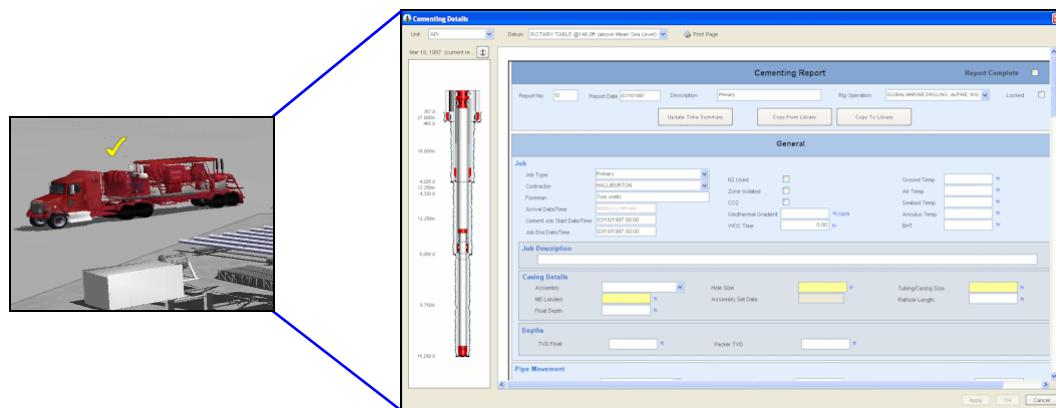
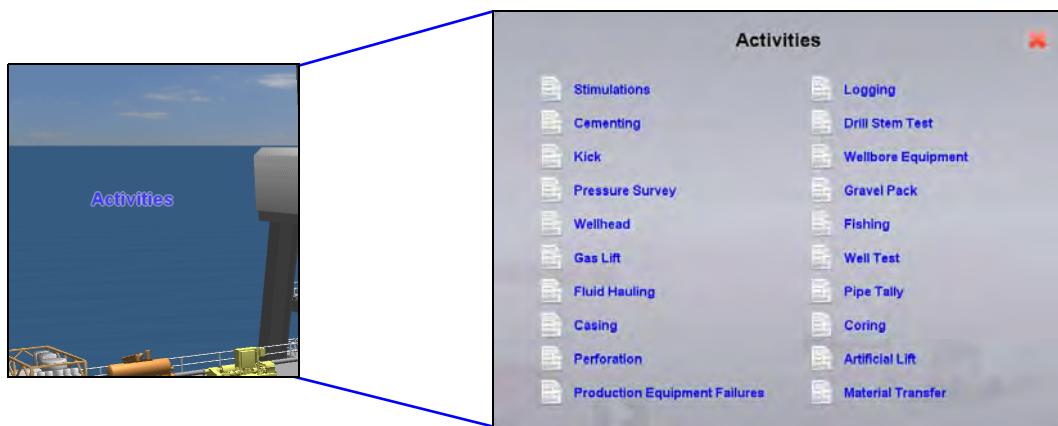


Figure 25: Select the Cement truck to open the Cementing Details form

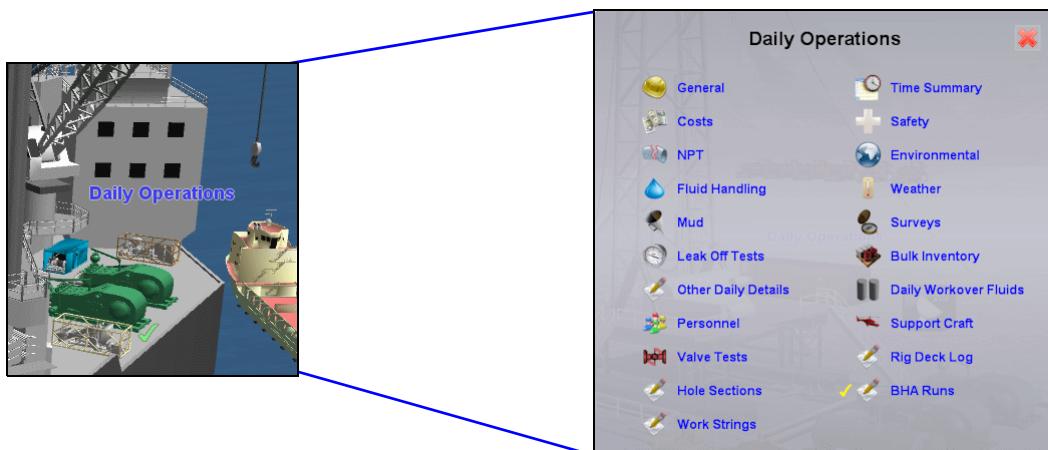
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- click the blue Activities link and then select the activity type



**Figure 26:** Select the Activities link to access WYSIWYG and Report entry forms for numerous well site activities

- click the blue Daily Operations link and then select the daily activity type



**Figure 27:** Select the Daily Operations link to access WYSIWYG entry forms for a number of Daily activities

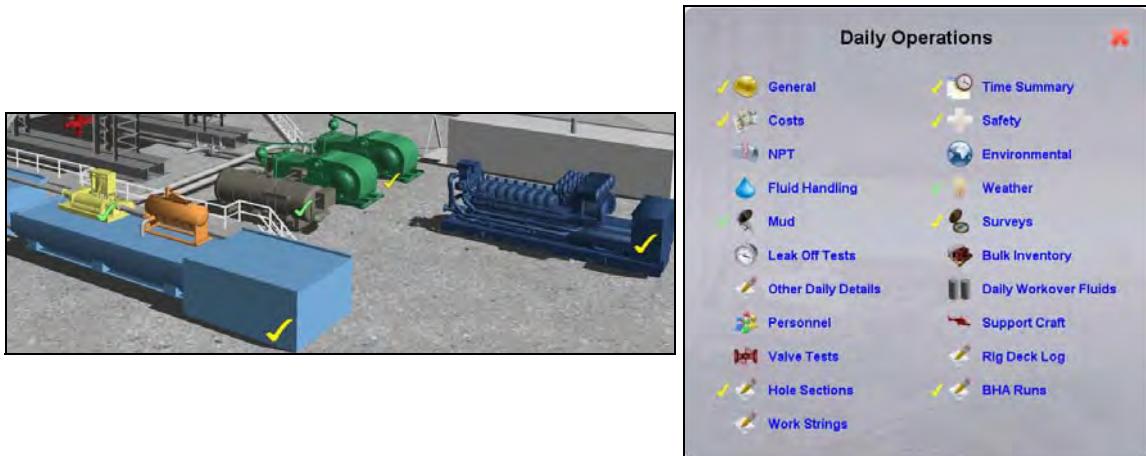
A complete listing of clickable items is available in the OpenWells online help topic, *Image Map*.

### Data Indicators

The Surface and subsurface canvases also contain visual indicators showing users what data has been entered and what data entry is complete on a given day.

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A yellow checkmark appears next to an item on the Interactive Well Site to indicate that data exists on the current day for the item. Once all data has been entered and reviewed, activate the Section Complete checkbox located at the top of the form. The yellow checkmark turns green to indicate that the data entered today for the item is complete.



**Figure 28:** Yellow checkmarks indicating data exists and green checkmarks indicating data is complete

### Data Entry

WYSIWYG and other forms are now only one or two clicks away from the main Canvas window.

EDM Administrators can create their own WYSIWYG forms in the EDM Administration Utility and assign them to canvases. For the 5000.1.7.0 release, the creation of WYSIWYG forms is limited to certain database tables. Contact Landmark Support for more information.

WYSIWYG forms help increase data entry ease and efficiency. Each WYSIWYG form can also be printed from the form window and will print out exactly as it is appears in the data entry window.

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The screenshot shows the 'Record BHA Run' window. On the left, there is a vertical wellbore schematic with depth markers from 4,320 ft to 587 ft. The BHA components listed in the table are as follows:

ST No.	BHA No.	BHA Name	MD In (ft)	MD Out (ft)	Date/Time In	Date/Time Out	Purpose	Hole Size (in)	Left in Well (ft)	BHA Length (ft)	DR Mode	TQ On Pm (lb/in)	TQ Off Pm (lb/in)	WOB (lb)
1	OH_1	ABLE MOTOR BHA	267.0	4,205.0	01/01/1997 00:00	01/01/1997 00:00	ROTATING	18.000	1,218.18	1,226.0	0.0	22.50	13.40	46.90
2	GH_2	EERABLE MOTOR	4,200.0	7,475.0	01/01/1997 00:00	01/01/1997 00:00	ROTATING	12.125	1,228.33	1,226.0	0.0	1.00	1.00	2.00

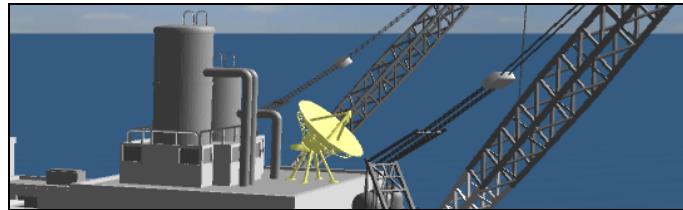
Below the table, there is a section for 'Components (Enter Top to Bottom)' with two entries:

Section Type	Component Type	Length (ft)	Jts	MD Top (ft)	MD Base (ft)	Size (in)	Body ID	Weight (lb/ft)	Manufacturer	Serial No.	Model No.	Condition	Cost (\$/ft)	Item Description	Component Specific Details
1	Drill Pipe	8,246.67	100	0.0	8,246.7	6.000	4.276	20.89	DP	DP 5.19.60, NC 800(H)			0.00	HSL_HSL_A_49.70, 1340 MOD, NC 50	<a href="#">Details</a>
2	Heavy Weight	956.25	32	6,245.7	7,201.9	6.000	3.000	49.70	Gulf Pipeco						<a href="#">Details</a>

**Figure 29:** Sample of the BHA Run WYSIWYG Form including the Wellbore Schematic

### Synchronize Data

EDM AutoSync has been fully integrated into the Interactive Well Site. Data can now be synchronized between the Rig and Regional Office via EDM AutoSync with a single-click the Satellite Dish found on each of the Canvases.



**Figure 30:** AutoSync Satellite Dish

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### New Select Partners Button

A new Select Partners button allows users to select Partners and Contacts to add to the Associated Partners spreadsheet. This button is available in the Event, Wellbore and Well Properties dialog boxes.

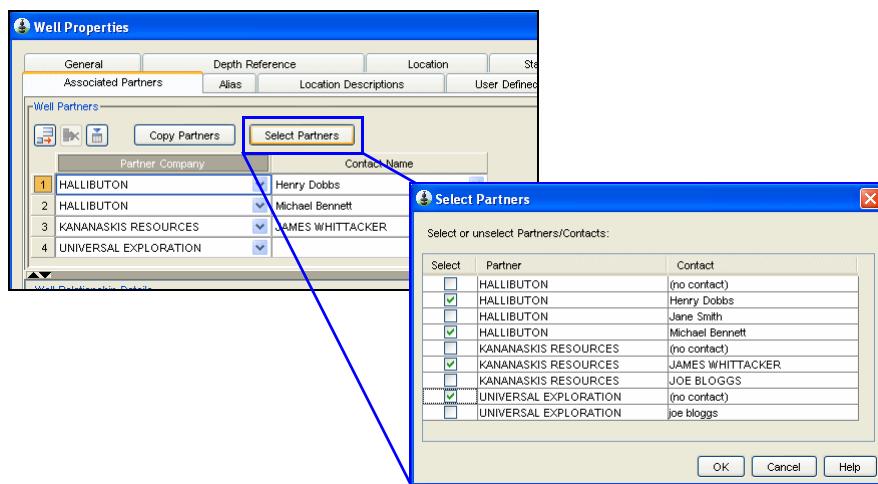


Figure 31: Select Partners feature

### New Copy Plan Formations Button

A new Copy Plan Formations button has been added to the Wellbore Properties Formation tab. This button allows users to copy formations from planned designs created in COMPASS™ for use by the Wellbore. This feature overwrites any existing formations. During the copy process, if the application detects that a formation is already associated with a report, the copy process is canceled.

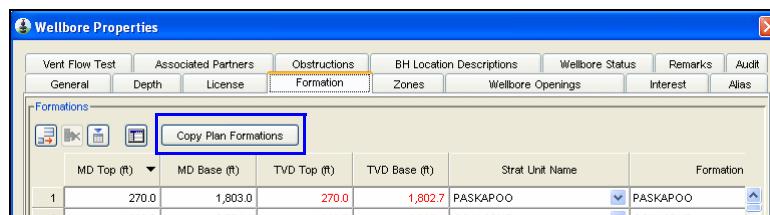


Figure 32: Copy Planned Formations feature

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### Wellbore Status Notes

A new column has been added to the Wellbore Status spreadsheet in the Wellbore Properties dialog boxes.

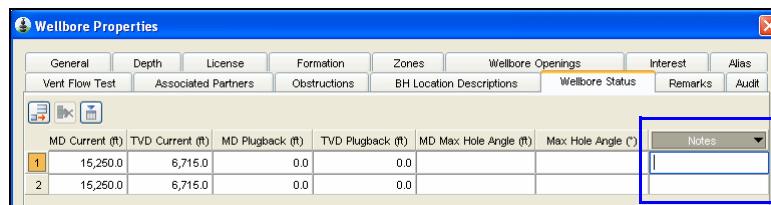


Figure 33: New Notes column

### Close Rig Event Association

When an Event is closed (i.e., its End Date is entered), the application prompts the user to close the associated Rig Operation.

### Final Report Checkbox Populates Event End Date

When the Final Report checkbox is activated in the Daily Operations General section, the Daily Report's Date is copied to the Event End Date field.

This feature only works if the system setting *SetEndDatesToFinalReport* is set to YES in the EDM Administration Utility.

Figure 34: Final Report / Event End Date feature

### Update Time Summary Button

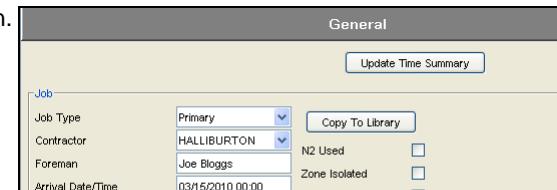
To reduce data entry time and duplication, the Update Time Summary button has been added to the OpenWells application. This button allows users to push data entered in specific reports directly into a new row in the Time Summary spreadsheet.

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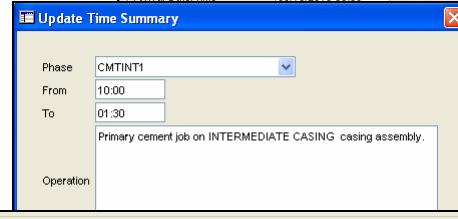
Using the EDM Administration Utility's Layout Manager, Administrators can configure the source fields where the data will be entered and the destination DM\_ACTIVITY fields the data will be pushed to. The Update Time Summary button is available in the following areas:

- Classic Entry Form General Section: Casing, Cementing, Perforation, Stimulations and Wellbore Equipment
- WYSIWYG Forms: Casing, Cementing and Stimulations

1. Enter data and select the Update Time Summary button.



2. Verify the data has been entered correctly.



3. The date is pushed to the Time Summary spreadsheet. The link will open the reot.

Activity Details						
	From	To	Duration (hr)	NPT Level	Phase	Operation
1	10:00	01:30	15.50		CMTINT1	Primary cement job on INTERMEDIATE CASING casing assembly.
Report Link						
<a href="#">Cementing_1_3/15/2010</a>						
Total Activity Time 15.50 hr						

Figure 35: Update Time Summary Feature

### New Time Summary Fields

Three new fields have been added to the Time Summary spreadsheet to record descriptions of Class, Code and Subcode. The fields are Class Description, Code Description and Subcode Description. These fields are not included in the default layouts and must be added in the OpenWells Layout Manager.

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### Calculation Change in Time Summary

The Total Time field now calculates the total Duration for the selected Activity Group Filter, instead of for all Critical Path rows regardless of the selected Activity Group Filter.

The figure consists of two screenshots of the 'Activity Details' dialog box, both titled 'Total Time for All Groups'. The first screenshot shows a filter set to 'All', with a total activity time of 5.50 hr. The second screenshot shows a filter set to 'Group A', with a total activity time of 2.00 hr. Both screenshots show five rows of activity data with various start and end times, durations, and group assignments.

From	To	Completion Name	Duration (hr)	NPT Level	Group	Phase
00:30	01:30	—None—	1.00	0	Group A	MIRU
01:30	02:00	—None—	0.50	0	Group B	MIRU
02:00	02:30	—None—	0.50	0	Group A	MIRU
02:30	05:30	—None—	3.00	1	Group B	MIRU
05:30	06:00	—None—	0.50	0	Group A	DRLSUR

From	To	Completion Name	Duration (hr)	NPT Level	Group	Phase
00:30	01:30	—None—	1.00	0	Group A	MIRU
02:00	02:30	—None—	0.50	0	Group A	MIRU
05:30	06:00	—None—	0.50	0	Group A	DRLSUR

Figure 36: Time Summary Total Activity Time Calculation

### Personnel Data Entry Improvements

The layout of the Personnel section in the Daily Operations report and WYSIWYG has changed to improve daily workflows and previous limitations. Company and Employee information is now managed from in a separate dialog box.

- Data recorded in the Personnel section now correctly represents the Company or Personnel's presence on site for that reporting day.
- Deleting a row in the Company Onsite or Personnel Onsite tabs no longer deletes the Company or Personnel; it only deletes the record of their presence at the wellsite on that day.
- A new Edit Company/Personnel button allows users with the correct permissions to add, modify or delete the list of available Companies and Employees. This button also allows users to copy Companies and Employees from other existing Events.

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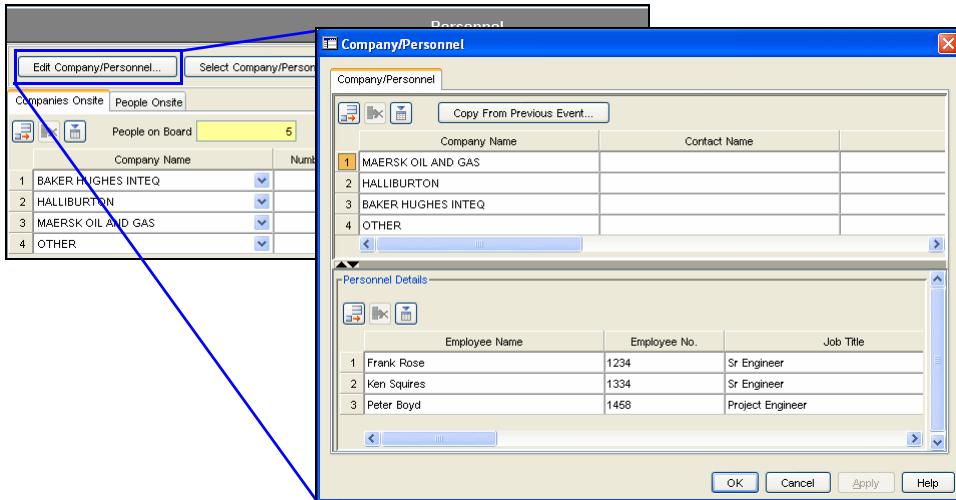


Figure 37: Edit Company/Personnel feature

- A new Select Company/Personnel button allows users to select a number of Companies and Employees and adds them to the Companies Onsite and People On Board spreadsheets.

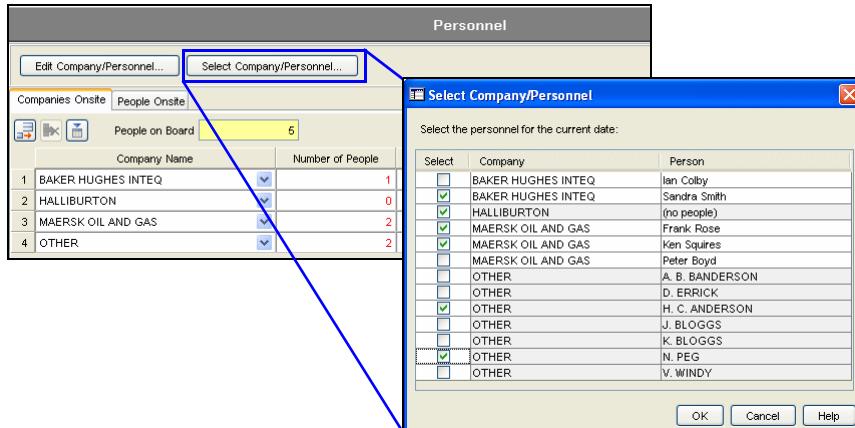


Figure 38: Company/Personnel quick picker

#### BHA Length Calculation Change

The BHA Length calculation has been changed to include Drill Pipe located between other components in the string. The BHA Length is now calculated as follows:

$$\text{BHA Length} = \sum \text{all Component Lengths} - \text{the Drill Pipe Component Length at the top of the string}$$

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Only the first section of Drill Pipe located at the top of the string is not included in the calculation.

BHA Components							
Section Type	Component Type	Length (ft)	Number of Joints	MD TOP (ft)	MD Base (ft)	Body OD (in)	
Drill Pipe	Drill Pipe	2,003.06	84	0.0	2,003.1	5.000	
Heavy Weight	Heavy Weight Drill f	956.26	32	2,003.1	2,959.3	6.000	
Jar	Hydro-Mechanical	30.45	1	2,959.3	2,989.8	6.750	
Heavy Weight	Heavy Weight Drill f	89.79	3	2,989.8	3,079.6	5.000	
Drill Pipe	Drill Pipe	982.76	35	3,079.6	4,062.3	5.000	
Sub	Cross Over	3.00	1	4,062.3	4,065.3	7.920	
Drill Collar	Drill Collar	29.44	1	4,065.3	4,094.8	7.750	

Figure 39: BHA Length Calculation and Drill Pipe components

### New Bit Operations Calculated Fields

Three new Calculated Fields added to Bit Operations table DM\_BIT\_OP: Guided Percent, Op Sum Hours and Op Sum Progress.

### Bit Details Total Flow Area Calculation

The TFA (Total Flow Area) is now an editable calculated field. By default, the field is calculated, but a user can override the calculation by editing the field directly. If the user changes fields that this calculation depends on or selects the calculated field and clicks the Calculated Current Field button in the toolbar, the application re-calculates the TFA.

### Flip Component Order Feature

A new button Flip BHA (or Flip Order) has been added to reverses the order of the Components in the spreadsheet, as well as, in the database. This button helps users correct a simple mistake without having to manually move each component or reenter their data. The Flip BHA button is available on the Components tab of the Drillstrings section and the Work Strings sections in the Daily Operations, Coring, Logging, Perforation, Sidewall Coring and Stimulations forms.

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1. Component Order Before

Record Component		Catalog	Flip BHA	Move Up	Move Down	Components (Enter Top to Bottom)						
	Section Type	Component Type	Length (ft)	Jnts	MD Top (ft)	MD Base (ft)	Size (in)	Body ID (in)	Weight (ppf)	Manufacturer	Serial No.	M
1	Bit	Polycrystalline Diam	0.83	1	0.0	0.8	8.750			SMITH	LM1375	M
2	Stabilizer	Near Bit Stabilizer	6.00	1	0.8	6.8	6.250					
3	Sub	Bumper Sub	10.02	1	6.8	16.8	6.000					
4	MWD	MWD Tool	32.00	1	16.8	48.8	6.750					
5	Jar	Hydro-Mechanical	36.31	1	48.8	85.2	6.250					
6	Heavy Weight	Heavy Weight Drill F	878.27	30	85.2	963.4	6.250					
7	Drill Pipe	Drill Pipe	0.00	130	963.4	963.4	6.000					

2. Select Flip BHA Button

Record Component		Catalog	Flip BHA	Move Up	Move Down	Components (Enter Top to Bottom)						
	Section Type	Component Type	Length (ft)	Jnts	MD Top (ft)	MD Base (ft)	Size (in)	Body ID (in)	Weight (ppf)	Manufacturer	Serial No.	M
1	Drill Pipe	Drill Pipe	0.00	130	0.0	0.0	6.000					
2	Heavy Weight	Heavy Weight Drill F	878.27	30	0.0	878.3	6.250					
3	Jar	Hydro-Mechanical	36.31	1	878.3	914.6	6.250					
4	MWD	MWD Tool	32.00	1	914.6	946.6	6.750					
5	Sub	Bumper Sub	10.02	1	946.6	956.6	6.000					
6	Stabilizer	Near Bit Stabilizer	6.00	1	956.6	962.6	6.250					
7	Bit	Polycrystalline Diam	0.83	1	962.6	963.4	8.750			SMITH	LM1375	M

3. Component Order After

Figure 40: Flip BHA (or Flip Order) Button

### Non Productive Time (NPT) Administration Tokens

New tokens have been added to the EDM Administration Utility to allow administrators to restrict a user's rights to add, edit, view, delete and lock NPT data. The tokens are:

- OpenWells.NPT.add,
- OpenWells.NPT.delete,
- OpenWells.NPT.edit,
- OpenWells.NPT.view
- EDM.Explorer.NPT.lock.

### Kick Tests

A new area has been added to the Daily Operations Report's Safety section. This section allows users to records Kick Tests on a daily basis.

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### Fluid Produced Spreadsheet

A new spreadsheet has been added to the Fluid Handling tab to record fluids produced. Two new calculated fields: Mud Produced and Mud Discharge have been added to the Fluid Losses tab. These new items only appear if the *FluidProduced* System Setting is set to YES. For information on the system setting, see the EDM Administration Utility online help.

### Job Activity Section

A new Job Activity section has been added to the Coring, Logging, Perforation, Sidewall Coring and Stimulation reports. This new section allows users to enter specific Time Summary operation details directly in the report form.

### Work Strings Section

A new Work String section has been added to the Coring, Logging, Perforation, Sidewall Coring and Stimulations areas. These sections allows users to enter details of the assemblies run downhole directly in the related report. The Work String section operates in the same way as the Daily BHA Run area.

### Cement Plug for Open Hole

The Casing Assembly picklist includes a “None” item for all Cement Job Types. This item allows users to create a cement job that is not associated to the Casing assembly string.

The screenshot shows the 'Cement Job' dialog box. An arrow points from the text 'Any Job Type selected' to the 'Job Type' dropdown, which is set to 'Primary'. Another arrow points from the text '-None- option in Assembly picklist' to the 'Assembly' dropdown, which is set to '-None-'. The 'Casing details' section below shows various casing parameters like MD Landed, Float Depth, Depths, and TVD Float, all associated with the '-None-' assembly.

Casing details	
Assembly	-None-
MD Landed	26" CONDUCTOR
Float Depth	13-3/8" INTERMEDIATE CASING
Depths	9-5/8" PRODUCTION CASING #1
TVD Float	7" PRODUCTION LINER #1
	Hole Size
	11/22/1996
	2/1/1997
	2/18/1997
	3/18/1997

**Figure 41:** No Casing Assembly associated with Cement Job

### Cement Plug Drill Out Date

A checkbox and date field have been added to the Cement report to record the date a cement plug was drilled out.

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### Cement Intermediate Circulations Section

A new section has been added to the Cementing report to record circulation operations during the cementing.

### Calculate Cement Stage Top/Base MD based on the Pumping Schedule

Two new system settings have been added to the EDM Administration Utility (*TopBaseSlurryAndTests* and *TopBaseSlurryAndTestsCodes*), which determine the Top MD and Base MD of a Cement Stage, based on the Fluids entered in the Pumping Schedule.

### Responsible Parties Section

A new section has been added to the Fishing Report to identify those responsible for the fishing operation. These names can be carried over from one Fishing report to the next.

### Results Section

A new section has been added to the Fishing Report to record the outcome of the fishing operation.

### Auto Save Feature

A new AutoSave system setting has been added to allow Administrators to sets the number of minutes between the OpenWells Reports saving automatically. This setting is only applicable to OpenWells Classic mode. It does not apply to the Interactive Well Site. For more information see the EDM Administration Utility online help.

Category	Set Key	Set Value	Description
ImportExport	ImportTight Group	YES	Import Tight Group
OpenWells	AllowProjectedTvdCalc	FALSE	Allow Projected TVD to be Calculated
OpenWells	AutoCatalogSelect	NO	Enable or Disable Auto Catalog Select
OpenWells	AutoSave	6	The automatic save interval (in minutes) for reports, or blank to disable.
OpenWells	AutoSync	YES	(optional: enter descrt)
OpenWells	AutoSync	NO	EDM AutoSync Client integration enabled
OpenWells	CheckRigAssociation	NO	Checks Rig association before associating with another event

Figure 42: AutoSave System Setting

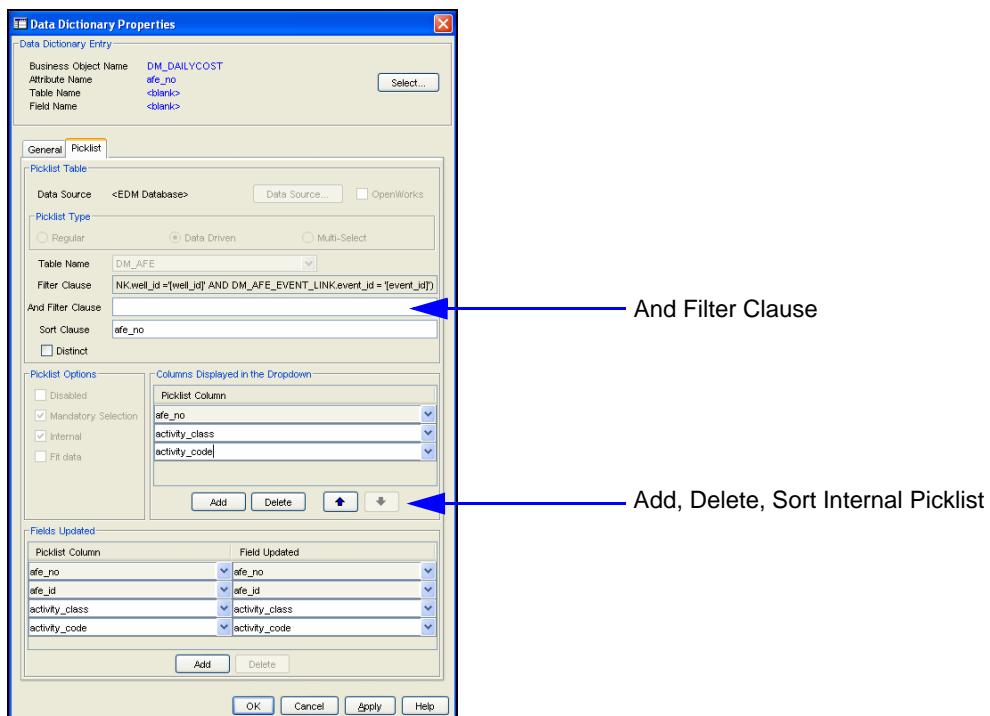
### Internal Picklist Configuration Additions

Prior to this release, Internal Picklists were not editable by Administrator or users. Now users with appropriate permission to the Data Dictionary Picklist configuration, can add data to supplement the picklist

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The following rules apply to internal picklists:

- Table Name and Picklist Type cannot be changed
- Filter clauses cannot be added
- And Filter clauses can be added. The And Filter is applied after the Filter Clause and any internal filters  
Note: The And Filter Clause may be grayed out for any internal picklists, whose internal filtering is too complicated to run additional SQL queries against.
- Picklist Options cannot be changed
- Columns displayed in the drop-down defined by the application cannot be edited or removed
- New Columns Displayed in the drop-down can be added and deleted
- Fields Updated defined by the application cannot be edited or removed
- New Fields Updated can be added and edited

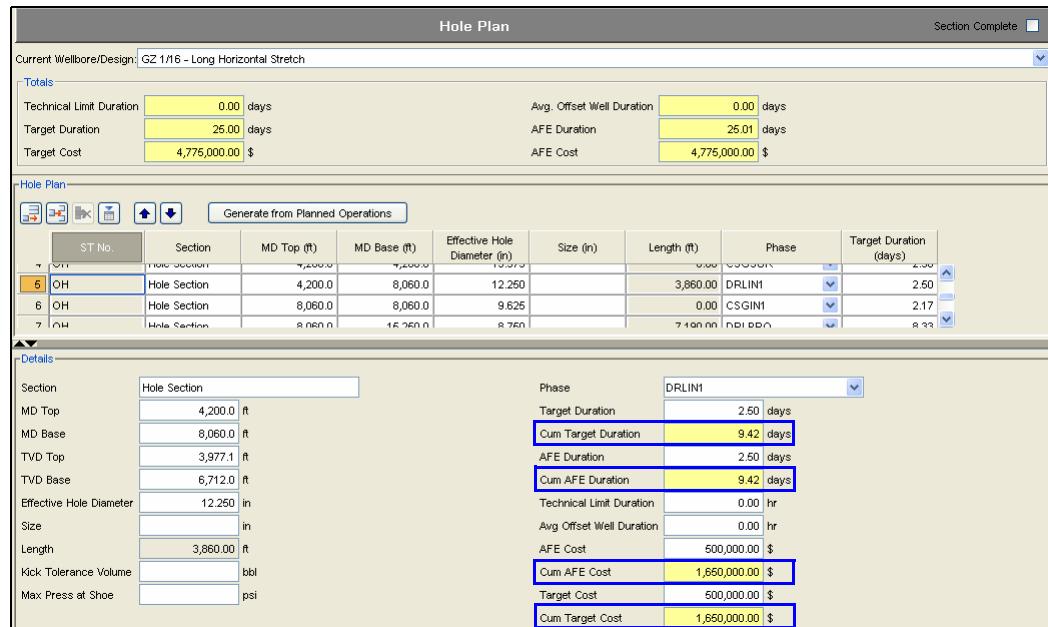


**Figure 43: Internal Picklist Changes**

### New Hole Plan Calculations

Four new calculations have been added to the Hole Plan spreadsheet in the Well Planning report: Cum Target Duration, Cum AFE Duration, Cum AFE Cost and Cum Target Cost. Cum Target Duration.

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**Figure 44:** New Hole Plan calculated fields

### Access Online Help from a Server

When OpenWells is installed using the Client installation, the application now automatically calls the Online Help from the Server location. During the installation the registry key HKEY\_LOCAL\_MACHINE\SOFTWARE\Landmark Graphics Corporation\EDT\<version number>\Installation Type is checked to verify if the installation mode is client or local. If it is Client the registry key retrieved is "ServerFolder". Otherwise, the registry key retrieved is "Installation Folder".

### **Release 5000.1.6**

There were no enhancements to OpenWells for this release.

### **Release 5000.1.5**

- Multiple MAASP Status Readings - The OpenWells® application now allows Well Engineers to record the changing state of Maximum Allowable Annular Surface Pressure (MAASP) values over the life cycle of a Well.

The new spreadsheet fields use a different EDM™ table (CD\_WELL\_MAASP) than the old fields (CD\_WELL) appearing in the General tab.

- Approval Process - The OpenWells and PROFILE applications now includes a feature to mark and identify Wells, Events and Reports that have gone through an

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approval process. The approval process preserves and locks the information recorded about the Well/Event/Report at the time of approval.

- AutoSync Well Assignment - Defined OpenWells® users are now able to assign Wells to an AutoSync Client for bi-directional updates between Rig and Regional EDM databases.
- New Report Manager Version - A new Report Manager version, which will reduce memory consumption, increase report generation speed, and contains various other improvements.

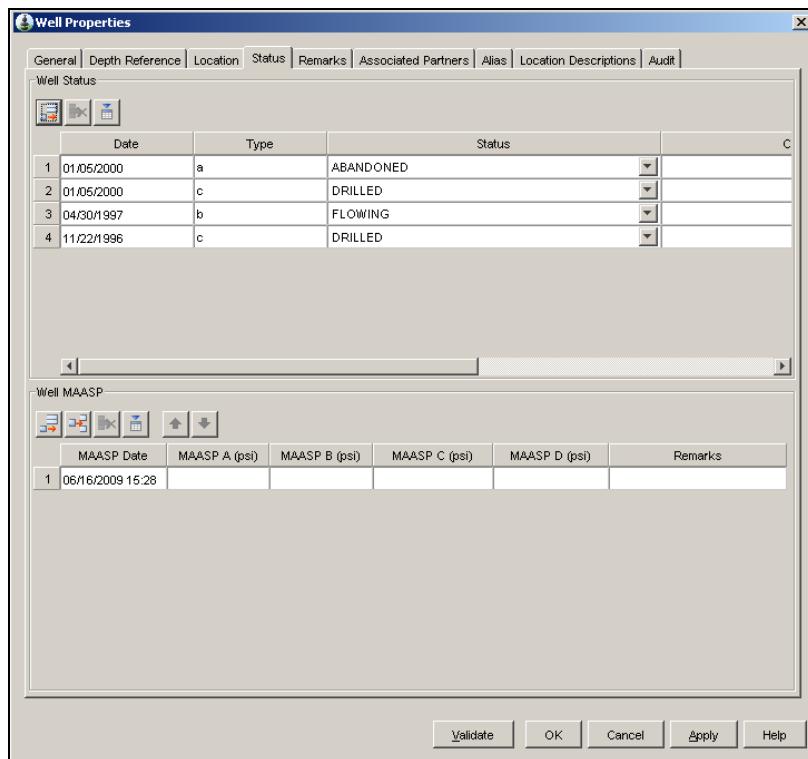
#### *Multiple MAASP Status Readings*

The OpenWells® application now allows Well Engineers to record the changing state of Maximum Allowable Annular Surface Pressure (MAASP) values over the life cycle of a Well. Recording changes to MAASP on a Well creates a history that can be used in recognizing any concerning trends in changes to these pressure values.

This new feature has been added as a spreadsheet in the Well Properties - Status tab.

The old MAASP entry fields are still available in the Well Properties - General tab and should be hidden or made read-only by the EDT™ Administrator as not to confuse users. If MAASP values have been entered in the General tab entry fields, a row is automatically be created in the MAASP spreadsheet.

The new spreadsheet fields use a different EDM™ table (CD\_WELL\_MAASP) than the old fields (CD\_WELL) appearing in the General tab.

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### Data Approval

The OpenWells® and PROFILE™ applications now include a feature to mark and identify Wells, Events and Reports that have gone through an approval process.

The approval process preserves and locks the information recorded about the Well/Event/Report at the time of approval. The information preserved for a Well includes the Well's data and its Events, Wellbores, Completions, Designs and Reports data. The information preserved for an Event includes the Event's data and its Reports.

**Note:**

Reports can only be approved within the OpenWells® application.

Further edits to any of the locked data requires unlocking of the Well, Event, Wellbore, Completion, Design or Report by a user with the appropriate privileges.

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During the approval process the data is preserved via a database snapshot, creating an approval point. Approval points can be compared to a previous approval points of the same data element. For example, a Well's approval point can be compared to the last approval point of that same Well. Well, Event and Report approval points cannot be compared to one another.

Any PDF files that are attached to an approval point are electronically signed when a Well, Event or Report is prepared for approval and when the Well, Event or Report is approved. The location of the Approval Point PDF stamps in the OpenWells and PROFILE applications can be configured using a system setting. See the PDF Approval Stamp topic in the EDM™ Administration Utility online help.

Prior to preparing a Well, Event or Report for approval, the LGC EDM Historian service must be configured.

The approval process consists of two separate workflows:

- the preparation of the data for approval,
- and the approval (or rejection) of the prepared data.

These processes are outlined in the OpenWells and PROFILE online help systems.

New tokens have been added to the EDM™ Administration Utility to support the new Approval feature.

### **Updating an Oracle Database to use the Historian Service**

Prior to running a database upgrade on Oracle, the Database Administrator will have to run the *hist\_tbs.sql* script to create the EDMHIST1 tablespace. Without this tablespace the database update will fail. This script is extracted during the 5000.1.5 install, with the Database Upgrade scripts to C:TEMP\EDM\_5000\_1\_2\_SQL\_Update folder.

### **Configure the Wrapper.conf File**

The Wrapper.conf file defines the service parameters for the Historian Service. This file requires access to the EDT Installation folder and is installed in the same location as the EDT Installation folder, in the Historian/conf folder.

By default, the wrapper.conf looks for the EDT installation folder named 'EDT\_5000.1'. If the EDT installation folder is not named 'EDT\_5000.1', then the wrapper.conf file must be edited to look for the correct folder containing the EDT installation.

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To edit the wrapper.conf file, open the file in a text editor, such as Notepad, and change the value of the following line.

```
wrapper.java.command=../../EDT_5000.1/Common Files/JDK/bin/javaw
```

For example, if the EDT installation folder is named 'Landmark Apps', then this line should read as follows:

```
wrapper.java.command=../../Landmark Apps/Common Files/JDK/bin/javaw
```

### Configure the LGC EDM Historian Service

The LGC EDM Historian service stores approval point snapshots and compares differences between approval points. Prior to preparing an approval point or approving a Well, Event or Report, this service must be configured.

Only one instance of the LGC EDM Historian service needs to be configured for each database being used.

1. To configure the Historian service on the machine hosting the service, open the **Windows Computer Management > Services** interface and stop the *LGC EDM Historian* service.
2. Check the security permissions for the Historian Service via the Log On tab in the historian service properties dialog box. If the COE does not permit services to run as a local system account, then appropriate account credentials must be configured here for the service to run.
3. Launch the EDM Administration Utility and select the Historian Service () node.

**Security Note:**

The Administrator must be granted access to the *Admin.Historian.edittoken* to access the Historian Service in the EDM Administration Utility.

4. Enter the credentials for the database connections and ports.

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Historian Service configuration parameters:	
Parameter	Value
Historian Service Address	localhost
Historian Service Port	1099
Oracle User	EDMADMIN
Oracle Password	*****
Default Schema	EDMADMIN
Oracle Server Address	CalTest97W2K8
Oracle Server Port	1521
Oracle Instance	CT97AMS2

5. Click the **Save** button to save the credentials.
6. Open the **Windows Computer Management > Services** interface and start the *LGC EDM Historian* service.
7. Once the service has started, wait approximately 10 seconds to verify that the service continues to run. If any of the above connection details are incorrect the service will stop shortly after starting.

**Log Note:**

The historian service logs events and errors to <Historian Installation Directory>\Historian\logs. In the event of a service failure it may be useful to inspect these logs to determine the cause (e.g., incorrect connection information, username password not accepted etc.).

### **Release 5000.1.4**

The OpenWells® 5000.1.4 release is an incremental update to the Engineer’s Desktop™ 5000.1.0 release. The primary focus of this release has been to enhance the user experience and to expedite user workflows. This has been accomplished through the addition of the following features:

- Rig to Event/Report Association Improvements - A number of changes have been made to the Rig Event/Report associations to improve the usability and flexibility of associations. The changes are summarized in the following scenarios outlined later in this document.
  - Only Currently Active Rigs are Available for Association
  - Associate Rig Operations to an Event with existing Daily Reports
  - The Wrong Rig is Associated to an Event
  - Rig Operations “On Location” Date Change
  - Associate a Rig Operation to an Event that already has an “active” Rig Operation

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- Deleting Rig Operations
- Changing the Daily Operations Report Properties
- TVD Calculations System Setting - A new System Setting "AllowProjectedTvdCalc", has been added to allow Administrators to select how they want the application to respond when the current MD does not have an active survey available to calculate the current TVD.
- WITSML Halliburton SUMMIT™ Integration - OpenWells® software now supports the import of WITSML Stimulations data from the Halliburton SUMMIT™ application into the OpenWells® application.

### Rig Changes

This section contains important information on changes to the Rig and Event associations in the OpenWells® 5000.1.4 application. These changes inform the users of the effects of associating a Rig to an Event, when Daily Operations reports exist for the Event.

- **Associating Rig Operations to Events** - Rigs can be associated to Events from a number of locations in the application. The scenarios outlined in this document deal with Rig associations using the *Associate Rig Operation to Event Wizard* and the *Associate Rig to Daily Wizard*. These Wizards are accessed from a number of locations in the application:
- **Associate Rig Operation to Event Wizard**
  - select the Event, follow the menu path: **File > Associate > Rig Operation...**
  - right-click the Event and select **Associate > Rig Operation**
  - in the *Event Properties* dialog box's *Associated Rig Operations* Tab, click the  (**Add Rig Operation**) button.
- **Associate Rig to Daily Wizard** - These options are only available if a Rig has not already been associated to the Daily Operations report.
  - in the Create Daily Report Wizard, select the **Associate Rig...** button.
  - in the Daily Operations report's Rig Equipment sections (e.g., Pump Operations section), click the **Associate Rig** button.

Scenario A: Only Currently Active Rigs are Available for Association

When creating an association between an Event or Daily Operations report and a Rig Operation, the list of Rigs with available Rig Operations that CAN be associated are now filtered. The OpenWells® application will only show Rigs which are currently active.

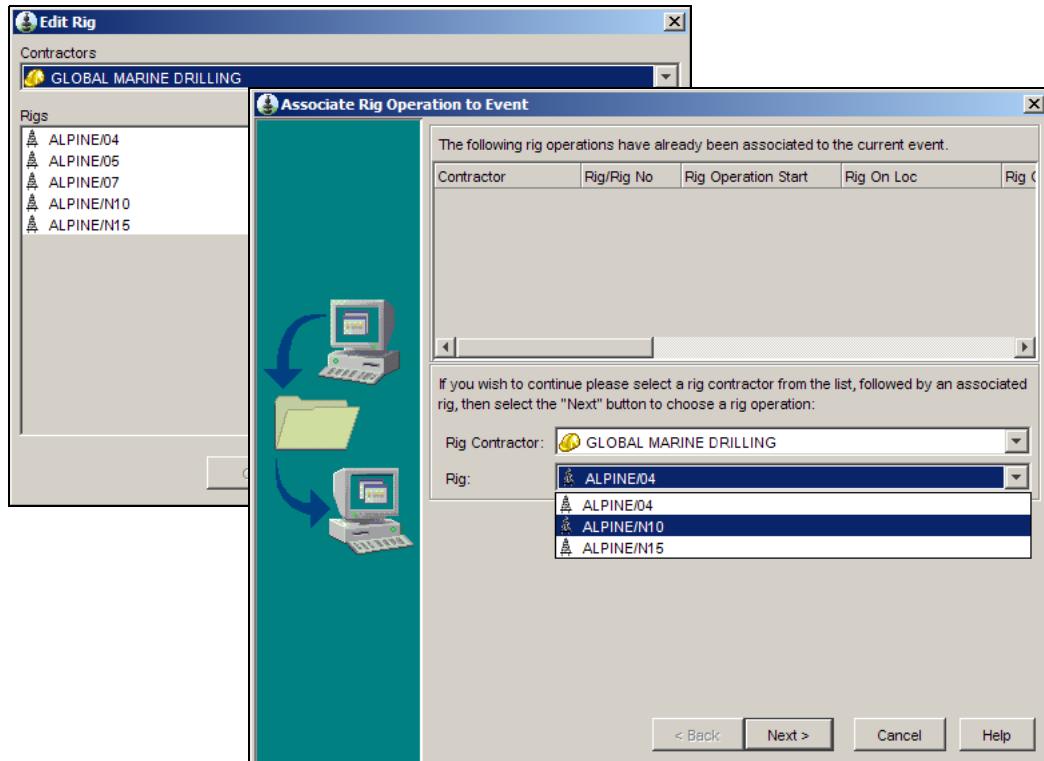
A Rig is defined as currently active if:

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its **Start Date** is null OR less than OR equal to the current date

AND

its **End Date** is null OR greater than OR equal to the current date



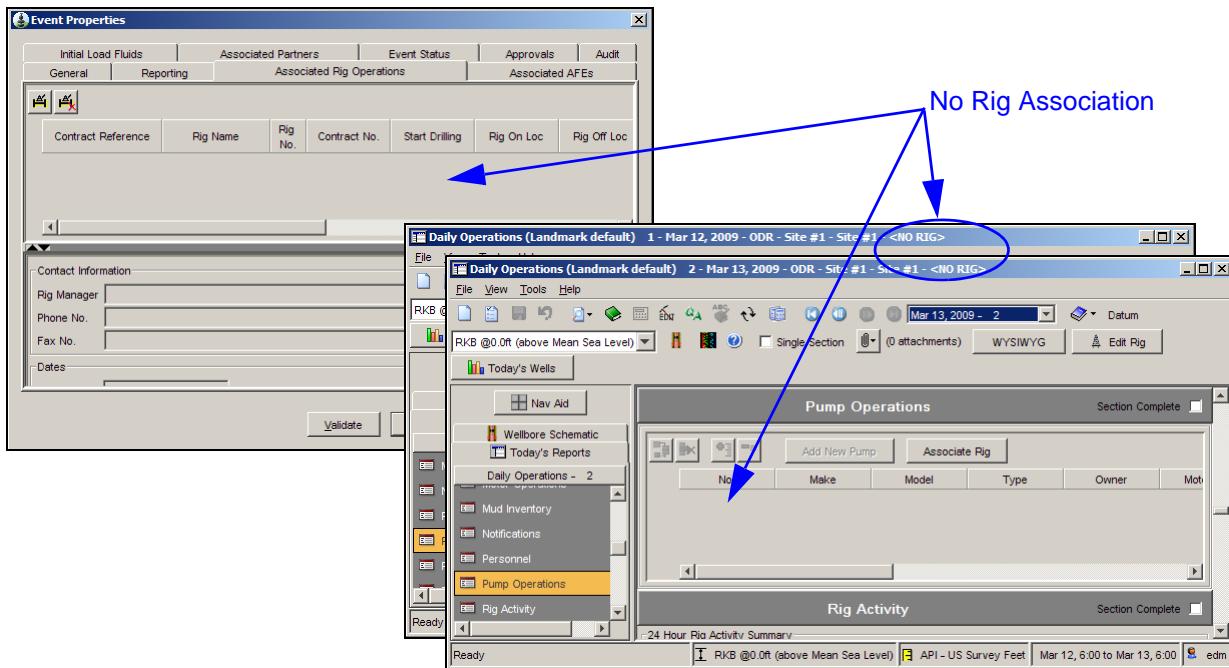
**Figure 45:** Of the 5 GLOBAL MARINE DRILLING Rigs, only 3 are available in the *Associate Rig Operation to Event* Wizard. This is a result of the new Rig filtering feature.

#### Scenario B: Associate Rig Operations to an Event with existing Daily Reports

At the time a Rig Operation is associated to an Event, any existing Daily Operations reports within the Event that fall within the “Rig On Location” date range WILL be updated with the new associated Rig Equipment data. The following example illustrates this new feature.

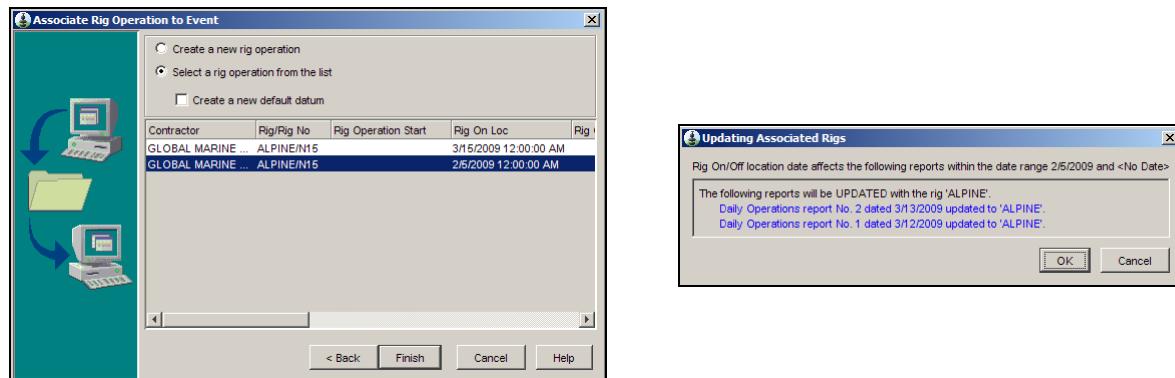
An Event that has no Rig Operations associated to it contains two Daily Operations reports. As a result of the lack of an association these Daily Operations reports do not have Rig Equipment listed.

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**Figure 46:** Event showing no associations and Daily Operations reports showing no Rig Equipment.

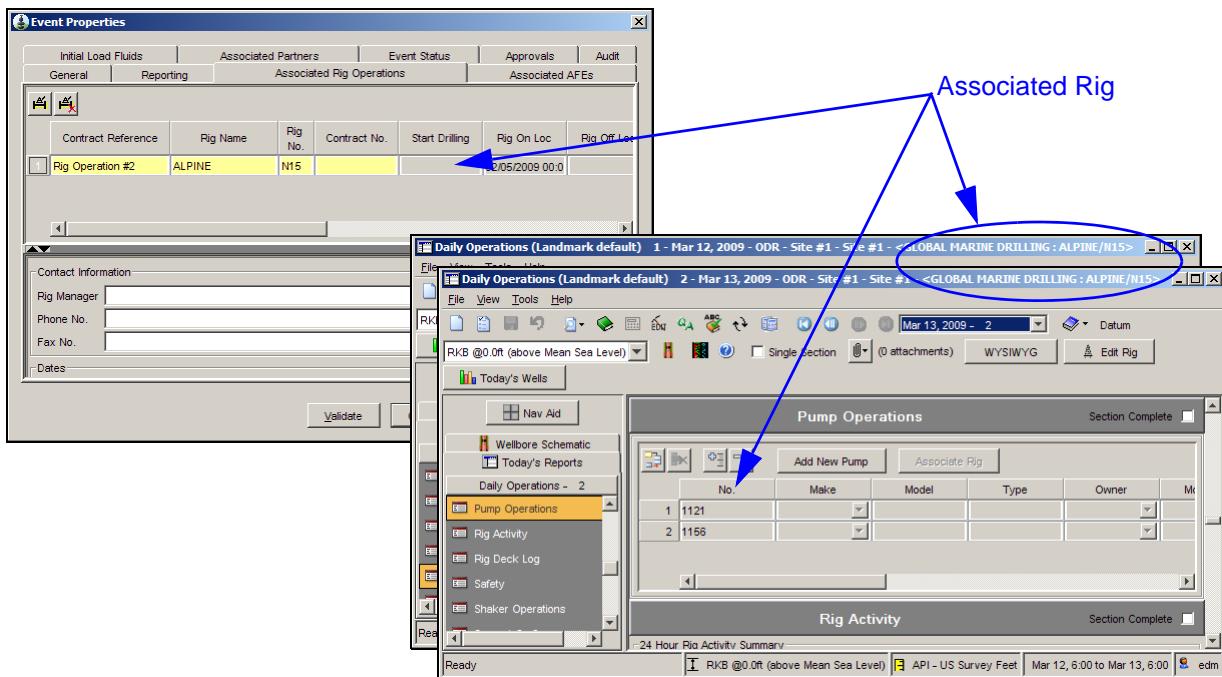
When the Event is associated to the ALPINE/N15 Rig a dialog box appears informing the user that the two existing Daily Operations reports will be updated with the new Rigs data.



**Figure 47:** Associate Rig Operation to Event Wizard with message showing the Daily Operations reports that will be updated.

After the Association has been made, the reports now display the Rig Name in the title bar and any equipment “installed” on the Rig are listed within the report.

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**Figure 48:** Rig association shown in the Event Properties and the Daily Operations Report showing the associated Rig and Rig Equipment data.

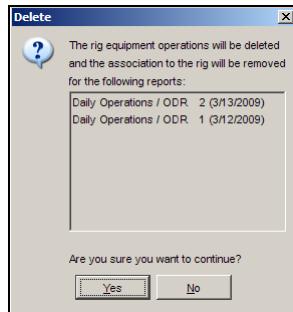
### Scenario C: The Wrong Rig is Associated to an Event

After a Rig Operation is associated to an Event, the user realizes that they had selected the wrong Rig. The OpenWells® application allows the user to remove the associated Rig and select the correct Rig for association.

In the *Event Properties > Associated Rig Operations* tab, the user selects the row containing the Rig Operation to be removed and clicks the (**Remove Associated Rig Operation**) button. All Daily Operations reports, within the Event, that are currently associated with the Rig and within the Rig's date range, will have their Rig Equipment operations data deleted and Rig association removed. A message appears showing the reports affected by the removal.

If this was the only association for the Rig Operation, then the Rig Operation is also deleted.

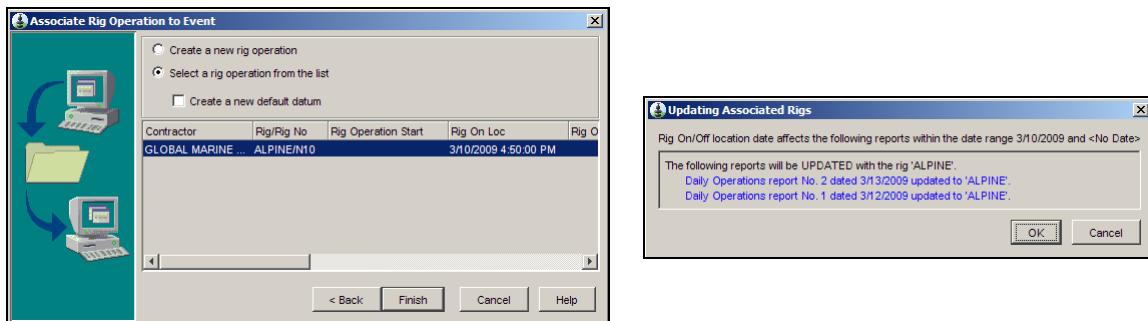
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**Figure 49:** Message listing the Daily Operations reports affected by the Rig Association removal.

The user can now associate the correct Rig/Rig Operation with the Event.

As in Scenario B, when the Event is associated to the correct Rig a dialog box appears informing the user that the existing Daily Operations reports will be updated with the new Rig's data.



**Figure 50:** Associate Rig Operation to Event Wizard with message showing the Daily Operations reports that will be updated.

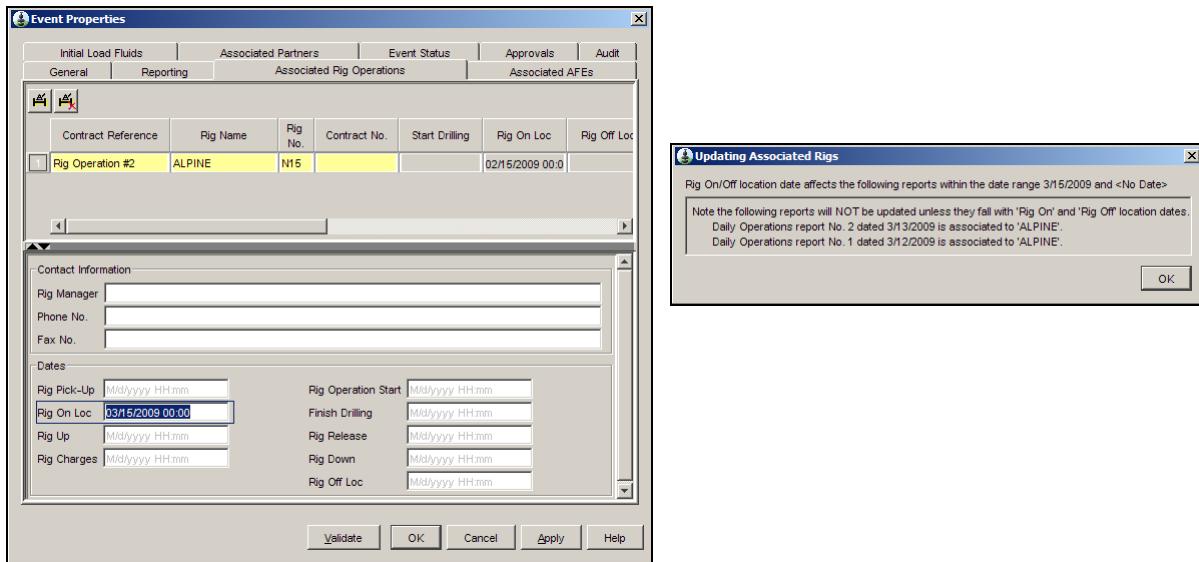
#### Scenario D: Rig Operations “On Location” Date Change

When a user changes the Rig Operation’s **Rig On Location** date, existing Daily Operations reports may be affected in one of the following ways.

Reports fall outside the Rig “On Location” date range.

The new **Rig On Location** date puts currently associated Daily Operations reports outside of the Rig Operation’s “On Location” date range. The OpenWells ® application responds to this action by displaying a message notifying the user of any Daily Operations reports that are now outside of the “On Location” date range. The reports are NOT updated by the change in date.

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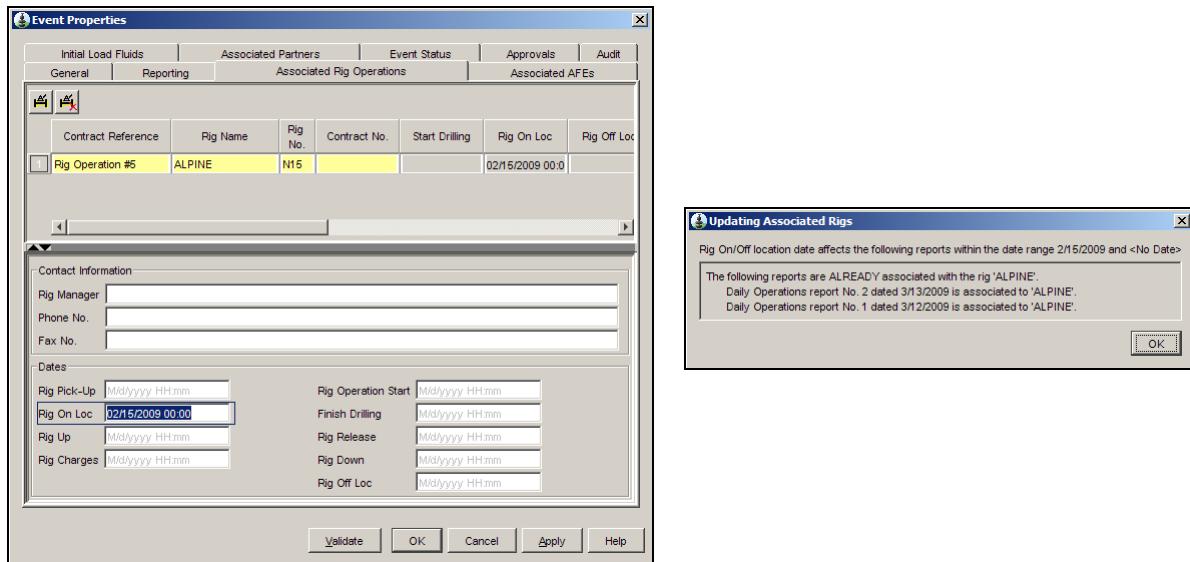


**Figure 51:** Rig On Location date is changed from 02/15/2009 to 03/15/2009, which pushes two Daily Operations reports outside the Rig “On Location” date range.

Reports that were outside the Rig “On Location” date range are now within range

The new Rig On Location date puts currently associated Daily Operations reports, which were outside of the Rig Operation’s “On Location” date range, within the date range. The OpenWells® application responds to this action by displaying a message notifying the user of any Daily Operations reports that are now within the “On Location” date range. The reports are NOT updated by the change in date if they were previously within range.

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**Figure 52:** Rig On Location date is changed from 03/15/2009 to 02/15/2009, which pushes two Daily Operations reports within the Rig “On Location” date range.

#### Scenario E: Associate a Rig Operation to an Event that already has an “active” Rig Operation

A new Rig Operation is associated to an Event that has an existing “active” Rig Operation association. The OpenWells® application prompts the user to update any affected Daily Operations reports with the new Rig Operation data or leave the report with its existing Rig Operation data.

Once the new association is complete, the application displays a dialog box where the user can choose whether or not to update each affected Daily Operations report.

- If the user chooses to update a report, then the **Update** button next to that report should be clicked.
- If the user does not want to update a report, then the **Update** button should NOT be clicked.

When a report is updated its text turns **blue** in the dialog box.



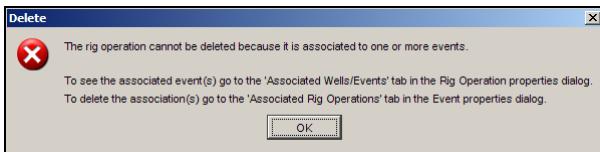
**Figure 53:** dialog box allowing the user to choose which reports are to be associated to

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the new Rig Operation. The blue text indicates the report has been updated.

- **Deleting Rig Operations**

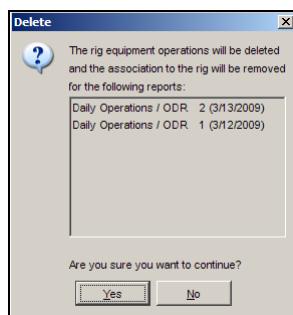
If a Rig Operation is associated to an Event/Daily it can no longer be deleted in the Contractors tree. When a user attempts to delete the Rig Operation in the Contractors tab the following message appears.



**Figure 54:** Message indicating the Rig Operation cannot be deleted due to its association with one or more Events.

To delete a Rig Operation that is associated to an Event, the user must remove it in the Event Properties dialog box.

In the *Event Properties > Associated Rig Operations* tab, the user selects the row containing the Rig Operation to be removed and clicks the (Remove Associated Rig Operation) button. All Daily Operations reports, within the Event that are currently associated with the Rig will have their Rig Equipment deleted and the association is removed. If this was the only association for the Rig Operation, then the Rig Operations is also deleted.



**Figure 55:** Message listing the Daily Operations reports affected by the Rig Association

- **Changing the Daily Operations Report Properties**

The OpenWells® application now allows users to change the Rig/Rig Operation associations from the Report Properties dialog box of a Daily Operations report.

The Daily Operations Report Properties dialog box is accessed from the following locations:

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- From within the report window follow the menu path: **File > Properties...**
- Right-click the report in the Report List and select **Properties...** from the menu that appears

### Changing the Rig and Rig Operation from the Report Properties dialog box

The **Rig Contractor, Name, No** field's picklist displays a list of Rig's available for association to the Daily Operations report. Only Rigs which are "On Location" during the Report's date are shown in this list. The selected Rig is currently associated to the report.

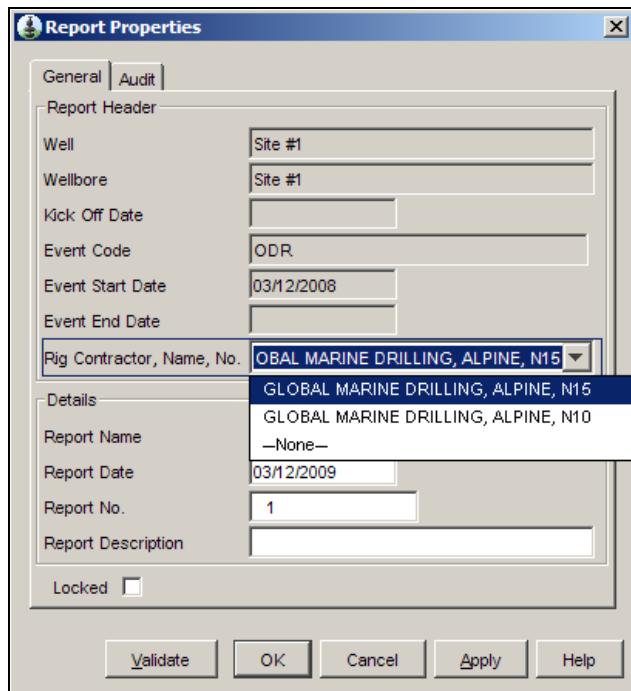


Figure 56: Report Properties dialog box showing the Rig picklist.

The currently associated Rig Operation can be changed using this picklist.

When the user selects a different rig from this picklist and the current associated Rig has Rig Equipment Operations, the application informs the user of the equipment operations that will be deleted. The users can then choose to delete the operations or cancel the change.

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**Figure 57:** Message indicating how many Rig Operations will be affected by the change in association.

### Changing the Report Date from the Report Properties dialog box

When the user changes the Report Date in the Properties dialog box, and the new date falls outside of the Rig “On Location” date range, the application informs the user of the equipment operations that will be deleted. The users can then choose to delete the operations or cancel the change.



**Figure 58:** Message indicating how many Rig Operations will be affected by the change in Report Date.

If the user chooses to proceed with the date change, the **Rig Contractor, Name, No** picklist will be set to --None-- and any related Rig Equipment Operations will be deleted from the Report.

### OpenWells® TVD Calculations

The OpenWells® application now allows Administrators to selected how they want the application to respond when the current MD does not have an active survey available to calculate the current TVD.

A new System Setting “AllowProjectedTvdCalc” has been added to the EDM™ Administration Utility to define how OpenWells handles the calculation of the current TVD when a survey is not available for the current MD.

The “AllowProjectedTvdCalc” System Setting defines the TVD calculation as follows:

- When set to FALSE, the application will not calculate the TVD for a MD that has no active survey and will display a null value.

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- When set to TRUE, the application uses the closest survey to calculate the TVD of a MD that has no active survey.

The following table illustrates TVD calculations when using the new System Setting.

Scenario	TVD Calculation Behavior
MD and today's survey station have been recorded by the drilling supervisor.	Calculate TVD using the survey being recorded by the drilling supervisor. (Independent of the system setting for survey projection)
MD has been recorded by the drilling supervisor on a day with no survey stations being recorded.	Calculate TVD using the survey being recorded by the drilling supervisor, even though a station was not recorded today. (Independent of the system setting for survey projection)
Days with ongoing operations (i.e. Casing/Cementing) but no progress in MD and no further survey stations recorded past the last station during drilling.	TVD is that of the last day of drilling prior to the operations with no progress. This TVD should not change until progress is made and a new survey entered (i.e. even if a survey is entered for a deeper interval it should not affect the TVD during ongoing operations with no progress). (Independent of system setting for survey projection)
Vertical well ("post hole") with a survey in a depth interval drilled prior to the current depth interval.	Calculate TVD using the survey from the previous interval when the system setting for survey projection is enabled.  TVD is blank when the system setting for survey projection is disabled.
A depth interval that does not deviate from the last inclination and azimuth of the previous interval (non-vertical, non-deviating hole section).	Calculate TVD using the survey from the previous interval when the system setting for survey projection is enabled.  TVD is blank when the system setting for survey projection is disabled.
A depth interval that deviates from the last inclination and azimuth in the previous interval.	Calculate TVD using the survey from the previous interval when the system setting for survey projection is enabled.  TVD is blank when the system setting for survey projection is disabled.
Vertical well ("post hole") with no surveys for any depth intervals.	Calculate TVD equal to MD when the system setting for survey projection is enabled.  TVD is blank when the system setting for survey projection is disabled.

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### *WITSML Halliburton SUMMIT™ Integration*

OpenWells® software allows for the import of Stimulations data from the Halliburton SUMMIT™ application using WITSML 1.3.1.1 standards.

#### **WITSML 1.3.1.1 Standards:**

The workflow outlined here is still in the process of being approved by the WITSML community.

Stimulation data imported includes:

- Intervals
- Flow Paths
- Stages
- Fluids
- Proppant
- Additives
- PDAT Session
- Step Tests
- Reservoir Intervals
- Stimulation FET Tests
- Pump Flowback Tests

Some of the Halliburton SUMMIT™ data imported is not exposed in the OpenWells® application. This data can still be queried in the Data Analyzer™ application from the following OpenWells® tables:

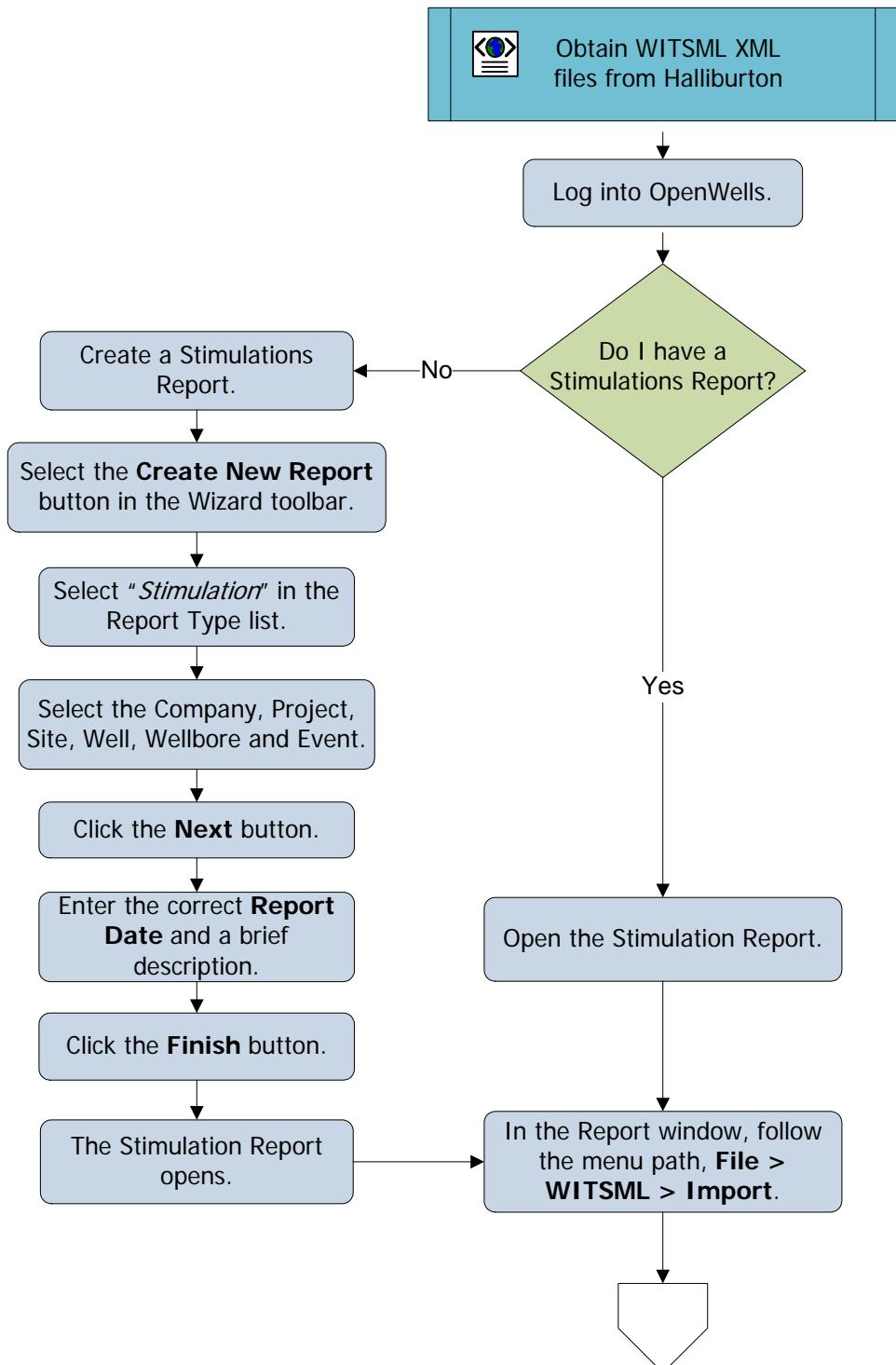
- DM\_STIM\_FET\_TEST
- DM\_STIM\_FLOWPATH
- DM\_STIM\_FLOWPATH\_STAGE
- DM\_STIM\_PUMP\_FB\_TEST
- DM\_STIM\_PUMPING\_DIAG
- DM\_STIM\_RES\_INTERVAL
- DM\_STIM\_STAGE\_SUPPLEMENT
- DM\_STIM\_STEP\_TEST

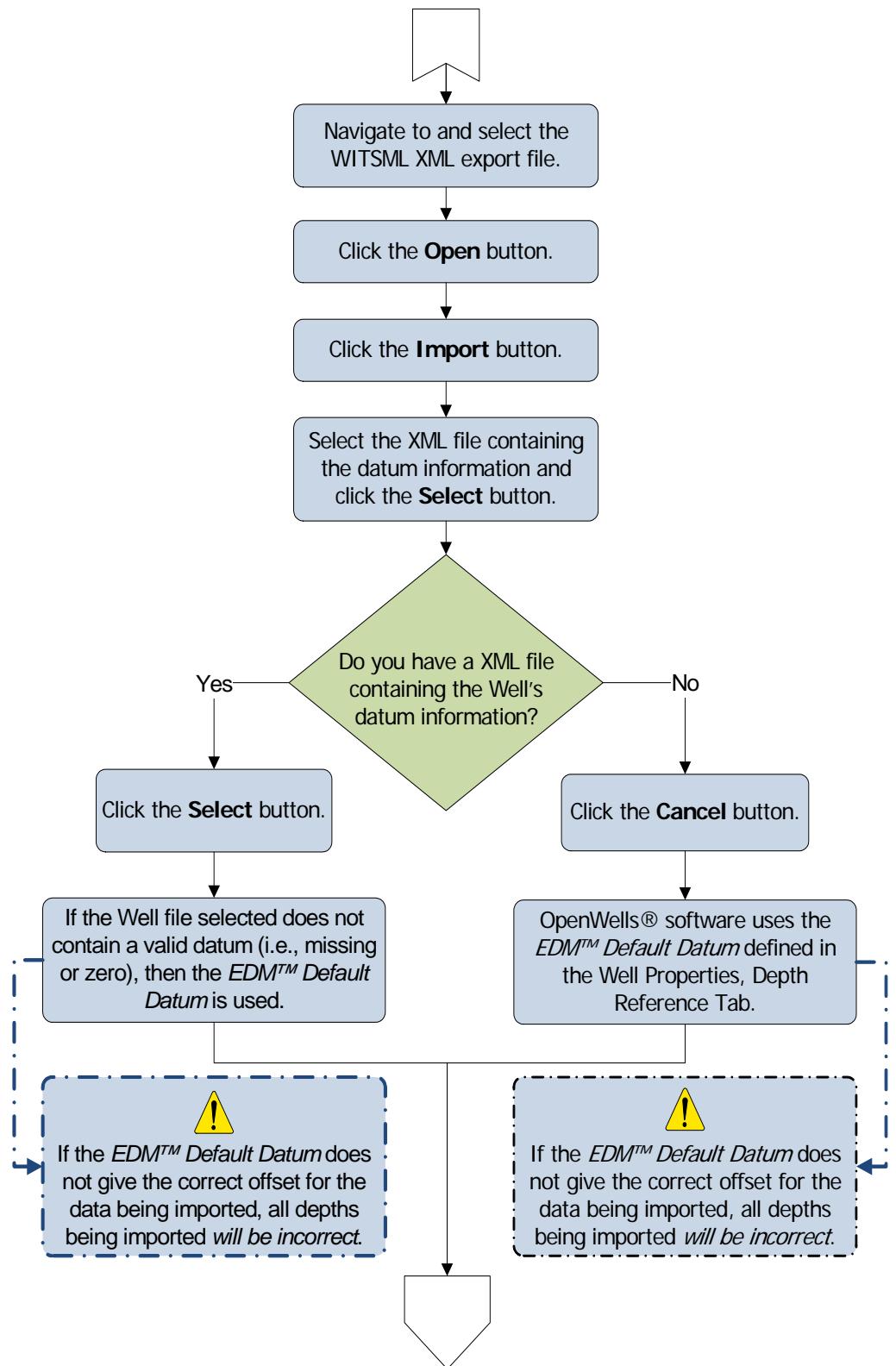
- **Importing Halliburton SUMMIT™ WITSML XML into OpenWells® software**

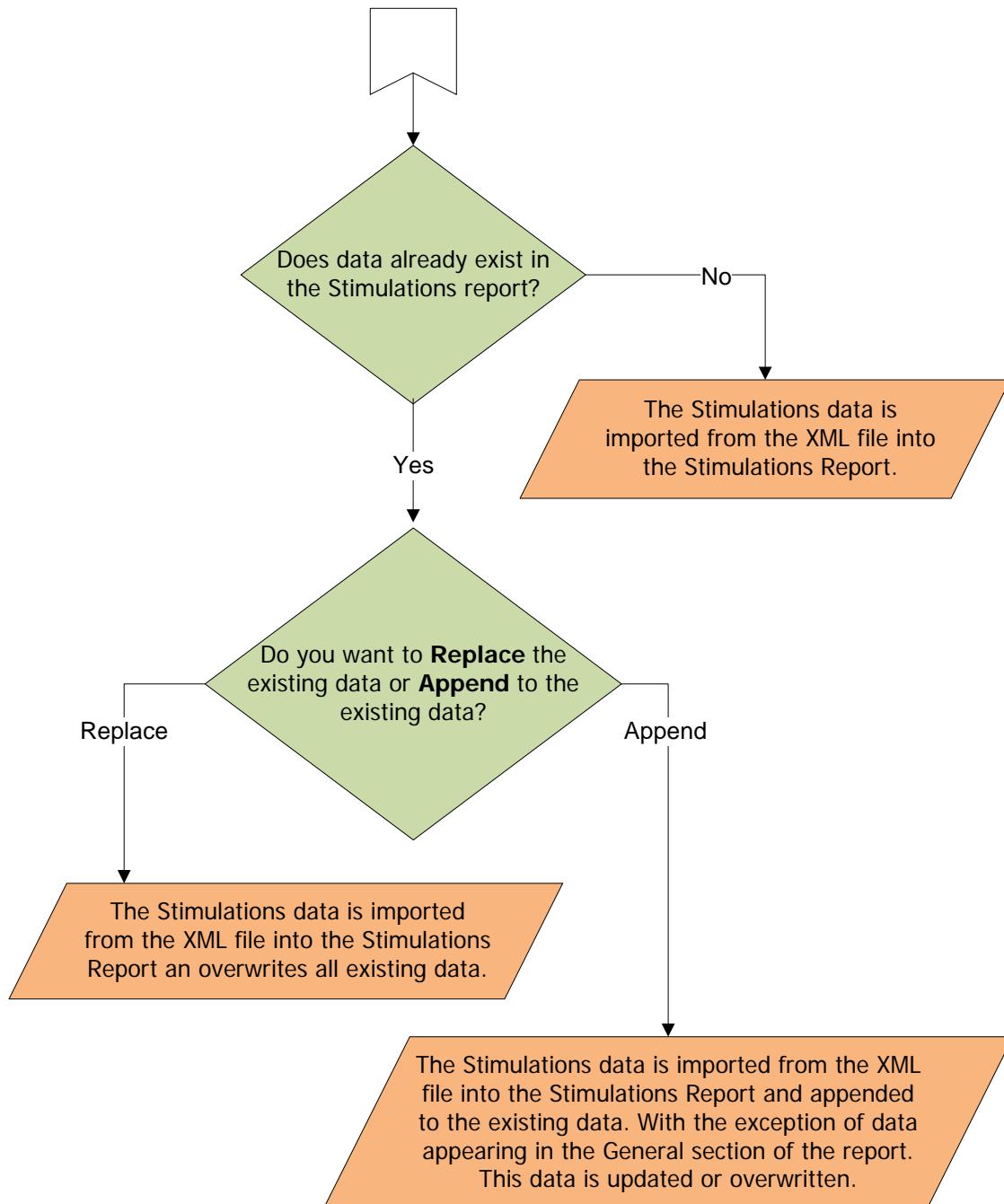
The following flowchart outlines the workflow for importing Stimulations data from into the OpenWells® application using WITSML XML files generated by the Halliburton SUMMIT™ application.

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A step by step guide to importing Halliburton SUMMIT™ WITSML XML data into OpenWells® can be found in the “Importing Halliburton SUMMIT Stimulations Data” online help topic.

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- **WITSML to OpenWells Mappings**

The following table outlines the mappings used to move data from the WITSML 1.3.1 XML file generated in the Halliburton SUMMIT™ application to the EDM™ Database.

WITSML Schema	WITSML Attri-bute	EDM Table	EDM Column	EDM Import Rule
obj_stimJob.xsd				Set DM_STIM_JOB.PHASE to ACTUAL
obj_stimJob.xsd	nameWell			
obj_stimJob.xsd	name			
obj_stimJob.xsd	version			
obj_stimJob.xsd	uid			
obj_stimJob.xsd	uidWell			
obj_stimJob.xsd	uidWellbore			
grp_stimJob.xsd				
grp_stimJob.xsd	jobType	DM_REPORT_JOURNAL	description	update existing field and truncate to 50 from 64 if needed
grp_stimJob.xsd	serviceCompany	DM_STIM_JOB	contractor	update existing field and truncate to 60 from 64 if needed
grp_stimJob.xsd	supervisor	DM_STIM_JOB	supervisor	update existing field
grp_stimJob.xsd	apiNumber			
grp_stimJob.xsd	nameStimJob			
grp_stimJob.xsd	customerName			
grp_stimJob.xsd	timeOnLocation	DM_STIM_JOB	contractor_arrival_date	update existing field
grp_stimJob.xsd	startTime	DM_STIM_JOB	job_date	update existing field
grp_stimJob.xsd	totalPumpTime			
grp_stimJob.xsd	MaxJobPressure	DM_STIM_TREATMENT	max_job_pressure	used in the calculation of DM_STIM_JOB.max_treating_pressure
grp_stimJob.xsd	MaxFluidRate	DM_STIM_JOB	max_injection_rate	not imported (calculated from DM_STIM_TREATMENT.inject_rate_max)
grp_stimJob.xsd	AvgJobPressure	DM_STIM_JOB	avg_treating_pressure	not imported (calculated)
grp_stimJob.xsd	volJob	DM_STIM_JOB	total_fluid_pumped	not imported (calculated)
grp_stimJob.xsd	totalProppantWt	DM_STIM_JOB	total_proppant_used	update existing field
grp_stimJob.xsd	proppantName			

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
grp_stimJob.xsd	totalPerfBalls			
grp_stimJob.xsd	totalN2	DM_STIM_JOB	n2_total	not imported (calculated)
grp_stimJob.xsd	totalCO2	DM_STIM_JOB	co2_total	not imported (calculated)
grp_stimJob.xsd	hhpOrdered			
grp_stimJob.xsd	hhpUsed	DM_STIM_JOB	total_hydraulic_hp	not imported (calculated)
grp_stimJob.xsd	fluidEfficiency	DM_STIM_TREATMENT	fluid_efficiency	Carry over for each interval
grp_stimJob.xsd	flowBackPressure	DM_STIM_FLOWBACK	pressure_30_min	create a DM_STIM_FLOWBACK record for this job if there is data. Populate sequence_no.
grp_stimJob.xsd	flowBackRate	DM_STIM_FLOWBACK	flowback_rate	create a DM_STIM_FLOWBACK record for this job if there is data.
grp_stimJob.xsd	flowBackVolume	DM_STIM_FLOWBACK	flowback_volume	create a DM_STIM_FLOWBACK record for this job if there is data.
grp_stimJob.xsd	numOfTreatmentIntervals			
grp_stimJob.xsd	bhStaticTemperature			
grp_stimJob.xsd	treatingBHTemperature			
cs_stimJobInterval.xsd				
cs_stimJobInterval.xsd	avgFractureWidth	DM_STIM_TREATMENT	prop_width_average	update existing field
cs_stimJobInterval.xsd	avgConductivity	DM_STIM_TREATMENT	conductivity_average	do not import since WITSML units cannot be converted to EDM units
cs_stimJobInterval.xsd	netPressure	DM_STIM_TREATMENT	net_pressure	update existing field
cs_stimJobInterval.xsd	closurePressure	DM_STIM_TREATMENT	closure_pressure	update existing field
cs_stimJobInterval.xsd	closureDuration			
cs_stimJobInterval.xsd	uidTreatmentInterval			
cs_stimJobInterval.xsd	treatmentIntervalName	DM_STIM_TREATMENT	job_type	Format with "Interval:", truncate to 50
cs_stimJobInterval.xsd	treatmentNumber	DM_STIM_TREATMENT	sequence_no	Start at max existing plus 1 and increment, to avoid duplicates. If none present, start at 0.
cs_stimJobInterval.xsd	treatmentIntervalStartTime	DM_STIM_TREATMENT	time_start	
cs_stimJobInterval.xsd	formationName	DM_STIM_TREATMENT	zone	truncate to 50 if necessary

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimJobInterval.xsd	mdFormationTop	DM_STIM_TREATMENT	interval_top	rdl depth
cs_stimJobInterval.xsd	mdFormationBottom	DM_STIM_TREATMENT	interval_base	rdl depth
cs_stimJobInterval.xsd	tvdFormationTop			
cs_stimJobInterval.xsd	tvdFormationBottom			
cs_stimJobInterval.xsd	mdPerforationsTop			
cs_stimJobInterval.xsd	mdPerforationsBottom			
cs_stimJobInterval.xsd	tvdPerforationsTop			
cs_stimJobInterval.xsd	tvdPerforationsBottom			
cs_stimJobInterval.xsd	numberOfPerfs			
cs_stimJobInterval.xsd	perfSize			
cs_stimJobInterval.xsd	perfFrictionFactor			
cs_stimJobInterval.xsd	mdJetTargetTop			
cs_stimJobInterval.xsd	mdJetTargetBottom			
cs_stimJobInterval.xsd	tvdJetTargetTop			
cs_stimJobInterval.xsd	tvdJetTargetBottom			
cs_stimJobInterval.xsd	numberOfJetTargets			
cs_stimJobInterval.xsd	jetTargetSize			
cs_stimJobInterval.xsd	totalFrictionPressureLoss			
cs_stimJobInterval.xsd	totalPumpTime			
cs_stimJobInterval.xsd	maxPressureTubing			
cs_stimJobInterval.xsd	maxPressureCasing			
cs_stimJobInterval.xsd	maxPressureAnnulus			
cs_stimJobInterval.xsd	maxFluidRateTubing			
cs_stimJobInterval.xsd	maxFluidRateCasing			
cs_stimJobInterval.xsd	maxFluidRateAnnulus			
cs_stimJobInterval.xsd	breakPressure	DM_STIM_TREATMENT	break_pressure	
cs_stimJobInterval.xsd	averagePressure	DM_STIM_JOB	avg_treating_pressure	not imported (calculated)
cs_stimJobInterval.xsd	avgCleanReturnRate			may accumulate from lower levels
cs_stimJobInterval.xsd	avgSlurryReturnRate			may accumulate from lower levels
cs_stimJobInterval.xsd	totalVolume			may accumulate from lower levels
cs_stimJobInterval.xsd	maxProppantConcSurface			may accumulate from lower levels

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimJobInterval.xsd	maxProppantConcBottomHole			may accumulate from lower levels
cs_stimJobInterval.xsd	avgProppantConcSurface	DM_STIM_TREATMENT	prop_conc_average	
cs_stimJobInterval.xsd	avgProppantConcBottomHole			
cs_stimJobInterval.xsd	proppantConcAtPerfs			
cs_stimJobInterval.xsd	totalProppant	DM_STIM_JOB	total_proppant_used	not imported (calculated)
cs_stimJobInterval.xsd	totalProppantUsage			
cs_stimJobInterval.xsd	proppantName	DM_STIM_FLUID_SCHEDULE	proppant_name	not imported, complex type, 1:n
cs_stimJobInterval.xsd	totalMassUsed			
cs_stimJobInterval.xsd	percentProppantPumped			
cs_stimJobInterval.xsd	proppantInWellbore			
cs_stimJobInterval.xsd	proppantName			
cs_stimJobInterval.xsd	proppantInformation	DM_STIM_JOB	total_proppant_in_for_mation	not imported (calculated)
cs_stimJobInterval.xsd	totalPerfBalls			
cs_stimJobInterval.xsd	totalN2	DM_STIM_TREATMENT	gas_total_n2	
cs_stimJobInterval.xsd	totalCO2	DM_STIM_TREATMENT	gas_total_co2	
cs_stimJobInterval.xsd	fluidName			
cs_stimJobInterval.xsd	fractureGradient	DM_STIM_TREATMENT	frac_gradient	units must go to measure 55
cs_stimJobInterval.xsd	finalFractGradient			
cs_stimJobInterval.xsd	initialShutInPressure	DM_STIM_TREATMENT	initial_shut_in_pressur_e	
cs_stimJobInterval.xsd	shutInPressure			not imported (complex type)
cs_stimJobInterval.xsd	pressure	DM_STIM_TREATMENT	int_shut_in_pressure_1, int_shut_in_pressure2 (note spelling), int_shut_in_pressure_3	Import first 3 then ignore
cs_stimJobInterval.xsd	timeAfterShutIn	DM_STIM_TREATMENT	int_shut_in_pressure1_time, then 2 then 3	Import first 3 then ignore
cs_stimJobInterval.xsd	screenOutPressure			
cs_stimJobInterval.xsd	hhpOrderedCO2			
cs_stimJobInterval.xsd	hhpOrderedFluid			
cs_stimJobInterval.xsd	hhpUsedCO2			
cs_stimJobInterval.xsd	hhpUsedFluid			

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimJobInterval.xsd	perfBallSize	DM_STIM_FLUID_SCHEDULE	proppant_size	not imported (note - formerly created stage & fluid records)
cs_stimJobInterval.xsd	screenedOut	DM_STIM_TREATMENT	is_screened_out	WITSML values of True, False, 0 or 1 will be converted to Y or N in EDM consecutively. If this value is missing it will be NULL in EDM.
cs_stimFlowPath.xsd				new DM_STIM_FLOWBACK record for every flow path (new child of DM_STIM_TREATMENT )
cs_stimFlowPath.xsd	pipeFrictionFactor	DM_STIM_FLOWPATH	pipe_friction_factor	
cs_stimFlowPath.xsd	stimFlowPathType	DM_STIM_FLOWPATH	stim_flowpath_type	
cs_stimFlowPath.xsd	stimFlowPathName	DM_STIM_FLOWPATH	stim_flowpath_name	
cs_stimFlowPath.xsd	flowpathDescription	DM_STIM_FLOWPATH	flowpath_description	
cs_stimFlowPath.xsd	maxTreatmentPressure	DM_STIM_FLOWPATH	max_treatment_pressure	
cs_stimFlowPath.xsd	maxSlurryRate	DM_STIM_FLOWPATH	max_slurry_rate	
cs_stimFlowPath.xsd	maxWHRate	DM_STIM_FLOWPATH	max_wh_rate	
cs_stimFlowPath.xsd	maxN2StdRate	DM_STIM_FLOWPATH	max_n2_std_rate	
cs_stimFlowPath.xsd	maxCO2LiquidRate	DM_STIM_FLOWPATH	max_co2_liquid_rate	
cs_stimFlowPath.xsd	maxGelRate	DM_STIM_FLOWPATH	max_gel_rate	
cs_stimFlowPath.xsd	maxOilRate	DM_STIM_FLOWPATH	max_oil_rate	
cs_stimFlowPath.xsd	maxAcidRate	DM_STIM_FLOWPATH	max_acid_rate	
cs_stimFlowPath.xsd	maxPropConc	DM_STIM_FLOWPATH	max_prop_conc	
cs_stimFlowPath.xsd	maxSlurryPropConc	DM_STIM_FLOWPATH	max_slurry_prop_conc	
cs_stimFlowPath.xsd	avgTreatPres	DM_STIM_FLOWPATH	avg_treatment_pressure	
cs_stimFlowPath.xsd	avgCleanRate	DM_STIM_FLOWPATH	avg_clean_rate	
cs_stimFlowPath.xsd	avgSlurryRate	DM_STIM_FLOWPATH	avg_slurry_rate	
cs_stimFlowPath.xsd	avgWHRate	DM_STIM_FLOWPATH	avg_wh_rate	
cs_stimFlowPath.xsd	avgN2StdRate	DM_STIM_FLOWPATH	avg_n2_std_rate	
cs_stimFlowPath.xsd	avgCO2LiquidRate	DM_STIM_FLOWPATH	avg_co2_std_rate	
cs_stimFlowPath.xsd	avgGelRate	DM_STIM_FLOWPATH	avg_gel_rate	
cs_stimFlowPath.xsd	avgOilRate	DM_STIM_FLOWPATH	avg_oil_rate	
cs_stimFlowPath.xsd	avgAcidRate	DM_STIM_FLOWPATH	avg_acid_rate	
cs_stimFlowPath.xsd	avgPropConc	DM_STIM_FLOWPATH	avg_prop_conc	

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimFlowPath.xsd	avgSlurryPropConc	DM_STIM_FLOWPATH	avg_slurry_prop_conc	
cs_stimFlowPath.xsd	avgTemperature	DM_STIM_FLOWPATH	avg_temperature	
cs_stimFlowPath.xsd	avgIntervalPhaseFraction	DM_STIM_FLOWPATH	avg_interval_phase_fr action	
cs_stimFlowPath.xsd	avgCleanQuality	DM_STIM_FLOWPATH	avg_clean_quality	
cs_stimFlowPath.xsd	avgN2CleanQuality	DM_STIM_FLOWPATH	avg_n2_clean_quality	
cs_stimFlowPath.xsd	avgCO2CleanQuality	DM_STIM_FLOWPATH	avg_co2_clean_quality	
cs_stimFlowPath.xsd	avgHydraulicPower	DM_STIM_FLOWPATH	avg_hydraulic_power	
cs_stimFlowPath.xsd	cleanVol	DM_STIM_FLOWPATH	clean_vol	
cs_stimFlowPath.xsd	slurryVol	DM_STIM_FLOWPATH	slurry_vol	
cs_stimFlowPath.xsd	WHVol	DM_STIM_FLOWPATH	wh_vol	
cs_stimFlowPath.xsd	N2StdVol	DM_STIM_FLOWPATH	n2_std_vol	
cs_stimFlowPath.xsd	CO2Mass	DM_STIM_FLOWPATH	co2_mass	
cs_stimFlowPath.xsd	gelVol	DM_STIM_FLOWPATH	gel_vol	
cs_stimFlowPath.xsd	oilVol	DM_STIM_FLOWPATH	oil_vol	
cs_stimFlowPath.xsd	acidVol	DM_STIM_FLOWPATH	acid_vol	
cs_stimFlowPath.xsd	cleanBypassVol	DM_STIM_FLOWPATH	clean_bypass_vol	
cs_stimFlowPath.xsd	propMass	DM_STIM_FLOWPATH	prop_mass	
cs_stimFlowPath.xsd	maxPmaxPacPres	DM_STIM_FLOWPATH	max_pmax_pac_press ure	
cs_stimFlowPath.xsd	maxPmaxWLPres	DM_STIM_FLOWPATH	max_pmax_wl_pressur e	
cs_stimFlowPath.xsd	avgPmaxPacPres	DM_STIM_FLOWPATH	avg_pmax_pac_pressu re	
cs_stimFlowPath.xsd	avgPmaxWLPres	DM_STIM_FLOWPATH	avg_pmax_wl_pressur e	
cs_stimFlowPath.xsd	SIPres5Min	DM_STIM_FLOWPATH	si_press_5_min	
cs_stimFlowPath.xsd	SIPres10Min	DM_STIM_FLOWPATH	si_press_10_min	
cs_stimFlowPath.xsd	SIPres15Min	DM_STIM_FLOWPATH	si_press_15_min	
cs_stimFlowPath.xsd	breakDownPressure	DM_STIM_FLOWPATH	break_down_pressure	
cs_stimFlowPath.xsd	percentPad	DM_STIM_FLOWPATH	percent_pad	
cs_stimFlowPath.xsd	fractureGradient	DM_STIM_FLOWPATH	fracture_gradient	
cs_stimFlowPath.xsd	tubingSize	DM_STIM_FLOWPATH	tubing_size	
cs_stimFlowPath.xsd	tubingWeight	DM_STIM_FLOWPATH	tubing_weight	
cs_stimFlowPath.xsd	casingSize	DM_STIM_FLOWPATH	casing_size	
cs_stimFlowPath.xsd	casingWeight	DM_STIM_FLOWPATH	casing_weight	

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WITSM Schema	WITSM Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimFlowPath.xsd	jobStage			
cs_stimJobStage.xsd				New DM_STIM_STAGE record, child of DM_STIM_TREATMENT , FK link to DM_STIM_FLOWPATH through new DM_STIM_FLOWPATH_STAGE record.
cs_stimJobStage.xsd	stimStageType	DM_STIM_STAGE	stage_type	Truncate to 20 if necessary; longest type in enumeration is length 21
cs_stimJobStage.xsd	stimStageName	DM_STIM_STAGE	stage_comments	
cs_stimJobStage.xsd	stageDescription	DM_STIM_STAGE	stage_comments	Append to stimStageName and place in square brackets [ ]
cs_stimJobStage.xsd	numStage	DM_STIM_STAGE	sequence_no	do not import but generate a unique ascending sequence number instead
cs_stimJobStage.xsd	startTime	DM_STIM_FLUID_SCHEDULE	time_start	Generate sequence_no in new DM_STIM_FLUID_SCHEDULE record
cs_stimJobStage.xsd	endTime	DM_STIM_FLUID_SCHEDULE	time_end	
cs_stimJobStage.xsd	pumpTime	DM_STIM_STAGE_SUPPLEMENT	pump_time	
cs_stimJobStage.xsd	startRateSurfaceLiquid	DM_STIM_STAGE_SUPPLEMENT	start_rate_surface_liquid	
cs_stimJobStage.xsd	endRateSurfaceLiquid	DM_STIM_STAGE_SUPPLEMENT	end_rate_surface_liquid	
cs_stimJobStage.xsd	avgRateSurfaceLiquid	DM_STIM_FLUID_SCHEDULE	average_fluid_rate	
cs_stimJobStage.xsd	startRateSurfaceCO2	DM_STIM_STAGE_SUPPLEMENT	start_rate_surface_co2	
cs_stimJobStage.xsd	endRateSurfaceCO2	DM_STIM_STAGE_SUPPLEMENT	end_rate_surface_co2	
cs_stimJobStage.xsd	avgRateSurfaceCO2	DM_STIM_FLUID_SCHEDULE	avg_gas_rate_co2	
cs_stimJobStage.xsd	startRateSurfaceN2	DM_STIM_STAGE_SUPPLEMENT	start_rate_surface_n2	
cs_stimJobStage.xsd	endRateSurfaceN2	DM_STIM_STAGE_SUPPLEMENT	end_rate_surface_n2	
cs_stimJobStage.xsd	avgRateSurfaceN2	DM_STIM_FLUID_SCHEDULE	avg_gas_rate_n2	

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimJobStage.xsd	startPressureSurface	DM_STIM_FLUID_SCHEDULE	see import rule	casing_pressure_initial for a Casing flowpath, tubing_pressure_initial for a Tubing flowpath. Also goes to DM_STIM_STAGE_SUPPLEMENT.start_pressure_surface.
cs_stimJobStage.xsd	endPressureSurface	DM_STIM_FLUID_SCHEDULE	see import rule	casing_pressure_final for a Casing flowpath, tubing_pressure_final for a Tubing flowpath. Also goes to DM_STIM_STAGE_SUPPLEMENT.end_pressure_surface.
cs_stimJobStage.xsd	averagePressureSurface	DM_STIM_FLUID_SCHEDULE	avg_inj_pressure	
cs_stimJobStage.xsd	startPumpRateBottomHole	DM_STIM_STAGE_SUPPLEMENT	start_pump_rate_bottom_hole	
cs_stimJobStage.xsd	endPumpRateBottomHole	DM_STIM_STAGE_SUPPLEMENT	end_pump_rate_bottom_hole	
cs_stimJobStage.xsd	avgPumpRateBottomHole	DM_STIM_STAGE_SUPPLEMENT	avg_pump_rate_bottom_hole	
cs_stimJobStage.xsd	startPressureBottomHole	DM_STIM_STAGE_SUPPLEMENT	start_pressure_bottom_hole	
cs_stimJobStage.xsd	endPressureBottomHole	DM_STIM_STAGE_SUPPLEMENT	end_pressure_bottom_hole	
cs_stimJobStage.xsd	averagePressureBottomHole	DM_STIM_STAGE_SUPPLEMENT	average_pressure_bottom_hole	
cs_stimJobStage.xsd	startProppantConcSurf ace	DM_STIM_FLUID_SCHEDULE	proppant_concentration_start	
cs_stimJobStage.xsd	endProppantConcSurfa ce	DM_STIM_FLUID_SCHEDULE	proppant_concentration_end	
cs_stimJobStage.xsd	avgProppantConcSurfa ce	DM_STIM_FLUID_SCHEDULE	proppant_concentration	
cs_stimJobStage.xsd	startProppantConcBH	DM_STIM_STAGE_SUPPLEMENT	start_proppant_conc_bh	
cs_stimJobStage.xsd	endProppantConcBH	DM_STIM_STAGE_SUPPLEMENT	end_proppant_conc_bh	
cs_stimJobStage.xsd	avgProppantConcBH	DM_STIM_STAGE_SUPPLEMENT	avg_proppant_conc_bh	
cs_stimJobStage.xsd	startFoamRateN2	DM_STIM_FLUID_SCHEDULE	start_foam_rate_n2	
cs_stimJobStage.xsd	endFoamRateN2	DM_STIM_FLUID_SCHEDULE	end_foam_rate_n2	
cs_stimJobStage.xsd	startFoamRateCO2	DM_STIM_FLUID_SCHEDULE	start_foam_rate_co2	
cs_stimJobStage.xsd	endFoamRateCO2	DM_STIM_FLUID_SCHEDULE	end_foam_rate_co2	
cs_stimJobStage.xsd	fluidVolClean	DM_STIM_FLUID_SCHEDULE	fluid_volume_clean	import to EDM Calculated Editable field

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimJobStage.xsd	fluidVolDirty	DM_STIM_STAGE_SUPPLEMENT	fluid_vol_dirty	
cs_stimJobStage.xsd	fluidVolSlurry	DM_STIM_FLUID_SCHEDULE	volume_pumped	import to EDM Calculated Editable field
cs_stimJobStage.xsd	dirtyRateBegin	DM_STIM_FLUID_SCHEDULE	pumping_rate_initial	
cs_stimJobStage.xsd	dirtyRateEnd	DM_STIM_FLUID_SCHEDULE	pumping_rate_final	
cs_stimJobStage.xsd	proppantMassWellHead	DM_STIM_STAGE_SUPPLEMENT	proppant_mass_well_head	
cs_stimJobStage.xsd	proppantMass	DM_STIM_STAGE	proppant_used	
cs_stimJobStage.xsd	maxPressure	DM_STIM_STAGE_SUPPLEMENT	max_pressure	
cs_stimJobStage.xsd	maxSlurryRate	DM_STIM_STAGE_SUPPLEMENT	max_slurry_rate	
cs_stimJobStage.xsd	maxWHRate	DM_STIM_STAGE_SUPPLEMENT	max_wh_rate	
cs_stimJobStage.xsd	maxN2Rate	DM_STIM_STAGE_SUPPLEMENT	max_n2_rate	
cs_stimJobStage.xsd	maxCO2LiquidRate	DM_STIM_STAGE_SUPPLEMENT	max_co2_liquid_rate	
cs_stimJobStage.xsd	maxPropConc	DM_STIM_STAGE_SUPPLEMENT	max_prop_conc	
cs_stimJobStage.xsd	maxSlurryPropConc	DM_STIM_STAGE_SUPPLEMENT	max_slurry_prop_conc	
cs_stimJobStage.xsd	avgPropConc	DM_STIM_STAGE_SUPPLEMENT	avg_prop_conc	
cs_stimJobStage.xsd	avgSlurryPropConc	DM_STIM_STAGE_SUPPLEMENT	avg_slurry_prop_conc	
cs_stimJobStage.xsd	avgTemperature	DM_STIM_STAGE_SUPPLEMENT	avg_temperature	
cs_stimJobStage.xsd	avgInternalPhaseFraction	DM_STIM_STAGE_SUPPLEMENT	avg_internal_phase_fraction	
cs_stimJobStage.xsd	avgCleanQuality	DM_STIM_STAGE_SUPPLEMENT	avg_clean_quality	
cs_stimJobStage.xsd	avgN2CleanQuality	DM_STIM_STAGE_SUPPLEMENT	avg_n2_clean_quality	
cs_stimJobStage.xsd	avgCO2CleanQuality	DM_STIM_STAGE_SUPPLEMENT	avg_co2_clean_quality	
cs_stimJobStage.xsd	avgHydraulicPower	DM_STIM_STAGE_SUPPLEMENT	avg_hydraulic_power	
cs_stimJobStage.xsd	avgCleanRate	DM_STIM_STAGE_SUPPLEMENT	avg_clean_rate	
cs_stimJobStage.xsd	avgDirtyRate	DM_STIM_STAGE_SUPPLEMENT	avg_dirty_rate	
cs_stimJobStage.xsd	avgWHRate	DM_STIM_STAGE_SUPPLEMENT	avg_wh_rate	

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimJobStage.xsd	avgN2Rate	DM_STIM_STAGE_SUPPLEMENT	avg_n2_rate	
cs_stimJobStage.xsd	avgCO2Rate	DM_STIM_STAGE_SUPPLEMENT	avg_co2_rate	
cs_stimJobStage.xsd	cleanVol	DM_STIM_STAGE_SUPPLEMENT	clean_vol	
cs_stimJobStage.xsd	slurryVol	DM_STIM_STAGE_SUPPLEMENT	slurry_vol	
cs_stimJobStage.xsd	wellheadVol	DM_STIM_STAGE_SUPPLEMENT	wellhead_vol	
cs_stimJobStage.xsd	maxPmaxPacPres	DM_STIM_STAGE_SUPPLEMENT	max_pmax_pac_pres	
cs_stimJobStage.xsd	maxPmaxWLPres	DM_STIM_STAGE_SUPPLEMENT	max_pmax_wl_pres	
cs_stimJobStage.xsd	maxGelRate	DM_STIM_STAGE_SUPPLEMENT	max_gel_rate	
cs_stimJobStage.xsd	maxOilRate	DM_STIM_STAGE_SUPPLEMENT	max_oil_rate	
cs_stimJobStage.xsd	maxAcidRate	DM_STIM_STAGE_SUPPLEMENT	max_acid_rate	
cs_stimJobStage.xsd	avgGelRate	DM_STIM_STAGE_SUPPLEMENT	avg_gel_rate	
cs_stimJobStage.xsd	avgOilRate	DM_STIM_STAGE_SUPPLEMENT	avg_oil_rate	
cs_stimJobStage.xsd	avgAcidRate	DM_STIM_STAGE_SUPPLEMENT	avg_acid_rate	
cs_stimJobStage.xsd	gelVolume	DM_STIM_STAGE_SUPPLEMENT	gel_volume	
cs_stimJobStage.xsd	oilVolume	DM_STIM_STAGE_SUPPLEMENT	oil_volume	
cs_stimJobStage.xsd	acidVolume	DM_STIM_STAGE_SUPPLEMENT	acid_volume	
cs_stimJobStage.xsd	cleanBypassVolume	DM_STIM_STAGE_SUPPLEMENT	clean_bypass_volume	
cs_stimJobStage.xsd	frictionFactor	DM_STIM_STAGE	friction_casing	
cs_stimJobStage.xsd	stageFluid			
cs_stimFluid.xsd				When the cs_stimFluid object is found in the file, create a new DM_STIM_FLUID record with a unique sequence number. Put its key into the current DM_STIM_FLUID_SCH
cs_stimFluid.xsd	nameFluid	DM_STIM_FLUID	fluid_name	
cs_stimFluid.xsd	fluidVol	DM_STIM_FLUID	volume_pumped	do not import. Create a new schedule record. Link to the current fluid record (fill in the key).
cs_stimFluid.xsd	waterSource			

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimFluid.xsd	stimAdditive			
cs_stimFluid.xsd	stimProppant			
cs_stimAdditive.xsd				New DM_STIM_FLUID_ADD record
cs_stimAdditive.xsd	nameAdd	DM_STIM_FLUID_ADD	additive_name	truncate to 25 if necessary; schema allows 64
cs_stimAdditive.xsd	typeAdd	DM_STIM_FLUID_ADD	additive_type	truncate to 32 if necessary
cs_stimAdditive.xsd	volume	DM_STIM_FLUID_ADD	amount_used	import without unit conversion and add uom (e. g. "galUS") to DM_STIM_FLUID_ADD. additive_unit truncate to 32 if necessary
cs_stimProppant.xsd				
cs_stimProppant.xsd	nameProppant	DM_STIM_FLUID_SCHEDULE	proppant_name	truncate to 16 if necessary; schema allows 64
cs_stimProppant.xsd	typeProppant	DM_STIM_FLUID_SCHEDULE	proppant_name	Append the type to the name inside square brackets. If the result exceeds 16 characters, truncate to 16.
cs_stimProppant.xsd	weight	DM_STIM_FLUID_SCHEDULE	proppant_used	
cs_stimProppant.xsd	sieveSize	DM_STIM_FLUID_SCHEDULE	proppant_size	
cs_stimPDatSession.xsd				New DM_STIM_PUMPING_DIAG under DM_STIM_TREATMENT
cs_stimPDatSession.xsd	sessionName	DM_STIM_PUMPING_DIAG	session_name	
cs_stimPDatSession.xsd	description	DM_STIM_PUMPING_DIAG	description	
cs_stimPDatSession.xsd	sessionNumber	DM_STIM_PUMPING_DIAG	session_number	
cs_stimPDatSession.xsd	pumpOnTime	DM_STIM_PUMPING_DIAG	pump_on_time	
cs_stimPDatSession.xsd	pumpOffTime	DM_STIM_PUMPING_DIAG	pump_off_time	
cs_stimPDatSession.xsd	shutInTime	DM_STIM_PUMPING_DIAG	shutin_time	
cs_stimPDatSession.xsd	fracCloseTime	DM_STIM_PUMPING_DIAG	frac_close_time	
cs_stimPDatSession.xsd	pumpDuration	DM_STIM_PUMPING_DIAG	pump_duration	
cs_stimPDatSession.xsd	avgBottomHoleTreatmentPressure	DM_STIM_PUMPING_DIAG	avg_bh_treatment_pressure	

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimPDataSession.xsd	BhHydrostaticPressure	DM_STIM_PUMPING_D_IAG	bh_hydrostatic_pressure	
cs_stimPDataSession.xsd	bubblePointPressure	DM_STIM_PUMPING_D_IAG	bubble_point_pressure	
cs_stimPDataSession.xsd	fractureClosePressure	DM_STIM_PUMPING_D_IAG	fracture_close_pressure	
cs_stimPDataSession.xsd	frictionPressure	DM_STIM_PUMPING_D_IAG	friction_pressure	
cs_stimPDataSession.xsd	initialSIPressure	DM_STIM_PUMPING_D_IAG	initial_si_pressure	
cs_stimPDataSession.xsd	porePressure	DM_STIM_PUMPING_D_IAG	pore_pressure	
cs_stimPDataSession.xsd	avgBHTreatmentRate	DM_STIM_PUMPING_D_IAG	avg_bh_treatment_rate	
cs_stimPDataSession.xsd	fluidDensity	DM_STIM_PUMPING_D_IAG	fluid_density	
cs_stimPDataSession.xsd	cleanVolume	DM_STIM_PUMPING_D_IAG	clean_volume	
cs_stimPDataSession.xsd	wellBoreVolume	DM_STIM_PUMPING_D_IAG	wellbore_volume	
cs_stimPDataSession.xsd	surfaceMD	DM_STIM_PUMPING_D_IAG	surface_md	
cs_stimPDataSession.xsd	bottomHoleMD	DM_STIM_PUMPING_D_IAG	bottom_hole_md	
cs_stimPDataSession.xsd	midPerforationsMD	DM_STIM_PUMPING_D_IAG	mid_perforations_md	
cs_stimPDataSession.xsd	midPerforationsTVD	DM_STIM_PUMPING_D_IAG	mid_perforations_tvd	
cs_stimPDataSession.xsd	surfaceTemperature	DM_STIM_PUMPING_D_IAG	surface_temperature	
cs_stimPDataSession.xsd	bottomHoleTemperature	DM_STIM_PUMPING_D_IAG	bottom_hole_temperature	
cs_stimPDataSession.xsd	surfaceFluidTemperature	DM_STIM_PUMPING_D_IAG	surface_fluid_temperature	
cs_stimPDataSession.xsd	fluidCompressibility	DM_STIM_PUMPING_D_IAG	fluid_compressibility	
cs_stimPDataSession.xsd	resevoirTotalCompressibility	DM_STIM_PUMPING_D_IAG	res_total_compressibility	
cs_stimPDataSession.xsd	fluidNPrimeFactor	DM_STIM_PUMPING_D_IAG	fluid_nprime_factor	
cs_stimPDataSession.xsd	fluidKPrimeFactor	DM_STIM_PUMPING_D_IAG	fluid_kprime_factor	
cs_stimPDataSession.xsd	fluidSpecificHeat	DM_STIM_PUMPING_D_IAG	fluid_specific_heat	
cs_stimPDataSession.xsd	fluidThermalConductivity	DM_STIM_PUMPING_D_IAG	fluid_thermal_conductivity	
cs_stimPDataSession.xsd	fluidThermalExpansionCoefficient	DM_STIM_PUMPING_D_IAG	fluid_thermal_expansion_coeff	

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimPDataSession.xsd	fluidEfficiency	DM_STIM_PUMPING_D_IAG	fluid_efficiency	
cs_stimPDataSession.xsd	foamQuality	DM_STIM_PUMPING_D_IAG	foam_quality	
cs_stimPDataSession.xsd	percentPad	DM_STIM_PUMPING_D_IAG	percent_pad	
cs_stimPDataSession.xsd	stageNumber	DM_STIM_PUMPING_D_IAG	stage_number	
cs_stimPDataSession.xsd	temperatureCorrelatedCalculations	DM_STIM_PUMPING_D_IAG	is_temp_correlated_calc	
cs_stimStepTest.xsd				New DM_STIM_STEP_TEST under current DM_STIM_PUMPING_D_IAG
cs_stimStepTest.xsd	pressure	DM_STIM_STEP_TEST	pressure	
cs_stimStepTest.xsd	bottomHoleRate	DM_STIM_STEP_TEST	bottom_hole_rate	
cs_stimStepTest.xsd	fractureExtensionPressure	DM_STIM_STEP_TEST	fracture_extension_pressure	
cs_stimReservoirInterval.xsd				New DM_STIM_RES_INTERVAL under current DM_STIM_TREATMENT
cs_stimReservoirInterval.xsd	lithTopMD	DM_STIM_RES_INTERVAL	lith_top_md	
cs_stimReservoirInterval.xsd	lithBottomMD	DM_STIM_RES_INTERVAL	lith_bottom_md	
cs_stimReservoirInterval.xsd	lithFormationPermeability	DM_STIM_RES_INTERVAL	lith_formation_permeability	
cs_stimReservoirInterval.xsd	lithYoungsModulus	DM_STIM_RES_INTERVAL	lith_youngs_modulus	
cs_stimReservoirInterval.xsd	lithPorePressure	DM_STIM_RES_INTERVAL	lith_pore_pressure	
cs_stimReservoirInterval.xsd	lithNetPayThickness	DM_STIM_RES_INTERVAL	lith_net_pay_thickness	
cs_stimReservoirInterval.xsd	lithName	DM_STIM_RES_INTERVAL	lith_name	
cs_stimReservoirInterval.xsd	netPayTopMD	DM_STIM_RES_INTERVAL	net_pay_top_md	
cs_stimReservoirInterval.xsd	netPayBottomMD	DM_STIM_RES_INTERVAL	net_pay_bottom_md	
cs_stimReservoirInterval.xsd	netPayGrossThickness	DM_STIM_RES_INTERVAL	net_pay_gross_thickness	
cs_stimReservoirInterval.xsd	netPayNetPayThickness	DM_STIM_RES_INTERVAL	net_pay_net_pay_thickness	
cs_stimReservoirInterval.xsd	netPayPorePressure	DM_STIM_RES_INTERVAL	net_pay_pore_pressure	
cs_stimReservoirInterval.xsd	netPayFluidCompressibility	DM_STIM_RES_INTERVAL	net_pay_fluid_compressibility	

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WITSML Schema	WITSML Attribute	EDM Table	EDM Column	EDM Import Rule
cs_stimReservoirInterv al.xsd	netPayFluidViscosity	DM_STIM_RES_INTER VAL	net_pay_fluid_viscosity	
cs_stimReservoirInterv al.xsd	netPayName	DM_STIM_RES_INTER VAL	net_pay_name	
cs_stimReservoirInterv al.xsd	netPayFormationPerme ability	DM_STIM_RES_INTER VAL	net_pay_formation_pe rmeability	
cs_stimReservoirInterv al.xsd	lithPoissonsRatio	DM_STIM_RES_INTER VAL	lith_poissons_ratio	
cs_stimReservoirInterv al.xsd	netPayFormationPorosi ty	DM_STIM_RES_INTER VAL	net_pay_formation_po rosity	
cs_stimReservoirInterv al.xsd	lithFormationPorosity	DM_STIM_RES_INTER VAL	lith_formation_porosity	
cs_stimFetTest.xsd				New DM_STIM_FET_TEST under current DM_STIM_PUMP_DIAG
cs_stimFetTest.xsd	startTime	DM_STIM_FET_TEST	start_time	
cs_stimFetTest.xsd	endTime	DM_STIM_FET_TEST	end_time	
cs_stimFetTest.xsd	endPDLDuration	DM_STIM_FET_TEST	end_pdl_duration	
cs_stimFetTest.xsd	fractureClosingDuratio n	DM_STIM_FET_TEST	fracture_closing_durati on	
cs_stimFetTest.xsd	fractureClosingPressur e	DM_STIM_FET_TEST	fracture_closing_press ure	
cs_stimFetTest.xsd	fractureExtensionPress ure	DM_STIM_FET_TEST	fracture_extension_pre ssure	
cs_stimFetTest.xsd	netPressure	DM_STIM_FET_TEST	net_pressure	
cs_stimFetTest.xsd	porePressure	DM_STIM_FET_TEST	pore_pressure	
cs_stimFetTest.xsd	pseudoRadialPressure	DM_STIM_FET_TEST	pseudo_radial_pressur e	
cs_stimFetTest.xsd	fractureLength	DM_STIM_FET_TEST	fracture_length	
cs_stimFetTest.xsd	fractureWidth	DM_STIM_FET_TEST	fracture_width	
cs_stimFetTest.xsd	fluidEfficiency	DM_STIM_FET_TEST	fluid_efficiency	
cs_stimFetTest.xsd	pDLCoef	DM_STIM_FET_TEST	pdl_coef	
cs_stimFetTest.xsd	residualPermeability	DM_STIM_FET_TEST	residual_permeability	
cs_stimPumpFlowBack Test.xsd				New DM_STIM_PUMP_FB_T EST under current DM_STIM_PUMP_DIAG
cs_stimPumpFlowBack Test.xsd	fractureCloseDuration	DM_STIM_PUMP_FB_T EST	fracture_close_duratio n	
cs_stimPumpFlowBack Test.xsd	fractureClosePressure	DM_STIM_PUMP_FB_T EST	fracture_close_pressur e	

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- **WITSML to EDM Unit Mappings**

The following table outlines the units used when mapping data from the WITSML 1.3.1 XML file generated in the Halliburton SUMMIT™ application to the EDM™ Database

WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
compressibilityUom				
	1/psi	93	1/psi	Type 19, fluid compressibility
	1/upsi			
	1/Pa	90	1/Pa	Type 19, fluid compressibility
	1/bar	358	1/bar	Type 19, fluid compressibility
	1/kPa	91	1/kPa	Type 19, fluid compressibility
	1/pPa			
densityMeasure densityUom				
	kg/m3	51	kg/m³	Type 14, density
	10Mg/m3			
	dAPI	62	deg API	Type 14, density
	g/cm3	49	g/cc	Type 14, density
	g/dm3			
	g/galUK			
	g/galUS			
	g/L	555	g/L	Type 14, density
	g/m3			
	grain/ft3			
	grain/galUS			
	grain/100ft3			
	kg/dm3			
	kg/L	58	kg/L	Type 14, density
	Mg/m3			
	lbm/10bbl			
	lbm/bbl	50	lbm/bbl	Type 14, density
	lbm/ft3	52	lbm/ft³	Type 14, density

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	lbm/galUK			
	lbm/1000galUK			
	lbm/galUS	57	ppg	Type 14, density
	lbm/1000galUS	463	lbm/1000gal	Type 14, density
	lbm/in <sup>3</sup>			
	lbm/Mbbl			
	mg/dm <sup>3</sup>			
	mg/galUS			
	mg/L	61	mg/L	Type 14, density
	mg/m <sup>3</sup>			
	ug/cm <sup>3</sup>			
<b>dimensionlessUom</b>				
	Euc			
	%	154	%	Type 29, dimensionless
	cEuc			
	mEuc			
	nEuc			
	uEuc			
<b>dynamicViscosityMeasure</b>				
<b>dynamicViscosityUom</b>				
	Pa.s	254	Pa*s	Type 48, viscosity
	cP	256	cp	Type 48, viscosity
	P			
	psi.s			
	dyne.s/cm <sup>2</sup>			
	kgf.s/m <sup>2</sup>			
	lbf.s/ft <sup>2</sup>			
	lbf.s/in <sup>2</sup>			
	mPa.s	259	mPa*s	Type 48, viscosity
	N.s/m <sup>2</sup>			
<b>forcePerVolumeUom</b>				

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	N/m3			
	atm/100m			
	atm/m			
	bar/km			
	bar/m	174	bar/m	Type 33, pressure gradient
	GPa/cm			
	kPa/100m	381	kPa/100m	Type 70, frictional loss
	kPa/m	168	kPa/m	Type 33, pressure gradient
	lbf/ft3			
	lbf/galUS			
	MPa/m			
	psi/ft	167	psi/ft	Type 33, pressure gradient
	psi/100ft			
	psi/kft	54	psi/kft	Type 14, density
	psi/m			
	Pa/m			
	atm/ft			
<b>lengthMeasure</b>				
<b>lengthUom</b>				
	m	121	m	Type 24, length
	angstrom			
	chBnA			
	chBnB			
	chCla			
	chSe			
	chUS			
	cm	127	cm	Type 24, length
	dm			
	fathom			
	fm			
	ft	122	ft	Type 24, length

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	ftBnA			
	ftBnB			
	ftBr(65)			
	ftCla			
	ftGC			
	ftInd			
	ftInd(37)			
	ftInd(62)			
	ftInd(75)			
	ftMA			
	ftSe			
	ftUS			
	in	124	in	Type 24, length
	in/10			
	in/16	126	16th"	Type 24, length
	in/32	120	32nd"	Type 24, length
	in/64	123	64th"	Type 24, length
	inUS	124	in	Type 24, length
	km	303	km	Type 24, length
	lkBnA			
	lkBnB			
	lkCla			
	lkSe			
	lkUS			
	mGer			
	mi	304	mi	Type 24, length
	mil			
	miUS			
	mm	128	mm	Type 24, length
	Mm			
	nautmi	462	nM	Type 24, length

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	nm	462	nM	Type 24, length
	pm			
	um	125	μm	Type 24, length
	yd	340	yard	Type 24, length
	ydBnA			
	ydBnB			
	ydCla			
	ydlm			
	ydlnd			
	ydlnd(37)			
	ydlnd(62)			
	ydlnd(75)			
	ydSe			
<b>massMeasure</b>				
<b>massUom</b>				
	kg	135	kg	Type 25, mass
	ag			
	ct			
	cwtUK			
	cwtUS			
	g	131	gram	Type 25, mass
	grain			
	klbm	132	klbm	Type 25, mass
	lbm	136	lbm	Type 25, mass
	Mg			
	mg			
	oz(av)			
	oz(troy)			
	ozm			
	sack94	315	94lb sacks	Type 25, mass
	t	130	ton	Type 25, mass

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	tonUK			
	tonUS			
	ug			
<b>massPerLengthMeasure</b>				
<b>massPerLengthUom</b>				
	kg/m	139	kg/m	Type 26, mass per distance
	klbm/in			
	lbm/ft	138	lbm/ft	Type 26, mass per distance
	Mg/in			
	kg.m/cm <sup>2</sup>	357	kg/cm <sup>2</sup> m	Type 14, density
	PercentUom	154	%	Type 29, dimensionless
<b>permeabilityMeasure</b>				
<b>permeabilityUom</b>				
	D	63	darcy	Type 15, effective permeability
	mD	65	md	Type 15, effective permeability
<b>powerMeasure</b>				
<b>powerUom</b>				
	W	159	Watt	Type 31, power
	ch			
	CV			
	ehp			
	GW			
	hhp	225	MJ	Type 44, ton-mile
	hp	160	hp	Type 31, power
	kcal/h			
	kW	158	kW	Type 31, power
	MJ/a			
	MW			
	mW			
	nW			
	ton of refrigeration			

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	TW			
	uW			
pressureMeasure				
pressureUom				
	Pa	190	Pa	Type 34, pressure
	at			
	atm	367	atm	Type 34, pressure
	bar	186	bar	Type 34, pressure
	cmH2O(4degC)			
	dyne/cm <sup>2</sup>			
	GPa	179	GPa	Type 34, pressure
	hbar			
	inH2O(39.2F)	191	inH2O	Type 34, pressure
	inH2O(60F)			
	inHg(32F)	177	in-Hg	Type 34, pressure
	inHg(60F)			
	kgf/cm <sup>2</sup>	182	kgf/cm <sup>2</sup>	Type 34, pressure
	kgf/mm <sup>2</sup>			
	kN/m <sup>2</sup>			
	kPa	188	kPa	Type 34, pressure
	kpsi	189	ksi	Type 34, pressure
	lbf/ft <sup>2</sup>			
	lbf/100ft <sup>2</sup>	187	lbf/100ft <sup>2</sup>	Type 34, pressure
	lbf/in <sup>2</sup>			
	mbar	184	mbar	Type 34, pressure
	mmHg(0C)	178	mm-Hg	Type 34, pressure
	mPa	425	MPa	Type 74, pressure change
	MPa	181	MPa	Type 34, pressure
	Mpsi	180	Mpsi	Type 34, pressure
	N/m <sup>2</sup>			
	N/mm <sup>2</sup>			

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	Pa(g)			
	pPa			
	psi	185	psi	Type 34, pressure
	psia			
	psig	370	psig	Type 34, pressure
	tonfUS/ft2			
	tonfUS/in2			
	torr			
	ubar	359	E-06/bar	Type 19, fluid compressibility
	umHg(0C)			
	uPa			
	upsi	362	E-06/psi	Type 19, fluid compressibility
specificHeatCapacityMeasure				
specificHeatCapacityUom				
	J/kg.K	331	joule/gK	Type 63, specific heat capacity
	Btu/lbm.degF	333	BTU/lbm°F	Type 63, specific heat capacity
	Btu/lbm.degR			
	cal/g.K			
	J/g.K			
	kcal/kg.degC	334	kcal/kg°C	Type 63, specific heat capacity
	kJ/kg.K			
	kW.h/kg.degC	373	kW-hr/kg-°C	Type 63, specific heat capacity
thermalConductivityUom				
	W/m.K			
	Btu/hr.ft.degF	335	BTU/hft°F	Type 64, thermal conductivity
	cal/h.cm.degC			
	kcal/h.m.degC			
	cal/s.cm.degC			
thermodynamicTemperatureMeasure				
thermodynamicTemperatureUom				
	K	429	K	Type 75, temperature change
	degC	212	°C	Type 41, temperature

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	degF	213	°F	Type 41, temperature
	degR	376	°R	Type 41, temperature
<b>timeMeasure</b>				
<b>timeUom</b>				
	s	215	sec	Type 42, time
	a			
	cs			
	d	218	days	Type 42, time
	Ga			
	h	214	hr	Type 42, time
	100s			
	Ma			
	min	216	min	Type 42, time
	ms	47	mS	Known issues (type 12), do not use
	ms/2			
	ns			
	ps			
	us			
	wk			
	100ka			
<b>velocityMeasure</b>				
<b>velocityUom</b>				
	m/s	248	m/s	Type 47, velocity
	cm/a			
	cm/s			
	dm/s			
	ft/d	251	ft/day	Type 47, velocity
	ft/h	246	ft/hr	Type 47, velocity
	ft/min	249	ft/min	Type 47, velocity
	ft/ms			
	ft/s	250	ft/s	Type 47, velocity

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	ft/us			
	in/a			
	in/min			
	in/s			
	kft/h	241	kft/hr	Type 47, velocity
	kft/s			
	km/h	252	km/hr	Type 47, velocity
	km/s			
	knot	244	nautical miles per hour	Type 47, velocity
	m/d	242	m/day	Type 47, velocity
	m/h	245	m/hr	Type 47, velocity
	m/min	247	m/min	Type 47, velocity
	m/ms			
	mi/h	243	mph	Type 47, velocity
	mil/yr			
	mm/a			
	mm/s			
	nm/s			
	um/s			
<b>volumeFlowRateMeasure</b>				
<b>volumeFlowRateUom</b>				
	m3/s	70	m³/s	Type 16, flow
	bbl/d	66	bbl/D	Type 16, flow
	bbl/hr	453	bbl/hr	Type 16, flow
	bbl/min	80	bbl/min	Type 16, flow
	cm3/30min	455	cc/30min	Type 16, flow
	cm3/h			
	cm3/min			
	cm3/s			
	dm3/s			
	ft3/d	68	ft³/D	Type 16, flow

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	ft3/h			
	ft3/min	78	ft <sup>3</sup> /min	Type 16, flow
	ft3/s	77	ft <sup>3</sup> /s	Type 16, flow
	galUK/d			
	galUK/hr			
	galUK/min			
	galUS/d			
	galUS/hr			
	galUS/min	75	gpm	Type 16, flow
	kbbi/d			
	1000ft3/d			
	1000m3/d			
	1000m3/h			
	L/h			
	L/min	79	L/min	Type 16, flow
	L/s			
	m3/d	72	m <sup>3</sup> /D	Type 16, flow
	m3/h	73	m <sup>3</sup> /hr	Type 16, flow
	m3/min			
	Mbbl/d			
	M(ft3)/d			
	M(m3)/d			
<b>volumeMeasure</b>				
<b>volumeUom</b>				
	m3	287	m <sup>3</sup>	Type 53, volume
	acre.ft			
	bbl	285	bbl	Type 53, volume
	bcf			
	cm3	292	cc	Type 53, volume
	dm3	492	dm <sup>3</sup>	Type 53, volume
	flozUK			

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	flozUS			
	ft3	284	ft <sup>3</sup>	Type 53, volume
	galUK			
	galUS	286	gal	Type 53, volume
	ha.m			
	hL			
	in3	288	in <sup>3</sup>	Type 53, volume
	1000ft3			
	km3			
	L	291	L	Type 53, volume
	Mbbl			
	Mcf			
	M(ft3)			
	mi3			
	mL	283	mL	Type 53, volume
	M(m3)			
	mm3	289	mm <sup>3</sup>	Type 53, volume
	MMbbl			
	ptUK			
	ptUS			
	qtUK			
	qtUS			
	tcf			
	um2.m			
	yd3			
<b>volumePerVolumeMeasure</b>				
<b>volumePerVolumeUom</b>				
	Euc			
	%	154	%	Type 29, dimensionless
	permil			
	ppdk			

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	ppk			
	ppm	39	ppm	Type 10, concentration
	bbl/acre.ft			
	bbl/bbl	477	bbl/bbl	Type 61, liquid concentration (vol/vol)
	bbl/ft3			
	bbl/100bbl			
	bbl/k(ft3)			
	bbl/M(ft3)			
	cm3/cm3			
	cm3/m3			
	dm3/m3			
	ft3/bbl	310	scf/bbl	Type 60, volume ratio
	ft3/ft3	321	ft <sup>3</sup> /ft <sup>3</sup>	Type 61, liquid concentration (vol/vol)
	galUS/kgalUS			
	galUK/kgalUK			
	galUK/ft3			
	galUK/Mbbl			
	galUS/bbl			
	galUS/10bbl			
	galUS/ft3			
	galUS/Mbbl			
	1000ft3/bbl			
	ksm3/sm3			
	L/10bbl			
	L/m3	323	L/m <sup>3</sup>	Type 61, liquid concentration (vol/vol)
	m3/ha.m			
	m3/m3	396	m <sup>3</sup> /m <sup>3</sup>	Type 60, volume ratio
	M(ft3)/acre.ft			
	mL/galUK			

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WITSML Unit Type	WITSML Unit of Measure	EDM ID	EDM Label	EDM Type
	mL/galUS			
	mL/mL	38	mL/mL	Type 10, concentration
	MMbbl/acre.ft			
	MMscf60/stb60			
	Mscf60/stb60	473	Mscf/bbl	Type 60, volume ratio
	ptUK/Mbbl			
	ptUS/10bbl			
	pu			
	scm15/stb60			
	sm3/ksm3			
	sm3/sm3			
	stb60/MMscf60			
	stb60/MMscm15			
	stb60/Mscf60			
	stb60/Mscm15			
	stb60/scm15			

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

The 5000.1.2 release is an incremental update of OpenWells software. The primary focus of this update has been to enhance the user experience and to expedite user workflows. This has been accomplished through the addition of a number of features including:

- Stimulation Report
  - Treatments area in the Stimulation Report - The Treatments area allows users to record multiple treatment intervals in one Stimulation Report.
  - WYSIWYG - The Stimulation report now comes with a WYSIWYG (What You See Is What You Get) data entry form.

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- Volume Pumped calculation - The Volume Pumped calculation has a new System Setting to allow administrator to change how this field is calculated.
- Batch Printing

Batch printing has been improved to help to free up the users time so they can concentrate on other important aspects of their job. Output Reports can now:

- be printed for multiple Projects, Sites, Wells, Wellbores and Events,
- be collated into one print job,
- be saved to one or multiple PDF files,
- have sections included/removed during the print job.

In addition, once a Batch print job has been set up, the application can be set to remember it for the next time the Print Wizard is opened.

- Improved Default Security

Changes to the Administration tokens allow Companies to delegate the Administration role among a number of different users.

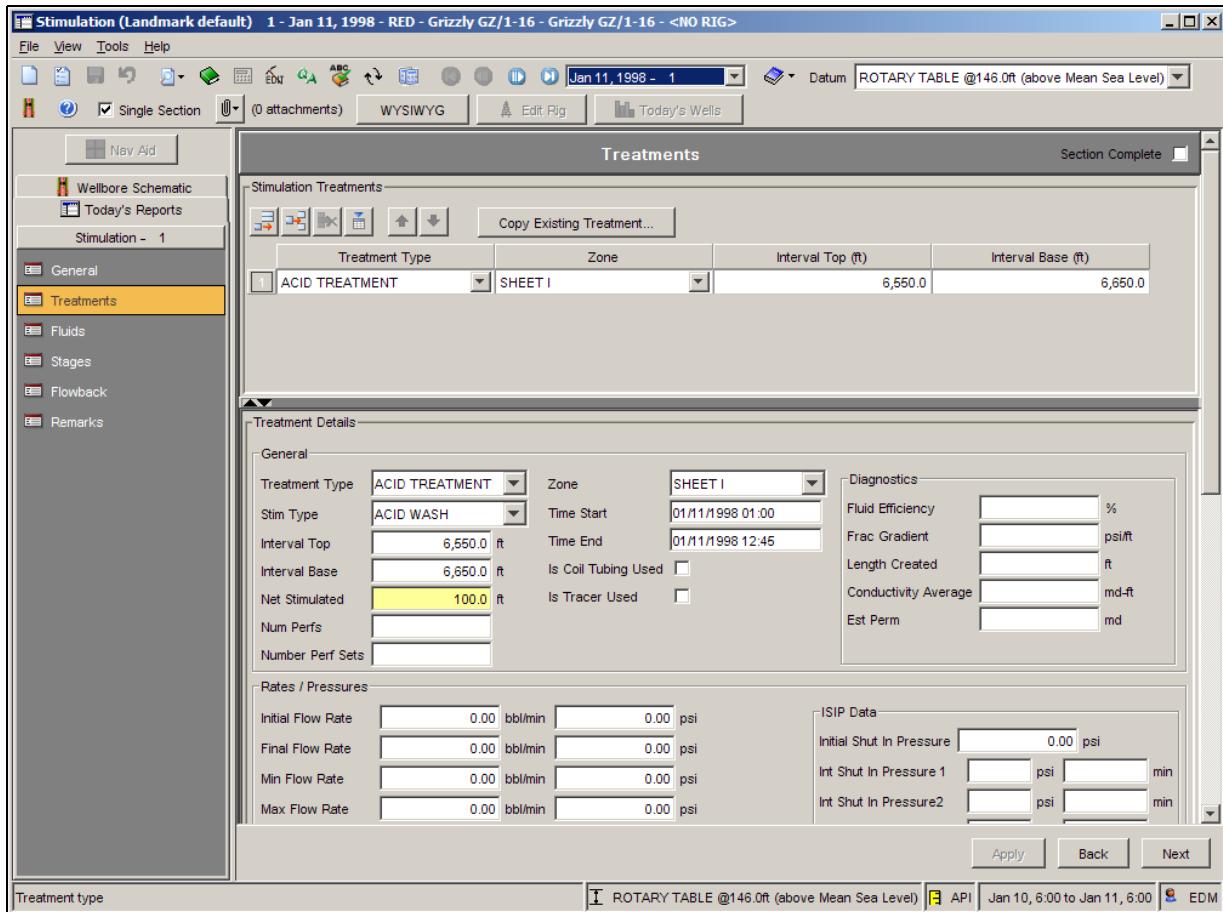
### *Stimulations Report*

The Stimulation Report has a number of improvements and additions to better enable users to enter stimulation jobs in a manner that better reflects the actual process of running a stimulation job and improves on the ease of use of the report.

- **Treatment Intervals**

A Treatments section has been added to the form, to enable users to enter multiple Treatment Intervals for each Stimulation Job. This will help to alleviate the creation of multiple Stimulation reports for one Stimulation Job.

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**Figure 1:** New Stimulation Treatments section

- WYSIWYG (What You See is What You Get)**

A WYSIWYG form has been added for the Stimulation report. This form is meant to simplify data entry and allow rig users to enter data on a form that is similar to the spreadsheet generally used in the field.

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The screenshot shows the top portion of the Stimulation WYSIWYG form. At the top, there are fields for Well Name (Grizzly GZ/1-16), Service Company (NOWSCO), Job Date (01/11/1998 00:00), Supervisor, Prefrac (psi), Prefrac 10 mins (psi), and Is Special Job (checkbox). Below this is a 'Job Summary' section with tabs for 'Add Fluid' and 'Copy Fluid'. The main area is divided into two sections: 'Fluids' and 'Additives'. Each section has a table for 'Fluid 1' and 'Fluid 2'. The 'Fluids' table columns are Name, Type, and Total Pumped (gal). The 'Additives' table columns are Name, Type, Amount Used, Unit, and Concentration.

Figure 2: Upper section of the Stimulation WYSIWYG form

The WYSIWYG form also has an area that shows Rollup data. This area is color coordinated to show users which fields are used in the rollup.

The screenshot shows the middle section of the Stimulation WYSIWYG form. It includes three main colored areas: a blue 'Volumes' section, a green 'Rates and Pressures' section, and a purple 'Fluids Per Treatment' section. Red arrows point from the bottom of each of these colored sections up towards the top of the form, indicating the flow of data. Below these colored sections is a 'Treatment' table for 'Treatment 1'. The table columns include Start, Zone, Top (ft), Base (ft), Net Stim (ft), Number of Perf Sets, Number of Perf, Total Fluid Pumped (gal), CO2 Total (Mscf), N2 Total (Mscf), Tot. Proppant Pumped (lbm), Tot. Proppant in Form. (lbm), Pad % (%), Min. Inj. Rate (ft³/min), Max. Inj. Rate (ft³/min), and Avg. Inj. Rate (ft³/min).

Figure 3: Mid section of the Stimulation WYSIWYG form. The fields used in the calculations are color coordinated within the rollup area

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The WYSIWYG form can be configured to automatically add a specified number of Fluids and Treatments and schedule Steps in the form when it is created.

The number of fluids, treatments and subsequent steps can be customized by modifying the StimulationLayout.xml WYSIWYG file and importing the modified file as a custom WYSIWYG for the Stimulation report. This is done through the EDM Administration Utility (see the online help system for detailed instructions).

By default, the WYSIWYG that ships with the application defines one Fluid and one Treatment that includes a multiple step schedule encompassing a PAD, a FET, Several Pad-Laden stages and a FLUSH.

Add Treatment		Treatment																
Treatment 1																		
Start		Zone		Top (ft)	Base (ft)	Net Stim (ft)	Number of Perfs	Number of Perf Sets	Total Fluid Pumped (gal)	CO2 Total (Mscf)	N2 Total (Mscf)	Tot. Proppant Pumped (lbm)	Tot. Proppant In Form. (lbm)	Pad % (%)	Min. Inj. Rate (ft³/min)	Max. Inj. Rate (ft³/min)	Avg. Inj. Rate (ft³/min)	
1	01/11/1998 01:00	SHEET 1	6,550.0	6,650.0	100.0			0.0	0.000	0.000	0	0	0.00					
Min. Treating Press. (psi)	Max. Treating Press. (psi)	Avg. Treating Press. (psi)	Avg. ISIP (psi)	5 Min. SI Press (psi)	10 Min. SI Press (psi)	15 Min. SI Press (psi)	Total Hydraulic HP (hp)	Est. Perm (md)	Created Length (ft)	Prop. Length (ft)	Prop. Height (ft)	Avg. Prop. Width (in)	Avg. Prop. Conc. (lbm/ft³)	Avg. Prop. Conduct. (md-ft)	Net Pressure (psi)	Frac Gradient (psi/ft)	Closure Pressure (psi)	Fluid Efficiency (%)
0.00	0.00	0.00	0.00				0.00											
Add Step		Steps																
Stage Type		Fluid Name			Formation		Polymer Load (ppg)	Clean Stage (gal)	Gas Vol	Units	Prop. Conc (ppg)	Prop. Type		Prop. Mesh Size	Prop. Vol (lbm)	Avg. Inj. Rate (ft³/min)	Avg. Inj. Press (psi)	Anulus Press (psi)
1	Load Hole	--None--																
2	FET	--None--																
3	Pad	--None--																
4	Slurries	--None--																
5	Slurries	--None--																
6	Slurries	--None--																
7	Slurries	--None--																
8	Slurries	--None--																
9	Flush	--None--																
Treatment 2																		
							Number	Total	CO2		Tot.	Tot.		Min. Inj.	Max. Inj.	Avg. Inj.		

**Figure 4:** Lower section of the Stimulation WYSIWYG form. This screenshot shows a form that has been configured to automatically create two Treatments when the report was created along with a pre-defined list of Steps.

- Volume Pumped Calculation**

A new system setting, “StimTreatmentVolumeMethod”, has been added that defines the calculation method of the Volume Pumped in the Stimulation report as follows:

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- When set to “Default”, Volume Pumped is calculated as the sum of the volumes recorded in the Volume Pad, Volume Body, and Volume Afterflush.
- When set to “VolumePumpedRollup”, Volume Pumped is calculated as the sum of the Clean Stage column in the WYSIWYG form’s Step spreadsheet.

### *Batch Printing*

The process for printing multiple Output Reports in the OpenWells® application has been streamlined in this release. Output Reports can now be printed for multiple Projects, Sites, Wells, Wellbores and Events and collated into one print job. Reports can be saved to one or multiple PDF files and sections can be removed during the print job. In addition, once the print job has been set up, the application can be set to remember it the next time the Print Wizard is opened. Each aspect of batch printing helps to free up the users time allowing them to take care of other important aspects of their job.

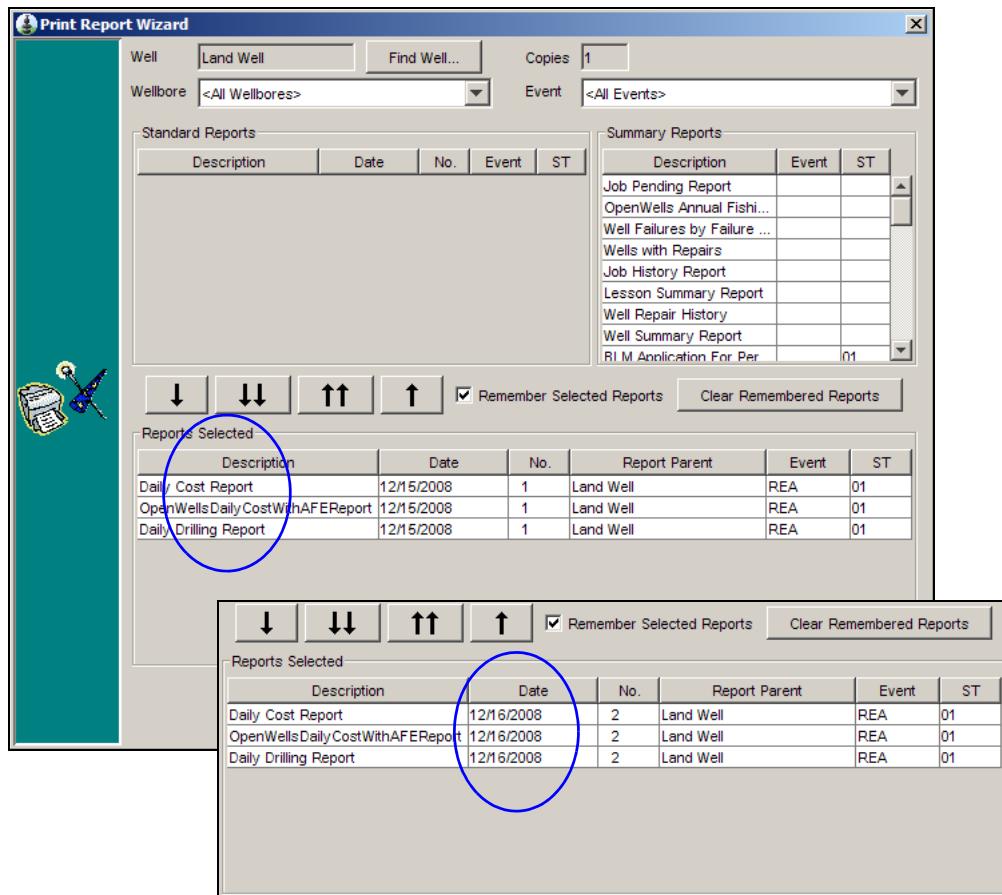
Batch Printing has been implemented in the Print Wizard, accessed from the File > Print Wizard command or from the  toolbar button.

### *Printing Reports from Multiple Projects, Sites, Wells, Wellbores and Events*

From the Print Wizard, a users can find a Well using the  button and select the appropriate Wellbore and Event. The user can then select the reports to be printed and move them into the Reports selected area. Once all the reports have been selected, the users can change the Well, Wellbore and/or Event to add more reports to be printed.

### *Remember the List of Selected Reports*

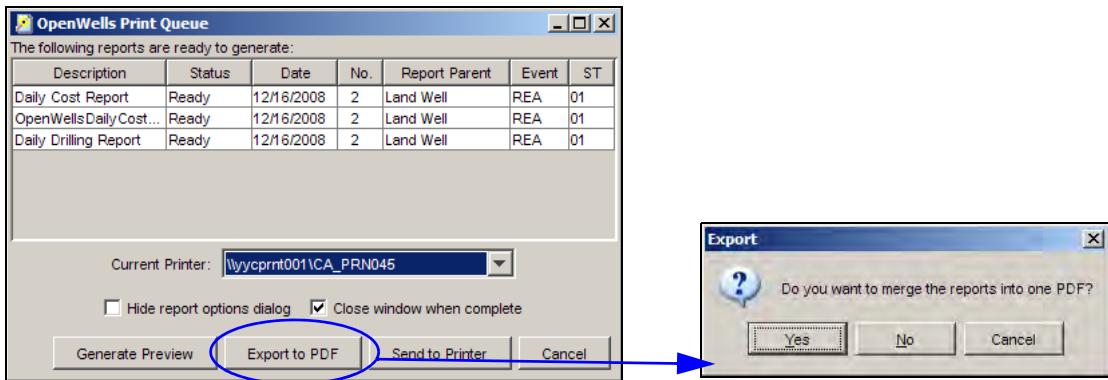
The *Remember Selected Reports* checkbox causes the application to remember the list of selected reports. This enables the user to come back to the Print Wizard the next day and print the same list of Reports for the current day.

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**Figure 5:** Print Wizard showing the “remembered” Output Reports, only the date changes

### Print to PDF

Once the Output Reports have been selected, the user can choose to send these reports to a printer or exported to a PDF file. When exporting to a PDF file you have the choice to save all of the reports to one PDF file or create a PDF file for each individual report. The individual PDF files will be saved to the same folder.

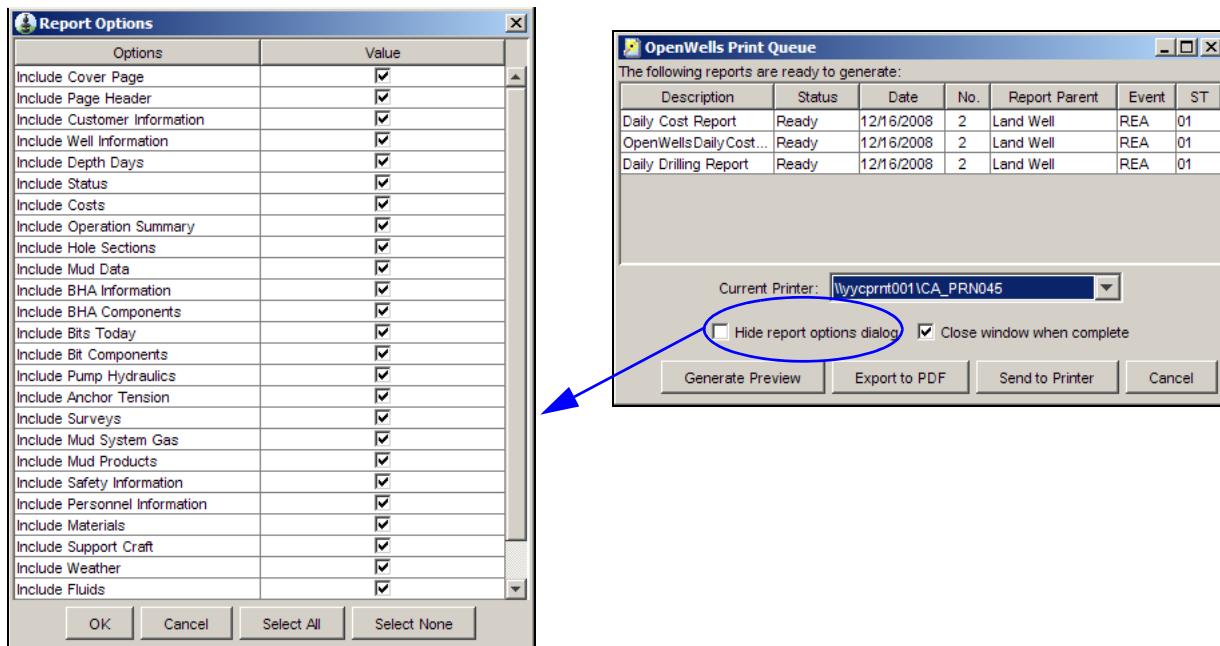
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**Figure 6:** Export to PDF allows you to merge the reports into one PDF file

### *Define Sections to be Printed*

Whether sending the Output Reports to a printer or saving them to a PDF file, users can choose the sections of each report to be included in the Output Report. In addition, users can choose to include a Cover Page and Table of Contents for the report. To send multiple reports at one time without any intervention select the Hide report options dialog box checkbox. During batch printing, the most recent user choices regarding sections will be honored. The user can set up choices by individually printing a report via Print or Print Preview. If no choices have been made the defaults (print all sections) will be used.

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**Figure 7:** Report Options appears for each report; user can select sections that will appear in the PDF or Printed version. The Hide report options dialog box checkbox can also be used to skip the Report Options dialog box.

### *Improved Default Security*

Improvements have been made to the EDM Security model to allow EDM Administrators to control who has access to the different areas of the EDM Administration Utility. This helps to alleviate the possibility of unintended changes within the configuration on a potential daily basis.

The *Admin.start* token controls which users are able to launch the EDM Administration Utility application. The *Admin.Security.edit* token now controls which users are able to grant and revoke access to the various EDM Administrators. These administrators can grant or revoke access to the various parts of the EDM Administration Utility using the following list of tokens.

Token	Description
Admin.CarryOver.edit	Controls access to the OpenWells Carryover area
Admin.DataValidation.edit	Controls access to the OpenWells Data Validation area
Admin.JobTypes.edit	Controls access to the OpenWells Job Types area
Admin.LayoutManager.edit	Controls access to the OpenWells Layout Manager area
Admin.OpenwireConfig.edit	Controls access to the OpenWire Configuration area
Admin.OutputReports.edit	Controls access to the Output Reports area

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Token	Description
Admin.OutputReports.Landmark.edit	Controls access to the Landmark shipped Output Reports area
Admin.PreviewPanes.edit	Controls access to the OpenWells Preview Panes area
Admin.ReportTypes.edit	Controls access to the OpenWells Report Types area
Admin.SAM.edit	Controls access to the Simultaneous Activity Monitor area
Admin.ShortcutBars.edit	Controls access to the OpenWells Shortcut Bars area
Admin.StatusColors.edit	Controls access to the OpenWells Status Colors area
Admin.SystemLookups.edit	Controls access to the System Lookups area
Admin.SystemSettings.edit	Controls access to the System Settings area

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the OpenWells software.

### **Release 5000.1.0**

The 5000.1 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes.

The following enhancements were added to the Engineer's Desktop™ Suite 5000.1 release. In addition, features added in 2003.22, which were not included in the 5000.0 release are now available in this 5000.1 release.

The primary focus of this release has been to enhance the user experience and to expedite user workflows. This has been accomplished through the addition of a number of features including:

- Wizards for common workflows,
  - Create a Well
  - Create a Wellbore
  - Create an Event

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- Create a Rig
- Create a Daily Operations report
- Create a Report
- “Today’s Wells” interactive graphic
- Graphical Rig Equipment Editor
- Inherent Rig Operations and Equipment entry
- Improved Hole Sections data entry
- Integration between the Engineering Hole Plans and Hole Sections area of the OpenWells Well Planning Report,
- Sub Assembly support
- Output Reporting has been enhanced in thee following areas:
  - Allow for inclusion of COMPASS Plots and Wall Plot Composer Plots within the OpenWells output reports.
  - Reformat several of the reports to look more technical and cleaner (e.g. Casing, Cementing)

### *Wizard Toolbar*

OpenWells offers a number of Wizards that enable you create, edit and view data, without having to navigate through the Well Explorer tree. These Wizards are accessed from the main application window toolbar. The toolbar can be toggled off and on using the View > Wizard Bar command. A check mark appears next to the menu item when the Status Bar is visible.



**Figure 1:** Wizard Toolbar

The Wizards available in the Wizard toolbar include the following:

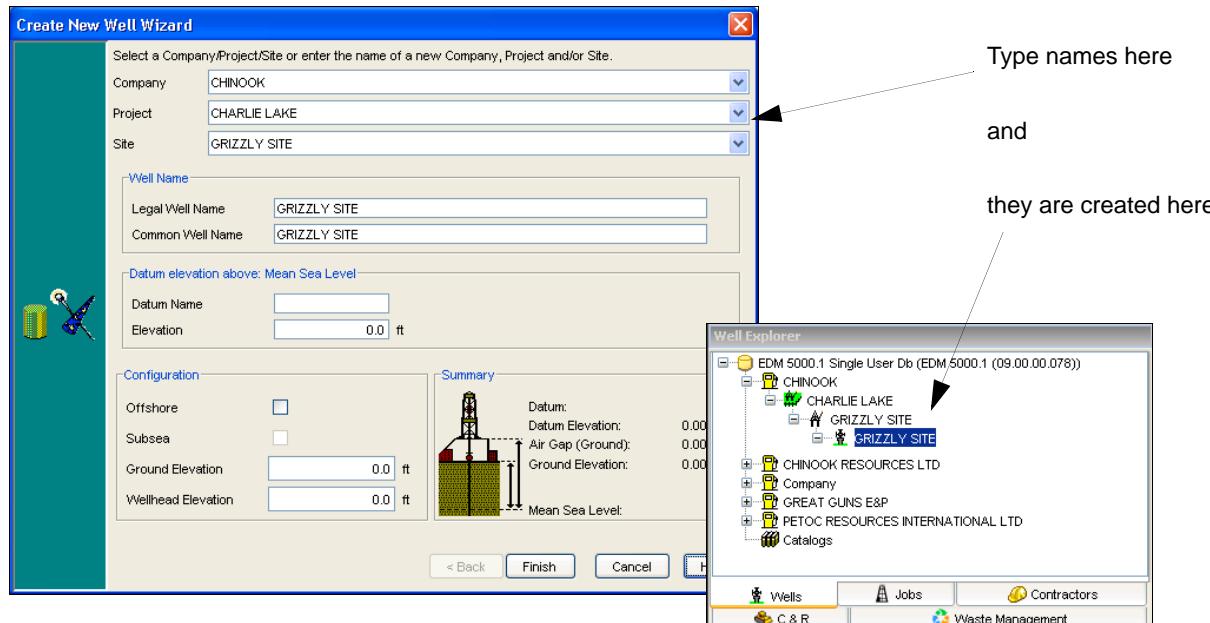
- Create Well - create a new Well and configure the Well Datum
- Create Wellbore - create a new Wellbore
- Create Event - create a new Event
- Create Rig - create a new Rig

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- Edit Rig - edit a Rig using the new Rig Equipment Editor (For more information see "Rig Equipment Editor" on page 294.)
- Create Daily Report - create a new Daily Operations report, associate a Rig and create an AFE. The feature is discussed further in relation to Rig Operations Association on page 302.
- Create Report - create any one of the available OpenWells reports
- Today's Wells - determine the accuracy and completeness of your Well(s). This feature is discussed further below.

### *Creation of Company, Project, Site and Contractor*

Within the Create Well Wizard, a user with permission to the proper security tokens, can create a new Company, Project and Site. This can be accomplished by typing the name of the Company, Project and Site into the text boxes, instead of selecting from the picklists. Using the same method, a user with permission to the proper security tokens, can also create a Contractor within the Create Rig Wizard.



**Figure 2:** Manually enter the Company, Project and Site names to create them in the Well Explorer

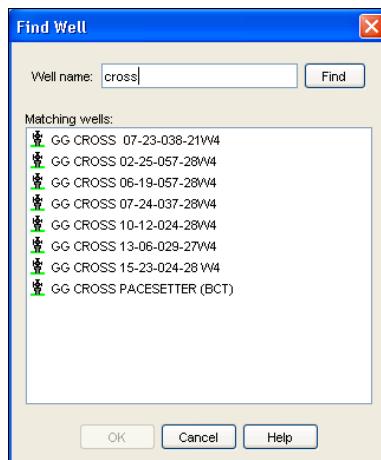
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### Find a Well

Each Wizard allows you to select the location in the hierarchy where the item will be created. If you are unsure as to where a particular Well is in the hierarchy, then use the Find a Well feature to perform a text based search for the Well.

The Find Well feature is accessed by clicking on the  button. This button is located in the Create Wellbore wizard, Create Event wizard, Create Daily Report Wizard, Create New Report Wizard, Today's Wells dialog box and the Today's Wells Favorites dialog box.

Enter the name or partial name of the Well you are looking for and click the Find button. A list of Wells matching the text is displayed. Select a Well and click OK.



**Figure 3:** Find Well dialog box

### Today's Wells (How is my Well Doing?)

The Today's Wells feature allows OpenWells users quickly determine the accuracy and completeness of their "Morning Report" data, without having to navigate through a number of Wells and Daily Operations reports in the application or their printed Daily Drilling reports.

This feature displays a pictorial representation of the Well along with pertinent data on the operation state of the Well for a given day. Based on the Well's Datum information, either a Land or Offshore picture is displayed.

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Figure 4: Today's Wells for an Offshore Well

From the Today's Wells dialog box a user can:

- review the daily status of Wells and Daily reports across multiple Events
- review the daily status of each of the Wells with Daily reports on the chosen date by scrolling through “Favorites”
- create and maintain a list of “Favorite Wells” that are available each time the Today's Wells dialog box is opened per user
- remove wells from the “Favorites” list after a well is no longer active
- immediately identify and navigate to Non-Productive Time and Safety incidents
- navigate to the day's Operations Summary, Survey data, Bit Details and Operations, Pump and Shaker Operations
- identify costs that have gone over the AFE estimate
- identify measured depths that are behind plan
- view a schematic of the Well
- view planned and actual Depth vs Days or Cost vs Days graphs

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- launch available Output reports for the Well associated with the Daily report
- transfer the Well or Daily report to the office
- refresh the Today's Wells data

### Rig Equipment Editor

The Rig Equipment Editor provides a simple way to locate, edit and enter Rig data in OpenWells using an interactive picture of a Rig. This feature is available from the main applications window and from the Data Entry Form window. The Rig Equipment Editor allows users to easily view and maintain their Rig and Rig Equipment inventory, without having to navigate through the Contractor's Tab within the main application window.

Four variations of the Rig Equipment Editor are available and appear based on the Rig Type defined. The assignment of rig types to the four graphics is done through the System Setting RigTypeImages. Detailed information regarding utilization of that setting is documented in the EDM Administration Utility online help, “Configure Rig Equipment Editor Images” topic.

Generic types supported are Land Rig, Semi-Submersible, Jack-Up and Drill Ship. The OpenWells System Administrator must map their “Rig Types” to one of these through the above System Setting.

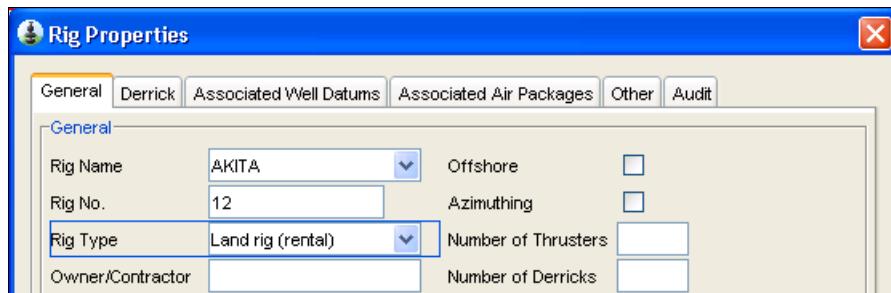


Figure 5: Rig Type as defined in the Rig Properties dialog box

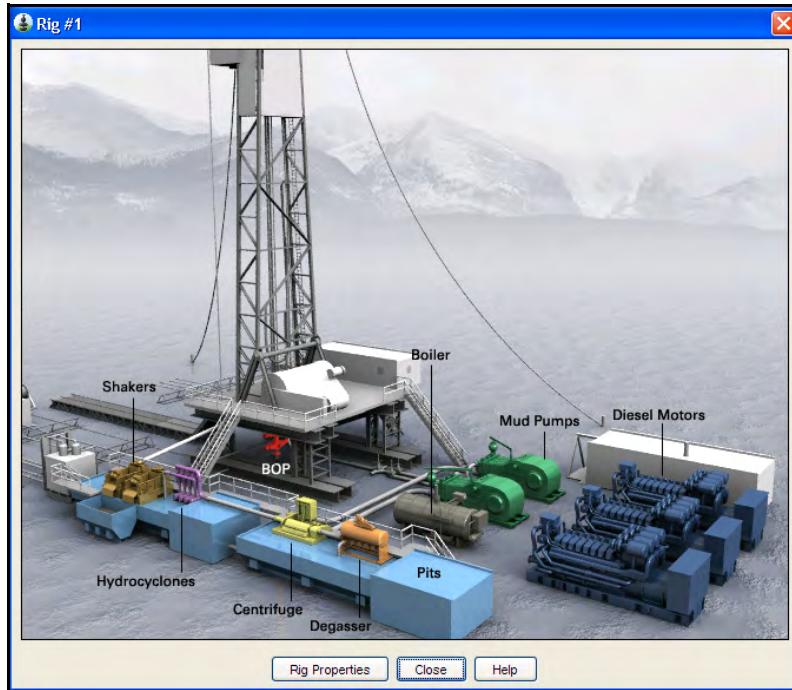
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Figure 6: Land Rig image



Figure 7: Semi-Submersible Rig Image

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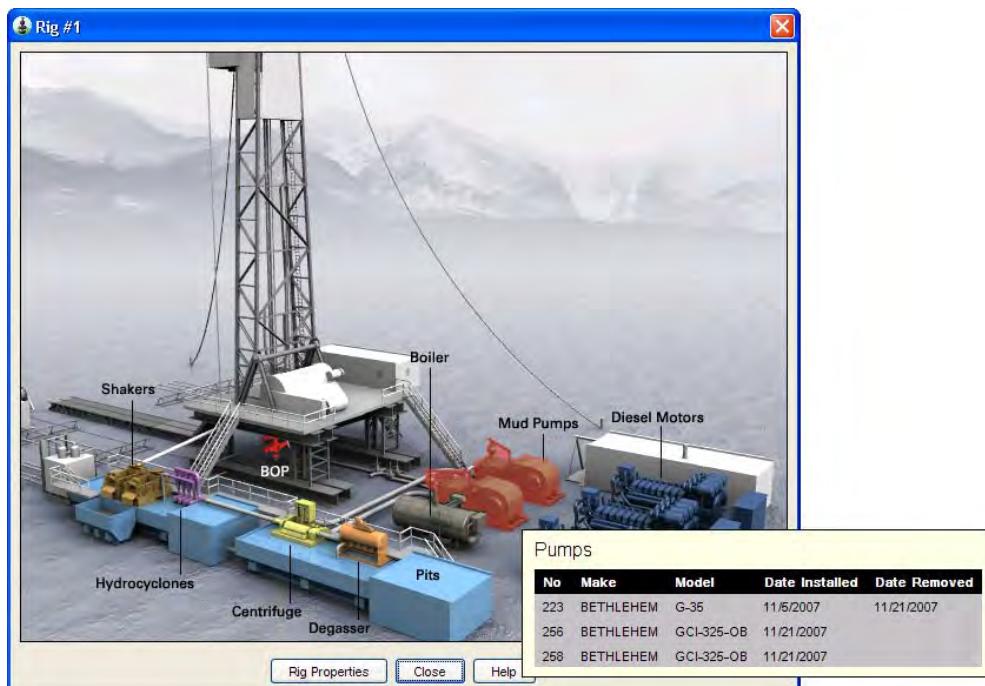
**Figure 8:** Drillship Rig Image



**Figure 9:** Jackup Rig Image

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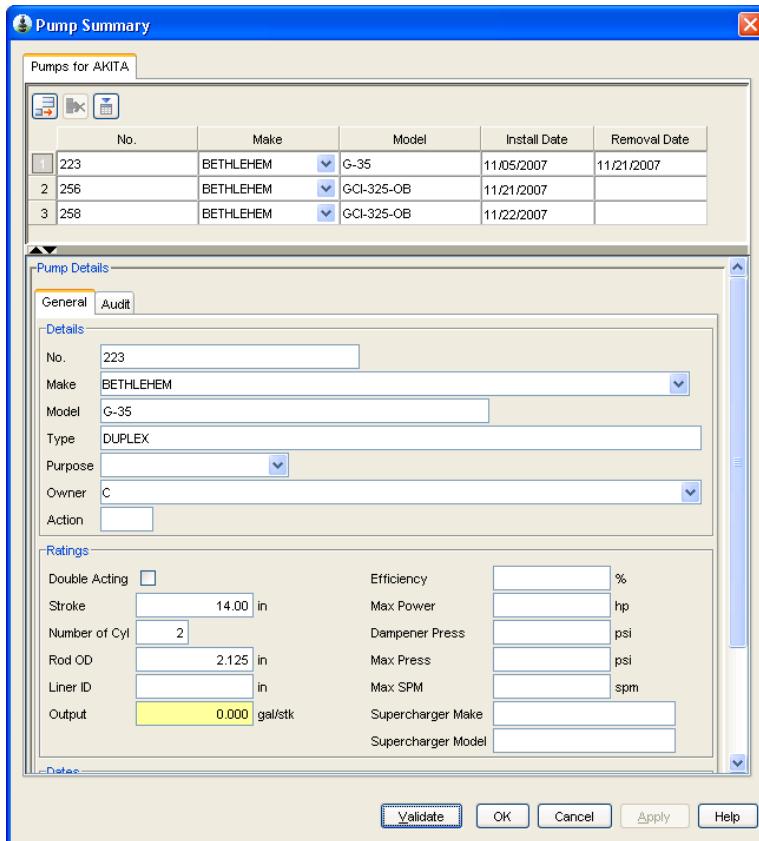
Each Rig picture contains 'hotspots' for Rig Equipment. When the mouse hovers over a 'hotspot', the equipment type turns red and a brief summary of the Equipment type is displayed.



**Figure 10:** Hover mouse over Pump displays read-only summary

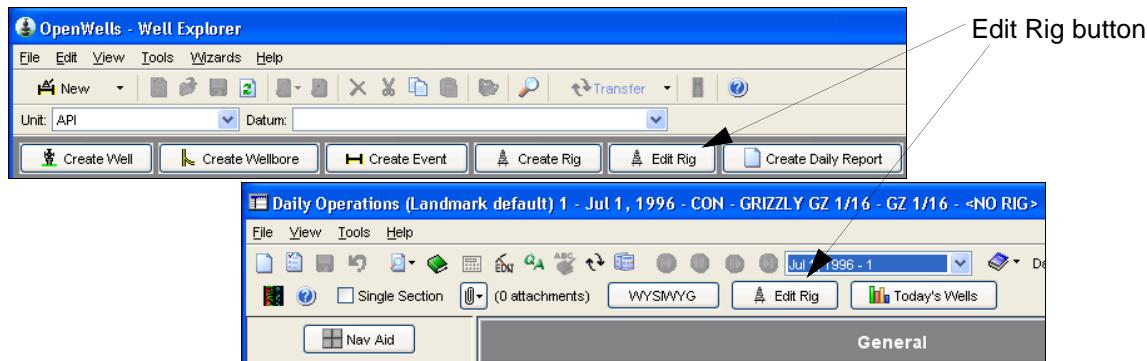
Clicking on a 'hotspot' opens a historical summary dialog box for the Equipment type. From this Summary dialog box equipment can be created, edited and deleted.

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**Figure 11:** Equipment Summary dialog box for Pumps

To access the Rig Equipment Editor, click the button appearing in the Wizard Toolbar or the Data Entry form toolbar.



**Figure 12:** Edit Rig Button in the Wizard Toolbar and the Daily Operations form

If a Rig has not been associated with the Event, OpenWells allows you to associate one when the button is selected from within the Daily Operations form.

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The Rig Properties dialog box can also be accessed from the Rig Nav Aid, by clicking on the Rig Properties button, located below the picture.

The following links are available from each picture:

- **Land Rig** - Boilers, BOP, Centrifuges, Degassers, Hydrocyclones, Motors, Pits, Pumps and Shakers
- **Semi-submersible** - Anchors, BOP, Centrifuges, Degassers, Hydrocyclones, Motors, Pits, Pumps and Shakers
- **Drillship** - BOP, Centrifuges, Degassers, Hydrocyclones, Motors, Pits, Pumps and Shakers
- **Jackup** - BOP, Centrifuges, Degassers, Hydrocyclones, Motors, Pits, Pumps and Shakers

### *Improved Hole Sections Data Entry*

The Daily Operations report, Hole Sections area has been changed to allow users to more easily enter Hole Sections with an alternate entry layout. Administrators can now configure the Hole Sections area to record detailed hole section data, including annular details or to expedite the entry of hole section data, when annular details area not required.

OpenWells offers the following two sample layouts in the EDM Administration Utility:

- **Daily Non Complex Well** - This configuration simplifies the Holes Sections data entry to one spreadsheet. Using this spreadsheet a user could enter all their information on a hole section, including Last and Next Casing data, in under a minute.

Hole Sections																																																																																									
General																																																																																									
ST No.	OH													MD Current	9,904.0 ft																																																																										
Parent Wellbore	--None--													MD KO	0.0 ft																																																																										
Kick Off Date	11/22/1996																																																																																								
<b>Hole Sections</b>																																																																																									
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Figure 13: Non Complex Well Hole Sections layout for quick data entry

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- **Daily Drilling** - This configuration is intended for users who will be entering detailed information on the hole section, including Next and Last Casing and the details of the annulus.

The screenshot shows a software application window titled "Hole Sections". At the top, there are fields for "ST No." (OH), "Parent Wellbore" (None), "Kick Off Date" (11/22/1996), "MD Current" (9,904.0 ft), and "MD KO" (0.0 ft). Below this is a table titled "Hole Sections" showing four rows of data:

Event Name	Section	MD Top (ft)	MD Base (ft)	Hole Section Start Date/Time	Hole Section End Date/Time	Effective Hole Diameter (in)	TVD Top	TVD Base (ft)	Drilling Phase	Liner	Last Casing ID
1 ODR, DEVELOPMENT (11/22)	8.75 in Open Hole	8,060.0	15,250.0	02/19/1997 00:00	03/08/1997 00:00	8.750	0.0	0.0	DRLPRO	<input checked="" type="checkbox"/>	13.375 in
2 ODR, DEVELOPMENT (11/22)	12.25 in Sidetrack	4,320.0	8,060.0	02/12/1997 00:00	02/19/1997 00:00	12.250	0.0	0.0	DRLINI	<input checked="" type="checkbox"/>	13.000 in
3 ODR, DEVELOPMENT (11/22)	12.25 in Open Hole	4,205.0	7,860.0	02/02/1997 00:00	02/12/1997 00:00	12.250	0.0	0.0	DRLINI	<input checked="" type="checkbox"/>	14.60 ft
4 ODR, DEVELOPMENT (11/22)	27 in Open Hole	367.0	468.0	01/27/1997 05:30	01/28/1997 05:30	27.000	0.0	0.0	DRLCON	<input checked="" type="checkbox"/>	4,205.0 ft

Below the table are two panels: "Previous Hole Section's Last Casing/Liner" and "Next Planned Casing". The "Previous Hole Section's Last Casing/Liner" panel shows values for Liner (checkbox), OD (13.375 in), ID (13.000 in), Top Set (14.60 ft), MD Shoe (4,205.0 ft), TVD Shoe (0.0 ft), Weight (68.000 ppf), Grade (N-80), Connection, and Burst (0.00 psi). The "Next Planned Casing" panel shows fields for Select Next Casing from Plan Assembly, OD (0.000 in), Next Casing Set MD (0.0 ft), and Next Casing Set TVD (0.0 ft).

The bottom section, "Annulus Details", contains buttons for Select Casing from Casing Reports and Select Casing from Catalog, followed by a table:

Section Type	Depth (ft)	Length (ft)	ID (in)	Drift (in)	Effective Hole Diameter (in)	Friction Factor	Linear Capacity (bbl/ft)	Volume Excess (%)	Item Description
1 Casing	4,264.0	4,117.97	12.410	12.260	12.410	0.18	0.1496	0.00	13 3/8, 68, N-80 CA
2 Open Hole	8,060.0	3,796.03	12.250	12.250	12.250	0.26	0.1458	0.00	12-1/4" Open Hole

Figure 14: Daily Drilling Hole Sections layout for detailed data entry

### Integration between the Well Planning Report and Hole Sections

Hole Section data entered in PROFILE planned and prototype Designs are now available from the OpenWells Well Planning report, Hole Plan section.

Simultaneous Activity Monitor (SAM) rules apply to multiple users viewing or editing the Hole Plan data in either application.

When a Well Planning report is created in OpenWells and linked to a planned or prototype Design, Hole Section data entered in PROFILE will automatically appear in the Well Planning report. Likewise, changes and additions made to the Hole Plan in OpenWells are reflected in the appropriate PROFILE Design.

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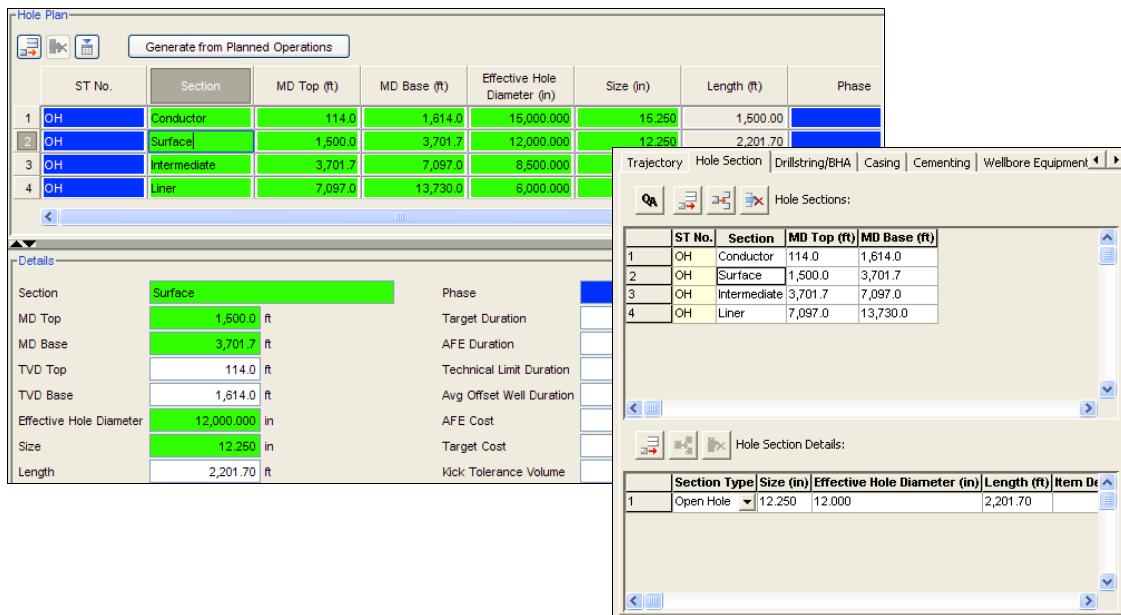


Figure 15: OpenWells and PROFILE Hole Plan

Within the Hole Sections of the Daily Report, the user will have the ability to copy casings from a planned Casing for the Next Planned Casing information.

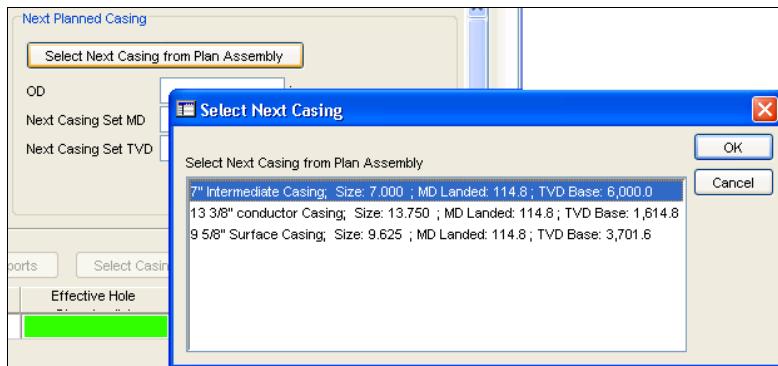


Figure 16: OpenWells Hole Section Select Planned Casing

### Sub Assembly Support

Sub Assemblies created in PROFILE can be added or inserted into an OpenWells Wellbore Equipment report if they were created in the ACTUAL design in PROFILE.

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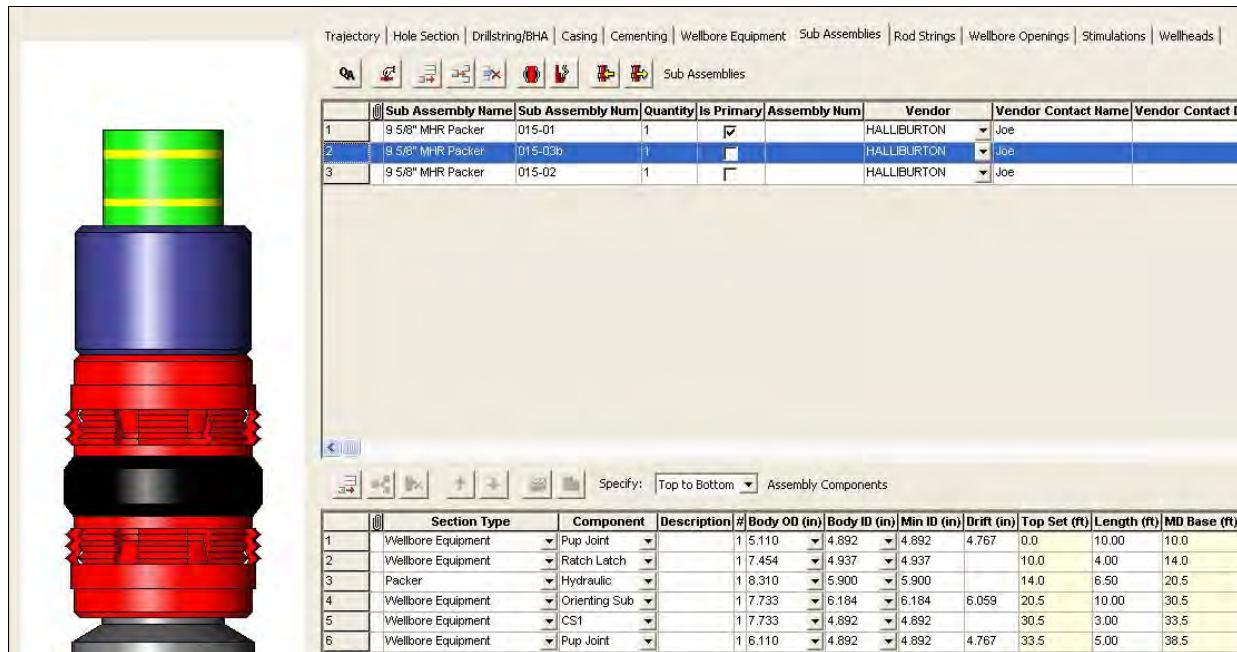


Figure 17: Sub Assembly shown in PROFILE



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### Rig Association in the Create Daily Report Wizard

Rigs can now be associated when creating a Daily report using the Create Daily Report button, available in the Wizard Toolbar. The  button is now available on the second page of the wizard. Clicking this button launches the *Associate Rig to Daily Wizard*, which guides the user through the Rig Association process. Once the association to the Rig has been made, the Daily Operations form exposes Rig Equipment, such as Pumps and Shakers.

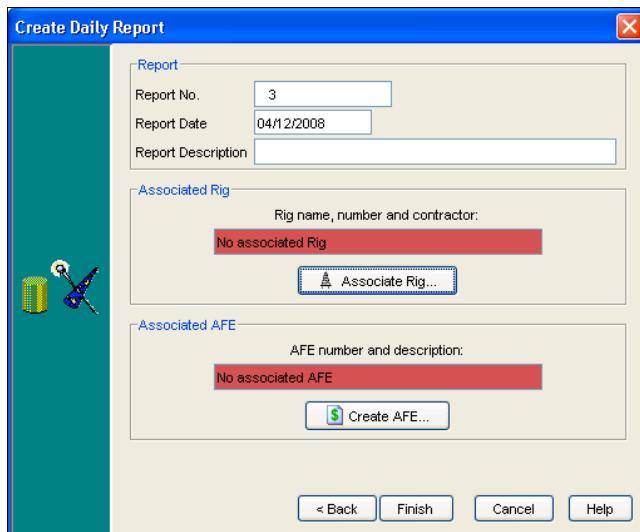
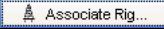
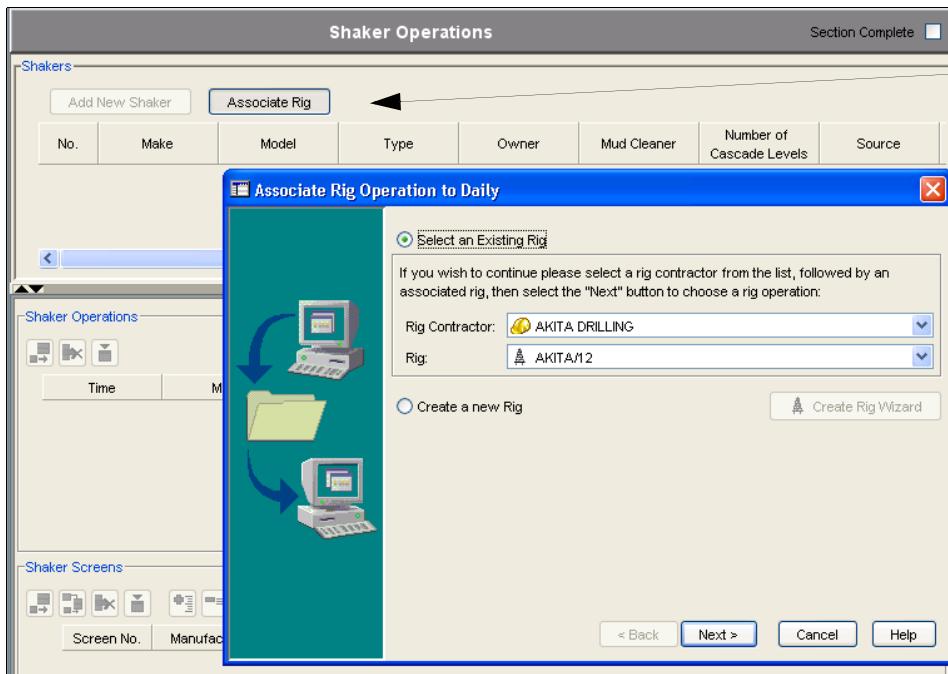


Figure 19: Associate Rig to Event in the Create Daily Report Wizard

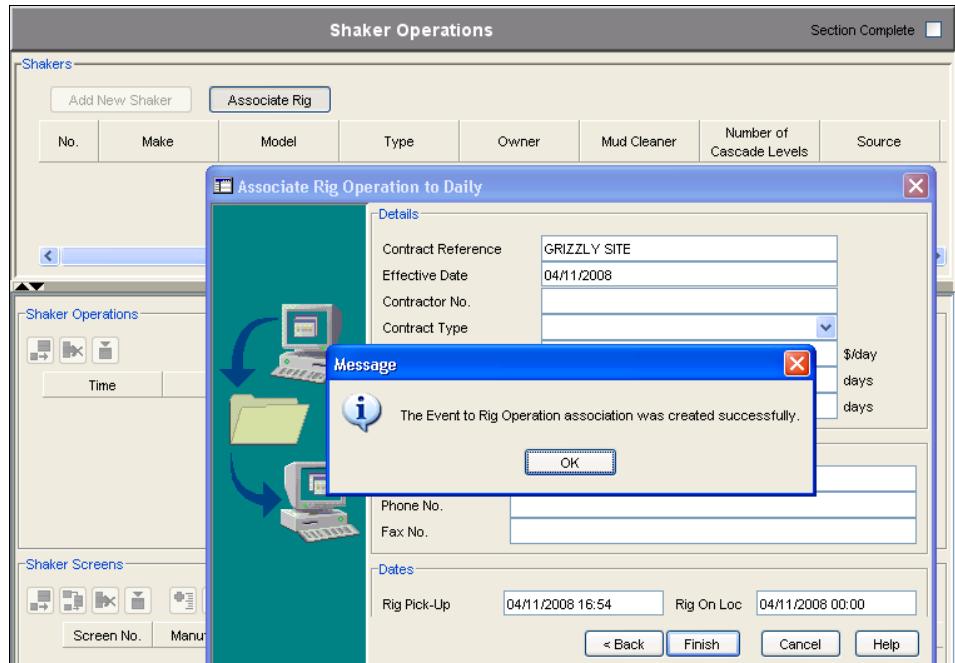
### Rig Association in the Daily Operations Report

Rigs can now be associated in the Daily Operations report form. The  button found can be found in each of the Daily report's Equipment Operations section. Clicking this button launches the *Associate Rig to Daily Wizard*, which guides the user through the Rig Association process. Once the association to the Rig has been made, the Daily Operations form is automatically updated and instantly exposes the Pumps, Shakers, etc.

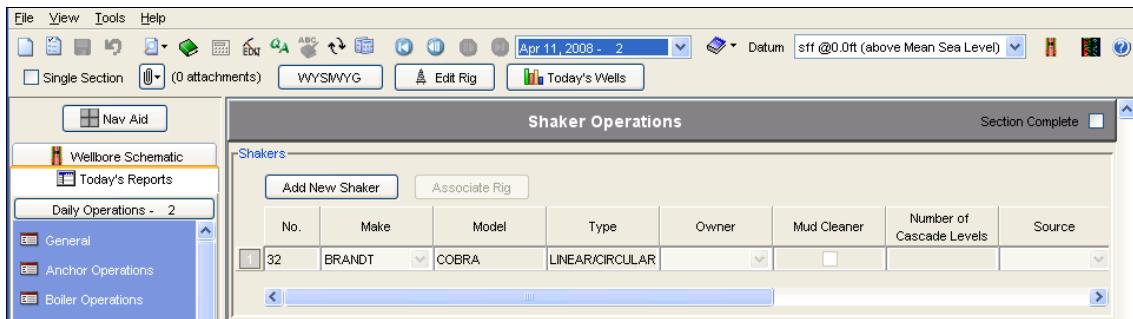
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**Figure 20:** Associate Rig Button gives the user the choice to select a rig or create a new one from within the Daily Operations form



**Figure 21:** Rig has been selected and the Rig Operation is created

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**Figure 22:** Rig Equipment Operations sections are refreshed and operations data can be entered

### *Output Report Enhancements*

The following output reports have been reformatted to include cover sheets, tables of contents and have an overall cleaner and more technical look. Further reformatting will continue in upcoming releases.

- Casing
- Cementing
- Stimulation
- Wellbore Equipment
- Well Test
- Well Planning
- Perforation

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CHINOOK

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**1 General**

**1.1 Customer Information**

Company	CHINOOK
Representative	
Address	

**1.3 Well Information**

Well	GRIZZLY GZ 1/16		
Report No.	52	Report Date	3/18/1997
Project	URSUS	Site	GRIZZLY
Rig Name/No.	ALPINE/N10	Event	ORIG DRILLING
Start Date	11/21/1996	End Date	3/20/1997
Spud Date	11/21/1996	Active Datum	ROTARY TABLE @146.0ft (above Mean Sea Level)
UWI	2/02-12-005-23W5/00		

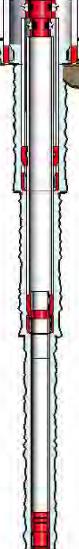
**1.4 General Information**

Assembly Name	7" PRODUCTION LINER #1	Tubing/Casing Size	7.000 in
MD Top	7,810.0 ft	Landed MD/TVD	15,178.4 ft / 6,913.3 ft
Weight in Slips	0.0 kip	Max Hole Angle	0.00 °
Hole Size	7.000 in	Liner Overlap	245.00 ft
Hole MD/TVD	15,250.00 ft / 13,340.1 ft	Ground Elevation	68.0 ft
Vol Fluid Lost	0.0 bbl	Hours Circ	0.00 hr

**1.5 Casing Flange/Wellhead**

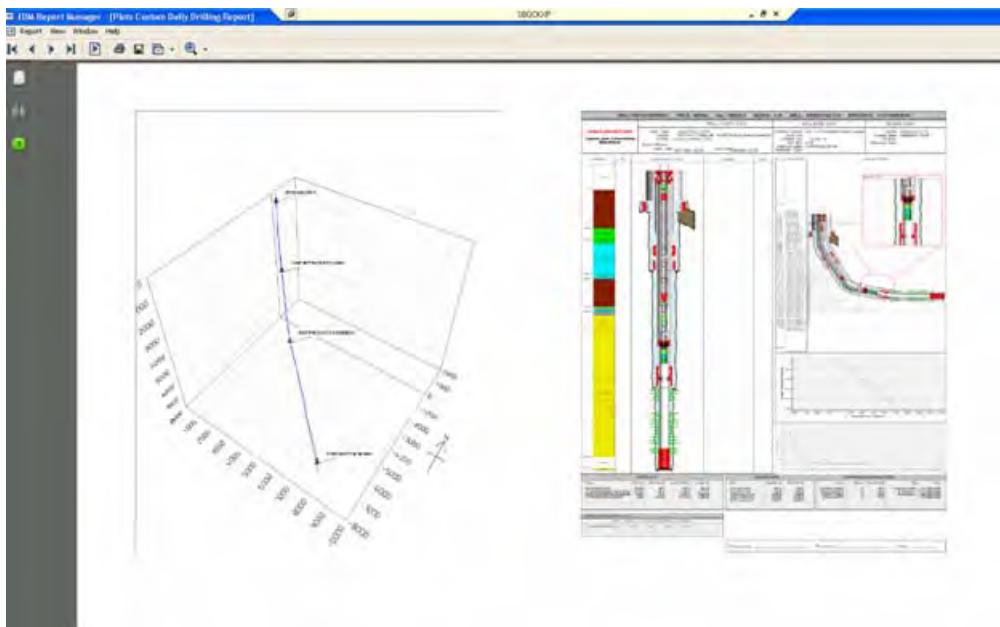
Manufacturer		Model	
Hanger Model		Packoff Model	
Size/Rating		Base Size/Rating	

**1.2 Wellbore Schematic**



**Figure 23:** OpenWells 5000.1 Casing Report Page 1

A new feature to include both PROFILE Wall Plot Composer Plots and COMPASS Plots within OpenWells output reports is now available. Below is an example of a simple report which demonstrates a COMPASS 3D plot and a WallPlot called "Directional Plot" from PROFILE.

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**Figure 24:** OpenWells 5000.1 COMPASS Plots and WPC Plots Example

Documentation on implementing this feature or the general schematics feature can be found in the EDM Reporting User Manual.doc file distributed in the Documentation folder under your EDT\_5000.1 install directory (i.e. C:\landmark\edt\_5000.1\Documentation).

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## OpenWells Fixed Issues

The OpenWells issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13

The following issues were fixed for the 5000.1.13.1 release of OpenWells.

Defect No.	Description
940757	Cannot open 'Obstructions Status Details'/'Obstruction Components' window when clicking on link in 'Wellbore Obstructions Status' window.
913217	Plug in changes at Petrobras are not supported in the EDT 5000.1.13.1 edm trunk.
951449	Companies Onsite - Total Hours fails to calculate for newly created companies that are not saved prior to entry of personnel on site.

### Release 5000.1.13

The following issues were fixed for the 5000.1.13.0 release of OpenWells.

Defect No.	Description
898229	Supervisors recording NPT need the NPT Gross Time calculation to use the sum of activity recorded during the operation so that it calculates correctly in scenarios where the rig moves off of the well due to the NPT event and later returns.
899404	Pipe Tally - Importing Off Load into Run tally doesn't refresh properly.
927296	OpenWells can become unresponsive for minutes when receiving SAM reload notifications.
931471	Production Equipment report "Associated report" picklist does not retain the selected value after closing and reopening the report.
931474	"Associated report" picklist in Production Equipment report displays all the Plunger lift report from all across Wells from all Companies in the Well Explorer.
931482	OpenWells is slow when loading daily operations reports which have over 200 surveys associated with them.
933723	Component names are not populated when importing a pipe tally into a casing report.
935534	Data validation rule failure causing problem with locks.
938212	SAM reload notification is causing unsaved BHA data to be lost.
938901	Well Name does not populate on Lessons Learned dialog when certain tabs are hidden.

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## **Release 5000.1.12**

The following issues were fixed for the 5000.1.12.0 release of OpenWells

Defect No.	Description
921745	Manual Rule Book Validation should not validate when user saves.
921744	As an OpenWells admin I need to be able to distinguish between two wellbores which have the same legal/common names when moving operations reports.
921743	Excess Slurry Volume calculation is incorrect
921742	OpenWells will create a duplicate definitive survey header in scenarios where a definitive survey header exists without an actual design.
921741	OpenWells data validation should prevent selection of 'Section Complete' when mandatory rules fail
921740	As a rig supervisor i need to have the data validation on my operations entry screen run whenever I check the "section complete" check box.
918555	CD_WELLBORE_OPENING needs wellbore_formation_id and reservoir_id to match what is in CD_PERF_INTERVAL.
880518	Require the ability to combine sections from Stimulation and Perforation reports into one report when using the Interactive Wellsite Interface.

## **Release 5000.1.11**

The following issues were fixed for the 5000.1.11 release of OpenWells software.

Defect No.	Description
706568	No method available to delete Well Explorer filters
785924	Pipe Tally calc Total Length Run is not updating when new pipe lengths are changed
853098	Create an option to Change Sacks Used unit from 94 lb to 110 lb
853753	Fix fields in Casing Jewelry spreadsheet to show Jewelry in Schematic
853863	Conventional Pump fields needed
854707	Request that Porosity field be added to the Reservoir tab within the Wellbore Zones tab in Wellbore Properties (i.e. CD_WELLBORE_ZONE.porosity)
856962	User wants Lease and Road Description information for Driving Instructions at Well level instead of Site level
858805	OpenWells Casing Component Section Type picklists showing Tubing, Bit etc for certian Casing Assemblies

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Defect No.	Description
860579	Reports updated in the database are not seen by users unless they clear the report cache.
860640	Make up thread loss should be applied to each joint and properly represented in the pipe tally spreadsheet itself and not just the total setting depth for the assembly.
861857	Date/Time not updated in Time Summary (DM_ACTIVITY tab) after report date corrected
862333	Request new Component types for use in OpenWells
865651	Request for Strat Units to sort when the user clicks the desired field header.
868843	The input in the well planning report Planned Operations is listed as Target Time (days). However, the chart is plotted as though the values were Target Time (hours).
872603	Cyrillic character support in Properties Dialog Area Title
873550	Updated output reports transferred to rigs via EDM Autosync are not displayed to the user unless the report cache is deleted.
873758	Need a way to reset Cum Ton Miles in Safety section when a cable is replaced.
873995	Request control over the size of the report window for Print Preview or request full screen size for this window.
874422	Total Gross Cost should replace Total Net Cost to accurately reflect how this data should be presented
876654	Lesson Print Preview not available with Russian regional settings
879377	Copy from Previous BHA Operation and Copy from Previous Bit Operation buttons are not working properly.
879501	Improved performance when associating rig to anchor operations.
879745	SAM is locking the Daily report when the user only has read-only access. Therefore users with edit rights cannot edit the report while it is open by the read-only users.
880101	Fluid and Proppant totals are cumulative each time a user presses the "update fluids and proppants" button in the stimulation report.
880233	Formation names do not display properly when carried over in the Perforation Report.
880460	Request System Setting to turn on or turn off the setting of Rig Operation End Dates from Event End Date.
880501	Frac Focus Report needs to be renamed to Frac Report.
880521	Lessons Learned "actual value" is displaying as a cost when it should be a comment.
880965	When creating a new well the default value indicating if the well is offshore is null instead of 'N', this is inconsistent with Compass.

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Defect No.	Description
881059	Update to Intervals Job Start Date/Time and Job End Date/Time in Perforation entry form should not affect Time in Perforations General Job Start and End Date/Time
881227	DDR does not display BHA's component type values in column when emailed out through EPS
882081	OpenWells Rocket does not honor BottomToTop setting in BHA Run Component spreadsheet
882141	Open Wells : Pipe Tally Report Threads on/Off issue
882260	Administrators need to be able to modify the contents of the email body generated by EPS when email reports to partners.
883547	Differences with Planned Curve in Depth vs Days Report (Generated from Today's Wells and Event)
883742	Need the ability to identify Time summary operations that are currently in NPT in the WYSIWYG and micropage xmls.
883885	WYSIWYG BHA Show All option has incorrect amount on the footage field on the BHA record.
884101	Differences between Unit Converter and Halliburton Unit Converter (Test Report)
884317	Well Planning Report Drillstring program does not have a flip order button for users who enter from BIT to Drillstring (like in DDR Drillstrings)
884541	DM_ENVIRONMENTAL.mud_vol_pit_reserve calculated field does not calculate anything
884768	Cannot use Data Dictionary in WYSIWYG forms for spreadsheet columns.
885071	When VCR Button is used to save changes to Support Craft - OpenWells freezes.
885197	Link or Button that updates the Daily Geology - Mud Data section from the Daily Operations - Fluids section
885455	OpenWells Wysiwyg - Customized Daily Wysiwyg with Survey Spreadsheet does not support Tie On link Property Dialog.
887321	Casing, Pipe Tally etc. reports don't display via toolbar during creation when these reports are not associated with the <no groups> tight group.
890403	As an administrator configuring the interactive well site I need to be able to customize the labels corresponding to the links in the activity dialog.
892053	Request that the On-line help formula for Closure Azimuth be corrected.
892316	Performance improvements to the well test report.
892318	OpenWells does not update event properties showing rig operations information when receiving SAM messages.
892774	Need the ability to document fiber optic lines as umbilicals on casing strings in Profile and OpenWells.

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Defect No.	Description
893018	Request capability to enter Horizontal Length in the Wellbore Properties.
893374	Request sort on date/time for Flowing Well Test Method in Test Report -> Test Section.
894347	Reports can be dragged and dropped even though token is revoked.
894364	Remove depth restrictions preventing appropriate strings from being selected in the Wellbore Equipment: Located Inside Field.
896204	Request to change the date displayed on the subject line of the email for Summary Reports generated by EPS.
896515	Request to remove non-applicable text in the email for Summary Reports generated by EPS.
896583	Enable rushmore related wellbore attributes.
897027	Add the option to disable the Interactive Wellsite animations at startup.
897207	Unable to insert stations after import using Today's Survey Stations area
897443	Importing large amounts of data in Rocket/Interactive causes an application crash with error "Java engine stopped running".
898347	Request System Setting on Last Trip Drill field DM_Safety.date_trip_Drill to turn off internal validation requiring that a date be entered.
898512	NPD CDRS EPIM Extract Update Required as of Oct 1, 2012 (version 1.2.1) - Also add new fields for CD_WELL to track HPHT and TIGHT status.
898738	Require Umbilicals Support in Casing Report for OpenWells.
899316	Error generating NPD xml, but it does not affect submission for NPD
899880	Daily Ops: Drillstring additional fields enhancement request
901631	Documentation on Test tab in the Fluids section of the Cement report.
903383	Request capability to customize the To: field for EPS e-mails.
903967	OpenWells memory issue when using the Find dialog tool.
904451	Inconsistent use of casing components fields for thread type when selecting from catalog vs importing from pipe tally. (APACHE, AERA)
904588	EPS to handle levels higher than Company
904589	Autoprint flag not being reset to 'N' after completing a template
904590	EPS Override flag not being saved
904591	Request for removal of message: Pay attention to this email: from outgoing e-mail in EDM Publishing.

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Defect No.	Description
904845	Users entering more than 50 characters for a string name when saving Casings/BHA's etc to a string library have the name truncated as the database field only supports 50 characters.
906531	OpenWells should use the well's grid convergence angle instead of the site convergence angle, as is the practice in Compass. This affects scenarios in which the site center is located far away from the well center.
906537	Improved memory usage in workflows where users associate rig operation in the Event property dialog.
906539	Improved memory usage in workflows where users move away from General Tab from Well Property dialog or exit the dialog.
906541	Performance enhancement - Implement indexes on rig to event association tables.
906550	Deployments which do not use the OpenWells Preview Pane would like to disable it to reduce overall memory usage and to increase performance.
907171	OpenWells Survey Azimuth readings can disagree with Compass when Local Coordinate System set to Site Center.
908082	Improved memory usage in workflows where rig associations are created from the daily operations report.
908087	Improved performance when loading the preview pane.
908349	As an EDM administrator i need to be able to easily disable the pre-query/pre-load feature of the report manager to reduce memory consumption in systems in which report prequerying is not beneficial.
909187	OpenWells can hang when navigating between many wells while the preview pane is turned on.
912078	As a rig supervisor i need to have the data validation on my operations entry screen run whenever I check the "section complete" check box.

### Release 5000.1.10

The following issues were fixed for the 5000.1.10 release of OpenWells software.

Defect No.	Description
739526	Need a confirmation dialog to appear when a Wellbore row is deleted from the Sidetracks table in Well Planning Report.
795618	Cannot specify Checkshot if depth above survey tie-in
815428	Default new Survey Station Type to Normal
839841	New Wellbore wizard: Wellbore No. picklist doesn't update additional fields
853426	Fishing Report displays current and pulled obstructions

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Defect No.	Description
853846	Request Formation in the Treatments Section
854230	DM_DAILYCOST audit fields are not populated intuitively
854613	Report Type list in the Create Report Type wizard is different depends where the wizard is launched from
855012	If you close and reopen Wellbore Obstructions window in Daily Operations Report, you will see that the second Obstruction has disappeared from the screen.
855181	Request Rig On Loc. Date and Rig Off Loc. Date on the Create New Report screen
855233	Pumps: do not display in the pump No. order
855421	NPT/Equipment Failure Properties - NPT tab - Non Conf No. field does not show Time in 24 hr format
855425	DO/Fluid Management/Fluid Handling/Fluid Discharges does not carry Description, Fluid Description and Fluid Recovery tab does not carry over Fluid Type/Type to next day. Fields not available to set up as carry over.
855700	Perforation condition is not changing to Neutral when the Hydrostatic Pressure and the Est Res Pressure are equal.
855954	CEMENTING - Pumping Schedule - Fluid Pumped not updating properly
856197	EDM Publishing gets ORA-01843 error - invalid month in date.
856779	KOP Latitude and KOP Longitude can be incorrect in Wellbore Properties.
856904	SP#932-OpenWells-Unable to move Well Planning Rpt to another wellbore in same Well.
856942	Changing units should not enable Apply and OK buttons in Rocket Rig Equipment micro pages because of unnecessary SAM messages.
857142	In Rocket Start micro page, field MD KO should be mapped to CD_DEFINITIVE_SURVEY_HEADER.ko_md
857534	Exception on screen when exporting to Libraries folder on W7 from OpenWells Report List (does not show a nice message like other places in OWELLS)
857717	Cementing DEF -> Stages Spread Sheet: Cut /Copy and paste does not paste the Pressure Remaining, Plug Bumped and Float held. Also the Pumping Schedules are not copied.
857913	Exception in Safety section around MMS Well Activity Form 133 report
858052	Change field length of DM_EVENT_T.event_objetive_2 from 30 to 255 Characters
858075	Locked stimulation report: can still modify field value if opened up using Unit Conversion.
858079	Stimulation Report min and average calculations treat NULL and 0.0 inconsistently.
858081	Stimulation report: force calculation on the read only calculated field does not work.

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Defect No.	Description
858543	Survey with two Tie On points can be created in a parent wellbore
858667	EPS - Filters are not being applied.
858782	Copy/Moving a Well Planning report does not copy the Cement Program "Casing Name" field.
859275	Parent Well of the Well Planning Report is not checked by default in the Offset Well Selector Dialog
859720	Labels in Dev'n Summary Report, Section 1.2 are incorrect - OR#319/309
859722	Bit Ops - Time - Default to 23:59
860495	NEEDS TO BE FIXED IN ROCKET (ALREADY FIXED IN CLASSIC IN 5000.1.9.0) :CLONE OF 731661 Need method to associate a Report(s) to a different rig to clear up instances where a report is associated to the wrong rig
860599	Stimulation report: Fluid Clean Volume is not copied over.
860811	Well Planning Report - Directional Drilling spreadsheet are not saving the data rows and when setup to load all sections throws an exception when saving the data.
861841	ENHANCEMENT REQUEST: OpenWells Coring report - DM_CORE_TIME table has no sequence_no field and Output report doesn't sort by depth
862129	Need to edit all the summary report's config xml, add <report_type> Summary</report_type>
862692	Need DM_PIPE_TALLY.replaced field
863010	Summary section of Well Planning - Planned vs Actual Summary Report not calculating
864594	Data Dictionary is not accessible in the EDM Admin utility WYSIWYG layouts
864600	Daily Workover Fluids cumulative calcs
864801	Change size of Comments Column in DM_MUDGAS table
864805	Thread type not importing into Casing Report
864878	Not running a casing or liner makes the Hole Section Details calculate incorrectly if the Top Set field from the previous casing is greater than zero.
864983	Well Planning report copy: wellbore formation data is incorrectly copied.
864986	Well Planning report copy: definitive survey header is incorrectly copied.
865154	Have centralizers from Run Tally copy over to Jewelry section of casing report.
865346	OpenWells Planned vs Actual Summary Report does not show Days Down Time, Days Lost Time, NPT Net Days.
865348	OpenWells DDR shows extra hole section records.

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Defect No.	Description
865662	OpenWells Rocket Find Well Dialog should have focus on Search field when opened.
865680	Sections of the Well Planning Report cannot be edited when the scenario is not there.
865842	Copying Well Planning Report results in CD_DEFINITIVE_SURVEY_HEADER, CD_DEFINITIVE_SURVEY_STATION being updated with all rows from source to target.
865845	Some fields are not importing into OpenWells from WITSML Stimulation Import file provided by Halliburton
866943	Have some issues with the Classic Run Pipe Tally Data Entry Form.
867093	BHA Summary Report does not display the Wellbore
867649	CEMENTING: Fluid Pumped field under Pumping Schedule doesn't display until saved
868243	When changing the Test Report's test method, clicking anywhere within the following confirmation prompt is treated as selecting "OK"
868654	Admin Utility Customizer - Object names in field properties should be in sort order. Also need to remove duplicate object names.
868794	Rocket - Plug section is broken in cementing report
868880	Exception while creating a new rig using the create new rig wizard
869195	Micro page Report Properties fields are all set to DM_REPORT_JOURNAL.date_locked
869434	Include two new Pennsylvania Non Conventional share focused Regulatory reports in OpenWells.
869781	Security Tokens not Respected
870008	Copy Well Planning report generates exception during inserting Def Survey Station.
870037	Hyper link in not correctly spelled in General.xml of EDM Admin
870271	Request that Drag and Drop option displays warning/confirmation dialog before copy of data is implemented like other EDM Applications
870307	Copy Plan Formations button creates duplicate formations
870310	Rocket: Changing unit system from API to SI and vice versa in spreadsheets doesn't work properly. Only the unit label changes but the value doesn't change
870514	EDM 5000.1.0.0 Install does not update DSImpServ.xml Class Path with INSTALLDIR on Windows 7 causing SAM not to start
870533	OpenWells classic and Rocket - F12 acts as though it will update read only and locked date fields.

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Defect No.	Description
870682	Copying Well Planning Report results in CD_SURVEY_HEADER, CD_SURVEY_STATION being updated with all rows from source to target.
870814	Copying locked Well Explorer names to clipboard deletes data
870953	WYSIWYG - Unable to customize WYSIWYG margins.
871227	Site Configuration import in EDM Administration Utility delete custom canvases
871228	OpenWells Rocket spreadsheet sorting issues
871454	Hole Section throwing exception error in Complex mico-page when "Annulus Details" rows added, then click OK.
871509	BULKS: Quantity Start displays negative number on first days report
871517	OpenWells performance issues with large/long wells
871530	The 'Activity date/time' combo-box of Kick report dose not retain value after change the selected value.
871704	Geodetic system and MD KO
871947	EPS is generating and emailing summary reports for each daily report that is processed.
871979	Request Formation in the Treatments Section This is a clone for Multi version Import and WITSML import work
872101	The changes of 'manifest' spreadsheet were saved, although the 'Material Transfer' report was closed without saving
872105	Application is frozen after enter data in Bits section and close BHA Runs in micro page
872511	Casing Output Report Schematic does not show cement on previous casings.
872721	Upgrading EDM db from R2003 to R5000 creates unit class definitions with >1 measure in custom unit systems
873197	"OK" button does not work when creating new entry form in Pipe Tally layout
873201	A row can be deleted after locking General micro page in Well Properties in Rocket
873208	Rig Properties window is editable although EDM.Explorer.Rig.edit and EDM.Explorer.RigOperation.edit tokens are revoked
873209	Exception error displays when creating new Sidetrack/Wellbore in Well Planning report
873210	The value in the Test Method drop down is changed when the user clicks anywhere within the prompt (i.e. off the buttons, title bar, in the prompt text area, etc.)
873492	OpenWells installation and Import Site Config command are deleting existing customized canvases

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Defect No.	Description
873564	Need to add new fields to test report and expose them to track load fluids left to recover and satisfy greenhouse gas regulatory requirements
873565	Need to add calculations to test report to track load fluids left to recover and satisfy greenhouse gas regulatory requirements
873565	Need to add calculations to Test Report to track load fluids left to recover and satisfy greenhouse gas regulatory requirements
873569	Support for CD_ASSEMBLY_NOTE needs to be added to the WYSIWYG forms (Wellbore Equipment and Casing)
873678	"Location Descriptions" on Well Properties tab, can not add a new row.
874118	WYSIWYG Pressure Survey - Value of 'Gauge MD' and 'Gauge TVD' columns are being changed after closing and re-open 'Pressure Survey' DEF report.
874309	Creating a new Wellbore, throwing java exception.
874453	OW Classic - Two DEF's can be opened at the same time
874508	The Picks Editor and Detail links don't work at the second time when user try to open them again.
875186	The Update audit fields (update user id, update app id and update date) are not populated immediately in a cost record id Daily Operation DEF.
875417	EDM Publishing (EPS) will not generate schematics for iWellFile.
875530	New Stimulation WYSIWIG delete all the treatment data after adding steps data
875697	Daily Operation - Lessons - Event no. remains blank and never get populated
875804	Cementing WYSIWIG - Null label in Stages section. Also cutoff units in fluid details
875838	Frac Focus output report shows incorrect Report Name on Report Title
876107	One survey is not showing up in Daily Operation
876137	Well Properties XML/Create Well XML do not change labels when Offshore and Subsea are checked.
876137	Well Properties XML/Create Well XML do not change labels when Offshore and Subsea are checked.
876587	Associating a Rig to the Event is taking over a minute to process
876903	Cannot save Cementing Report in Rocket. Throws exception upon clicking the save button.
877498	Value of 'Bot conn type' field is missing on 'Umbilical Details' window after pasting and apply a row on 'Umbilical' table
877600	Wrong Location Slot Template field attribute used in Create Well page in Rocket
877757	EventAssocRigOp.xml does not display the correct tables for assigning fields in the spreadsheet UI.

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Defect No.	Description
877804	Cement.xml/CementLayout.xml do not display the correct tables for assigning fields in the spreadsheet UI.
878823	The value is not getting updated in the fields MD BH and TVD BH of End Operation MP if user make changes in the same fields of Wellbore Properties -- Depth MP.
878825	No unit displays against MD BH field of End Operation MP
879432	Fluid section - Slurry Test Details link is broken in Cementing WYSIWIG and MP
880404	Frac Report (printed report) errors

### **Release 5000.1.9**

The following issues were fixed in the 5000.1.9 release.

Defect No.	Description
747296	Field for "net pay thickness"
794996	Created a Completion string in the Well Planning form for our Limestone 25 well (In EPW_CAN_Foothills WDU). Imported the joints into the Assembly Components spreadsheet as follows using spreadsheet import: Get Enclosed error.
806050	DEFECT: OpenWells 2003.16.1.17 Build 8055, Cementing Reports are Not Displaying Correct Casing Details
809230	Copying Well Planning report also copies all the designs (actual & prototype)
812423	Don't see SAM icon on the wellbore in OpenWells when logged into the same network user and on the same Citrix Server. Documentation indicates it should and that is not correct. Needs changed.
820655	Calculation not refreshing on Cost Estimate and AFE entry form.
821299	Delete survey is available to the user when the survey is locked by another user (SAM).
822173	NPT Summary Problem - Wrong total hours - V.5000.1.3.0.
823950	Volume pumped in Stimulation Report does not recalculate when schedules are added in Stages.
824045	Hole size displaying incorrectly.
832110	When the From Survey option is selected in the Survey Header Properties, then Ver. Sect. should continue from the selected survey.
832111	New Well Wizard - default Wellhead Elevation field to null.
832115	Expose CD_WELL fields is_multilateral and is_lake_drilled and lake_height to layout manager.

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Defect No.	Description
832117	Expose additional DM_WELLBORE_OBSTRUCTION fields to the layout for Wellbore properties, Obstructions tab.
832121	All Wizards - fields should use status colors from data dictionary.
832124	Rig Operations Properties - expose Notes field to the layout.
832125	Pits Summary Properties, Audit tab - expose the Notes field to the layout.
832126	Pump Summary Properties, Audit tab - expose Notes field to the layout.
832128	Shakers Summary Properties, Audit tab - expose Notes field to the layout.
832129	Centrifuge Summary Properties - expose Notes field to the layout.
832130	Hydrocyclone Summary Properties, Audit tab - expose the Notes field to the layout.
832131	Motor Summary Properties, Audit tab - expose Notes field to the layout.
832132	Boiler Summary, Audit tab - expose Notes field to the layout.
832134	BOP Summary Properties, Audit tab - expose Notes field to the layout.
832135	Degasser Summary Properties, Audit tab - expose Notes field to the layout.
832137	Add new fields to Well Planning Report, Cement Program.
832138	Casing Report, General section - add new field activity_phase.
832139	Cementing Report, General section - add a new field activity_phase.
832141	Survey Properties, Audit tab - expose Notes field to the layout.
832650	Support Craft / Logistic Workflow needs revamped.
835350	NPD CDRS: Bit elements in NPD cannot be mapped to CD_BHA_COMP_BIT and only to CD_ASSEMBLY_COMP.
836019	Plan View graph in Deviation Summary output reports are incorrect.
836489	Spell Check reverts to incorrect spelling.
836839	OpenWells operations summary chart shows wrong contractor name.
836958	Schematics on custom output report(s) are incomplete, do not show casing or cement from last day.
836979	CLONE OF DE 835756 FOR FIX IN 5000.1.7.1: OpenWells Users receiving large Java Exception Dialogues when leaving app open.
837191	Slotted Pipe Creates Wellbore Opening with 0 MD Top and Base.
837228	CLONE OF 828877 FOR FIX IN 5000.1.7.1 Improvements in OpenWells with respect to SAM messages.
837751	Set rules for order of processing flags.

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Defect No.	Description
837930	Stimulation jobs get duplicated when a Well Planning report is copied to the same well/event.
838136	Adding the Event to the Partner Email subject.
838302	EPS processing reports that do not meet the template criteria.
838313	Request that the Summation button in Daily Costs also show AFE information.
838769	Well Planning report - Side Tracks can still be editable with red SAM. Also an exception is thrown in the log file.
838828	D/E - EPS is creating bogus folder names when Report Date is selected.
838862	Some Daily micropages are read only when the Daily Operations.edit token is granted.
839038	Using/running a liner makes the Hole Section Details calculate incorrectly.
839057	When creating a Job using the New Job Wizard, the Job Code is not auto-populated, only the Job Type.
839106	OpenWells Casing report Datum setting.
839106	OpenWells Casing report Datum setting.
839248	Unable to scroll menu items in Interactive Well Site (Rocket) mode.
839249	Request first previous next last VCR scroll buttons for navigation ROCKET mode.
839251	ROCKET Add symbols to Select Date calendar to show which dates have reports.
839297	Cannot create a Well Explorer Filter when there is a picklist applied to certain fields.
839512	No scroll bar or sizing capabilities to change the size of Rocket on the screen.
840007	Request new Lessons Learned Report under Project Level.
840368	ENHANCEMENT: OpenWells - CASING REPORT - TVD_Landed to become an automatically calculated field.
840640	OpenWells NPD Module change to change "Code" to "code" in NamingSystem.
840818	Daily Operations Data input Form > Anchor Operations.
841271	Remarks Section does not appear in Daily Geological Output Report.
841663	Request to have the Daily Operations > Support Craft Data Entry Form perform like the new "Personnel" section.
842188	Rows in CD_SURVEY_PROGRAM reference a survey (survey_header_id) that does not exist in CD_SURVEY_HEADER.
842355	Add new fields to Well Planning Report, Cement Program.
842494	Visualizing attached files in the Drillstring section (Daily Operations Report).

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Defect No.	Description
842913	Show Wellbore name and no in the well information section of all the OpenWells output report (Mainly the report journal level reports). Also change the section title to Well / Wellbore Information.
843020	Default Stimulation output report has many issues.
843283	OpenWells (Access is denied) - FileNotFoundException Exception dialog reported when you try to open attached document that is already open.
843466	Edit Template button launches Edit Template window with blank area and no options.
843663	Wellbore Properties Kickoff TVD calculates to be greater than Kickoff MD when Survey Tie On TVD is greater than Kickoff MD.
843824	Copy From Library causes incorrect filtering in Cementing Report's Casing Details Assembly picklist.
843863	OpenWells Rocket Interactive Well Site locking up on Time Summary - Group field
844418	Summary Report cannot be delivered to the partners.
844625	Component section in Casing detail micro page, button "Save String to library" appear to fail to save string.
844885	WYSIWYG Printing on A4 and Letter Size: borders get lost and there are some problems with splitting over multiple pages.
845445	New blank rows are added in Personnel section with Oracle database.
845446	Closing the form with Close button does not save the updated Number of People.
845447	Exceptions thrown and Person's not added if People on Site tab is hidden.
846113	Rocket Survey MP - Cancel button still create a Survey unlike in classic
846312	Wellbore Equipment report defaults MD and MD Landed equal datum elevation
846771	OpenWells - OpenWells Site Location Type Not Saving
847137	EDT Security Rights Output Report enhancements around
847526	Exception when a new Facility is created
847699	Hole Sections do not send SAM messages when user edits values in the detail panel.
848059	Double-click on Work Strings in Schematics Window brings Work Strings micropage for the wrong date
848311	Well Head report does not show "Total Component Cost"
848312	Wellbore Equipment Reports does not show Ground Elevation, Hole MD and Hole TVD
848424	New Fields for Daily Report - Safety Section (Enhancement Request)

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Defect No.	Description
848443	BHA Runs failed to updated "Length" calculated field for DP after a copy from previous without reloading the form.
848800	Hole Section and Leak Off Test section can get out of sync.
848862	Job Type, Job Desc, Assembly, MD Toc, Tubing/Casing Size and Hole Size don't get displayed in the Planned section of the Plan Vs Actual Cementing output report
849370	Increase size of field MD_Site_Attr_Dictionary.custom_co_value
849935	Change Field Length in OpenWells 2003.21 not long enough for client data - Field Name budget_type need to be increased to 13 from 8.
850098	WellPlanning DEF: MD Top value entered in Casing section disappears after reopening the DEF
850100	Select Planned Casing option in Hole Sections not showing all Planned Casing's and also throws an Unparseable exception
850215	Difficult to read CDRS reports that have quote and carriage return characters
851668	Edited data in Cementing micropage is lost once the Cementing micropage is saved, closed and reopened
852041	Data Entry Forms and WYSIWYG data disappears when you create the next day's report as you click Finish on the Create New Report Wizard
852160	Report manager hangs with custom reports that has no table of contents
852192	WellSite Construction tab's Water Well Test spread sheet rows disappear after saving, closing and reopening Construction DEF
852192	WellSite Construction tab's Water Well Test spread sheet rows disappear after saving, closing and reopening Construction DEF
852659	Footage Cum. on Bit Operation does not always recalculate.
852687	Well Properties AutoSync Tab does not display correct AutoSync status
852997	Request that the Deviation Summary Output Report also include Survey information and graphs from the planned surveys in the Well Planning Report
853382	OPENWELLS: Move Report Wizard produces errors when moving reports and exception errors received causing application to crash
853750	OPENWELLS: UPGRADE: Performance Issues in Umbilicals Section of Wellbore Equipment Form
855031	Debugging Crystal Reports: Loss of functionality of Report Manager Standalone Utility. Would like similar tool and documentation upgraded.
859357	Validation message issued when editing Arrival Time on Support Craft in the OpenWells Classic DEF
859392	Pipe Tally - Importing Off Load into Run Tally doesn't refresh properly

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### Work Around for DE 857142

The following procedure can be used to alleviate any concerns related to DE 857142 - MD Kick Off is mapped to CD\_WELBORE.ko\_md in the Start micro page and to CD\_DEFINITIVE\_SURVEY\_HEADER.ko\_md in the Wellbore Properties page.

1. From the EDM Administration utility navigate to the **EDM Application Settings > Drilling > OpenWells > Layout Manager > WYSIWYG > Custom > Recordings** folder.
2. Select the XML for the Start Operations page.
3. If using the Landmark shipped XML:
  - a. Right-click on the Recordings folder and select **Add New WYSIWYG File...** from the menu that appears.
  - b. Navigate to the <EDT install directory>\EDM\Site Configuration Files\Wysiwyg\Landmark\Recordings folder and select the StartDrilling.XML file.
  - c. Click the **Select** button.

The WYSIWYG layout for the StartDrilling.xml is displayed in the EDM Administration Utility.

4. Double-click on the Field portion of the MD KO field. The Field Properties dialog appears.
5. For the **Object**, select CD\_DEFINITIVE\_SURVEY\_HEADER from the drop down picklist.
6. For the **Attribute**, select ko.md from the drop down picklist.
7. Click **OK** to save changes and close the dialog.
8. Click the **Save** button in the application toolbar to save the XML layout.

Before a customized layout will appear in the OpenWells application, it must first be assigned to a Well Site Canvas and the Well Site Canvas must be assigned to an Event Type. These items are covered in the EDM Administration Utility online help *Custom Well Site Canvases* topic.

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### **Release 5000.1.8**

There were no OpenWells issues fixed for this release.

### **Release 5000.1.7**

The following issues were fixed for the 5000.1.7 release of OpenWells software.

Defect No.	Description
172804	Implement BHA History as per DIMS
619699	Make the Hole Sections editor available somewhere outside of the Daily Ops DEF
622729	Need additional Tubing Pressure field for Flowing Test Sheet
623206	Need range of depths for peak gas.
623207	Please add Rate of Penetration to the Peak Gas tab of Daily Geology Report.
624555	BHA Operations records not always deleted when they are tied to a BHA and the BHA is deleted.
625259	Need Volume of Oil Stored field in DST
631697	Enhancement needed to record fuel usage and run time of all motors.
631968	"Time Summary", "Total Time" should be dependent on "Group Activity Filter"
698566	Only one user can edit a report at one time
699704	Need ability to enter a DISTINCT clause in picklist filter
699899	Provide 'Days since shut in' field displayed in Jobs List
700561	Need a Remarks section in Event and Wellbore Properties
700697	Extend EPS to only output 'approved' reports
705566	Add "Cost Editor" similar to existing Survey Editor to display all costs entered for event and allow editing without having to go back through all reports
717864	New Contractor field required in Casing Form
720414	703232 continuation: Allow to fill Work Strings and operations information from Stimulation, coring and, logging reports.
721387	Request Min and Max fields for WOB, RPM, and RPM Rotating.
721800	Require new fields in Test Form
722180	Drillstrings planned in Profile Should be available in OpenWells in Well Planning report and from there available to be imported as actuals.
726285	Wb Equip - Completion Notes support required

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Defect No.	Description
728203	Need sorting on Primary Work Unit internal picklist. NOTE: User can now provide their own sorting on user picklists.
730057	Read Only User can still perform Unlock All or Lock All on reports.
730416	Dates should have a 'unit' showing the date format
730614	Customer would like an NPT logon to be created. This logon would grant RW access to the NPT sections of reports and limit all other sections of the report as Read Only.
732631	EPS needs to handle Partnership Start & End Dates
739289	Coring Reference Log field not exposed in Coring form
743453	Cumulative Cost Issue when creating 2 report for One Day
745102	Request that the Event End Date be populated when the Final Report checkbox is selected. Note: controlled by System Setting
748482	EPS generates error and does not create PDF's
750224	Publishing takes too much time to create .pdf report files
750359	CEMENT - Stage pumping schedule, auto-create first row when stage created.
750445	Need 'Flip Assembly' feature to resolve issue where user entering components in wrong order
750510	Drillstrings - Require 'Show All' feature (toggle) to list all BHA runs for the Event. Should include BHA Runs in parent Wellbores. Enables 'hidden' BHAs to be edited/corrected.
750634	Have Drillstrings section auto populate the Progress in Bit Ops.
754529	Customizing OpenWells Test data entry form layout results in fields disappearing in form
755089	Internal picklists require better support for Design Phase values
755488	Assembly in Located Inside picklist in Casing Report doesn't appear in sidetrack
757370	Accessing EPS Interactive takes hours for the Interactive tab to fully list all DEF's in a 10,000 Well database
759691	No individual security on Pick tables
760179	Additional fields required for Material Transfer
760602	Unit system can be edited even with "EDIT" application default token set to revoked
763605	The tabbing order of the arrival/ departure checklist of the New Job wizard is not intuitive. It would be better if it went to add row, down the arrival, then add row, down departure list as opposed to across the way.
763757	Request for Enhancement to Assigning Partners into the Wellbore and Event Properties

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Defect No.	Description
764932	Expose the letter code field in the Offload Pipe Tally spreadsheet.
769756	Enhancement request for OpenWells Input data to be saved automatically to prevent from losing data in case of power off. Note: Controlled by a System Setting. See Online Help
770759	Event Transition: When Transitioning Events using Copy Records from Event Tool, it is not possible to carry over costs.
773825	OpenWells needs to filter actuals vs planned and prototypes in the Copy from Previous/Planned Drillstrings dialog box.
785214	The "Create a new rig" option after creating a contractor in the contractor tab does not check the EDM.Explorer.Rig.add security token.
785215	The "Create a new rig operation" option after creating a contractor and a rig in the contractor tab does not check the EDM.Explorer.RigOperation.add security token.
795342	Users have no ability to control the sorting of Daily Costs. Even if the up/down arrows are used, the sequence is not carried over to the next day.
795722	Clients cannot configure displayed columns in internally defined picklists - for example Umbilicals tab hard to identify components -
796627	Missing Summary Property pages for some Rig Equipment
798029	Can not generate Wellbore Schematic and BHA Schematic in a single Report
798858	BHAs out of order on OpenWells Daily Output Report when Options Screen is removed.
799036	There is an Exception pops up when you add more than 300 rows in Cost Estimate and AFE report.
799155	Add CD_DEFINITIVE_SURVEY_HEADER to WYZWIG
799487	Deleting pump does not delete pump op in the database.
799507	If no casing section is added to the Hole Section Details spreadsheet, Length equal Depth, should be MD base - MD Top.
799914	Casing Output Report - Not showing Job Activity section.
799917	Wellhead Output report - missing "total component cost"
799941	General Work Output report - doesn't show Work Operation "duration" field.
799958	Daily Geology Output report - No Value on Daily Cost and Cumulative Total field. The DEF shows a value on these calculated fields.
800043	Cementing Output report - doesn't have Workstring and Job activity
800114	Daily Drilling Output Report - No Fluid Management Content.
800239	Missing alternate currencies against 4 unit classes
800945	Cementing Output Report Fluid Pumped Out of Order - sort by sequence_no

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Defect No.	Description
801170	Association between a custom Data Entry Forms and WYSIWYG to show is lost after upgrade.
801418	Proposed Set MD in Drillers Running Pipe Tally Report
801831	PUMP OPERATIONS - The Pump Efficiency is not defaulting from Pump definition in Rig tab
801885	Clone of 731662 Would like to have more Rig Operation fields in Associate Rig Operation wizard to avoid navigation to Contractor tab
802006	Additional fields needed to capture various information in CD_WELL. Need to add them to the Well Property dialog box too.
802110	Clone of Defect 767874 - Filter the list of contractors/rigs available in the Associate Rig Wizard off of event by start date and end date
802370	Clone of 750474 - Drillstrings - Show a warning listing Bit and BHA Ops associated prior to deleting the BHA Run.
802609	Clone of defect 755091 - Well Explorer does not refresh to show found Search item
802622	Clone of 801881: Sibling records not deleted when section type is changed
802668	Add field: Excess Lime to the Water Based Mud Properties tab in the Fluids Section of the Daily Operations Data Entry Form and Daily Operations Output Report.
802774	Clone of 802003 Application crashing when the Military Grid Reference System is used
802800	CLONE of 735476 Request that User Audit information be added in the Daily Cost Spreadsheet.
802915	CLONE of 801379 Bit Summary and BHA Summary output reports do not show all bit runs/bha runs if there are no bit/bha ops under them.
802927	CLONE of 750615 Copy To/Move To command should automatically navigate to the node above the item you are trying to copy.
802950	CLONE of 796360 Confusion for users on what date format is required for different fields
802965	CLONE of 750638 - Drillstrings - Convoluted workflow required when sidetracking so that sidetrack BHA can be seen in sidetrack wellbore
803202	In the Daily WYSIWYG's BHA section, changing a Section Type of a component and then canceling out of the Catalog Selector still change the data on the Assembly row.
803367	CLONE of 799500 Eff. Hole Dia should be used to calculate Linear Capacity for Open Hole.
803375	Clone of 802379 - Deleting a BIT component only deletes the Bit Operations for the current Daily

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Defect No.	Description
803376	Clone of 802811 Rig Operation Summary does not check if rig operation is in use before deletion
803378	Clone of 750476 - Survey Station MD is being auto populated. Someone thought this would be a good idea, but the users find it inconvenient.
803503	How can we get the formation tops report?
803735	Clone of 755089 - Internal picklists require better support for Design Phase values
803838	Cost Est AFE Output Report - Est Base Currency Not Calculated Correctly
803843	CLONE of 749709 Changing Rig On Location date for associated Rig Operation results in Daily forms not showing Rig in the Data Entry Form Window Title Bar; <NO RIG> shown instead.
804310	CLONE of 804087 TVD is not showing on the DDR output report.
804320	No TVD calculated when no surveys can be found. This is related to D/E 769197. This works well when surveys are entered, but not well between surveys. Need a compromise on the behavior
804375	CLONE of 750467 Deleting Rig Op-Event link data is impossible, OpenWells states you can't do it as reports already exist.
804380	CLONE OF 731661 Need method to associate a Report(s) to a different rig to clear up instances where a report is associated to the wrong rig
804544	CLONE OF 803198 -When a Assembly Component's Section Type is change, the associated data with the previous section are deleted immediately (not able to recover).
804624	CLONE of 804496 Datum is not refreshing after import.
804626	CLONE of 804092 Table of Contents and Cover page options should be disabled by default
804645	CLONE OF 803838 Cost Est AFE Output Report - Est Base Currency Not Calculated Correctly
804908	Mud Product Transaction calculated values can be off if there are duplicated daily_id's
804908	Mud Product Transaction calculated values can be off if there are duplicated daily_id's
804971	CLONE OF 804647 - Associate Rig Operation to Event should force the user to close off previous rig ops for same rig
805418	User wants to add Safety - Incidents spreadsheet in WYSIWYG that is in Form View
805421	Please add spreadsheet for Notifications in WYSIWYG
805450	Proper fix for the DE801285 - ArrayIndexBoundsException and Could Not Save Form.

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Defect No.	Description
805502	Old Rental Summary Report
805557	Clone for Rocket - "Could not save the form" error relating to Bulks and Mud Inventory after using VCR Next and Previous buttons
805559	LOT Summary Report in OpenWells giving wrong values on base axis.
805618	Clone (766760) to Test in Rocket - Unable to select no assembly (blank) in Cementing report
805829	D/E Report times out after 15 minutes
805974	User can edit Read Only Daily Operations DEF by double clicking in Hole Section fields
806032	Perforation - Intervals - MD Top and MD Base are not showing up unless CCL@ and CCL-TS are populated
806318	Bit Summary Report Heading is listing all wellbores for the well when it should only show wellbores for the selected event.
806546	Final Pipe Tally Report - "Attach Section" functionality is incorrect and affects the Tally No in the output report
806641	Event Property-When adding rig op, then default time on Rig on Location is 00:00
806676	Creating Geology Report Creates Orphan CD_FLUID_T record
806719	BHA Deletion is not refreshed when no is selected on Save Changes Window.
806735	NPT Summary Properties / NPT Equipment Failure Properties- Format issue when Contractor Section is hidden.
806856	REQUEST: Add new unit to Class 171 aka "Concentration (Chlorides)"
807015	MMS Well Activity Form 133 Output Report - request that Section 13 be sorted by date.
807288	Datums may show default datum checked when table cd_datum.is_default = 'N'
807409	Casing Reports - Incorrect Hole Size appearing
807464	EDM Admin - Property dialog box's changes are not being saved/respected
808036	ENHANCEMENT: OpenWells 2003.16.1.17 - Selecting casing assemblies whilst sidetracking
808379	Pipe Tally Report shows only 110 records instead of 136
808395	Add more audit field to daily cost spreadsheet
808545	In Drilling pipe tally report the cumulative length calculate the length of first joint although it is flagged out.
808802	Not able to enter CD_CONTRACTOR information on wysiwyg

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Defect No.	Description
808990	Enhancement: increase event_type on the MD_SITE_EVENT_TYPE to 40 character
809043	Recorder information in Drill Stem Test report is not being shown properly.
809291	Increase length of Age Code on Company Properties for Strat Units
809638	Wysiwyg needs to accommodate fann data readings
809874	PK_STATE should be the default picklist for State/Prov in Well and Site properties
810045	Fluid Hauling Data Entry Form does not keep Fluid Source and/or Fluid Destination name if add a new line in form
810354	The total AFE shows up correct value whereas when you take the print preview of Operations Summary CharT, the total AFE mentioned is way much more than the correct value.
810655	Removing Surveys from Well Designer/Trajectory tab once added (no Compass).
811700	The total AFE shows up correct value whereas when you take the print preview of Operations Summary CharT, the total AFE mentioned is way much more than the correct value.
811703	Pipe Tally Report shows only 110 records instead of 136
811800	CLONE OF 808551 Fluid Management - Fluid Disposal. Request to be added to WYSIWYG Form
811801	CLONE OF 811732 Add DM_CUTTINGS, DM_SPILLS, DM_FLUID_DISPOSAL, and DM_FLUID_DISCHARGE to Wysiwyg
812063	Require the ability for PROFILE to be able to display Stimulations across multiple Events
812085	Cement rendering issue due to bottom depth comparison
812940	System Settings are not included in a Configuration Transfer export
813325	Clone of 813325 If Rig op has been removed from the associated rig (event properties) - the rig key should be deleted from ALL reports not just DEF
813353	Text area name are not customized for Partner Contacts Editor
813595	Site Properties defect. Notes Field (cd_site.Remarks) is not visible in EDMAdmin
814134	Well Obstruction Component Ordering not working
814134	Well Obstruction Component Ordering not working
814620	Obtain NPT hours as a percentage of the event total hours in a single report.
814773	Error in Create New Report wizard if no tokens granted
814958	Deleting company data in POB causes orphan data without using the "Clear Company Daily Information" button. POB general workflow is not intuitive to uses.

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Defect No.	Description
815060	OpenWells AFEvs Actual Report - Currency field missing. Our ref #121
815108	Add CO2 presence CHECK BOX for a Well
815397	Extend Associated Data Viewer so that it shows Report Level Attachments at Event Level
815401	Allow internal picklists to have Sort and Filter Clause
815914	DO - Workstrings - no place to enter parameters for Progress Summary
815922	Copying Daily Operations report also copies associated rig
816165	Need BHA Operations fields for off and on bottom circulation pressure
817090	Wellbore equipment report blank fields
817594	Need UI Drill days in DM_RIG_OPERATION
818145	The last page of report has no page number.
818205	Profile draws Packer outside wellbore equipment string, when it should be located inside
818615	PROFILE 2003.16.1.23 We have issues with the Stimulations data entered against a specific event that appears to be related to dates of event yet all stim data is within the start end date of specific event
818829	Enhancement - Additional fields in Time Summary
818841	PROFILE issue rendering Cement around Slotted Liner Completion in Multi-Lateral Well displayed incorrect on interactive schematic
818843	LOT Summary Output Report - Test Data does not grow correctly to the next page.
819195	Please provide "Auto Catalog Select" On/Off Option in OW for the whole company as well as per user basis
819347	PCP Report DEF > General > Landed MD depth does not use Datum
819387	Wellbore No. field cannot be made read only - Wellplanning Report/Hole Sections OR 251
819605	Using the Create Wellbore Wizard does not populate Wellbore API like if use File - New -Wellbore or by right clicking on a Well to create new Wellbore
819794	OpenWells - Progressing Cavity Pump Report - Rod Guides indication is not present on R5000 OP report. Shell OR#186
819799	OpenWells-Today's Wells Screen - How to configure the transfer button.
819812	OpenWells 5000.1.4: MD sort order messed up in BHA section (output report)
819825	Pumping Schedule on Cementing output report not in correct order as entered on Data Entry Form

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Defect No.	Description
820149	Custom Water Based Mud tab in fluids section of Daily input form does not change after applying customization
821389	Need spare fields in DM_ACTIVITY
821907	Client wants to add a field on a Data Entry Form that calculates a value based on other fields.
821988	Dm_Safety.remarks - Enhancement request to increase Dm_Safety.remarks test field from 225 to 500.
822218	RELATED TO 750445: Profile: Need 'Flip Assembly' feature to resolve issue where user entering components in wrong order
822265	Remove WYSIWIG Button from DEF when WYSIWIG disabled
822530	The schematic in the Cementing output report is not showing the hole section, casing, cement, etc. entered on the same day as the Cement Report Date.
823723	CDRS report generation unable to generate Norwegian characters correctly in 2003.16.1.25.
824868	UPGRADE: "Casing Name" picklist in OpenWells Cement Program Details to include Liners from StressCheck design.
825096	Changing Active Unit System in Profile changes Datum stored in database
825335	User wants NPT Summary report to have a column for duration type ET = Equipment Failure and a column for other NPT types e.g ODHP
825412	Wellbore schematic does not appear if datum missing - User wants a warning message added to crystal report to let user know datum is missing like in Profile
826507	Create new from copy button should automatically put in new BHA Date and Time In from the previous BHA Date and Time Out.
826898	Request Northing and Easting on Anchor Position in Daily Anchor Operations.
826901	Copy plan formations from Compass design to OpenWells, Wellbore Properties, Formations tab
828195	Duplicate daily_id from different wells cause error in cum hrs and cum footage
828358	Request wellbore name, corrections to graph, headings on the cover page, and Rig Name and No. are not printing on the LOT ( Leak Off Test Summary ) Output Report.
828577	DEFECT: PROFILE: Crash Opening Designs - application crashes with no error
828586	PROFILE SCHEMATIC: schematic draw incorrect - conflict caused by cement and casing shown incorrect
829718	OPENWELLS > DATA ENTRY FORMS > PERFORATION REPORT > Intervals spreadsheet is not remembering data entry order. > Index should be created on this table to retain order that this data is entered on spreadsheet

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Defect No.	Description
829725	OPENWELLS - OUTPUT REPORT - PERFORMANCE - not sorting the data adequately - should sort intervals by MD Top
830264	Parent wellbore blanking in Compass after OpenWells save
830468	SQL Server 64 bit Install's keep installing every time I run EDT 5000.1.7 install on top of EDT 5000.1.5
830469	EDT 5000.1.5+ upgrades unpack Historian files to Temp folder irrespective of whether user wants to install Historian or not
831061	CD_ASSEMBLY.remarks field exposed for ACTUAL designs
831288	Copying Cost Records from another well results in incorrect cost_date.
831399	Daily Data Entry Form Cost fields do not always recalculate and/or refresh from Mud Inventory updates.
831461	Multiple Reports with the same date from the same well aren't being sent out
832097	A valid time may not be accepted when entering a time on a Survey.
832112	New Wellbore Wizard - place Wellbore No. field before Well Legal Name and Wellbore Common Name fields
832113	New Event Wizard - Add DM_EVENT.event_type to bottom of New Event Information area
832120	New Rig Operation Wizard - default Contractor and Rig Name picklists to null.
832122	Extend Event Reporting Standard to Jobs
832136	NPT Properties, Equipment Failure tab - make Failure MD field available on this tab (as well as General tab)
832287	Daily Operation > Drillstring (BHA/Bits) > Components > BHA length needs to include Drill Pipe and Drill Collar if the Drill Pipe is within the BHA
832288	Daily Operations Report POB needs to be redesigned.
832350	Graphical Well Summary Report
832643	MUD INVENTORY: Add two columns Vendor & Function
832783	Cannot delete Perfs out of the Wellbore Openings tab if they were created in a Perforation Data Entry Form
832846	Display issue with Well Planning Report - number of rows shown in Planned Operations
832847	Need cum totals on Wellplanning Report for Hole Plan time and cost numbers
832875	Clone of 830692 to track fix in Rocket: Rows lost from DM_WELL_PLAN_WELLBORE_LINK during upgrade from 2003.16.1 to 5000.1.5.2
833091	select a casing from parent wellbore in Cementing Report.

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Defect No.	Description
833189	BHA's are not sorted correctly in WellPlanning Report - Drillstring Program.
833881	CLONE OF 805186 TO VERIFY IN 5000.1.7 DEFECT: Related to DE#803185 Compass 2003.16.1.17 Build 68, causing corruption of OpenWells 'Build 2003.16.1.17.8055 'entered Casing reports
834768	Wellhead report - API Temp Rating picklist display wrong characters for temperatures (-50°F/-46°C to 180°F/ 82°C)

### **Release 5000.1.6**

There were no OpenWells issues fixed for this release.

### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of OpenWells software.

Defect No.	Description
741059	Modifications to the Perforations Report do not get reflected in the Wellbore Openings tab
812106	Clone of 766760: Unable to select no assembly (blank) in Cementing report
797133	OpenWells incorrectly calculating well surface location when well location is defined by reference to slot.
805541	Require component "description" field to be available in all catalog types.
814332	Navigating between Daily Ops reports loses focus on the active section
798340	ENHANCEMENT - add AFE Number and Description to Event Operation Summary Report
812240	wrong calculation of total pages in Material Transfer Report
812243	There is no option to let user hide cover page and index page when user previewing the Daily Well Operations Report
812246	Report content error-Leak Off Test Summary Report
812296	EPS fails to generate reports filtered by reporting standard on the next day resulting in lost reports

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Defect No.	Description
812808/ 812810	After installing the software, log into OpenWells as a standard user; application throws error "...file path is not a directory...\Queries\Drilling..." or "...file path is not a directory...\Queries\Rushmore...". This only occurs on the FIRST launch of OpenWells after installation (and then only if the user logs in as a 'standard user'—i.e., not Administrator).  WORKAROUND: After installation, log into OpenWells as Administrator one time. All subsequent launches of OpenWells will now work when user is logged in as a standard user.
813089	5000.1.2 AFE vs Actual report: A loop was evaluated more than the maximum number
815232	Cost vs. Days stops "growing" at a certain point for no reason
811389	OpenWells R5000 Memory Usage Performance Problems
813407	Clone If Rig op has been removed from the associated rig (event properties) - the rig key should be deleted from ALL reports not just DEF
814542	CITRIX - User can login to OpenWells w/o username and password or Win Auth
815840	Finish button won't activate unless selecting a different event when Dragging and Dropping Report from one event on one well to another Event on a different Well
816812	Drillstrings - Create New From Copy doesn't show strings from other wells
814764	Report Cover Page logic not working
815037	Time Distribution Report displaying incorrect values
816495	Unable to add a survey in OpenWells in certain situations.

### Release 5000.1.4

The following issues were either addressed or have workarounds for the 5000.1.4 release.

Defect No.	Description
801881	Sibling records not deleted when section type is changed
802003	Application crashing when the Military Grid Reference System is used
801741	AFE v Actual crashes with supplement AFE
802379	Deleting a BIT component only deletes the Bit Operations for the current Daily
796360	Confusion for users on what date format is required for different fields
801379	Bit Summary and BHA Summary output reports do not show all bit runs/bha runs if there are no bit/bha ops under them.
799500	Eff. Hole Dia should be used to calculate Linear Capacity for Open Hole.

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Defect No.	Description
804091	No TVD calculated when no surveys can be found. This is related to D/E 769197. This works well when surveys are entered, but not well between surveys. Need a compromise on the behavior. System Setting required. See documentation
804087	TVD is not showing on the DDR output report.
804496	Datum is not refreshing after import.
804092	Table of Contents and Cover page options should be disabled by default
802811	Rig Operation Summary does not check if rig operation is in use before deletion
749709	Changing Rig On Location date for associated Rig Operation results in Daily forms not showing Rig in the Data Entry Form Window Title Bar; <NO RIG> shown instead.
750467	Deleting Rig Op/Event link data is impossible, OpenWells states you can't do it as reports already exist.
735476	Request that User Audit information be added in the Daily Cost Spreadsheet.
750476	Survey Station MD is being auto populated. Someone thought this would be a good idea, but the users find it inconvenient.
750474	Drillstrings - Show a warning listing Bit and BHA Ops associated prior to deleting the BHA Run.
731661	Need method to associate a Report(s) to a different rig to clear up instances where a report is associated to the wrong rig
714409	Copy Existing String should default to current Well and Wellbore
732834	Date/Time fields should have masking format so that the user only has to type the numbers.
731662	Would like to have more Rig Operation fields in Associate Rig Operation wizard to avoid navigation to Contractor tab
755091	Well Explorer does not refresh to show found Search item
755090	Internal Picklists require better support for Is Hidden columns
786797	Rig Key in DM_REPORT_JOURNAL is not deleted if Rig Operations has been removed
767874	Filter the list of contractors/rigs available in the Associate Rig Wizard off of event by start date and end date
750615	Copy To/Move To command should automatically navigate to the node above the item you are trying to copy.
750498	PUMP OPERATIONS - The Pump Efficiency is not defaulting from Pump definition in Rig tab
755089	Internal picklists require better support for Design Phase values

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Defect No.	Description
750638	Drillstrings - Convoluted workflow required when sidetracking so that sidetrack BHA can be seen in sidetrack wellbore
805431	Could not save the form error relating the Bulks and Mud Inventory when using the VCR Next and Previous Buttons

### **Release 5000.1.3**

There were no OpenWells issues fixed for this release.

### **Release 5000.1.2**

The following OpenWells issues were either addressed or have workarounds for the 5000.1.2 release.

Defect No.	Description
165404	Request: AFE vs. Actual cost printout report should be dual currency compatible.
612757	Cannot use a network drive in File Monitor Directory.
622388	Field for Max OD in Casing Report
627775	Need to be able to assign planned Rigs to Job via Rig Operation when previous Rig Op(s) are not yet completed
630078	Need additional Duration columns (3) for Planned Operations
632010	Field to Office Data Transfer tool needs to show if reports have attachments
700873	Request that the Cost Estimate and AFE spreadsheet entry be changed to allow the insertion of items in between other items, sorting of items, and have the items be saved in the order that they were entered.
700935	Implement automatic re-connect support to SAM when it goes down
705972	Cement Fluids Calculated Sacks does not have a unit defined - should be 'sacks'
716777	Report locks are not flagged to other con-current users
720881	EPS Login Failure dialog box inconsistent w/ other EDT applications
723609	Encrypted transfer files not deleted automatically by Receiver service
725216	Unit system does not have lbm/cuft or g/cc for Density. Please add these units
725356	Field Office Data Transfer and Report Locking
731641	Field to Office Transfer Utility needs some file cleanup functionality.

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Defect No.	Description
733028	Extend EPS Configuration dialog box to support new Option to only send outputs once Report is Locked
733554	Output Reports from Publishing Service need to be configurable by Event Type
733579	Need better error/process logging in EPS to diagnose adverse behavior
735063	Request to show all NPT reports available for day/well
736897	Request that Data Requester remember the data source for log in to the office.
737125	Encryption Check Box and Working Directory FTP settings not saved correctly for FOT Configuration
742263	TVD BH, Depth Tab, Wellbore Properties Not Updated from COMPASS
746214	Incorrect Class Assignment for Swell Period on the weather input screen - should be Time with a unit of Seconds
747097	With AutoCatalog Off in DEF, Bit Operations tab in Drillstrings does not get activated as a Bit row is added
747339	Need to restart OW for WP DEF's Total Target Duration, Target Cost and AFE Cost to be correctly calculated (after navigating from WP DEF to AFE DEF and back)
748759	Test Report: Test Method Swabbing does not show all Fields in Swabbing Test
749141	Last Hole Section's last Leak Off Test spreadsheet is not always highlighted
749347	Spell Check not working
749613	Bits Information grayed out after you copy the string from a different well
749714	Component row copy results in user changes not being adequately saved as seen from PROFILE
750354	Cannot delete BHA Components unless BHA Sensor tab is visible
750454	Wellbore Properties - trip Surface Location calculation (from KOP MD value = 0) when new Wellbore created
750454	Wellbore Properties - trip Surface Location calculation (from KOP MD value = 0) when new Wellbore created
750461	FODT does not recognize dropped VPN connection
750464	LGC EDM Data Receiver Service - Does not check for database connection when processing an import. Result is that transfer files go into 'Fail' folder and are no longer able to be processed.
750466	LGC EDM Data Receiver Service - does not recognize old files, they are ignored. If the files are in the folder, process them.
750490	Spell Check feature does not process correctly when there is only 1 spelling mistake in field - displays "No Error" but makes but then loses the correction

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Defect No.	Description
750505	Rig equipment updated on field machine e.g., new pump not updated on office system after transfer from the field
750569	Daily Operations DEF: If we add Surveys in Survey section, TVD value is not refreshing in General section.
750605	Refresh issue. Wellbore Equipment components don't show in ESP. Have to exit out of OpenWells and restart.
750661	When opening OpenWells, remembers last selection, but tree does not automatically navigate to that selection.
750695	Wellbore Equipment / Casing components had been entered into the DEF are missing in the spreadsheet but the MD Landed shows a calculated depth.
750928	Survey - new survey defaults the Azimuth to the Convergence
751423	EPS cannot generate the reports when transfer the Event level report.
752099	EDM File System Service doesn't pickup and append manual EDM export XML files
753348	If the customer doesn't refresh the data in Receiver's OpenWells, the locked transferring data also can be edited.
753856	Transferring a Casing/Test/AFE/DO DEF does not update the Section Complete status in an OW session on the receiver
753857	AFE DEF does not get updated in open OW session after Successful Import
754211	Need 'OPEN' & 'CLOSED' items added to MD_PK_COMPONENT_STATUS system picklist.
754967	Layout Manager - Making the Approvals or Associated Completions tabs invisible will adversely affect the layout and functionality of the entire Event/Job Properties window
754968	Expose all DM_EVENT fields to Layout Manager.
755014	The updating component details in PROFILE cannot be populated in the Wellbore Equipment DEF, unless region OpenWells.
755085	Data Validation display does not show Depths adjusted to the current RDL
755109	Online Help needs a correction concerning Contingency Costs.
755574	Parent Wellbore field does not support multiple Sidetracks in the same day
758967	Firing up multiple DSIMP.bat can cause the Receiver machine to hang or be responsive for long periods of time
760163	Field/Office Transfer Status dialog box when using FTP not showing file transfer to remote site.
760166	Would like ability to merge output reports when saving to file.
760230	Batch Print Wizard should enable selection of reports from other Wells and Events just like DIMS

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Defect No.	Description
760631	Is there anywhere in OpenWells where you can enter information about "prefrac"?
760895	Issue with hole sections on Daily Drilling Report after side track.
763436	14.1.5 onwards: Cannot Save or close DEF after entering LOT - Pumping Details
763436	14.1.5 onwards: Cannot Save or close DEF after entering LOT - Pumping Details
763477	Changing Time Summary Time, causes incorrect NPT Times as Nested NPT and Net Time is not automatically calculated
764053	D/E Request new jobs, job transfer tool issues
765683	Hole section MD base defaults to MD current when creating a new hole section.
765845	Perforation Report - Why do MD Top and MD Base Default to the Datum Value?
766384	Rig Op Release Date Limitation hinders Pad Drilling Workflow
767043	Need application security support to control user access to Move/Copy Report feature
767169	We need to honor the sequence_no in CD_VG_METER
768492	Changes to Casing Output Report - Add MD Base, change column order
769197	TVD Values change when switching between Daily Operations DEF's.
769582	EDM Data Receiver Service needs SAM support to automatically notify active OpenWells users when new reports have come in and when updates have been made to existing reports
769630	Enhancement - Ability to edit EPS Email Subject Line
770939	Daily Cost records do not carry over to a new wellbore.
772325	Duplicate default datums created
772435	Well Planning DEF, Sidetracks Area, Spreadsheet, Design field combo box change is not changing detail panel
774866	Make it possible to attach the custom java code (class/jar) for a single table along with the Report file instead of putting in commonext.jar
775645	Annulus details - depths do not respect viewing datum, results in incorrect calculation of open hole length.
776059	WYSIWYG Bit "Bottom to Top" Button
776155	NPT Gross/Net Time Defect
777668	PSA CDRS report - unable to map a field to gasReadingInfo/gasHigh
779707	Right Click Options (Cut, Paste, Copy, etc) are not available on the forms
781778	Well Planning DEF, Directional Drilling Plan section CD_SURVEY_PROGRAM.hole_name picklist is not updating

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Defect No.	Description
782298	Request that the Well Explorer delete message tell which nodes are locked when delete will not execute due to locked nodes.
782601	Rig Op Release Date Limitation hinders two active rigs on the same Well Workflow
783492	Daily Drilling Output Report should show all AFE Numbers associated with the Event.
783493	Request that the AFE No. field be added in the cost detail lines in the Daily Cost Output Report.
783929	Need a link to Rig Operations for editing from the Rig Equipment Editor
784212	C:\temp\dsmail not automatically created and not automatically purged
785125	Tie on point does not use the reporting standard, but all other survey stations do.
785341	SAM message not sent for new rigs
785419	OpenWells Exchange Rate should be utilized to view cost oriented reports.
785868	Extra white space displayed for Time Summary
785888	Locked fields in Well Explorer can be edited through Daily Operations WYSIWYG DEF
786933	Duplicate Datum when copying Well Planning Report
787323	Cannot access BHA Ops, Bit Ops and BHA Sensors tab in Layout manager to customize
787362	Custom WYSIWYG not being imported with configuration import
787797	Clone of 773149: NPT ending activity missing values for new report scenario.
787799	Clone of 773150: Improve wording on NPT copy/move warning dialog box.
788941	UPGRADE: Automate a process to clean up used temp files created by FOT.
790188	Clone of 790084 - Daily Personnel Section - People on Board tab should look up company using well_id, event_id, and company_id.
790442	Report Generation Error - Java Running Out of Memory
791329	Rig Association not always updating unless close and restart OpenWells
791471	FOT audit update Date/Time displays one digit for time(Minutes) like 10.1am.
791533	Time Summary - Duration column sometimes updates
791799	Surface Tanks Calculations do not calculate correctly from one day to the next in the Daily Workover Fluids Section
792105	Clone of 790338: Memory increase while browsing around OpenWells Hierarchy causing slow performance
792467	The Actual Design has no associated datum when the user deletes the associated datum.

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Defect No.	Description
792556	R5000.1 does not depth shift log collar depths
792809	When the MD in the Daily Entry Form - General Section is raised, then the Hole Size and BHP fields no longer calculate.
792903	Adding a new NPT without an end date disabled the NPT button and doesn't display the NPT created
793222	Deficiency in Save Logic for Time Summary
794369	When a survey is imported, then the Save icon does not activate.
794414	When entering a Perforation Interval, the Top MD and Base MD cannot be entered
794965	Clone of 793109: Need to enter value for <drillReport><versionKind>.
794967	Clone of 793110- Need to enter values for <porePressure><readingKind>
794968	Clone of 793112 - Need to be able to report values for <gasReadingInfo><gasLow>.
794994	Data displayed in the Operation Summary Chart incorrect
795044	Hiding of BHA Sensors tab (in Drillstrings of Daily Operations Data Entry for) causes newly added BHAs to not show up
795243	Metadata is not loading for output reports when network userid has a special character
795296	Request option to not print the TOC on the Casing and Cementing Reports.
795341	OpenWells FTP needs to support Passive mode
795346	D/E Not being able to add DM_ACTIVITY.wellbore_zone_id to spreadsheet
795355	Well Planning Report Hole Plan Section records should stay in the order entered.
795357	WellPlanning - Wellbore Formation - TVD and Base TVD not displayed on output rpt unless fill in MD and MD Base
795408	PK_EQUIP_FAILURE_TYPE cannot be ordered how we want it.
795642	Need tree model for Under-Balanced Drilling WYSIWYG
795663	Associated Partners Contacts, Data Disappears on Picklist Fields
795695	Depth Reference tab allows multiple Default Datums to be selected
796154	Cannot delete BHA Components unless BHA Sensor tab is visible
796155	Picklist will not disappear after a Section Type is selected in the Drillstrings>Components tab
796592	Supplemental AFE cost records remain after Supplemental Header is deleted.
796889	Unable to customize or hide Reporting Tab in Event Properties
797013	OpenWells Event Property page not picking up configuration upon Event creation

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Defect No.	Description
797050	AFE vs. Actual Report should not include daily cost amounts that are related to another AFE.
797053	Multi-Well AFE vs. Actual report should not drop daily cost items when there is no matching item in the AFE.
797199	Created NPT/Failures in Time Summary does not display
797417	When a Project, Site, and Well that is sent has no tight group selected, then the Receiver fails with no error message.
797998	Print Wizard Print Queue dialog box minimizes when the Options dialog box comes up.
798049	CDRS report generation unable to generate Norwegian characters correctly.
798057	Cementing Report add Slurry Top TVD and Slurry Base TVD to Fluids section
798213	Add Flowback model to Stimulation Wysiwyg
798778	Clone of 791606: Error copying/pasting assembly component spreadsheets in a customized spreadsheet or importing after copying out to Excel
798889	OpenWells is caching too many wells
799227	Making changes and immediately canceling changes to Tie-on-point can cause Wellbore Properties to show wrong values for Top of Hole KO
799303	Clone of 798818 - OpenWells and COMPASS interaction with SAM and surveys creating too many SAM messages and OpenWells marking surveys edited that are not
799614	Tie on point is not showing up on newly created Survey.

### **Release 5000.1.1**

There were no OpenWells issues fixed for this release

### **Release 5000.1.0**

The following OpenWells issues were either fixed or have workarounds for the 5000.1.0 release.

Defect No.	Description
178457	Can you pass parameters to the shortcuts in the launch bar
619710	For Wellbore Equip reports, need ability to store these assemblies to a library
619913	Need the ability to import from a Library on the Components Casing Screen.

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Defect No.	Description
622375	Threads Tested Field
622381	New Field in Casing Report
622384	TV Depth in Casing Report
626495	DM_COMPANY_DAILY.num_people is not updated correctly when removing all personnel
628904	User can't see this new Rig Equipment on the report.
705993	Well Planning Hole Sections do not integrate w/ PROFILE and the Tubular applications
722401	Request that the Hole Sections Section of the Daily Report be changed to make it easier to understand for beginning users.
726999	No area available to enter free text comments for an installed component
731341	Wellbore KOP Coordinates should be local to Well location, not Site location
731358	When promoting site to FINAL append the scouting description text instead of overwriting.
733398	Need Drilling Mud Motor RPG stored against Motor definition and Total RPM calculated in each Daily Report Bit Operation
733458	Layout Manager - need DM_DAILY.liner_top field exposed
745332	Need fields to support IHMP and FHMP
746745	Nowhere to enter Tag MD when installing ESPs below Underreamed section
747263	Leak Off Test calculation in SI units differing by a number as compared to API
747433	WP DEF - Hole Plan Totals should be subtotalized by the current wellbore/design as that design is shown in the drop-down
747474	Include Tool Description in Survey Tool Picklist, Survey Properties Page
749130	Survey Properties dialog showing wrong TVD value for Side Tracks.
749174	Print Report Wizard--Save the Print Report Wizard Preferences and have ability to see complete Summary Reports section
749621	AFE Report should not be deleted when AFE association is deleted in Event.
750453	Support simple Hole Sections data entry w/out requiring Details spreadsheet.
750495	Pump Operations sub-spreadsheets not intuitive to use.
750854	Gas Concentration (class_id=186)
752198	If possible we need to have an option to invoke Rig Equipment Properties (Pump Ops, Centrifuge Ops etc) from DO DEF
753590	OpenWells 2003: New units required 100 lib. Sack & 50 lib. Sack

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Defect No.	Description
753694	Need to change some default labels in stimulation form
755377	Loss of cursor Focus in Spreadsheet Headers
755413	No place to record Off Bottom Circulating Pressure
755431	Document 702876 - Need EPS support for Auto Publishing 'Changed' Reports so that reports can be re-cached when reports are changed in office
755441	Cleanup DEF - Site Cleanup section - Spills tab - Button is not called "Import from Daily Operations", but "Import from Event(s)"
755442	Documentation: If required the new elegant Import from Event(s) dialog box in Cleanup DEF - Site Cleanup section's - Spills tab - "Append and Replace Spills" options
755448	Document the new feature of how OW is unique in bring in Well Name/API number from Well Properties to Wellbore Properties
755449	Documentation: New feature: Contractor/Rig properties now has Start and End Date fields
757232	Cannot start and end the Hole Section on the same day
757325	Request Operator and Reporting Time fields in the Event Properties.
758092	Document how to Increase the maximum JVM size (-Xmx) to 1024m in the OpenWells batch file
758202	Require Communication Y/N and Communication Remarks field in Stages section
758206	'Actives Stages' should be labeled 'Active Stages'.
758353	Find feature won't find items contained within Virtual Folders
758734	Site Location for Romanian, Belgian and Bell Wire geographic reference systems are different between Open Wells and COMPASS
759196	Daily Mud Cost does Not get recalculated when we delete the rows in Mud Inventory even after saving and reopening
760168	Survey selector in Survey Properties problems w/ SI units
760175	Casing form does not see Pipe Tally form that was just created
763095	MD_PK_PROD_FAILURE_TYPE has no way to be internationalize without breaking the functionality
763107	OpenWells Survey Header Tie-On Point Coordinates for Wellhead origin does not respect 'Well Centre' coordinate setting for Local Coordinate System configuration in Project Properties.
763275	WYSIWYG DDR - Print Data Entry form: Print of page view does not fill the 8 1/2 x 11 sheet. Printed text area is only 4 1/4 x 7 1/2.
764928	User requests Final Pipe Tally Output Report and Driller's Running Pipe Tally Output Report have separate column for spare joints listed in the Pipe Information section

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Defect No.	Description
766385	Need 'Formation Gradient' field to support alternate MASICP workflow
768500	Add Wellbore Name to Bit Summary Output Report
768617	Request that EDM Publishing Service not select reports in the future.
768892	OpenWells spreadsheet import does not honor any customized settings in regional settings with regards to digit and decimal separators
769081	Clear transaction description is missed under help menu.
769347	Daily occurrence of SAM error
769593	Update/Highlight in the Online Help that the Wellbore Schematic displays the well status at the end of the Reporting Period
770137	OpenWells Survey Header Tie-On Point Coordinates for Wellhead origin does not respect 'Well Centre' coordinate setting for Local Coordinate System configuration in Project Properties."
770262	Must close and re-open OpenWells for deleted pit to go away on Fluid Volumes. Refresh problem"
770525	In WYSIWYG, by default Survey Tie-On is User Defined and MD is set to the Datum Elevation, not to 0.
770771	Wellbore Status History no longer updating Plugback MD
770903	New resistivity fields are needed for the Logging Report.
770937	unable to delete rows from Personnel section with People on Board tab hidden in DEF
771010	OpenWells, output report doesn't show the last saved days length for drill pipe in daily operations drill string section
771037	Unit System Editor: Gas-Oil Ratio. where is m3/m3 unit?
771071	<Set default values for Mud Inventory Cost Description on Daily Cost Section>"
771091	Need the ability to support multiple WYSIWYG forms and assign them per preferred data entry form
771159	Dsimperv.xml could grow to an unmanageable size
771187	Copy/Paste problem in Time Summary spreadsheet
771469	CDRS wellAlias does not allow for user to pull from CD_WELL
771471	CDRS mappings do not allow for literals in the mappings
771505	Daily Cost not populating in Daily Cost Output Report for items not in AFE
771558	Hole Section, MD Base field does not autopopulate/update from current MD until the DEF is closed and reopened.

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Defect No.	Description
771625	On Daily Operations report, field DM_ACTIVITY.Time_To of Time Summary tab is not working properly.
771631	Copy Well Planning report workflow results in 2 'Planned' Designs within the same Wellbore."
771999	Allow validation rules to be defined as mandatory.
772005	FOT takes about 10 minutes to transfer a simple company after a long time in idle state.
772323	Survey Properties - OpenWells enables users to tie-on Surveys associated to Wellbores not tied to the current Wellbore
772488	Daily Air Drilling Output Report does not show Sections if Hole Section not Present.
772515	Require support for "Rockies" location descriptions.
772658	Move DO DEF from Well 1 / Wellbore 1/ Event 1 to Well 1 / Wellbore 2/ Event 1 causes NPT to disappear
772753	Wysiwyg showing same wellbore for all rows in the hole section spreadsheet
772954	Datum Elevation Should Read 'from Mean Sea Level'
772990	Security Tokens are not working for Attachments
773014	Duplicate Casing OD and MD Shoe values are shown in Actual Casing section of Depth vs Days Graph
773117	Attachments to NPT and attachments to lessons attached to NPT do not get moved when a DO report is moved.
773125	Deleting a report with an associated NPT does not delete the NPT nor the lesson associated to the NPT.
773598	OutOfMemeryError while copy/move a daily report for Oracle.
774506	CDRS wellboreAlias/name and wellboreAliasNamingSystem will not honor two records
774507	CDRS wellboreInfo/RigAlias information missing tag for NPD Code
774523	Problems with wellDatum tab in CDRS XML result
774543	Casing Output Report issues: MD Top label is missing and Top Connection OD & Bottom Connection OD values are interchanged in Output Report.
774922	DDR Printed Report - Report Options dialog box needs select all and clear selection options.
775072	Schematic in Well Planning DEF shows the actual and not the planned data.
775073	MD vs Cost graph needs to display details of NPT and casing.
775896	Details Sections Do Not Appear In LOT, BHA Ops, Bit Ops Until Header Line Is Clicked For The First Time In OpenWells

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Defect No.	Description
777044	OpenWells PSA CDRS report, need to map a database field to what is currently a hard-coded value in Time Summary
777048	PSA CDRS report, unable to map field for temperature tool depth value
777049	PSA CDRS, Logging section is invalid for temperature details
777093	Report Manager Error when Cost Estimate and AFE has no entered cost rows.
777218	PSA CDRS report, unable to map fields for lithShowInfo/tvdTop or tvdBottom
777308	PSA CDRS report - need to map a field to formTestInfo/dominateComponent
777668	PSA CDRS report - unable to map a field to gasReadingInfo/gasHigh
777786	PSA CDRS report, unable to map fields for wellTestInfo/tvdTop or tvdBottom
777792	PSA CDRS, unable to map wellTestInfo/presFlowing
777956	PSA CDRS report - access DM_ACTIVITY table from controllIncidentInfo
778103	PSA CDRS, 6 mandatory fields in wellTestInfo with no way to map them
778994	Daily Actual Costs items do not show on AFE vs. Actual Report if there is no matching AFE item.
779171	Off-Load Pipe Tally Output Report Corrections
779265	Online Help lists the incorrect directory path that the .bar file is saved in when creating new system shortcuts
779341	Cost Records are not sorted according to Code and Subcode.
779388	Copying a well planning report into a different well misses planned designs & surveys for side-track wellbores in the well planning report.
779580	Survey Header - Tie-on Point not calculated correctly when tie-on point is on a survey in another wellbore.
779901	WYSIWYG form allows user to change fields that they don't have access to.
781366	CDRS Change the output unit of gasReadingInfo/gasHigh to '%'
783909	Use label to indicate Wellbore Properties General Tab Vertical Section is referenced from Well-Center.
783989	A user who does not have EVENT.LOCK right is able to lock ALL reports via the right click menu from EVENT.

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## OpenWells Known Issues

The following OpenWells known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13

The following are OpenWells software known issues for the 5000.1.13.0 release.

Defect No.	Description
941703	If printed report configurations do not contain the *Filtered.xsd and *Tables.xml files, they cannot be printed. This issue only affects the OpenWells "Standalone" install, it does not affect OpenWells when installed using the EDT installer.
942244	Opening the Catalog Editor from the Well Explorer tree results in an error message. This issue only affects the OpenWells "Standalone" install, it does not affect OpenWells when installed using the EDT installer.

### Release 5000.1.12

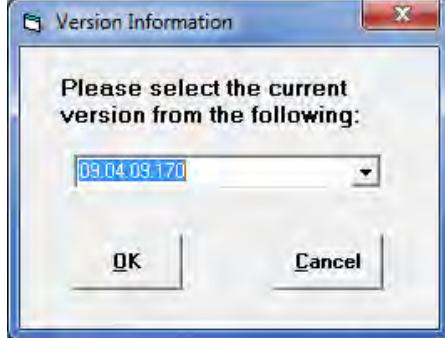
There were no additional OpenWells known issues for this release.

### Release 5000.1.11

The following are OpenWells software known issues for the 5000.1.11.0 release.

Defect No.	Description
877372	Stimulation WYSIWYG Report: copy fluids does not copy "Kill Fluid" when adding new treatment
900910	In the Daily Cost spreadsheet, during a carry-over to the next day the costs which are carried over need to maintain the same order as they had on the previous day.  <b>Workaround:</b> Configure the DM_DAILYCOST.squence_no to be a carry-over.
912460	Property Dialogs not saving data after validation warning.  <b>Workaround:</b> Correct the failed validation rules prior to saving.

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Defect No.	Description
911401	<p>Error when exporting transfer file at company level in WellCat, StressCheck, CasingSeat, Well Cost, WELLPLAN.</p> <p><b>Workaround:</b> The error that occurs when exporting data from an EDT application, will not cause any issues with the exported file. To remove the error, run the database upgrade a second time. When the <i>Version Information</i> dialog opens, select the previous database version (e.g. 09.04.09.170) and run the update.</p> 
913804	Production Equipment report "Associated report" picklist does not retain the selected value after Closing and reopening the report.
913805	"Associated report" picklist in Production Equipment report displays all the Plunger lift report from all across Wells from all Companies in the Well Explorer.

### Release 5000.1.10

The following are the OpenWells software known issues for the 5000.1.10 release.

Defect No.	Description
868639	Revoking the print token for reports is not preventing users from printing.
868649	When switching to a different unit system in WYSIWYG the unit system message appears multiple times.
871853	DEF Scouting - When attempting to edit the Location description, the spreadsheet is grayed out.
872177	The Save button on the WYSIWYG form is enabled even though no data has been entered and no changes have been made.
873206	Well Location Slot name field is not working correctly. Value of the Name text-box is disappeared when we select other value at Coordinate type drop-down or re-open it.
873685	Micro Page "Well Properties" on "Location Description" page, Data value disappears after pressing F7 in a customize field.

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Defect No.	Description
873896	Cementing micro page, Apply button is not graying out after it has been clicked, indicating that there is still data to save.
874507	Canvas is not updating automatically when the Wellbore Name is changed through the properties page. The user must first click the Refresh button.
875694	The value range is displayed in tool tip of Township text box is not match with the one which is displayed in dialog box when user hovers the mouse cursor over that element and user enters invalid value.
875695	The acceptable value range applied for block text box is different than the one shows in dialog box
875702	Well Planning report - Offset Wells section - Select Offset Wells/Events dialog. Help button is disabled
875804	Cementing WYSIWIG - Null label in Stages section.
875814	OpenWells Historian - Approving Test Report throws exceptions.
875911	No Support to customized the Jewelry Details Dialog for Casing Report in Rocket
875915	Adding Datum in Rocket Well-> Depth Reference Data is saved and app doesn't crash but exception is thrown in the background (logfile).
875944	Rig Equipment Install/Remove date validation is not working in Rocket interface.
876039	On Wellbore Equipment report (in rocket), when copying/pasting any row in the components spreadsheet the Section Type and Component Type are not pasting into the new row.
876137	Well Properties XML/Create Well XML are not dynamically changing the labels when Offshore and Subsea are checked.
876163	The Event Status spreadsheet and the Wellbore Equipment Umbilicals spreadsheet buttons to reorder rows (move up and move down) are not working.
876601	Event Total in Daily Operations report not showing the total for ALL events associated with a single AFE. It is currently only showing the total for the event associated with the current report. Workaround: Use the Multi Well/Event AFE vs Actual report to see the cost breakdown across multiple events.
876823	Create an Event using the Create Event Wizard in OW Classic throws exception. The Event is still created.
876937	In Batch Validation Selected Well combo box is not populated.
877144	The following picklist tables are being unassigned during the database upgrade: PK_STMPROP, PK_STMTRTFD, PK_STMADUNT, PK_STMADDNM. WORKAROUND: Reset the picklist tables manually through the EDM Data Dictionary for the following fields, as well as any other fields using those picklists. DM_STIM_FLUID.fluid_name - PK_STMTRTFD DM_STIM_FLUID_ADD.additive_name - PK_STMADDNM DM_STIM_FLUID_ADD.additive_unit - PK_STMADUNT DM_STIM_FLUID_SCHEDULE.propellant_name - PK_STMPROP

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Defect No.	Description
877372	Stimulation WYSIWYG Report: copy fluids does not copy "Kill Fluid" when adding a new treatment.
877757	EventAssocRigOp.xml does not display the correct tables for assigning fields in the Layout Manager's spreadsheet UI.
877804	A number of WYSIWYG XML layouts do not display the correct tables for assigning fields in the Layout Manager's spreadsheet UI.
879832	Values in "Total Oil Cumulative, Percent Recovered, Load Water Total Cumulative, Load to Recover" in Test section don't update properly when filling data on row 2 and re-opening test report. WORKAROUND: Re-start OpenWells.
880521	The newly added "Actual Value" field in the lessons property dialog (second tab) should not be used because of a known data type issue which causes values entered in that field to not be saved.

### **Release 5000.1.9**

The following are OpenWells software known issues for the 5000.1.9 release.

Defect No.	Description
851523	It takes more than 30s to refresh BHA Run micropage when switching from Show All to Show Selected Wellbore. It takes less time ( 6s) to bring the same micropage up.
852392	Pipe Tally Lock token doesn't respect Tight Group Settings
852501	Cannot create a new database user on Windows 7 - 64 when a database name / ODBC contains a space
852697	DO Wysiwig formatting - Label fields line are cutoff
853426	Fishing Report displays current and pulled obstructions
853886	Well Explorer Filter not working properly when using Apply to Tree button
854613	Report Type list in the Create Report Type wizard is different depends where the wizard is launched from
854661	Lock token for OpenWells Reports doesn't respect tight groups.
854670	Duration field in General Work / Work Operation Details report is not updated after End Date/Time was deleted
854673	Copy Report Wizard expects a wellbore to be selected before General Work report can be copied
854684	Adding Obstruction in Daily Operations / NPT Properties dialog doesn't update Wellbore Obstruction section or Wellbore Properties without restarting.
854862	When Daily Operations report is copied to a different event, NPT activity end date is not set to NULL.

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Defect No.	Description
854931	When copying or moving a report with a Job Activity section the Job Activity data is not copied to the new location along with the report.
855173	When Stimulation report is copied to a new well, work strings data is not copied.
855179	When several rows in Centrifuge Operations spreadsheet have a bad data, Data Validations fails to show all rows for which a rule was broken.
855223	Pick list attached with the Test Name in Test Section of Pressure Survey DEF does not update the Test Name.
855233	Pumps: do not display in the pump No. order
855420	For ODR/DO/Drillstrings/BHA Run Summary/Components: The Auto populated fields `Component Status; and `Date/Time; remain empty as no provisions found in `Component Catalog; and `Component Details; properties for these fields
855421	NPT/Equipment Failure Properties - NPT tab - Non Conf No. field does not show Time in 24 hr format
855425	DO/Fluid Management/Fluid Handling/Fluid Discharges does not carry Description, Fluid Description and Fluid Recovery tab does not carry over Fluid Type/Type to next day. Fields not available to set up as carry over.
855562	Able to enter workstring in Fishing report even though a drillstring is currently in the hole.
855566	Rule Book panel is not updated after a rule was created without refreshing the screen
855567	Arrival/Departure Checklist order not preserve in DO with newly added entries in Job Wizard.
855653	A new company is created when Cancel button is pressed in the Company Properties dialog. This is happening only when there is a DV Rule applies to the company and the rule fails.
855669	Data Validation rule book which uses comparison between two reports is not executed correctly.
855700	Perforation condition is not changing to Neutral when the Hydrostatic Pressure and the Est Res Pressure are equal.
855861	ERROR WHILE DATA IMPORT IN EDM WITH ATTACHED PARTICULAR DATA SET.
856034	SlowPumpCode System Setting description needs to be updated to correctly reflect this feature.
857142	In Rocket Start micropage, field MD KO should be mapped to CD_DEFINITIVE_SURVEY_HEADER.ko_md. See workaround below Known Issues table.

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Defect No.	Description
857214	Yellow and green check marks at Rocket canvas are not refresh correctly after a different well, event or wellbore was selected. The canvas still shows yellow or green check for the previous well.
857228	Creating a custom unit set based on API including inches fraction for diameters will result in blank Body OD, Body ID in Wellbore Equip report and DO Hole section
857315	Other daily details micro page, Data of {Time} and {Duration (hr)} column in the Under Balanced Drilling (UBD) Operations spreadsheet cannot be imported. It's only happens in Rocket MicroPage, in Classic works fine.
857621	Exporting a Job in OW throw exception using Oracle 11
857666	NullPointerException tabbing from Daily Notification Spreadsheet
857717	Cementing DEF -> Stages Spread Sheet: Cut /Copy and paste does not paste the Pressure Remaining, Plug Bumped and Float held. Also the Pumping Schedules are not copied.
857767	DM_RISER.riser_angle_limit field can accept more than 360 degrees.
857909	Unless Saved, Wellbore Formations don't appear in Stages section for a newly created Stimulation DEF
857913	Exception in Safety section around MMS Well Activity Form 133 report
858043	Navigation Buttons are missing from Report Data Validation dialog. It happens only on Citrix.
858064	Launching Edit Rig dialog from Daily Operation report causes report's data to be saved without confirmation message.
858070	Casing report- Multiple delete doesn't work in Copy TO/From Library dialog. User can select multiple records but cannot delete it
858075	Locked stimulation report: can still modify field value if opened up using Unit Conversion.
858079	Stimulation Report min and average calculations treat NULL and 0.0 inconsistently.
858081	Stimulation report: force calculation on the read only calculated field does not work.
858085	Wellbore Equipment report - Umbilical section- Tabbing is not working in the order expected.
858089	NPT Properties Dialog title has an underscore on title label and does not have an OpenWells icon
858095	Copying and moving Wellbore Equipment report to a different company/event throws exception
858380	Construction report - Wellsite construction section - edit location button remain disabled after adding rows to the spreadsheet
858383	Reclamation report, abandonment section, Location description calculated field is not populating values from construction report

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Defect No.	Description
858543	Survey with two Tie On points can be created in a parent wellbore
858699	"Convert Unit" and "Calculate Current Field". Both share same short cut keys "C" in
858780	WYSIWIG Layout 2. DM_EVENT.event_objective_1 Picklist is disabled when the field color is changed.
858782	Copy/Moving a Well Planning report does not copy the Cement Program "Casing Name" field.
858797	When creating Well Planning report, OW does not recognize a design created in Compass on a different Machine using the "Create New Report" Wizard Button.
858803	Updating Report Properties (like Reporting Number) does not update DDR WYSIWYG pages without reloading the page
858804	Drill String Body OD, Length and Joints are not updated in WYSIWYG pages after updates from Profile and no SAM messages sent from WYSIWYG to Profile
858805	OpenWells Casing Component Section Type picklists showing Tubing, Bit etc for certain Casing Assemblies
858834	Copying WellPlanning Report results in CD_DEFINITIVE_SURVEY_HEADER, CD_DEFINITIVE_SURVEY_STATION being updated with all rows from source to target. CD_WELLBORE_FORMATION also ends up with orphan rows..
859275	Parent Well of the WellPlanning Report is not checked by default in the Offset Well Selector Dialog
859495	Daily Mud field in Daily General micropage is not updated after another user made and saved changes to Mud Inventory. Daily General is not receiving SAM messages.
859720	Labels in Dev'n Summary Rpt, Section 1.2 are incorrect - OR#319/309
859747	Severe Exception thrown while entering data in Hole section annulus detail with data where the casing size is magnitudes greater than the hole size. Volume calculations are throwing the exception in log.
859777	Historian - Clean up report throws severe exception on approval
859793	Historian. No Section Header Label in Compare with Previous Approval point when Modifying and deleting Support Craft and for BHA Run
860048	Read Only User can still perform Unlock All or Lock All on reports.
860356	Delete a shaker or shaker screen will not cause the associated shaker screen operation to be deleted. These are then orphaned.

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### Work Around for DE 857142

The following procedure can be used to alleviate any concerns related to DE 857142 - MD Kick Off is mapped to CD\_WELBORE.ko\_md in the Start micro page and to CD\_DEFINITIVE\_SURVEY\_HEADER.ko\_md in the Wellbore Properties page.

1. From the EDM Administration utility navigate to the **EDM Application Settings > Drilling > OpenWells > Layout Manager > WYSIWYG > Custom > Recordings** folder.
2. Select the XML for the Start Operations page.
3. If using the Landmark shipped XML:
  - a. Right-click on the **Recordings** folder and select **Add New WYSIWYG File...** from the menu that appears.
  - b. Navigate to the **<EDT install directory>\EDM\Site Configuration Files\Wysiwyg\Landmark\Recordings** folder and select the StartDrilling.XML file.
  - c. Click the **Select** button.

The WYSIWYG layout for the XML layout (e.g., StartDrilling.xml) is displayed in the EDM Administration Utility.

4. Double-click on the Field portion of the MD KO field. The *Field Properties* dialog appears.
5. For the **Object**, select CD\_DEFINITIVE\_SURVEY\_HEADER from the drop down picklist.
6. For the **Attribute**, select ko.md from the drop down picklist.
7. Click **OK** to save changes and close the dialog.
8. Click the **Save** button in the application toolbar to save the XML layout.

Before a customized layout will appear in the OpenWells application, it must first be assigned to a Well Site Canvas and the Well Site Canvas must be assigned to an Event Type. These items are covered in the EDM Administration Utility online help *Custom Well Site Canvases* topic.

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### **Release 5000.1.8**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.7**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.6**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.5**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.4**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.3**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.2**

The following were OpenWells known issues for the 5000.1.2 release.

Defect No.	Description
792911	Refresh issue. Wellbore Equipment components schematic image doesn't show up in ESP. Have to close and reopen the ESP DEF to see the schematic.
795050	Error printing WYSIWYG Print Data entry form on Vista to a file
795590	Deleting Fluids on Stimulation Report doesn't remove them from them from the Schedules area Fluid drop-down in Form View until form is reloaded
797323	Report Manager - Canceling action - an exception error is generated
797988	OpenWells Daily Operations DEF: Hole Section Depth is not automatically recalculated.

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Defect No.	Description
798029	Can not generate Wellbore Schematic and BHA Schematic in a single Report
798295	Prompted to save form whenever a spreadsheet date gets focus
798314	3D wellbore graph does not show other wellbores
798877	Default User Symbol Folder for Save Symbol pointing to old folder
798982	Creating a new design - entering a new hole section - if you switch between Unit Systems - hole section disappears
799036	There is an Exception pops up when you add more than 300 rows in Cost Estimate and AFE report.
799391	Time Summary Total time (Calculated field) is not updating, when switching from WYSIWYG to Form View
799424	In Daily Operation Report, when a Bulk item is deleted, the corresponding Bulk Transaction records are not deleted from the database
799425	LayoutDDR wysiwyg - Report number + report date is inconsistent between the Report frame title bar and the report drop down box (beside the vcr buttons), when using the vcr button to navigate between reports.
799487	Deleting pump does not delete pump in the database.
799555	LayoutDDR-wysiwyg, able to Add row to spreadsheet even if Report is Locked
799572	NULL Date displayed as 12/31/1969 in WISYWYG Shaker
799575	In DDR, deleting a tie on point of a survey gives a wrong error message.
799589	OpenWells well explorer - grammar mistake in dialog box
799590	OpenWells well explorer allows blank names if renaming directly in tree instead of from right click Rename menu
799595	In Create Daily Report Wizard, Help button and F1 display Report Command help instead of Create Daily Report Wizard help
799723	EDM Admin Tool: does not show updated files in XML Preview Panel after import site config files without a restart
799766	The ComBox in Template Time Related Setting should not allow user to type text
799779	Tab "Approvals" in Event Properties dialog box not updated correctly with report referenced ON
799914	Casing Output Report - Not showing Job Activity section.
799917	Wellhead Output report - missing "total component cost"
799941	General Work Output report - doesn't show Work Operation "duration" field.
799946	Report can be locked using Event Lock All even without a particular report lock token granted.

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Defect No.	Description
799957	Stimulation DEF, Fluids section calculations not updating for DM_STIM_FLUID.volume_squeezed DM_STIM_FLUID.volume_washed without F9
799958	Daily Geology Output report - No Value on Daily Cost and Cumulative Total field. The DEF shows a value on these calculated fields.
799959	Daily Geology Output report - doesn't show Lithology "Interval length" field.
799977	Tight Group's description does not show non-Latin characters correctly
800064	Daily Cost Output Report doesn't show Dual Currency Fields
800114	Daily Drilling Output Report - No Fluid Management Content.
800147	BOP list not refreshed without a restart after import
800156	Cannot tab from field to field in Hydrocyclone Details entry form
800401	Copy WellPlanning report generates exception in a certain obscure workflow

### **Release 5000.1.1**

There were no additional OpenWells known issues for this release.

### **Release 5000.1.0**

The following were OpenWells known issues for the 5000.1.0 release.

Defect No.	Description
772941	CD_MATERIAL.temp_deration_sched_id, radial_yield_factor, and hoop_yield_factor were moved to CD_GRADE. Update OpenWells with this change.
773979	Cleanup: User defined 'Sump Sampling' from Construction DEF is not getting associated
774866	Make it possible to attach the custom java code (class/jar) for a single table along with the Report file instead of putting in commonext.jar
774965	Jobs tab, Can not delete Job attachments from Associated Data Viewer.
774966	WYSIWYG, DDR: Data Dictionary is showing by default Date only for Survey Start & End fields in Survey Data section but the fields are displaying Date and Time.
775222	Virtual Folders created in PROFILE are displayed in OpenWells if we disable the VF feature also.
775337	New Job Wizard, Exceptions are throwing while importing data in Arrival & Departure Checklist Configuration spreadsheets.

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Defect No.	Description
775492	Drill Stem Test Output report, needs to remove column lines in Flow Period section. Some of the Flow Rate section column lines are displaying in Flow Period section.
776120	Contractors tab, can not access Rig Operation Properties using shortcut key (Ctrl+Shift+O). It is always opening the Air Package Properties because the shortcut key for Air package Properties also same.
776389	Entering a Casing row below the Open Hole and selecting from Casing Report causes Length to populate incorrectly
776444	Cannot Copy/Paste attachments from one node to another node.
776594	OpenWells, Contractor tab, Rig equipment should be sorted by install date in the preview pane
777354	Copying the Rows in Hole Plan area of the Well Planning Report moves the focus to Offset Wells
778281	IndexBoundsException when you switch to Wells tab after deleting wells node from jobs tab
778350	User should not be allowed to cut the rows using shortcut keys and save the changes in System Catalogs
778930	Some fields are not importing the values once we Export and Import the Wellhead in Wellhead DEF.
778931	Clicking on Empty Formation Name picklist in Kick DEF is throwing Null Pointer Exception.
778932	Event/Job Preview Pane is not displaying completely, it is displaying some white patch.
779226	Multiple Rheology sections not supported from the WITSML 1.3.1 Fluids file
780361	Need to restrict the field length for Sidetrack No. field in Add Sidetrack/Multilateral Wizard. Sidetrack No. field is accepting more than two numbers (eg: 001) and throwing exception on screen.
780362	Need to restrict the field length for Version No. field in new Design dialog box. Entering more than 20 characters throwing unexpected exception.
780948	Daily Ops DEF personnel section shrinks every time you select a row
781186	Well planning casing program spreadsheet sorting is messed up
781540	We can delete DPR Submissions in OW Performance Reviews after Revoking 'OpenWellsPerfReviews.DPRSubmission.delete' token also.
781685	OpenWells- VISTA only. Color scheme messages.
781778	Well Planning DEF, Directional Drilling Plan section CD_SURVEY_PROGRAM.hole_name picklist is not updating without a refresh

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Defect No.	Description
781927	Streamline the SAM message dialog box for Well Planning Report when more than one OpenWells have the same report opened.
781966	Creating a well planning DEF, cancel button is not working properly in the new design window
782009	Copy Stimulation report from Library is not copying many fields.
782013	ADV, for Lessons, click X button in Confirm Delete dialog box is deleting the lesson.
782058	Copyright information is wrong on all preview panes - says 2006
782369	OpenWells Well / Rig Explorer 'Rename' functionality allows entries in the explorer tree to be renamed with a null value.
782389	Clone of 777925 - PSA CDRS - unable to map equipFailureInfo/equipClass - default value is not usable.
782494	OpenWells output reports- Well Planning Reports - final page - highlighting strangely.
782503	Wellbore properties - bottomhole location not populated first time
782683	Actual Design doesn't get created from OW Daily Ops or Well Planning Report
782688	Well Planning Report/ launching PROFILE
782777	For a user with no add (token) right for any reports, the 'Next' button in the Create Report Wizard dialog box is messed up.
782965	OW display Multiple default Datum on import.
783177	In consistent wizard dialog boxes, some have OpenWells icon and some don't
783180	Rig name in rig properties dialog box doesn't get refresh on the rig image title bar when using the wizards
783195	Hole Section add/delete rows appends if not saved after deletion
783293	Daily Operations DEF, Survey station for a new survey header always default to Normal instead of Tie-on
783371	Convert Unit (F4) should be disabled for read-only and calculated fields
783409	Lock Wellbore Properties in RTV and clicking on OK button throwing 'OpenWells could not refresh tree correctly. Please check log message' on OpenWells screen.
783632	Problem: While entering data in Fluids FANN table Daily Report, after tab out from the deflection field to next row, the prior field (deflection field) it is still focus as active while the next row (RPM field) first field is also focus but apparently no
783643	Save Failure while creating a Company and adding a Partner without saving Company first
783718	Number of decimal places should dynamically change with unit system change.

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Defect No.	Description
783721	Wellplanning Report Directional Drilling is setting the TVD of the first survey station equal to the md
783929	Need a link to Rig Operations for editing from the Rig Equipment Editor
784011	OW, Wizards has a disabled <Back> button next to finish button which will never be used. Remove the back button if there is no next button on the wizards
784095	Selecting Rig Type in the Create New Rig Wizard without using the mouse doesn't display in the Rig properties dialog box, hence wrong Rig image displays
784178	Moving Daily Operations DEF from one Well to another Well throwing exceptions with a particular data set.
784211	Standardize shortcut for Delete to match rest of D&C
784222	DDR WYSIWYG - Mud Inventory Spreadsheet Invalid Value Message Box is not closing when clicking "Yes" to continue editing the cell.
784224	DDR - WYSIWYG - Ctrl C/ Ctrl V - should not be working for these Spreadsheets, no copy and paste available from menu
784231	WYSIWYG survey data section, user shouldn't be able to insert survey stations same as in Form view
784267	Wellbore Properties ask for Save even though no changes have been made.
784308	Catalog button should be disable when the Drillstring Section is Locked by SAM.
784338	OW Performance Review (Rushmore) - Wrong tab index order

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## ***PROFILE™ Software***

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. One enhancement was made in PROFILE software for the 5000.1.11.0 release. There are bug fixes in the PROFILE software for the 5000.1.13.1 release.

### **PROFILE Enhancements and New Functionality**

The PROFILE enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13**

There are no enhancements to PROFILE for this release.

#### **Release 5000.1.12**

There were no enhancements to PROFILE for this release.

#### **Release 5000.1.11**

The Profile schematic drawing algorithms have been improved to provide better representations of complex completions. By default, the new drawing algorithm will be used. If you wish to continue use with the original drawing algorithm you have the option to do so by setting the new PROFILE system setting, *UseNewScalingAlgorithm*, to "N".

#### **Release 5000.1.6 through 5000.1.10**

There were no enhancements to PROFILE for these releases.

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## **Release 5000.1.5**

- Includes several PROFILE schematic fixes and 3 WELLPLAN defects from 2003.16.1.22.
- Fixed issues showing status of strings/components in the schematic.
- Approval Process - The OpenWells and PROFILE applications now includes a feature to mark and identify Wells, Events and Reports that have gone through an approval process. The approval process preserves and locks the information recorded about the Well/Event/Report at the time of approval. The information preserved for a Well includes the Well's data and its Events, Wellbores, Completions and Reports data. The information preserved for an Event includes the Event's data and its Reports.

Any PDF files that are attached to an approval point are electronically signed when a Well, Event or Report is prepared for approval and when the Well, Event or Report is approved.

- Approval Tokens - New tokens have been added to the EDM™ Administration Utility to support the new Approval feature. Admin.Historian.edit, EDM.Explorer.approve, EDM.Explorer.Well.prepare, EDM.Explorer.Event.prepare, EDM.Explorer.Report.prepare and EDM.Explorer.Well.viewapprovalhistory.
- Approval Point Stamp Location - The location of the Approval Point PDF stamps in the OpenWells and PROFILE applications can be configured using a system setting. See the PDF Approval Stamp topic in the EDM™ Administration Utility online help.
- New Report Manager Version - A new Report Manager version, which will reduce memory consumption, increase report generation speed, and contains various other improvements.
- PROFILE Schematic Tokens - Three new PROFILE system settings can now be added to the EDM database.
  - Dual Centered Components - assign specific components to always draw centered on dual completions.
  - Low Priority Components - assign lower priority to certain components drawn in a schematic that can be smaller than others to make more room for the more important symbols.
  - Use 2D Symbol Scaling - render the 2D packer symbols, expand the casing so it doesn't need to bend the dual completions and also use a few other options only normally needed by the 2D symbol set.

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### **Release 5000.1.4**

There were no enhancements to PROFILE for this release.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

The PROFILE™ 5000.1.2 release is an incremental update of the 5000.1 version of the PROFILE software release. A number of enhancements and new features have been added for this release. New features provided with this release include:

- Sequential Schematics - Sequential Schematics enable users to display schematics with a large number of components in a neat and easily readable fashion. The Sequential Schematic object allows users to break a schematic down into a number of sections, thereby improving the schematic displayed.
- Concentric and Dual completions display sequentially in the Wall Plot, a line appears across the schematic showing where the overlapping equipment occurs or where the second completion begins.
- Stimulation Treatments - The Stimulation tab now contains a spreadsheet to enter Treatments data. This allows users to record multiple treatments being used during a Stimulation Job.
- Workspaces - Workspaces can now be used to create a group of Wall Plot templates that can be applied to any Design in a specific order.

In addition the following enhancements have been added to this release:

- The Wall Plot Composer's 3D Graph now shows all of the Well's sidetracks, with the current wellbore displayed in blue and all other wellbore paths are displayed in black.
- The Components spreadsheet of the Drillstrings/BHA tab can now be set to automatically calculate the Drill Pipe length. See the "Auto Calculate Drill Pipe Length" topic in the online help.
- A number of enhancements have been added to the Wellbore Schematic Tracks tab, the Sequential Schematic Tracks tab, the Wellhead Schematic Object Properties Tracks tab and the Multi-Lateral Schematic Properties - Tracks tab, including:

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- Text Wrap Limit: A text wrap limit has been added to the Tracks tab to reduce overlapping schematic tracks.
- Import Schematic Track: An Import Schematic Track button has been added to allow users to import pre-configured Schematic Tracks from a .STRACK file.
- Export Schematic Track: An Export Schematic Track button has been added to allow users to export pre-configured Schematic Tracks to a .STRACK file. These tracks can then be imported and used in another Wall Plot.
- Duplicate Track: A Duplicate Track button has been added to allow users to make a copy of the selected track.

### *Sequential Schematics*

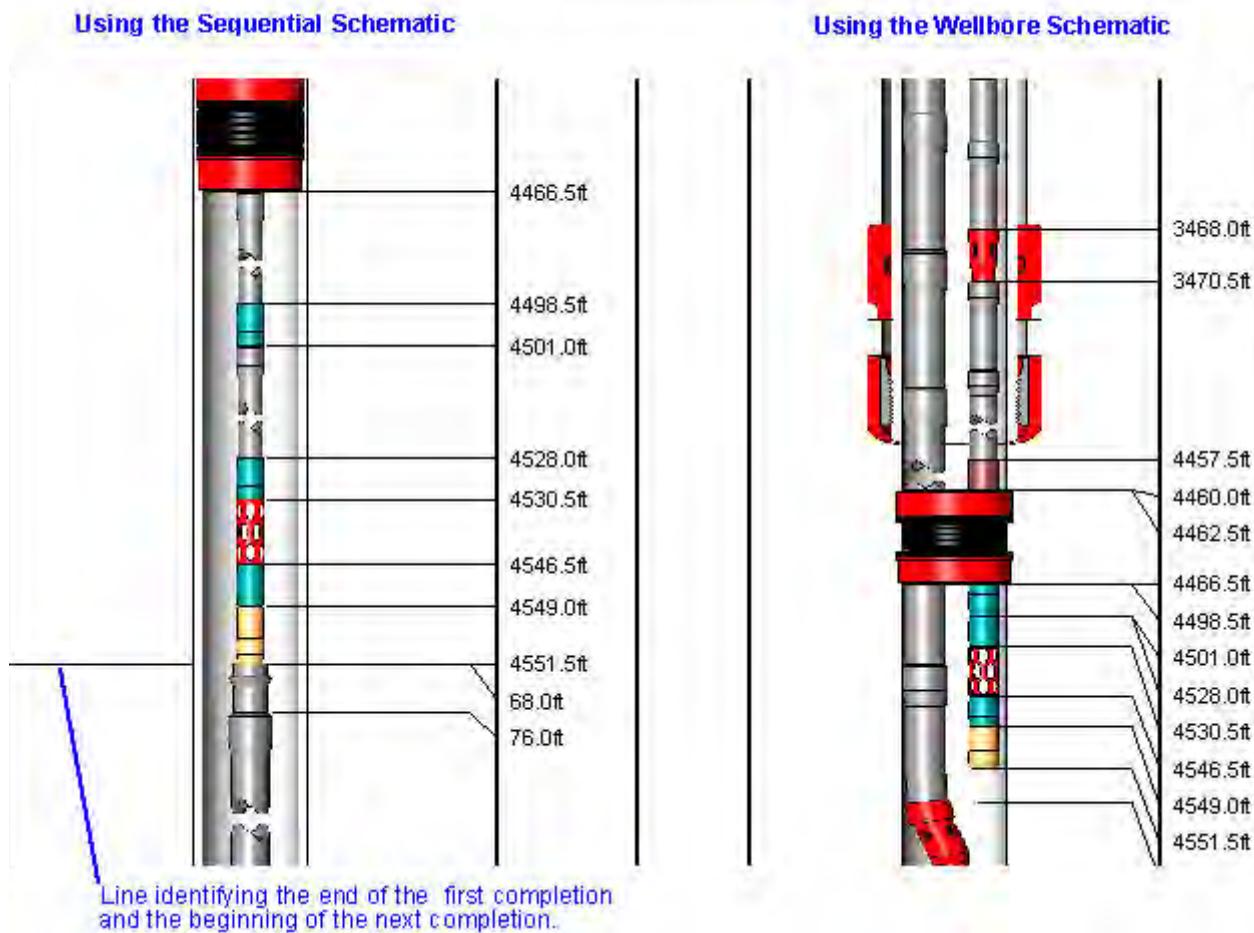
Often, a Wellbore containing numerous components does not display in the Wall Plot Composer in a neat and easily readable fashion. The Sequential schematic object solves this problem by allowing users to break a schematic down into a number of sections, thereby improving the schematic displayed.

A visual example of the difference between a schematic displayed using the Wellbore Schematic and the same schematic displayed using the Sequential Schematic is outlined below. This example shows a Dual completion, but the Sequential schematic works the same way for Concentric completions as well.

Concentric and Dual completions display sequentially in the Wall Plot, a line appears across the schematic showing where the overlapping equipment occurs or where the second completion begins.

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### Dual Completion using the Sequential Schematic



**Figure 1:** Dual Completion as shown using the Sequential Schematic

Alternative methods to add a Sequential schematic to the wall plot page:

- Right-click the wall plot page, select Schematic > Sequential Equipment from the drop-down menu. Move the cursor to the wall plot page, click and drag an opening for the schematic to be placed on the wall plot.
- Click the Sequential Schematic button ( ) in the Object Toolbar. Move the cursor to the wall plot page, click and drag an opening for the schematic to be placed on the wall plot.

The Sequential schematic object can contain a number of tracks which may include Casing Details, Casing Depths, Wellbore Equipment Depths and other information as well as the drawing itself. A number of different schematic track types are supported. Tracks can be selected using the Tracks tab in the Schematic Object Properties dialog box.

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### Stimulation Treatments

The Stimulation tab now contains an additional spreadsheet to enter Treatments data. This allows users to record multiple treatments being used during a Stimulation Job.

The top spreadsheet provides a means to enter the Stimulation Job. The middle area of the tab provides a means to record one or more Stimulation Treatments that are pumped into the Well for each Stimulation Job. The bottom spreadsheet allows you to enter specific Stages of each Treatment.

Each of these spreadsheets are inter-linked, meaning that you must select a Stimulation Job to view the Treatments used during the Job and you must select a specific Treatment to view the Stages occurring during the Treatment.

ST No.	Job Date	Contractor	Is Special Job	Comments
1	OH 11/1/12	HALLIBURTON	<input checked="" type="checkbox"/>	
2	OH 10/27/12		<input type="checkbox"/>	

Time Start	Treatment Type	Stim Type	Interval Top (ft)	Interval Base (ft)	Net Stimulated (ft)
11/22/2008 12:00 AM	ACID TREATMENT	ACID WASH	6,400.0	6,700.0	0

Stage Type	Method	Tool Desc	Interval Top (ft)	Interval Base (ft)	Initial Fi
CIRCULATE	CHEMICAL	UNIBEADS AND BENZOIC ACID FLAKES	6,500.0	6,600.0	0

Figure 2: Stimulation Tab in the PROFILE™ application

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## Workspaces

In the PROFILE™ application, workspaces are used to create a group of Wall Plot templates that can be applied to any Design in a specific order.

### Note:

Workspaces in the PROFILE application perform much the same way as they do in the WELLPLAN™ application, but are different than the WELLPLAN Workspaces.

## Workspace Folder

Prior to creating a Workspace a location where the Workspaces will reside must be defined. The location is defined using the Edit > Workspace Folder command and entering the location.

### Workspace Folder Notes:

Local drives, mapped network drives and UNC paths are supported.

The Workspace folder defined must already exist. The PROFILE application will not create the folder.

The user must have permission to change the registry setting HKEY\_LOCAL\_MACHINE\Software\Landmark\EDT\5000.1\Profile string value Workspace Folder. By default, most users should have permission.

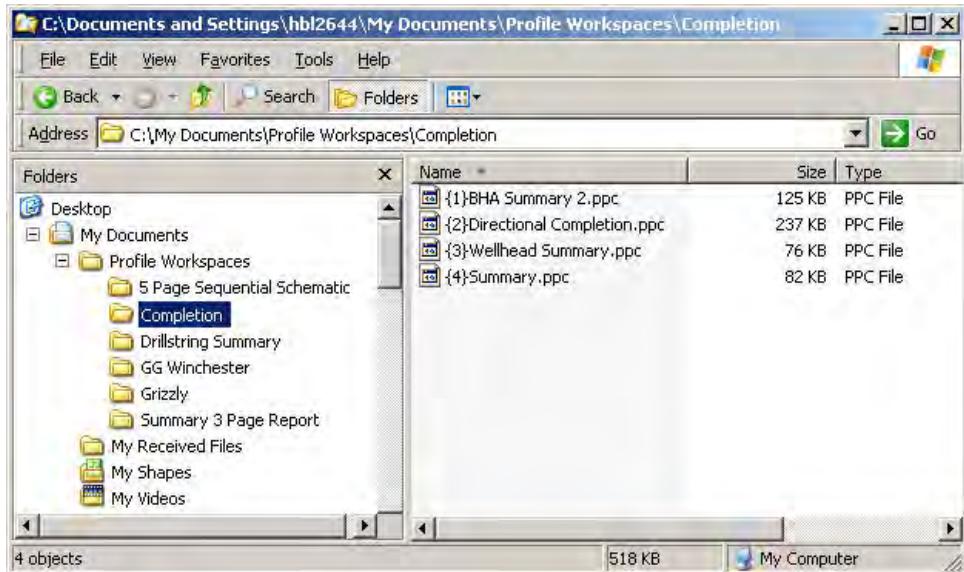
In the case of a Citrix environment, the Citrix Administrator may have to set the Workspace folder for the Citrix PROFILE users.

**Caution:** If the Workspace Folder location has been set by the Administrator in a Citrix environment, check with them before changing it, as you may affect other users.

## Working with Workspaces

Workspaces are created when a group of existing Wall Plots is saved using the View > Tabs > Save Workspace command. Each Wall Plot is saved to an individual .PPC file in a folder named for the workspace. For example, the following screenshot shows the files that make up a Workspace called "Completion". This workspace contains 4 pre-defined Wall plots BHA Summary 2, Directional Completion, Wellhead Summary and Summary. A .PPC file appears for each of the defined Wall Plot templates.

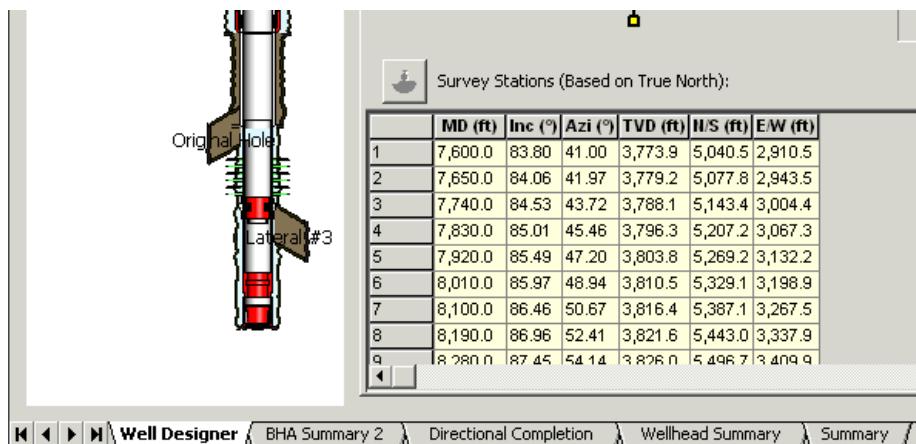
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**Figure 3:** Workspace and the template Wall Plots.

Notice the numbering on the Wall Plot file names. This numbering defines the order in which the Wall Plot will appear in the application.

If a user were to apply the sample Workspace shown above to an open Design, the four Wall Plot templates would be applied to the Design.



**Figure 4:** Sample "Completions" Workspace applied to a Design. Notice each of the Wall Plot templates that have been applied to the Design.

The number appearing before the .PPC file indicates the order in which the Wall Plots appear in the design.

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### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. No enhancements were made to the PROFILE software.

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For the PROFILE application, the following enhancements were made:

- Sub Assemblies are now supported within PROFILE. This allows for portions of a Completion String (i.e., the Sub Assembly) to be planned independently and then inserted into the overall wellbore equipment string.
- Added or enhanced content of Data Boxes for the following objects:
  - Sub Assemblies
  - Wellbore Details for Multi-Lateral Wells
  - Perforations
  - Cementing
  - Reference Datums
  - Wellbore Formations/Wellbore Zones
  - Wellbore Equipment Details
  - Wellhead Equipment
  - Casing Assembly Details
  - Well Summary
  - Hole Sections
  - Mud Program
  - Well Remarks
  - Stimulations
  - Wellbore Openings
- Other Data Track and Data Box enhancements to Wall Plot Composer
  - allow sorting of components in Wellbore Equipment Details and Casing Details
  - allow insertion of current date/time

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- allow control of decimal places
- filter out cement that has been drilled out
- multiple pages of a PPC can be grouped and printed out at once

### *Sub Assemblies*

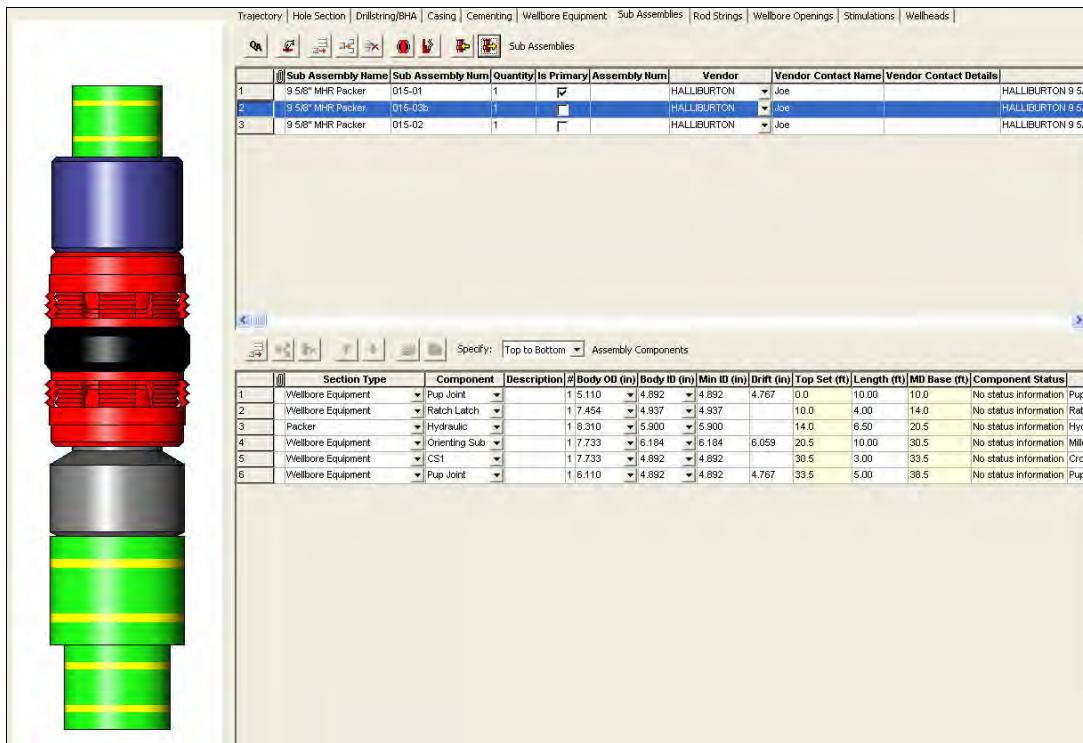
A Sub Assembly is a sub-set of the completion assembly. It is made up of a group of adjacent tools, provided by a single service company, that are constructed, assembled, tested and then sent to the wellsite to be installed with other Sub Assemblies. Engineers designing and installing completion assemblies need to be able to manage completion make-up by Sub Assembly.

To address this, PROFILE now contains a Sub Assembly tab. This tab allows users to build a Sub Assembly from a list of components, using the same methods available to the Wellbore Equipment tab (i.e., drag/drop, manual entry and/or catalog integration). Jewelry and Umbilical properties are also available from the Sub Assembly tab. Users can add and edit Sub Assemblies or use the Sub Assembly Library to Import or Export Sub Assemblies.

The Sub Assembly tab displays a visual representation of the selected Sub Assembly string in the Well Designer tab and allows for the collection of Sub Assembly data, such as:

- name,
- number,
- number of sub assemblies delivered,
- identify the primary Sub Assembly run (in the case where more than one is delivered),
- the vendor who provided the Sub Assembly, along with their contact details,
- comments,
- and installation instructions.

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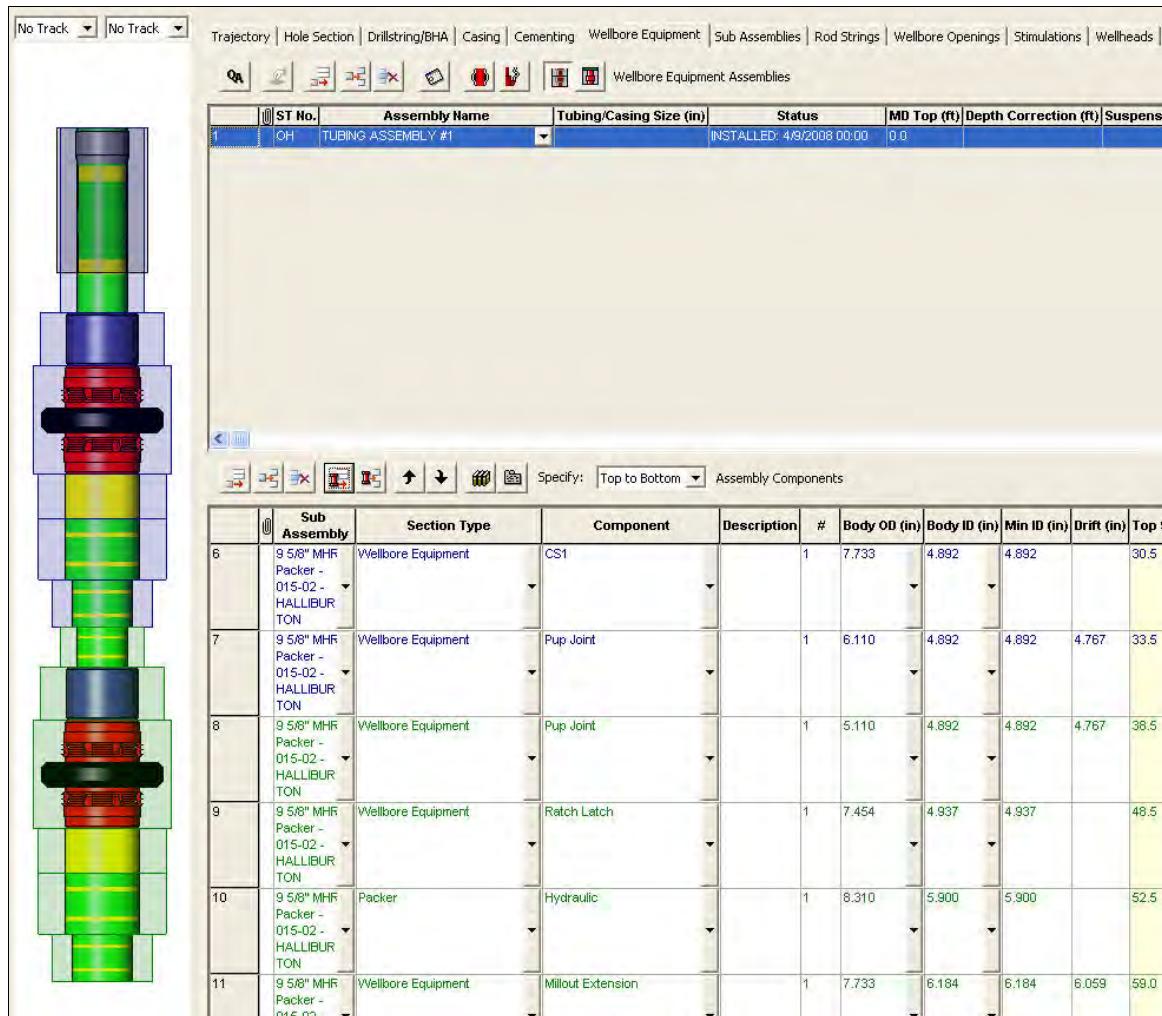
**Figure 1:** Sub Assembly Tab in PROFILE

### *Sub Assemblies in the Wellbore Equipment tab*

In the Wellbore Equipment tab, a Sub Assembly can be inserted or added to the end of the string using the *Add Sub Assembly* button ( ) and the *Insert Sub Assembly* button ( ) located in the Component Details spreadsheet. PROFILE does *not* allow components to be added to the middle of an existing Sub Assembly.

The *Sub Assembly mode* button (), in the Wellbore Equipment tab, allows users to see what components belong to each Sub Assembly. Each Sub Assembly is highlighted in a different color. Components that are not part of a Sub Assembly are highlighted in gray.

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**Figure 2:** Schematic showing two sub assemblies; one in blue and one in green

When this mode is turned on, users can click adjacent components and create a Sub Assembly from in the Wellbore Equipment tab. This can be accomplished by selecting a number of adjacent components, right-clicking on the components and selecting the *Create New Sub Assembly* command from the menu that appears.

Once created users can click the *Sub Assembly* button ( ) at the top of the Wellbore Equipment tab; select the new Sub Assembly; and click the *Copy to Sub Assembly Tab* button ( ) to add the Sub Assembly to the Sub Assembly tab to use it in building more Wellbore Equipment strings.

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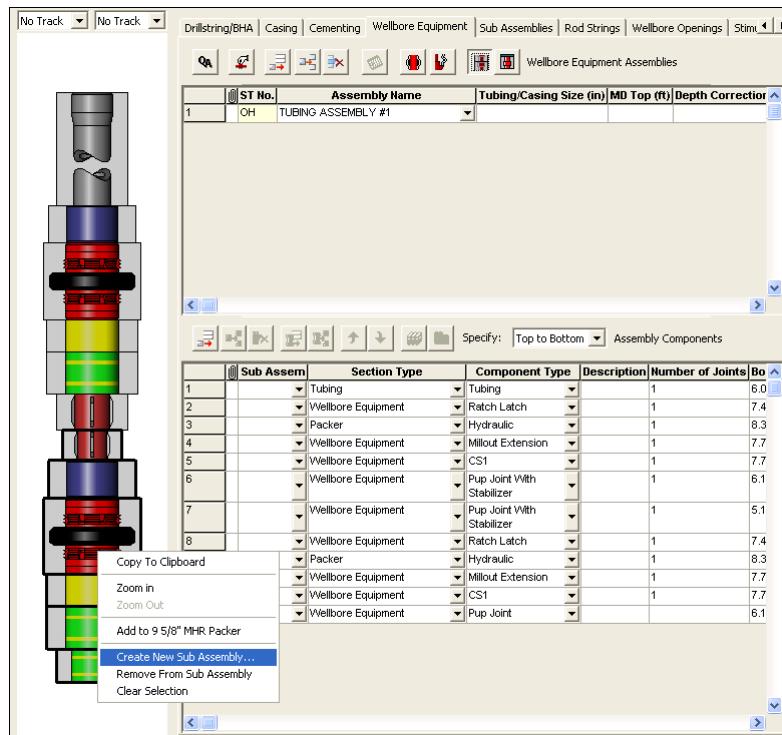


Figure 3: Select Components to create new Sub Assembly

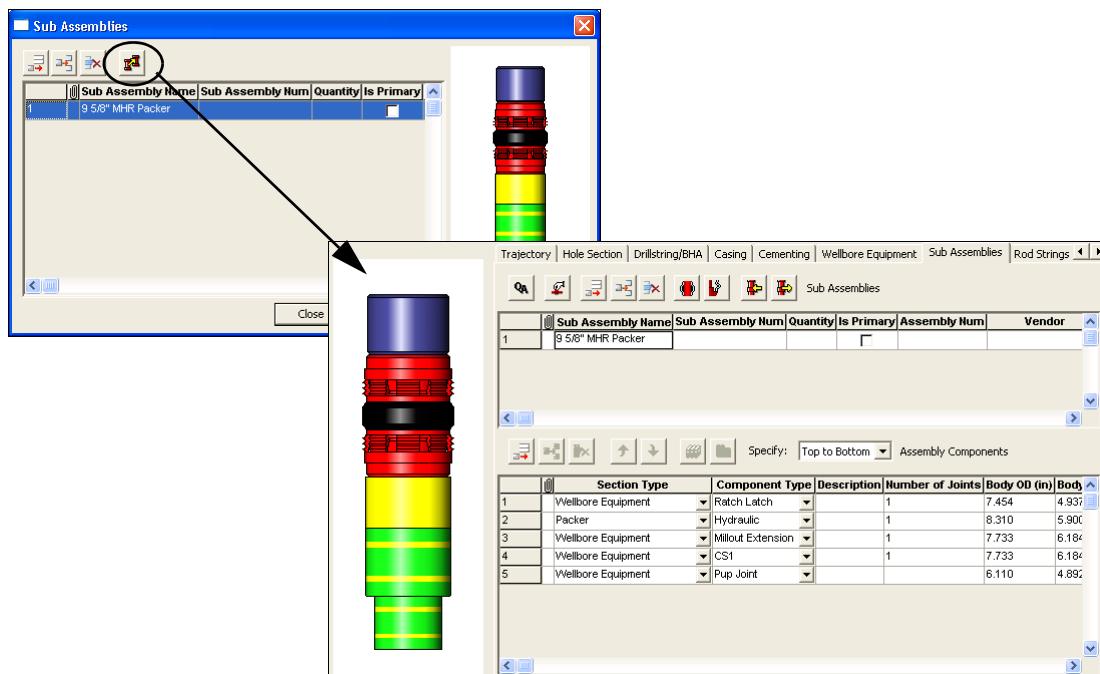
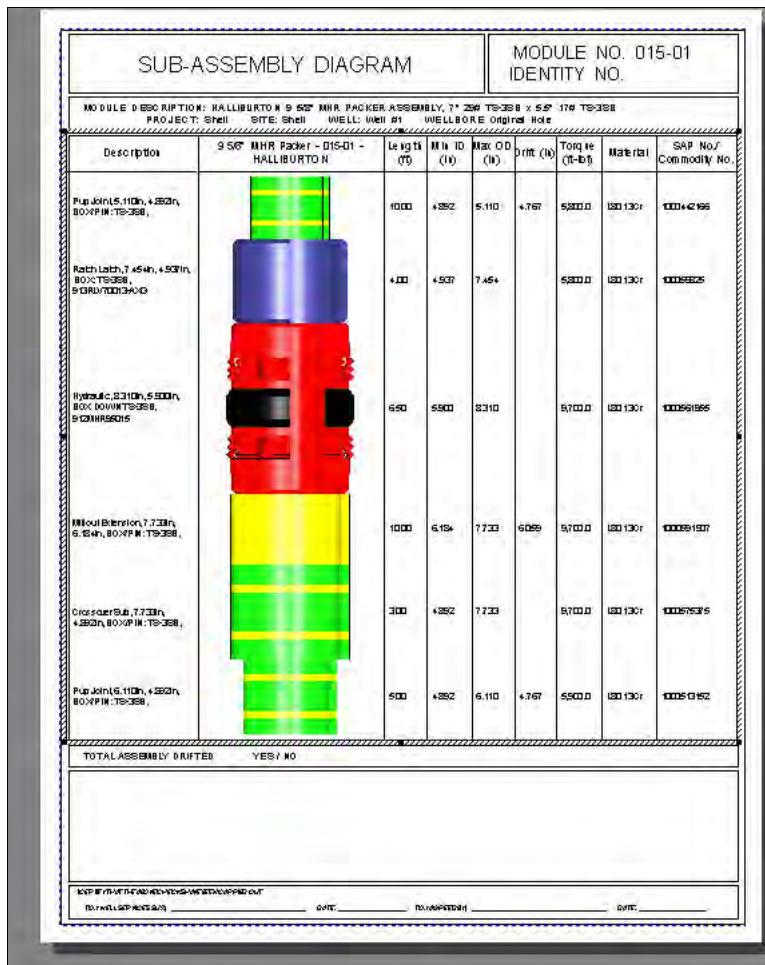


Figure 4: Click Copy to Sub Assembly Tab button to add new Sub Assembly

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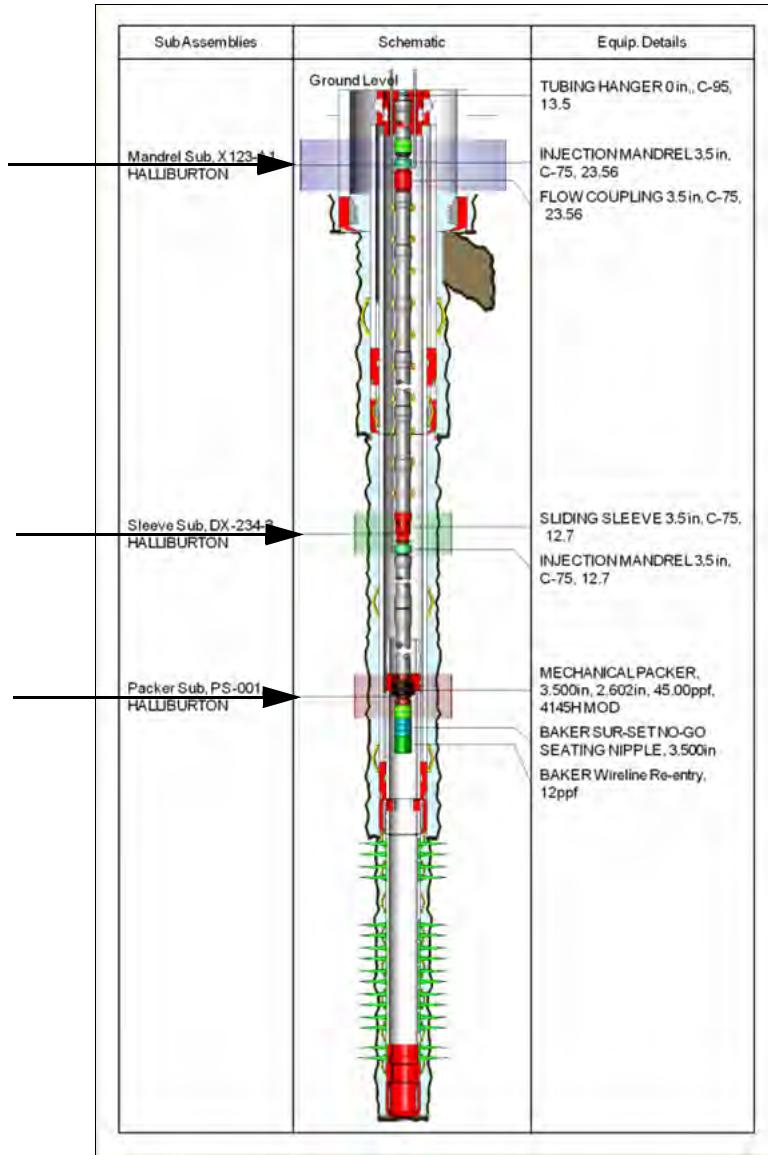
Sub Assemblies can be added to the Wall Plot Composer using the Wall Plot Composer's Object Toolbar. A schematic of all components supported in the Sub Assembly can be added using the *Sub Assembly Object* button (  ) and tracks can be added using the *Data Box* button (  ). An example of a Sub Assembly Wall Plot Composer layout (*SubAssembly.ppc*) is included with the installation. By default, this file is located in the <5000.1 install directory>\Profile folder.



**Figure 5:** SubAssembly.ppc sample

Wellbore Equipment tracks can be configured to highlight Sub Assemblies in the Wall Plot Composer.

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**Figure 6:** Sub Assembly components highlighted in the Wall Plot Composer

### Data Box Enhancements

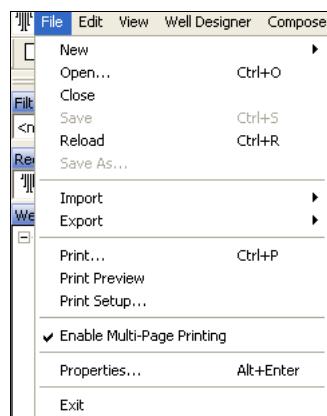
Several fields have been added to Data Boxes to support more Wellbore details. Additionally, the following new Data Boxes are now available for Perforation tracks: Planned Cement Program, Mud Program, Well Remarks, Wellbore Formations and Wellbore Zones within Perforation tracks.

Users can also filter cement that has been drilled out, control decimal places on numeric fields in data tracks and control detailed string component sorting.

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### Multi Page printing

PROFILE now allows users to print multiple pages of a PPC file at one time. By default, this feature is turned off. It can be enabled through the *File > Enable Multi-Page Printing* menu command.

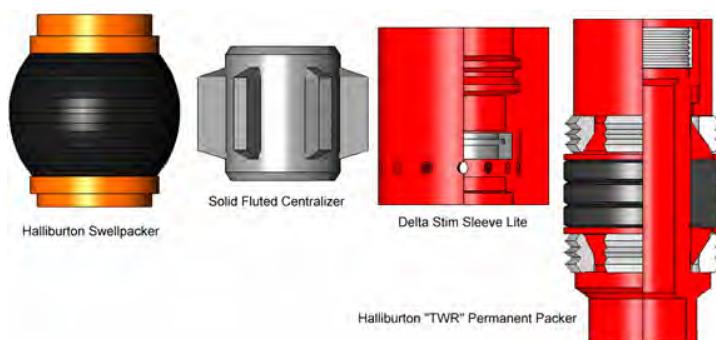


**Figure 7:** Enable Multi-Page Printing command

PROFILE notifies the user if any pages are set to different printer page size and verify scaling options.

### New Completion Symbols

Four new completion symbols are now available in PROFILE. These symbols were developed in conjunction with the Halliburton Completions Engineering team.



**Figure 8:** New Completion symbols

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## **PROFILE Fixed Issues**

The PROFILE issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13**

The following issues were fixed for the 5000.1.13.0 release of PROFILE software.

Defect No.	Description
926842	Tether Lines do not disappear when Tether Lines Checkbox is not checked if Floating Labels Checkbox is checked.

### **Release 5000.1.12**

The following issues were fixed for the 5000.1.12.0 release of PROFILE software.

Defect No.	Description
924695	Using the Profile Symbol Map (View - Symbol Map menu) will cause Profile to crash if the DM_STIM_STAGE.stage_type picklist has been removed from the configuration
919892	Field not populating: concentric_assembly_wb_id after database upgrade

### **Release 5000.1.11**

The following issues were fixed for the 5000.1.11.0 release of PROFILE software.

Defect No.	Description
785276	Cement Plug Drawing Issue - bottom plug is not drawn correctly
815422	PROFILE does not support Wellhead Pressure Rating fields that are supported in OpenWells
847680	Add virtual calculated value for Air Gap to Reference Datums Data Type for Data Box in Profile wall plot composer
854181	Need to set a depth for wellhead below ground level
854739	Would like support for LOT/FIT data in Profile Templates
855229	Completion Assembly drawn past bottom of Wellbore in certain data scenarios
855236	Well sketch doesn't show differences between od's in a completion. For example the completion has od's of 5 1/2 , 4 1/2 and 3 1/2. It will draw as one line.

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Defect No.	Description
857686	Chemical Injection line should end at the bottom of tubing hanger in Profile Schematic
859977	Request Additional Y block Symbol For Xmas Tree
862345	Tubing summary information not available in Profile Data Track in WPC
869828	Depths do not order in Profile in 5000.1.9.
873687	Company Logo is not saved when selected in the company properties dialog.
877538	Attachments from the attachment dialog are not opened by Double clicking the attachment or clicking the open button.
879621	Profile Rod String tab - Copy/Paste a row crashes Profile
884127	Ability for Schematics to be easier for user to distinguish between casings and components when linear scaled or non linear scaled schematics are drawn
884225	Drilled Out Cement Plug Issue in Data Box
884775	Printing (To Printer or PDF) causes a reload and hidden text reappears in the Well Schematic Designer (WSD)
885059	Wellhead Data Box shows components after Component Removal Date.
887586	Add API No (CD_WELLCASE.api_no) to the Wellbore Data Box
890794	Completion string passed bottom of the hole
892365	Request for Control line Cut - Add support for Umbilical Top MD which would restrict PROFILE to only draw a line from the connected component up to the Top MD.
892533	Cement does not draw correctly between Intermediate Liner and Production liner with certain data scenarios.
895681	Bridge Plugs are being drawn incorrectly - wrong depth in Profile well designer
896632	BHL Lat/Long output to Deg, Min, Sec
896633	Data and template scenarios can result in a gap in the schematic.
898742	Require Umbilicals Support in Casing Report for Profile.
900442	Wellbore Equipment issue where WBEQUIP Assemblies could not be located inside other WBEQUIP Assemblies unless the MD_TOP of the current assembly was deeper.
907452	PROFILE Assembly Details editor not available for Casings
907453	PROFILE Assembly Details data box rendering issue
907526	Rendered cement sometimes shows a thin line joining one job to the next.

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## **Release 5000.1.10**

The following issues were fixed for the 5000.1.10 release of PROFILE software.

Defect No.	Description
872293	When a casing report is moved, the related records in CD_CASE are not being updated with the new assembly_id from the CD_ASSEMBLY table.

## **Release 5000.1.9**

The following PROFILE issues were fixed for the 5000.1.9.0 release.

Defect No.	Description
795920	Profile does not seem to take into account the individual status of each Wellbore Obstruction listed in the Wellbore properties in OpenWells.
797482	Move Up/Down Feature in Wellhead Components Editor.
807152	Compass does not update CD_WELLCASE.ko_md (Kick Off MD), resulting in Profile updating CD_DEFINITIVE_SURVEY_HEADER.ko_md (the definitive survey MD Kick Off) with the wrong value
811415	Schematic for CT & Injection Lines.
821802	PROFILE: Data Box output includes an extra grid line between the Item Description and #Jts columns
833835	SAM Locked design can still be edited hence throws exceptions in OpenWells.
842699	PROFILE - WSD modifications being lost when Design is Saved and Re-opened.
844133	Profile changes event code when navigating from Audit tab to General tab.
837769	Request Data Box support for Wellbore Zones in the Wallplot Composer.
837782	Request a Wellbore Zones track for the Schematic.
844686	Changes made by a user in Profile cause a loss of unsaved operations input in OpenWells when users are on the same well at the same time.
846932	Riser subsea detail to platform not rendered
846933	Tubing Data Box interval depths not included, difficult to reproduce format Text box usability improvement required.
846928	Wellbore Openings (Perfs) annotation tether lines draw to middle of sketch, not to symbol on outside of sketch
846929	Minimum IDs not highlighted in sketch (little red boxes)
846934	Completion Fluids Not able to annotate Completion Fluids in well sketch.
846926	TOC tether lines should draw to top of cemented interval, not to middle of the sketch

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Defect No.	Description
846927	TOC annotations do not include Assembly Size
843571	CLONE OF 843570 FOR FIX IN 5000.1.9 Dual string completion automatic component label placement in wallplot composer.
853010	PROFILE - Component Serial Number not displayed in PROFILE Component Properties
855607	SP#952-Profile-Recent drop down list, works for designs. Does not work when selecting any other node.
855231	SP #949 ↳ Profile ↳ Depths and Wellbore Opening Rendering Issue
854199	Item description required in umbilicals tab drop down. SP565
857919	Located Inside in Wellbore Equipment disappears after picking it the drop down
853520	Text overlapping in label tracks

### **Release 5000.1.8**

There were no PROFILE issues fixed for this release.

### **Release 5000.1.7**

The following issues were fixed for the 5000.1.7 release of PROFILE software.

Defect No.	Description
810655	Removing Surveys from Well Designer/Trajectory tab once added (no Compass).
812063	Require the ability for PROFILE to be able to display Stimulations across multiple Events
812085	Cement rendering issue due to bottom depth comparison
818615	PROFILE 2003.16.1.23 We have issues with the Stimulations data entered against a specific event that appears to be related to dates of event yet all stim data is within the start end date of specific event
818841	PROFILE issue rendering Cement around Slotted Liner Completion in Multi-Lateral Well displayed incorrect on interactive schematic
822218	RELATED TO 750445: Profile: Need 'Flip Assembly' feature to resolve issue where user entering components in wrong order
825096	Changing Active Unit System in Profile changes Datum stored in database
828577	DEFECT: PROFILE: Crash Opening Designs - application crashes with no error

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Defect No.	Description
828586	PROFILE SCHEMATIC: schematic draw incorrect - conflict caused by cement and casing shown incorrect
831061	CD_ASSEMBLY.remarks field exposed for ACTUAL designs

### **Release 5000.1.6**

There were no PROFILE issues fixed for this release.

### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of PROFILE software.

Defect No.	Description
95126	PROFILE should be able to draw 'Y' blocks and 'H' members of a completion string
777656	Event dates in OpenWells causing problems in Profile
784951	Symbols are being squashed in the schematic so they only show a straight line.
790056	Pip tag information does not show up on the Wall Plot Composer
790273	Error in Well sketch with Production Liner and Fish
795610	Components appearing at the wrong locations in the schematic on diagrams in Profile.
800563	Schematic scaling issue with units.
806531	EPS Configuration screen - Well list filters should be stored in and used from a shared folder.
807697	EPS does not name file exports correctly if report_no is null
808734	EPS can not generate reports against some large Oracle databases
809947	Report Manager does not generate more than one Profile or Compass WallPlots
810631	Enhancements to the schematic engine to better support drawing of dual completions and Y-Tools using 2D symbols. Note: See required system settings above to enable and control the behavior of Profile when drawing schematics.
810633	Provide the option to draw schematics with a constant diameter based on the assembly size. Note: This change requires the user to enable the "Use Assembly Size for Component Diameters" option in the "Well Designer" > "Schematic Detail" menu in Profile.

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Defect No.	Description
810634	Provide a way to include the users credentials as a signature when generating wellplots.
811016	Status of strings/components (Installed / Pulled / Partial Pulled) is not always respected in Schematic i.e Retrievable Packer & Casing cut
812752	PROFILE 5000.1.2 crashes in the Citrix environment
813738	PROFILE closes when adding wellbore equipment - Vista only.
817151	Clone of 759384:Profile WPC become unusable across application

### **Release 5000.1.4**

There were no PROFILE issues fixed for this release.

### **Release 5000.1.3**

There were no PROFILE issues fixed for this release.

### **Release 5000.1.2**

The following PROFILE issues were fixed for the 5000.1.2 release.

Defect No.	Description	Version	Comp Level 1	Comp Level 2
726251	Need additional equipment components supported for certain Section Types	2003.14.1 .0	Well Designer	Wellbore/ Completion Tab
730570	Depth Reference Datum Shows -0.00ft Air Gap	2003.14.1 .0	General	
731481	Need to be able to include Change History as a data box in a profile template	2003.16.0 .0	Templates/ Frames	
732918	Would like to filter schematic content by Section & Component type same as Wellbore Equipment track	2003.16.0 .0	Wall Plot Composer	Schematic Object
733264	No symbol available for solid block xmas trees - UPDATE: symbols are created - need to be put into the install	2003.16.0 .0	Symbols	

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Defect No.	Description	Version	Comp Level 1	Comp Level 2
726251	Need additional equipment components supported for certain Section Types	2003.14.1 .0	Well Designer	Wellbore/ Completion Tab
738481	Incorrect schematic after installing wellbore equipment components (transfer)	2003.16.0 .0	Well Designer	
741746	Manual text entries being overwritten by value from picklist	2003.16.0 .1	Well Designer	Wellbore/ Completion Tab
744640	Chinese Locale: Invoking Event Properties dialog box in FOT/Profile causes Uncaught Java exception and crash	2003.21.0 .0	Core App	Well Explorer
745088	Casing Design copy from Actual Design to a different Prototype Design does not show Casings at the Prototype Design	2003.21.0 .0	Core App	Well Explorer
746242	Need to store the symbol width setting with a schematic	2003.16.0 .1	Wall Plot Composer	
748665	PROFILE:Casing Jewelry column is not showing selected fields information. If we add any field it is showing only blank.	2003.21.0 .0	Wall Plot Composer	Data Tracks
749429	Stimulation Stage Comments fields is required for Wall Plot Composer in PROFILE. Currently there is no way to see Stimulation Stage Comments in PROFILE.	2003.21.0 .0	Wall Plot Composer	Data Tracks
750368	PROFILE - Drillstrings should show Bit number in assembly spreadsheet.	2003.14.1 .0	Well Designer	Drillstrings/ BHA
751122	751122, Request capabilities to auto calculate Drill Pipe length in PROFILE Drill strings/BHA spread sheet as individual BHA Component length is changed	2003.21.0 .0	Well Designer	Drillstrings/ BHA
751906	Separator Properties has no effect on Schematic	2003.21.0 .0	Wall Plot Composer	Data Tracks
751911	Changing Label properties of Line Data for Plan All Wellbores plot has no effect on graph and the entered Label is gone next time the Properties dialog box is opened	2003.21.0 .0	Wall Plot Composer	

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Defect No.	Description	Version	Comp Level 1	Comp Level 2
726251	Need additional equipment components supported for certain Section Types	2003.14.1 .0	Well Designer	Wellbore/ Completion Tab
753100	PROFILE has no default symbols for Adj. Near Bit Reamer and Core Barrel	2003.21.0 .0	Symbol Management	Symbol Mappings Editor
753305	In Mapped Symbols Update button does not call for Save action and hence Symbols cannot be saved	2003.21.0 .0	Symbol Management	
755539	Live schematic displays differently on change of active unit system	2003.16.1 .2	Well Designer	Interactive Schematic
756839	Umbilical functionality unstable.	2003.16.1 .2	Well Designer	
756880	WPC Schematic Toolbar Problem	2003.21.0 .0	Wall Plot Composer	
757405	Installed Tieback Packer causing design to become crooked when it is not a dual-completion	2003.16.0 .2	Well Designer	Interactive Schematic
757557	Comp Type Code Default Behavior for Centralizer Jewelry	2003.21.0 .0	Well Designer	Casing Tab
758023	Wall Plot Composer tab: Wellhead Hangers Data Track is not showing data for Single Schematic Drawing. It is showing data only for Wellhead Schematic Drawing.	2003.21.0 .0	Wall Plot Composer	Data Tracks
758350	Need a Formations databox in Wall Plot Composer	2003.16.1 .2	Well Designer	Trajectory Tab
758583	Wrong formation texture being drawn in WPC	2003.16.1 .2	Well Designer	Trajectory Tab
758748	String Component Item Description created from Catalogue selection does not include Unit Labels	2003.21.0 .0	Unit Management System	
759525	PROFILE invalid state This Section > Total Number of Sections	2003.16.1 .4	Wall Plot Composer	Schematic Object
760770	Length from Catalog selection does not update MD Landed on the fly and schematics not correct	2003.16.1 .4	Well Designer	Wellbore/ Completion Tab
762961	Wall Plot Composer Days v. Depth graph functionality	2003.14.1 .0	Wall Plot Composer	

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Defect No.	Description	Version	Comp Level 1	Comp Level 2
726251	Need additional equipment components supported for certain Section Types	2003.14.1 .0	Well Designer	Wellbore/ Completion Tab
764203	Need support for BHA Program data box in Wall Plot Composer	2003.21.0 .0	Wall Plot Composer	Data Box Object
764631	Default.ppc Template specifies Drilling on last day of Completion Event.	2003.16.0 .5	Wall Plot Composer	Data Box Object
765894	Component Install Date should default to the Install Date for the assembly.	2003.21.0 .0	Well Designer	Wellhead Tab
765945	PROFILE does not show the name of the Drill string/Work String in Data Quality Date Ranges tab	2003.21.0 .0	Well Designer	Drillstrings/ BHA
767408	Java Exception when trying to copy/paste PROFILE Template	2003.16.0 .4	Core App	Well Explorer
778782	Enhancements to support StatoilHydro evaluation of PROFILE.	2003.16.1 .6	Wall Plot Composer	Schematic Object
781985	User can not select Zone Name in Wellbore Openings data box in PROFILE	2003.16.0 .6	Wall Plot Composer	Data Box Object
783392	Tubing Hanger Assembly picklists need to show more description of each assembly - should list by Assembly Name (Current Status).	2003.21.0 .1	Well Designer	Wellhead Tab
784439	Well Designer, Well Plot shows sidetracks not yet kicked off	2003.21.0 .0	Core App	
784780	Show Wellbore Properties fields in WPC Data Box	2003.22.0 .0	Wall Plot Composer	Data Box Object
786799	The top of the casing in the 9 5/8" casing string below the casing hanger has been cut off.	2003.16.1 .8	Well Designer	
789647	The cement overlaps the hole and some of the casing/ casing equipment.	2003.16.1 .8	Symbols	
790976	PROFILE Stimulation Display Issue	2003.16.0 .1	Core App	Date Bar
792417	Invalid Data QA errors displayed for Hole Section & Sidetracks due to MD	2003.16.0 .3	Well Designer	Hole Sections Tab
792937	Comp Group picklist is blank on Wellheads Tab - PROFILE	PROFILE	5000.1.2.0	Well Designer
793123	Enhancement - Make Section, Township, and Range available in PROFILE	5000.1.0.0	Wall Plot Composer	Data Box Object

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Defect No.	Description	Version	Comp Level 1	Comp Level 2
726251	Need additional equipment components supported for certain Section Types	2003.14.1 .0	Well Designer	Wellbore/ Completion Tab
793169	Top of cement not correctly showing in track for 9 5/8" intermediate casing	2003.16.1 .12	Well Designer	Interactive Schematic
797107	Font coloring is not preserved with template	2003.16.1 .14	Templates/ Frames	
797605	When you attempt to create or load a workspace prior to setting the workspace folder you do not get a message and nothing happens.	5000.1.2. 0	Wall Plot Composer	General Wall Plot Composer Functionality

### **Release 5000.1.1**

There were no PROFILE issues fixed for this release.

### **Release 5000.1.0**

The following problems were either fixed or have workarounds for the 5000.1 release.

Defect No.	Description
728578	Performance issue - Lesson Properties
722519	Event Objective 2 in Well Explorer Event Properties dialog box is empty
772396	Can not hide the Wall Plot Composer toolbar, deselecting the Wall Plot Composer toolbar option from View menu is not hiding the WallPlot Composer toolbar and it is hiding the Schematic Options toolbar.
783711	Easting value is displaying wrong and Longitude value is not displaying in PROFILE, Well Properties
730571	Blank Datum Elevation Record
771642	Clone of 762750 -PROFILE, custom SI catalogs, column sorting is messed up
783365	Survey data inconsistent between PROFILE and COMPASS applications
758680	Need to be able to copy and paste components between assemblies
770533	Licensing - EDT software Licensing does not take advantage of the functionality that will warn users that their license is set to expire in x days
759703	PROFILE software connects Umbilicals to wrong components if Components have same Item Description; hooking up to Item Description Name and not Id

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Defect No.	Description
772693	Output Report preview list on Date Bar displays the incorrect report name
741064	Symbol Map - need to introduce application security token to control access. Most users will not be customizing Symbol Maps.
723768	Drawings are distorted if repeat symbols have not been defined. Message in Data Quality window would help with finding this problem.
731492	PROFILE software should report max dogleg, inclination and azimuth in a data box
702512	CD_CEMENT_FLUID data should be available in PROFILE as a track or data box.
731482	Well Status should be available as a data box in PROFILE template
759376	Unable to see data on a custom template for Wellhead data.
758116	Need ability to sort Component Order on Wellbore Equipment Details, Wellhead Equipment, Casing Assembly Details tables
758114	Unable to remove Time portion of Date/Time Value
758346	Need Cement Slurry Date available in Cementing Databox.
758117	Need Zone, Reservoir and Formation supported in Perforation Intervals data box
777246	Filter out cement that has been drilled out in the cement intervals track
782033	PROFILE software out of memory and poor performance when wellbore openings overlap
780801	Add TVD Current, Sacks Used, Cement Grade to Data Box
764202	Need support for Mud Program data box in WPC
759908	With large number of Wellbore EQs and with the new Split Section feature, opening a WPC shows the entire Completion assembly instead of X out of Y
771371	WPC tab, Tool Tip text is not displaying for buttons in Schematic Object Properties dialog box.
741749	Need Wellbore Details data table for multi-lateral summary for the Well
740702	OpenWells data missing from PROFILE Data Box & Tracks
742868	Material value in Component Properties not available under Wellbore Equipment Details
742444	Font scaling problems in wall plots
731557	Need a selection criteria to select only specific items into data boxes e.g. Reference Datum Boxes
728751	PROFILE software must show wellbore formations and wellbore zones from the perforation report
732997	Need to be able to specify decimal precision on numeric fields on tracks and data boxes.

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Defect No.	Description
732920	Need ability to group PPC pages into a Template
716527	Component TVDs & Inc not available in WPC Wellbore Equip Assembly Component Details data box
700055	Need to add support for outputting current date/time to WPC formats
622114	Need WPC data box support for the Well Remarks table
746220	Lithology wont show up unless both top and bottom depth information is entered.
700054	Need the ability to differentiate planned & actual Formations/Lithologies
726272	Need support for completion sub-assemblies
701000	Sub-Assembly Support: need ability to copy other assembly in Design into current assembly (merge).
755077	Enhance support for Stimulations data
755075	Enhance support for Wellbore Openings
755492	Need to hook Help ID to Assembly Status dialog box topic
755541	Tabs displaying skewed on data box in WPC
758347	WPC Perforations Data Box - Cannot access header fields in master detail
729939	PROFILE software does not handle Depth Correction in Interactive Schematic and WPC for Casing and Wellbore Equipment's
755062	Support additional Assembly Component fields
751023	Need to segregate Formations by Design
746229	Want to be able to select either prognosed depths or actual depths
749109	Catalog selection windows should be re-sizeable
746240	Add the caption label to the tracks listed in the schematic track properties.
743429	Extend PROFILE Actual Design Support to create Report Headers
749109	Catalog selection windows should be re-sizeable
746240	Add the caption label to the tracks listed in the schematic track properties.
752498	Umbilicals Component Selection Picklist should show MD Top of each Tool listed for better differentiation

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## **PROFILE Known Issues**

The following PROFILE known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13**

The following were the PROFILE known issues for the 5000.1.13.0 release.

Defect No.	Description
942247	Opening the Catalog Editor from the Well Explorer tree results in an error message This issue only affects the Profile when installed using the "OpenWells Standalone" install, it does not affect Profile when installed using the EDT installer.

### **Release 5000.1.12**

There were no additional PROFILE known issues for this release.

### **Release 5000.1.11**

There were no additional PROFILE known issues for this release.

### **Release 5000.1.9**

The following were the PROFILE known issues for the 5000.1.9 release.

Defect No.	Description
853373	Company properties lock check box not grayed out when SAM is locking the Company.
854741	Wall Plot Composer - Displaying wrong Depth and Symbol for original holes and sidetracks
855229	SP#232 Completion Assembly drawn past bottom of Wellbore
856464	PROFILE Schematic not drawing well with Mixed Units of lengths in meters and diameters in inches.
859895	Historian - PROFILE - Creating an instant design and then approving the well display wrong information

 Go To "What's In This Release?"**Release 5000.1.8**

There were no additional PROFILE known issues for this release.

**Release 5000.1.7**

There were no additional PROFILE known issues for this release.

**Release 5000.1.6**

There were no additional PROFILE known issues for this release.

**Release 5000.1.5**

There were no additional PROFILE known issues for this release.

**Release 5000.1.4**

There were no additional PROFILE known issues for this release.

**Release 5000.1.3**

There were no additional PROFILE known issues for this release.

**Release 5000.1.2**

There were no additional PROFILE known issues for this release.

**Release 5000.1.1**

There were no additional PROFILE known issues for this release.

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## **Release 5000.1.0**

The following were the PROFILE known issues for the 5000.1 release.

Defect No.	Description
744204	Need support for recording and rendering cellar geometry and schematics for land wells
750149	Need a comment field for Umbilicals and Jewelry
746244	Long casing components only stretch when the number of joints is 0 or Null.
741740	Need drag-and-drop support for copy/paste of Wellheads between Designs
741741	Perf Status display issue when you have overlapping Perfs
741065	Wellbore Equipment Depths Track should support interpolated inclination and other directional parameters
741737	Need electronic import support for Surveys
744201	Need WPC template that fits all printers
741750	need spreadsheet import feature same as OpenWells software for Wellbore Equipment
742088	PROFILE spreadsheets don't support keyboard Delete button or right-click Delete menu item
781413	Attachments can not Open/Delete/Save As from the Date bar Attachments dialog box if we minimize the ADV.
781410	PROFILE software: Virtual Folder attachments are opened blank.
781521	We can add new Wellbores in PROFILE using Insert key after Revoking 'EDM.Wellbore.add' token also.
776624	OpenWells software vs PROFILE software: ADV, Right click menu item 'Save As' is always disabled for attachments.
774962	Accessing Properties for the Database node by shortcut key (Alt+Enter) is not working.
778456	change the label "locked" on the Event properties to be consistent with other levels
783972	Launching Help from Sub Assembly button doesn't work properly
783531	PROFILE software, Symbol Manager, Sketch Mode, disable the Options item in View menu. Currently it is enabled and selecting Options is not showing Options dialog box.
782062	Cannot copy a subassembly from one design to another
781965	Drag-and-drop vs. Spreadsheet - Deleting rows.
781972	PROFILE software, Hole section, data is not updating properly once it gets dirty with bad data

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## Real-Time View™ Software

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are no changes to the Real-Time View software for the 5000.1.13.1 release.

### Real-Time View Software Enhancements

The Real-Time View enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.4 through 5000.1.13**

There were no enhancements to Real-Time View for these releases.

#### **Release 5000.1.3**

- New platforms are supported.

#### **Release 5000.1.2**

There were no enhancements to Real-Time View for this release.

#### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the Real-Time View software.

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## **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For the Real-Time View application, a number of new features were added that include improved integration with EDT™ software applications through the common Well Explorer, better access to log curve visualization, and a more streamlined approach to ASCII and LAS log file import.

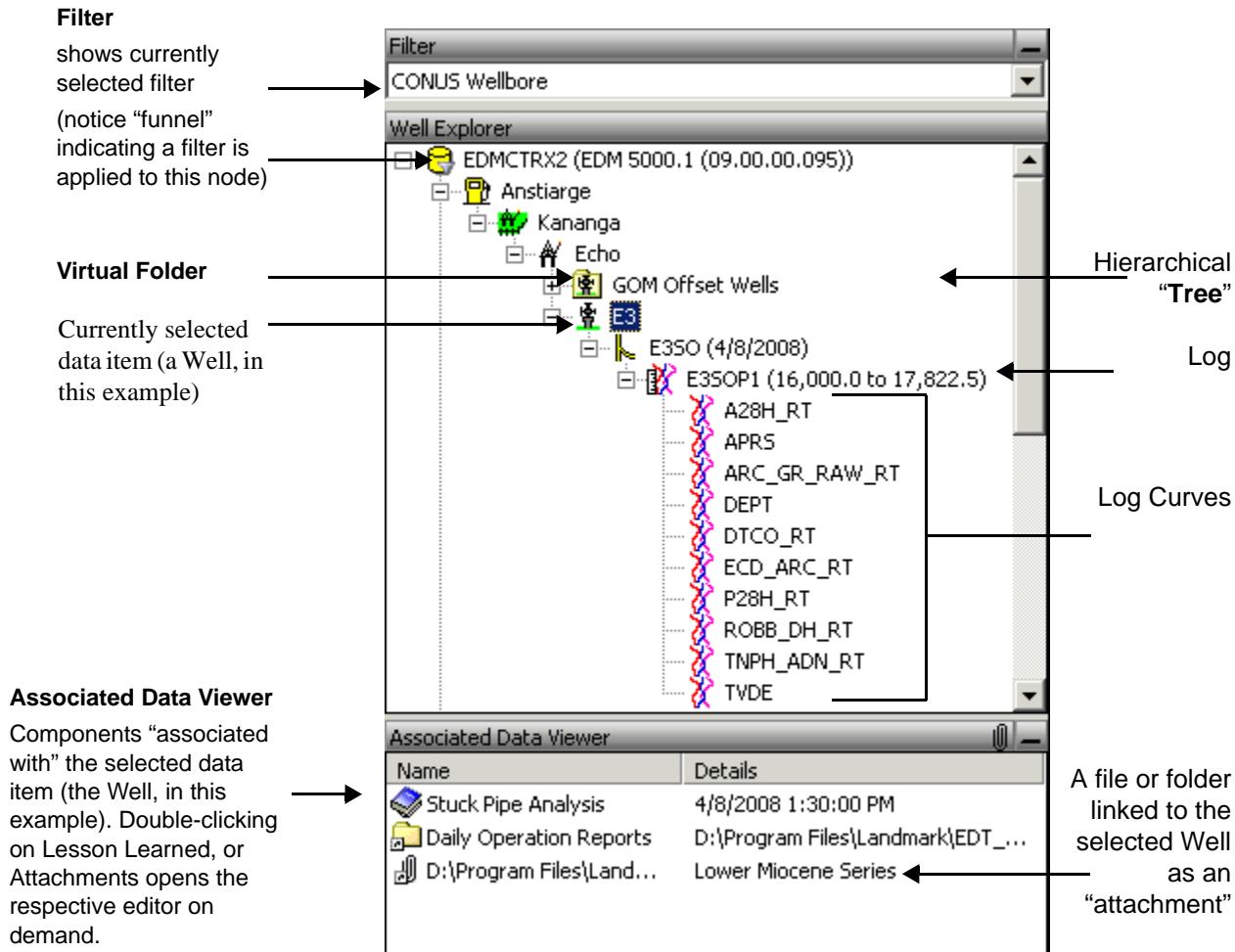
- Well Explorer added to Real-Time View software to enhance usability and leverage EDT software integration with other drilling applications
- Drag and Drop individual log curves from the Well Explorer onto the log track in the log viewing area
- Logs can be opened, imported, renamed, and deleted from the Well Explorer
- Added new toolbar buttons
- Removed some File menu commands
- Added new View menu command

Additional details follow.

### *Added the Well Explorer to Real-Time View*

Located by default on the left side of the application window, the Well Explorer functions much like the Microsoft® Windows Explorer. Specifically, it is organized as a hierarchical data tree, and you can browse the EDM database at seven descending levels, though this varies between applications. The Well Explorer implementation in Real-Time View software exposes logs, and any associated curves, from the Wellbore level.

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**Figure 1:** Well Explorer in Real-Time View

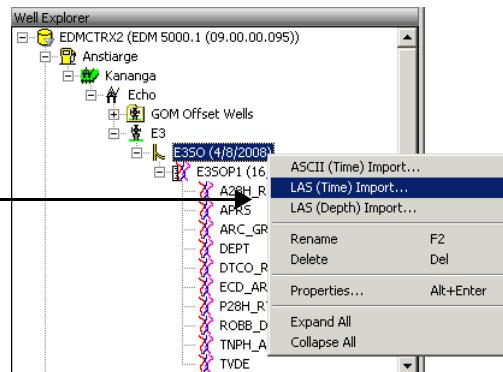
The following special features are associated with the Well Explorer in Real-Time View software:

- New icons added for log (  ) and log curves (  ). Logs can now be opened by double-clicking on the Log icon in the Well Explorer.
- Drag and Drop individual log curves onto the log viewing area.
- ASCII, LAS (Time), and LAS (Depth) log import from the Wellbore level right-click menu. The functions are now accessed via context menu commands from

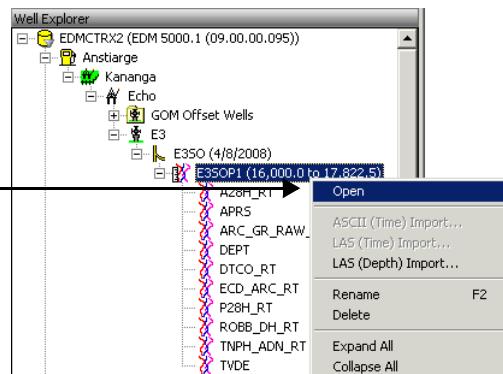
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the Well Explorer. For more information, see the “Well Explorer Right-Click Menus” topic in the online Help for the Real-Time View application.

**Import** commands from Wellbore level. Types of log available to import include ASCII (Time), LAS (Time), and LAS (Depth).



**Open** command from Log level.  
Also, the log import menu commands are shown. The type of log determines which import command is enabled. In this example, the log is LAS depth.



**Figure 2: Open and Import Commands Available from Well Explorer**

- Logs can be opened, imported, renamed, and deleted from the Well Explorer

Click [here](#) to view a complete description of the EDT 5000.1.0 Well Explorer enhancements for all EDT applications.

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### New toolbar buttons in the Real-Time View software

Two new buttons were added to the main interface, as seen below.

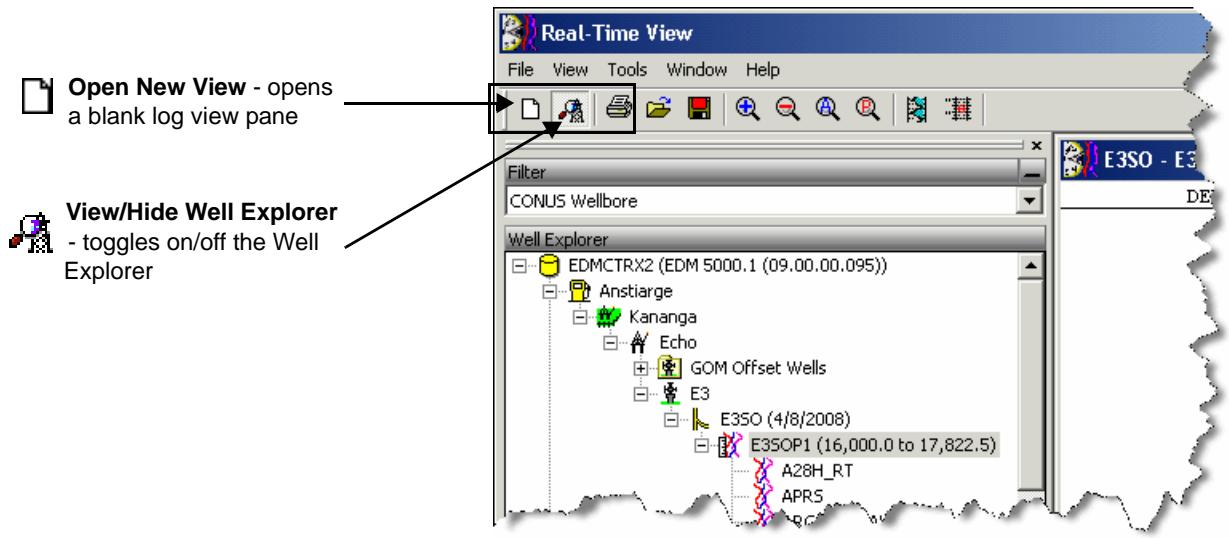


Figure 3: New Toolbar Buttons

### Removed File menu commands

With the addition of the Well Explorer, the following File menu commands were removed to support a new view/import log workflow from the Well Explorer.

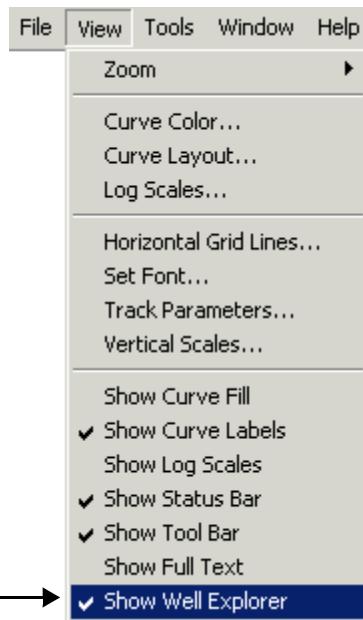
- Open
- ASCII Import
- LAS Import
- LAS (Depth) Import

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### New View menu command

A new menu command was added to the View menu: Show Well Explorer.

**Show Well Explorer** - toggles on/off Well Explorer display. This is the same function as the toolbar button (  ).



**Figure 4:** New View Menu Command

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## Real-Time View Fixed Issues

The Real-Time View issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.1 through 5000.1.13

There were no Real-Time View issues fixed for these releases.

### Release 5000.1.0

The following Real-Time View issues were either fixed or have workarounds for the 5000.1.0 release.

Defect No.	Description
720354	If you launch multiple Log Viewer applications from different Daily Operations in succession, the Log Viewer crashes
720356	Importing multiple logs at the same time to different nodes from multiple or same instances causes Out of Memory exception
731084	Need to restart the application to view Lessons Learned; Reload Data does not work
731107	At any given time, if NPT is going on (Nested NPT) and there is no End specified, Real-Time View Equipment Failure should not show the End Time as Start Time
731727	Real-Time View software not showing Fluids in Mud Check track from OpenWire 2003.0.7.1 software
733574	Once curve does not exist in Real-Time View software and corresponding message is displayed, the same entry should be removed from Recent Menu list
733575	Track Labels not saved when moving from one Track to another in Track Parameters
737553	If we create BHA Run and BHA Operation with same Time. The values in the Real-Time View software are displayed wrong & mixed values.
744271	Help cannot be launched after clicking Help button in Time Shift dialog box.
745518	There is a "%d" displayed in Delete confirmation message.
746602	No Help support provided for new Log Editor feature
750757	ALL (ALL Unplanned Operations) is different from All in Time Summary Filter
751892	File menu Recent list does not show units for Depth-based logs
751975	Provide one message only if data invoked from MRU does not exists any more
751977	Display text truncated in UI - need to print full name in Curve Display Parameters for Normal and Symbol

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Defect No.	Description
751980	After File Import, Real-Time View software should expand the Wellbore node and put focus on the log that was imported successfully
751981	Real-Time View software won't show any data if LAS Depth file is imported again
751992	Need proper error message for LAS Depth Calculation errors
752032	Real-Time View software not taking "ARC Gamma Ray, Real-Time" as Track Label
752051	Real-Time View software vanishes/crashes from screen after importing a LAS Depth file on top of an ASCII file
752213	Next Day and Last Day buttons still can be clicked when Last Day data is displayed.
752216	When you select LAS(Depth) Import, LAS(TIME) file can be imported.
752224	ACSI Import help is launched when you click help in LAS file import window.
753159	Math Calculator doesn't work when input Chinese Description and Chinese Output name in Function.
753180	There is no relevant help document for Define Data Points Connection in REal-Time View software.
753182	After inserting, the button should be "Hide" in Define Curve Fills.
753546	Real-Time View software crashes after clicking Delete button in Math Calculator dialog box 3 times.
753550	ASCII(TIME) log file with the invalid date still can be imported in Real-Time View software.
753553	After importing an invalid date ASCII file in append mode, the previous data cannot be displayed normally anymore.
753554	Real-Time View software crashed when select Curve layout after inserting a row in Horizontal Grid Lines.
753559	There is a minus displayed in the notification when you modify a value in Horizontal Grid Lines dialog box.
753647	Unit is displayed inconsistent in Real-Time View software when SI unit system selected in Well level.
753668	Unit is displayed truncated in Horizontal Grid Lines dialog box.
753874	LAS Depth Files not showing data for a trajectory data LAS file
753877	Default to Screen Settings is always disabled by default in the Set Fonts properties dialog box
753878	Log Curve Labels and Text Track Labels do not have a mechanism to change Font Colors in Set Fonts dialog box; i.e, the entire 'Effects' area is missing
753880	ASCII (Time) + LAS (Depth) file: Right click Select Curves to Display crashes the app

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Defect No.	Description
753882	Need to warn users if something got changed in template prior to closing a log
753883	Dragging and dropping a track automatically draws grid/border
755143	When cancel to open the second log file, the previous opened log will be closed automatically.
755145	A series Memory Exception will pop up after doing some operations with Real-Time View software.
755148	The decimal point is displayed as “.” in the curve in Hungarian OS. (I18N-Hungarian)
755149	The decimal point “,” cannot be recognized in the imported file. (I18N-Hungarian)
755778	Real-Time View software will not copy over new files if 2003.21 is installed on top of 2003.16.1.0 (LAS Depth not possible)
762343	Real-Time View software disappears from screen after opening a specific LAS file
762344	Real-Time View software does not import a specific ASCII file - Invalid File Detected
770534	Licensing - EDT software Licensing does not take advantage of the functionality that will warn users that their license is set to expire in x days
776358	Real-Time View software launches even with no EDM software license and shows incorrect licensing usage for Real-Time software View licenses in use and for check out
777164	There are some conflicts in “Math Calculator” chapter of help document.

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## Real-Time View Known Issues

The following Real-Time View known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.1 through 5000.1.13**

There were no additional Real-Time View known issues for these releases.

### **Release 5000.1.0**

The following were the Real-Time View known issues for the 5000.1.0 release.

Defect No.	Description
730561	Bit Op MD value is not being unit converted
750482	The data cannot be displayed with the current Unit in Real-Time View software after changing the unit in OpenWells software.
750483	Real-Time View software cannot be launched with the current Datum when launching it via Daily Operations.
751894	Real-Time View software requires better Units support for displaying depths
753165	Using Real-Time View software after 15-20 minutes, opening a log will take almost 100% CPU usage
779382	LAS imports always fail because the expected format defined in the importLAS.ini file is not the same as the file being imported. Need to proactively inform the user describing why the import failed.
779982	Real Time Viewer, Well Explorer, lock the Properties dialog box and move to next tab and click OK is not locking the Properties dialog box.
781757	Missing Search toolbar button in Real-Time View software
782051	Remove Fluids from Associated Data Viewer

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## StressCheck™ Software

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent releases. Enhancements and bug fixes were made to the StressCheck software for the 5000.1.13.1 release.

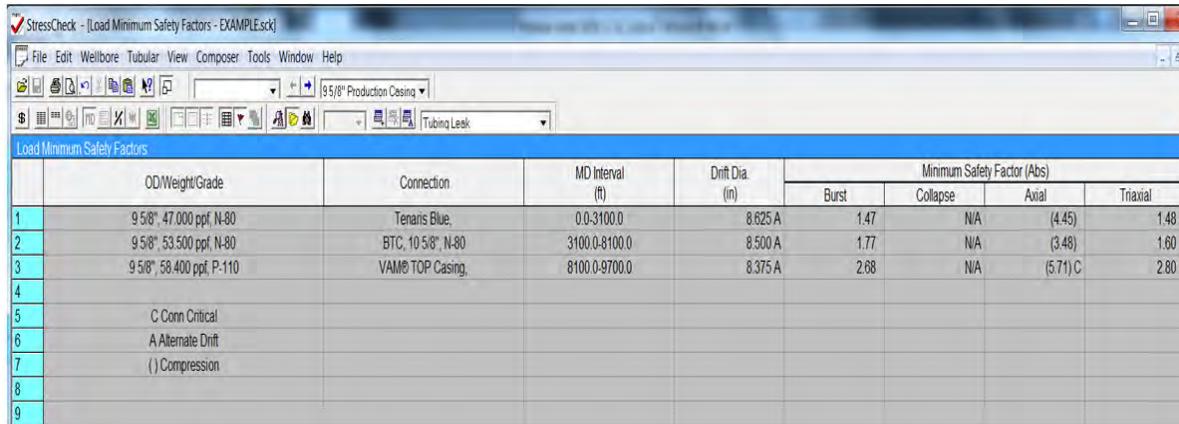
### StressCheck Enhancements and New Functionality

The StressCheck enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### Release 5000.1.13.1

##### *Minimum Safety Factor Table per String Section per load*

A new summary table of minimum safety factors per string section per load in StressCheck.



The screenshot shows the StressCheck software window with the title bar 'StressCheck - [Load Minimum Safety Factors - EXAMPLE.sck]'. The menu bar includes File, Edit, Wellbore, Tubular, View, Composer, Tools, Window, Help. The toolbar has various icons for file operations and tools. A dropdown menu shows '95/8" Production Casing'. The main area displays a table titled 'Load Minimum Safety Factors' with the following data:

	OD/Weight/Grade	Connection	MD Interval (ft)	Drift Dia. (in)	Minimum Safety Factor (Abs)			
					Burst	Collapse	Axial	Triaxial
1	9 5/8", 47,000 psi, N-80	Tenaris Blue,	0.0-3100.0	8.625 A	1.47	N/A	(4.45)	1.48
2	9 5/8", 53,500 psi, N-80	BTC, 10 5/8", N-80	3100.0-8100.0	8.500 A	1.77	N/A	(3.48)	1.60
3	9 5/8", 58,400 psi, P-110	VAM® TOP Casing,	8100.0-9700.0	8.375 A	2.68	N/A	(5.71) C	2.80
4								
5	C Conn Critical							
6	A Alternate Drift							
7	(-) Compression							
8								
9								

#### Release 5000.1.13

There are no enhancements to StressCheck for this release.

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### **Release 5000.1.12**

- Collapse Loads to Support the BSEE Well Containment Screening Tool (WCST)

Version 5000.1.12 provides a new casing collapse load, *Collapse (WCST)*, which supports scenarios used in the BSEE (Bureau of Safety and Environmental Enforcement) WCST (Well Containment Screening tool), L1L2 Rev. 1.18 instructions document. A new external pressure profile, *Hydrostatic Isolation Depth*, supports this new load. The new collapse load must be checked to obtain a permit to drill in Gulf of Mexico deep-water scenarios.

The new load consists of the following:

- **Internal Pressure:** Seawater gradient from sea level to the mudline plus minimum hydrocarbon gradient based on the standard fluid gradient criteria given in the WCST instructions.
- **External Pressure:** Fracture gradient at previous casing shoe plus setting mud weight to hydraulic isolation depth (HID). Local pore pressure below depth of HID. HID is effectively the assumed top of good cement where hydraulic isolation is achieved in the annulus.
- Updated MMS Reports

The MMS Report available in StressCheck was updated to support changes to the BSEE's Application for a Permit to Drill (APD). (The term MMS Report continues to be used in StressCheck for continued clarity).

### **Release 5000.1.11**

- Send to Excel

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StressCheck data tables and views can be exported to a Microsoft Excel spreadsheet. All input tables and spreadsheet views can be exported. This feature supports Microsoft Office 2007 and 2010.

The screenshot shows a Microsoft Excel spreadsheet titled "Data1 [Compatibility Mode] - Microsoft Excel". The table has a header row and several data rows. The columns include Depth (MD) in feet, OD/Weight/Grade, Connection, and Minimum Safety Factor (Abs) for Burst, Collapse, Axial, and Triaxial. There are also notes at the bottom about tubing leak, full/partial evacuation, running in hole avg. speed, and green cement pressure test axial.

Depth (MD) (ft)	OD/Weight/Grade	Connection	Minimum Safety Factor (Abs)			
			Burst	Collapse	Axial	Triaxial
0	9 5/8", 47,000 psi, N-80	N/A	1.47 86	+100.00 C1	2.00 A5	1.69 86
150			1.47 86	51.91 C1	2.02 A5	1.69 86
600			1.48 86	13.05 C1	2.10 A5	1.68 86
2500			1.62 86	3.20 C1	2.41 A1	1.63 86
2500			1.62 86	3.20 C1	2.11 A5	1.52 86
3100			1.54 86	2.60 C1	2.23 A5	1.50 86
3100	9 5/8", 53,600 psi, N-80	N/A	1.77 86	3.61 C1	2.48 A1	1.70 86
4715			1.81 86	2.50 C1	2.75 A1	1.63 86
4715			1.81 86	2.50 C1	2.75 A1	1.76 86
4750			1.81 86	2.49 C1	2.75 A1	1.76 86
5400			1.62 86	2.26 C1	2.68 A1	1.74 86
6000			1.65 86	1.88 C1	3.20 A1	1.69 86
6800			1.65 86	1.88 C1	3.20 A1	1.91 86
8100			1.62 86	1.60 C1	3.59 A1	1.93 86
8100	9 5/8", 58,400 psi, P-110	N/A	2.74 86	2.48 C1	5.02 A1	2.93 86
8249			2.73 86	2.45 C1	5.11 A1	2.83 86
8249			2.73 86	1.38 C1	5.11 A1	1.93 C1
8956			2.71 86	1.20 C1	5.60 A1	1.81 C1
8956			2.71 86	2.32 C1	5.60 A1	2.84 86
9099			2.68 86	2.19 C1	6.28 A1	2.86 86
9700			2.68 86	2.19 C1	6.28 A1	2.86 86
26	B6	Tubing Leak				
27	C1	Full/Partial Evacuation				
28	A1	Running in Hole Avg. Speed				
29	A6	Green Cement Pressure Test(Axial)				

- Switch between plot or tabular display of Custom Load

Previous versions of the StressCheck software did not support switching between a tabular view of pressure and depth data or a plot view when working with Custom Loads. As of version 5000.1.11, this capability is available. Right-click in either the plot or table and select **Switch**.

- Gas Kick Modeling

StressCheck version 5000.1.11 includes several changes to improve gas kick models. Two important changes are:

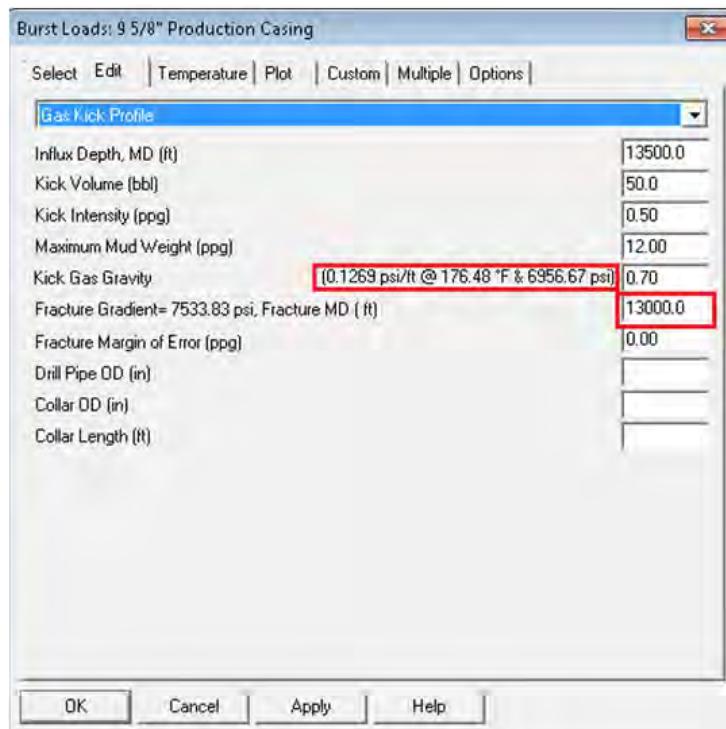
- Casing liner shoe of interest during influx load scenarios**

If you have a casing/liner(s) design configuration in which the input well depth (MD) exceeds the deepest casing scheme casing/liner shoe depth, and the Displacement to Gas influx depth (MD) for the casing/liner (s) string of interest is deeper than or equal to the deepest liner shoe depth, then the reference label "Fracture at Shoe" is replaced with "Fracture Gradient" and the read-only Fracture at Shoe depth reference for the casing/liner string of interest becomes an editable field.

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- **Display equivalent gas gradient for gas gravity defined**

This new version of the StressCheck software displays gas gravity and equivalent pressure gradient in psi at influx depth based on Redlich-Kwong equation of state.



### Release 5000.1.10

There were no enhancements to StressCheck for this release.

### Release 5000.1.9

#### *Shoe/Mud Gradients w/Pore Pressure*

Shoe/Mud Gradients w/Pore Pressure is now available for burst loads. This new external pressure profile combines a mud weight pressure column, a pressure discontinuity with an equivalent mud weight pore pressure gradient at the prior shoe setting depth, and pore pressure in the open hole. This profile supports two scenarios:

- Top of cement (TOC) below prior shoe depth

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- TOC above prior shoe depth

### *Gas Over Mud Ratio Load Case*

Gas Over Mud Ratio load case is now available for burst loads. This drilling load case illustrates the ratio of well control gas to drilling mud. This is a burst load case that is enabled for all casing strings associated to a next open hole section.

### *Multiple Loads Pressure Test*

Multiple Loads Pressure Test is now available for burst loads. This allows pressure test loads defined for other strings (liners) to be applied to the string being designed. Once applied, details can be viewed for the pressure test load internal pressure profile, the overlapped pressure profile intervals, and external pressure profiles can be selected.

### *Load Policy*

Load Policy is a new feature that allows a company to restrict access to new StressCheck load cases that they do not want to model in their organization. Individual load cases can be blocked at the database level. Once blocked, users can not create new well designs that incorporate restricted load cases nor can restricted load cases be added to existing well designs.

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### **Release 5000.1.8**

There were no enhancements to StressCheck for this release.

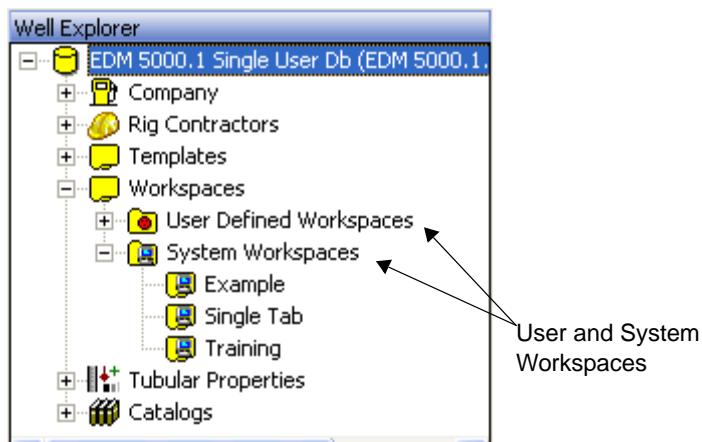
### **Release 5000.1.7**

There were no enhancements to StressCheck for this release.

### **Release 5000.1.6**

#### **Workspaces**

Workspaces—User and System workspace functionality previously available only in WELLPLAN has been added to WELLCAT, StressCheck, and CasingSeat. A workspace is a layout that defines how you want tabs, panes, arrangement of plots within panes, etc. to appear in the software application.



Unlike templates, workspaces do not include data, but only the display configurations that control the look and feel of the interface.

System Workspaces are read-only, and are shipped with the EDM database. You may apply them, but not alter them. Additional System workspaces can be imported using the EDM Administration Utility. When you import System workspaces, the existing System workspaces are retained.

User Workspaces can be created, changed, or deleted at any time. Importing user workspaces is an add/replace function; that is, if the name already exists on the target, the imported workspace will overwrite it.

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### Differential Pressure Table

The Differential Pressures table displays the internal, external and differential pressure per load case (only burst and collapse load cases) in tabular format. Differential pressures are defined by the internal and external pressure selected for each load case. For burst load cases, differential pressure is the difference between internal and external pressure profiles. For collapse load cases, it is defined as the difference between external and internal pressure profiles. To access this table, use View > Tabular Results > Differential Pressures.

Differential Pressures				
Depth (MD) (ft)	Pressure (psi)			Differential Pressure
	Internal Displacement To Gas	External Fluid Gradients w/ Pore Press		
1	5000.0	2595.24	2233.76	361.47
2	5200.0	2615.23	2320.31	294.93
3	5200.0	2615.23	2320.31	294.92
4				

**Figure 1:** Differential Pressure Table Example

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### Switching Between Plots and Tabular Views

Thirteen (13) of the plot views now toggle to tabular view of the data being displayed in the plot view. To toggle between the plot and tabular views, click the Switch Plot/Spreadsheet button located on the Engineering Toolbar. You can also right-click the plots and table that support this feature and select Switch.

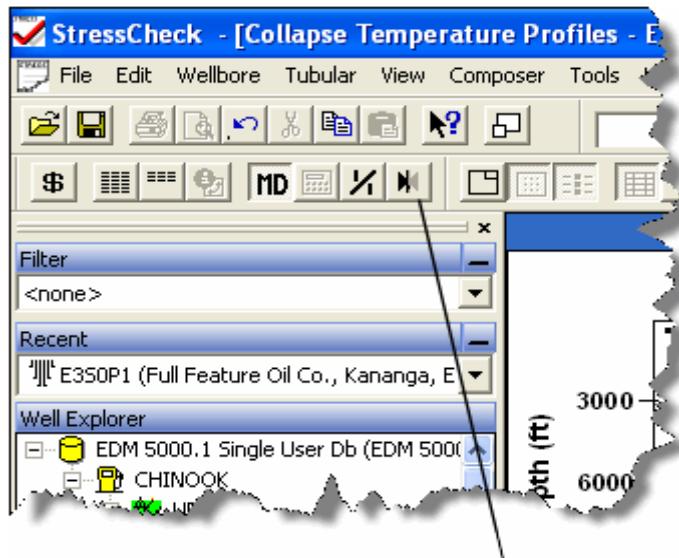


Figure 2: Switch Plot/Spreadsheet Button on the Engineering Toolbar

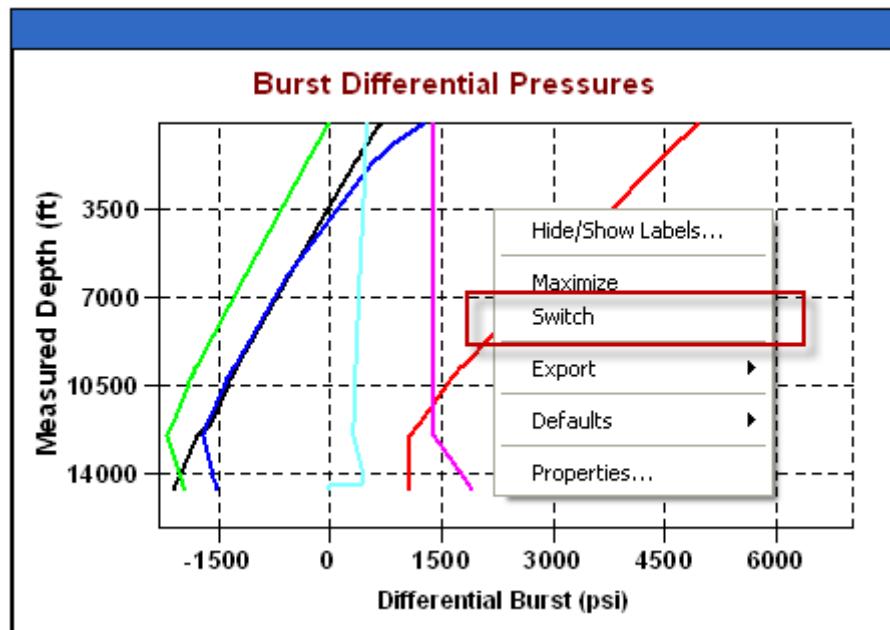


Figure 3: Example of right-click menu containing Switch option to toggle between plot and tabular views.

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### **Release 5000.1.5**

There were no enhancements to StressCheck for this release.

### **Release 5000.1.4**

There were no enhancements to StressCheck for this release.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

There were no enhancements to StressCheck for this release.

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions.

#### *Enhanced Integration between StressCheck and WELLCAT software*

Enhancements are in the following areas:

- Fluids
- Cementing and Landing Data
- Design Parameters
- Loads
- Packers
- Sharing Pipe and Connection
- "Save as" Complex WELLCAT Well Configurations

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### Tubular Properties

Tubular Properties Import and Export were enhanced to simplify the process of copying tubular grades, pipes, and connections between the EDM database and StressCheck or WELLCAT software inventories.

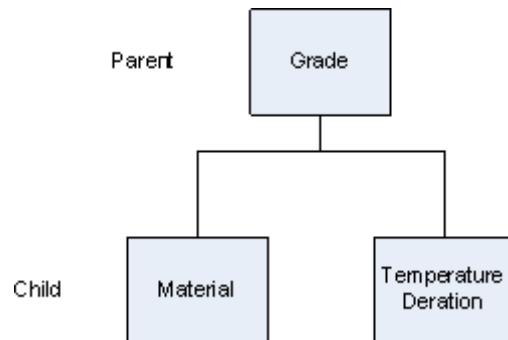
### Release 5000.1.0

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost software was added to the EDT suite of applications for the first time in this release. For the StressCheck application, the following enhancements were made:

- Temperature Deration is now related as a child of Grade in the database. This accommodates changes to the Temperature Deration schedule for a Grade *without changing the Material*.
- Added Tubular Properties import/export logic, and custom Tubular Properties are now stored in inventories associated with each Design. Tubular Properties from a Design can now be exported/imported to the Well Explorer independently or as part of export/import of pipe/connections to catalogs.

### Temperature Deration

Temperature Deration is now a child of Grade instead of Material, so both Material and Temperature Deration are children of Grade. This allows changes to the Temperature Deration schedule for a Grade to be changed *without changing the Material*.



**Figure 1:** Parent-Child Relationship of Grade, Material, Temperature Deration

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### *Import/Export Logic for Grades*

The logic used when exporting grades from the inventories to the EDM Tubular Properties or importing from the EDM Tubular Properties to the inventories has been enhanced. Also, inventories for Grades, Materials, and Temperature Derations have been added so that custom Tubular Properties do not clutter up the EDM database.

The figures below show the full logic applied to import/export of Pipes/Connections and associated Tubular Properties in several parts. Logic specified with dashed line borders will be implemented in future releases, but is not included with this release.

The operations that employ import/export logic are:

- Export/Import Strings (Pipe/Casing) and Connections
- Export/Import Grades, Materials, and Temperature Derations

Exporting/Importing Grades, Materials, and Temperature Derations follows the same logic as importing/exporting Strings.

Exporting/Importing Materials and Temperature Derations are done by association while exporting Grades.

Grade, Material, and Temperature Deration inventories are stored under Tubular menu options per Design so users can create the Tubular Properties in the Design without affecting common EDM Tubular Properties tables in the Well Explorer.

The logic checks for the existence of the Tubular Properties Name, Grade, Material, and Temperature Deration (when exporting Grades from inventories to EDM Tubular Properties, or importing from EDM Tubular Properties to the inventories). If the Name, Grade, Material, and/or Temperature Deration exist, the logic prevents creation of duplicates. If the Name, Grade, Material, and/or Temperature Deration do not exist, the Tubular Properties are created. If the Tubular Properties Name exists, but the Grade, Material, and/or Temperature Deration do not match, the export/import operation is stopped.

#### **Check existing Tubular Properties**

It is always a good practice prior to exporting/importing a string or connection, to check the contents of the common Grades/Materials/ Temperature Derations in the Well Explorer and the Design.

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For a full view of the logic applied to Export to Catalog and Import to Inventory operations, see the "Import from Catalog Dialog" topic in the Help for the StressCheck application.

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### Exporting/Importing Strings (Pipe/Casing) and Connections

The following shows a case where the Grade Name exists and Grade Properties match.

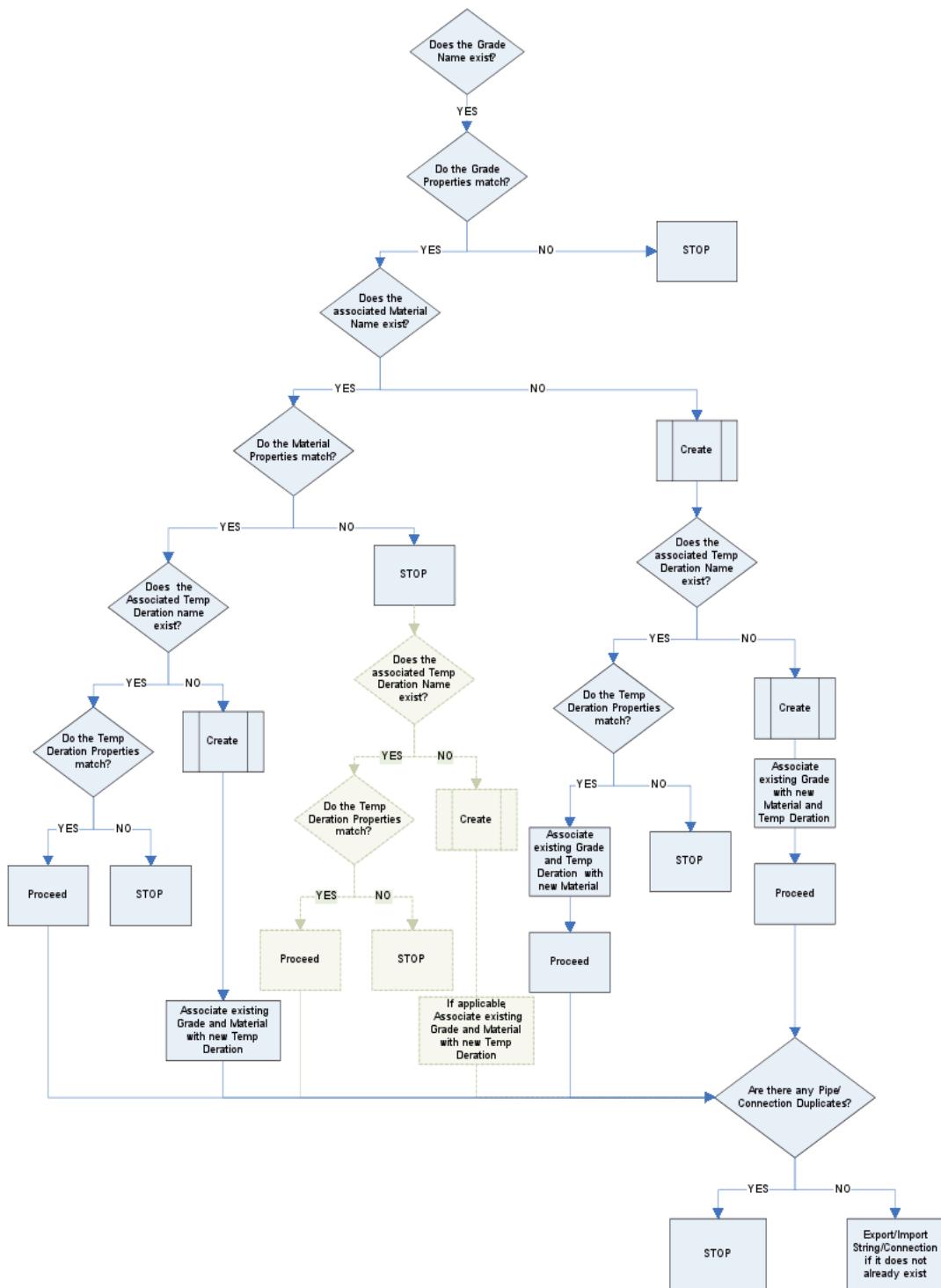


Figure 2: Grade Name Exists and Grade Properties Match

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The following shows a case where the Grade Name exists but the Grade Properties do not match. Currently the import/export operation will not occur.

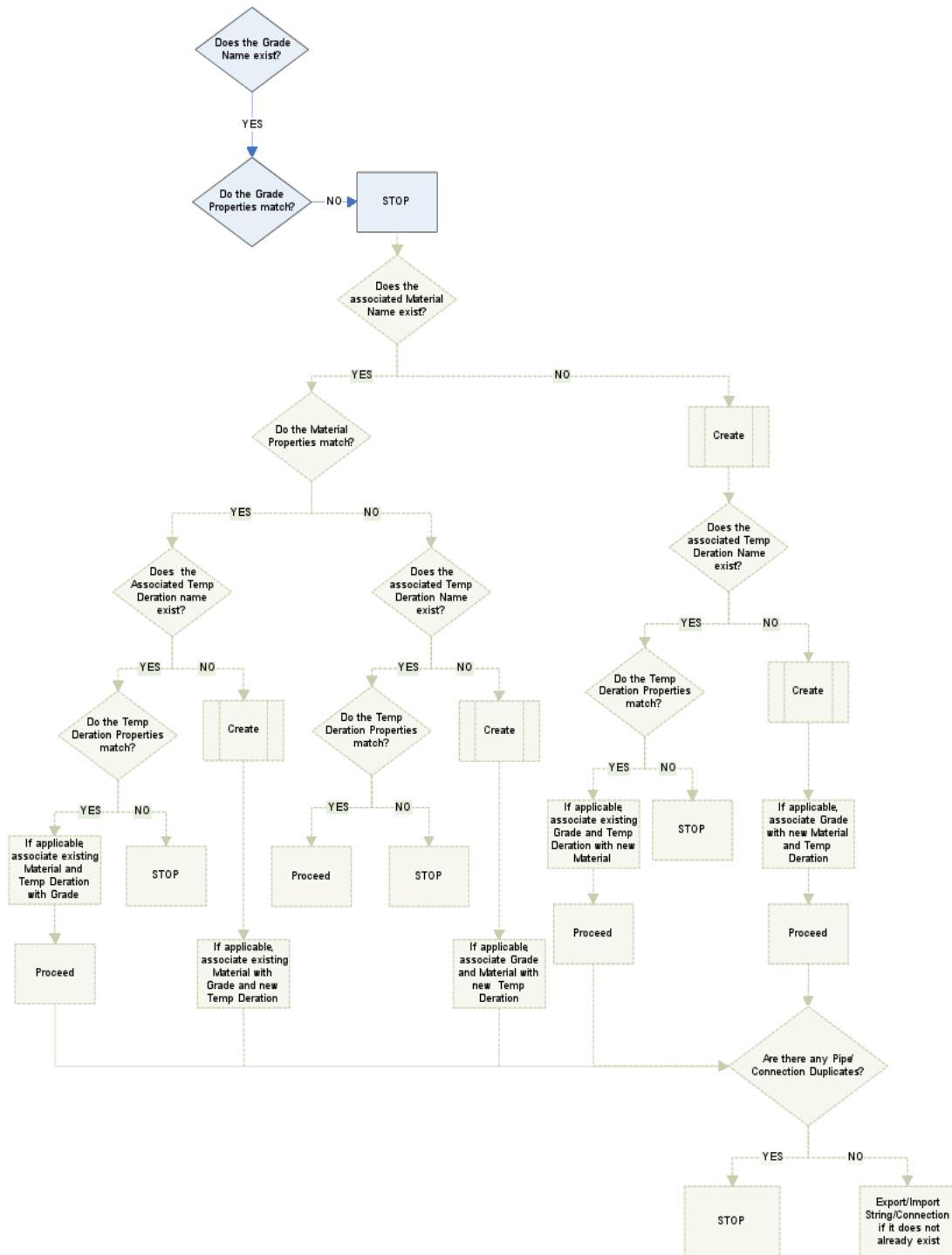
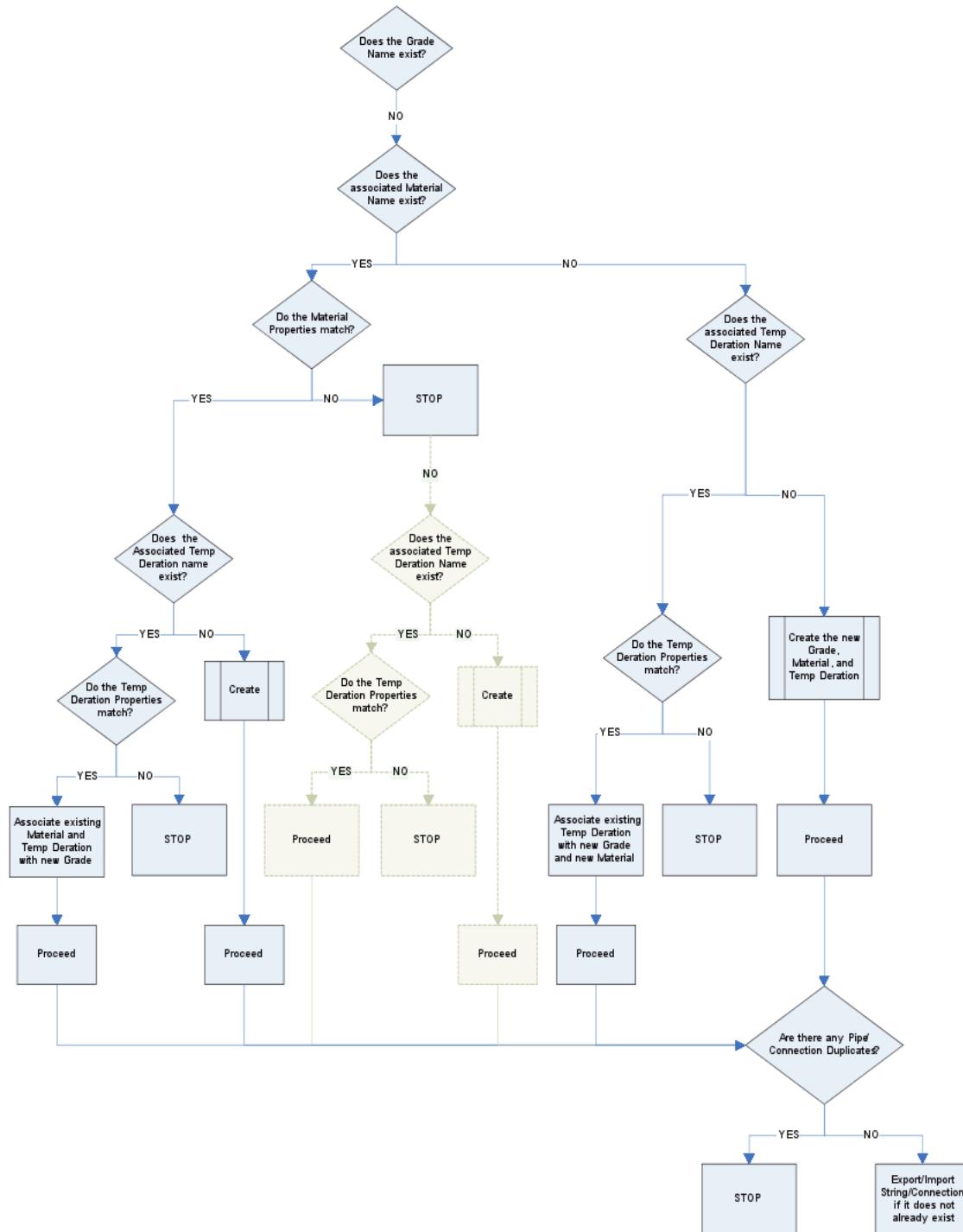


Figure 3: Grade Name Exists and Grade Properties Do Not Match

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The following shows a case where the Grade Name does not exist.



**Figure 4: Grade Name Does Not Exist**

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*EDT 5000.1 Software Common Well Explorer Enhancements*

Click [here](#) to view a description of the EDT 5000.1.0 Well Explorer enhancements.

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## **StressCheck Fixed Issues**

The StressCheck issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13.1**

The following issues are fixed for the 5000.1.13.1 release of the StressCheck software.

Defect No.	Description
908851	Stresscheck crashes when selecting Burst designs
946001	Unexpected External pressure result for HID load when there is an open hole weaker formation in Fracture gradient than Frac at Shoe value.
946002	Incorrect pressure calculation for casing-liner cases when MASP to Frac at Shoe is checked.
949267	Schematic refresh issue in StressCheck
950003	The first cell in the default bit size dialog was read only.

### **Release 5000.1.13**

The following issues are fixed for the 5000.1.13.0 release of the StressCheck software.

Defect No.	Description
884083	Problems with Geological Column in Wallplots across EDT apps, multiply formation columns from more than one design showing in Stresscheck Wallplot Geo Column.
922753	Different values for axial and triaxial minimum absolute safety factor while switching MD/TVD
932743	Stresscheck problem with bit sizes using Regional language
932808	StressCheck show measure labels with powers incorrectly with Russian regional

### **Release 5000.1.12**

The following issues were fixed for the 5000.1.12 release of StressCheck software.

Defect No.	Description
882569	Suspect values for tool free passage length with large slack off and pick up values in initial conditions.

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Defect No.	Description
883310	Axial Loads with and without bending inconsistency
906640	Allow gas-oil / mud fraction input per string in APD report MASP calculations
907075	Allow to define Gas/Mud fraction per string in APD report MASP calculations.

### **Release 5000.1.11**

The following issues were fixed for the 5000.1.11 release of StressCheck software.

Defect No.	Description
861423	Uncaught Java Exception - Data Truncation Error associated to customized units
870333	Integration - invalid casing schema data - StressCheck does not recognize Open Hole section created in Well Cost
871631	Support gas gravity to gradient psi/ft in gas influx model load
879538	Add tabular - plot switch Custom load functionality
880806	Inconsistent documentation description of In House Connection Test Data.
886349	Gas Kick profile- Incorrect Kick tolerance allowed in casing liner configurations
888934	Lost Returns with Water burst load draws extra double line close to the shoe in both Burst Load Line plot and Burst Design plot.
889403	Max wear column missing % label
890345	Documentation needed in shock force applied to short hangers scenarios
894959	Export StressCheck input and output data to Excel spreadsheet
896215	Invalid mud weights allowed to input using F4
896598	WELLCAT provides 'flags' to all safety factor views. These flags indicate important information such as the critical values are for inner or outer pipe or connector. StressCheck should provide the same flag information.
897437	Failed to launch StressCheck and CasingSeat HELP feature when there is not a C: drive available
901064	Copy paste catalog Connections can't be imported to special connection inventory
902901	Stress Check/ Wellbore Schematic/copy to Clip Board failed to paste to Excel and Word
908211	MD-TVD conversion precision issues causing undesired calculation effects

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## **Release 5000.1.10**

The following issues were fixed for the 5000.1.10 release of StressCheck software.

Defect No.	Description
831086	StressCheck Collapse load (full/partial evac) changes significantly with mud level depth change.
863704	Added New Casings to design do not show up in casing pick list
865516	Axial load vs depth extrapolates below casing shoe
870254	Document Tools/Options edit grid toggle, grid font, legend font and marker lines is only applicable to Design plots, other plots use mouse right click properties option.
873611	Red shading rows even though the pipes exist in the pipe inventory
875350	Tabular results (axial force) of Axial Loads table change slightly while revisiting views.
875615	Drill pipe OD (in) bigger than last string internal ID (in) failed to be flagged.

## **Release 5000.1.9**

The following issues were either fixed or have workarounds for the 5000.1.9 release.

Defect No.	Description
834385	StressCheck Detailed Report creation failure, "Cropping".
834997	When adding more custom loads, StressCheck crashes.
837136	StressCheck - Top of Cement not displayed properly.
838835	Clone: Formation-related plot views can fail to update immediately, if a Well Depth is entered that exceeds the greatest Wellpath depth.
840239	Input spreadsheets can fail to refresh after deleting rows, leaving behind empty rows.
844425	WallPlot Composer - Axial Load Table data box fails to display, causing StressCheck to hang and eventually crash.
844433	WallPlot Composer - Collapse Load Table has incorrect header, and data looks similar to Wear or Max Allowable Wear.
844877	Safety factors do not update while changing temperature deration schedule.
845137	Shell StressCheck, importing item from catalog to inventory causes application to crash if API catalogue is not present. (Casing Tubing).
846735	Missing pore pressure data points in fluid gradient with pore pressure external pressure profile.

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Defect No.	Description
846903	The F4 unit conversion key is unstable. The behavior is random and the key works sometimes.
847303	F4 Convert Unit - Pressing F4 in a unitless cell causes an Invalid Argument error leading to a crash.
848821	Active Unit System set in Project Properties not being respected.
848865	Material and Temperature Deration data could cause different safety factors for some xml data sets.
849094	View Burst plots - Differential pressures. Switch option is unit dependent.
849185	Crash when selecting a Safety Factor view with > 20 burst or collapse loads selected.
851148	Changing the Active Unit System in the Project Properties when a Design is open, results in the Design not updating to the new Active Unit System as expected.
853026	Some Axial safety factors are inconsistent when toggling from MD to TVD.
854215	StressCheck crashes under particular data conditions.
854254	Well Schematic - Fluid option no longer displays distinctly and no longer has precedence over the Cement option.
854479	Out of Memory error when attempting to display Von Mises plot.

### **Release 5000.1.8**

There were no StressCheck issues fixed for this release.

### **Release 5000.1.7**

The following issues were either fixed or have workarounds for the 5000.1.7 release.

Defect No.	Description
829500	Different results when DLS Overrides and Wellpath Editor DLS are equal.
832318	Allow user to launch Catalog Editor while applying Catalog Editor import token.
833335	Cannot export Designs to StressCheck files with double quotes in the name.
833336	Incorrect Poisson's absolute maximum allowable value.
833939	Save button does not become active after deleting a row in an input spreadsheet.
834023	When planning a U-shaped well, it was noticed that the Pore, Fracture & MW Plot was giving an incorrect result.

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Defect No.	Description
834024	StressCheck Design export—transfer file can fail to receive the .XML file extension.

### **Release 5000.1.6**

The following issues were either fixed or have workarounds for the 5000.1.5.1 release (includes fixes from the 5000.1.5.1 patch release).

Defect No.	Description
819187	StressCheck fails to launch/display no valid license message with expired bitlock/node-locked license file.
820942	SC crashes with no error because an empty custom load has been left active when the design was closed.
829489	Burst/Collapse plots partially displayed and incorrect properties dialog boxes don't allow access to data selection dialog box.
819671	StressCheck Normalized Minimum Safety Factor plot does not match values. (Fixed in 5000.1.5.1)
821779	StressCheck displays unsupported Section Type error and prevents Save. (Fixed in 5000.1.5.1)
822144	Triaxial Safety Factor Plot displays normalized safety factors by design, however the toggle button to display absolute safety factors is enabled. (Fixed in 5000.1.5.1)

### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of StressCheck software.

Defect No.	Description
729224	Wall Plot Composer - change Wall Plot Composer menu item names to be consistent with Plot drop-down names
729247	Wall Plot Composer - remove ability to delete wall plot objects with Edit > Delete Row command
730994	Design Limits Plot - only one section of multi-section strings prints
730996	Von Mises Equivalent Stress Plot - only one section of multi-section strings prints
741615	Convert Depth - keyboard input of the decimal point not accepted
741927	Classic Well Schematic - the schematic image can overlap into the title bar area
751255	Design Limit Plot - unexpected X and Y graph scale units

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Defect No.	Description
775752	Design Limits Plot - re-scales and changes the X and Y ranges
789064	Von Mises Equivalent Stress Plot - unexpected X and Y graph scale units
798125	Incorrect Maximum Anticipated Surface Pressure (MASP) Calculation with Two Production Liners
812111	Inconsistent behavior of unit conversion dialog box in StressCheck
812117	Unit conversion dialog box - incorrect values display after selecting the Cancel button.
812126	Cannot delete the last tab in a StressCheck template.
813157	Wall Plot Composer - Refreshing issue when switching from a StressCheck design tab to the Wall Plot tab
813988	Wellbore > General dialog box - some static fields are not long enough to display the 'usft' unit label
816359	Spikes appear in Triaxial Safety Factors view due to incorrect Minimum Safety Factors.
817326	Wall Plot Composer - unit not shown on X & Y axis for all Design plots.

### **Release 5000.1.4**

The following issues were either fixed or have workarounds for the 5000.1.2 release.

Defect No.	Description
772809	Modify StressCheck template to allow selecting pore and frac tables in read-only mode.
810192	Invalid argument while opening a design created in StressCheck 2003.16.1.X.
810193	Frac Margin of Error becoming read-only.
810194	Curves missing in Triaxial Safety Factors for a specific pipe.
810410	Memory leak associated with safety factor calculations.
810430	StressCheck crashes while importing wellpath in a tab-delimited document.
811170	On Temperature Derivation Help topic, indicate how temperature derivation is used.

### **Release 5000.1.3**

There were no additional StressCheck issues fixed for this release.

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## **Release 5000.1.2**

The following issues were either fixed or have workarounds for the 5000.1.2 release.

Defect No.	Description
796019	Problem with the Axial Force Apparent w/Bending calculation for the negative neutral point depth row in Triaxial Results.
796897	String Section data in some older SCK files can become corrupted after saving to EDM.
797343	Tool passage report "force required to pass" in a scenario where it is not applicable.
797976	Problem with the Axial Force Apparent w/Bending calculation for the negative neutral point depth row in Triaxial Results.
797978	String Section data in some older SCK files can become corrupted after saving to EDM.
797979	Tool passage report "force required to pass" in a scenario where it is not applicable.

## **Release 5000.1.1**

The following issues were either fixed or have workarounds for the 5000.1.1 release.

Defect No.	Description
762571	StressCheck Permeable Zones Issue
775741	The default value for MW for the next hole section for DrillAhead. Burst load case is incorrect.
775742	The default value for MW for the next hole section for DrillAhead. Collapse load case is incorrect.
775743	MMS report field can be overwritten as indicated in the help, but when the report is printed the report is regenerated to give default values for certain fields.
775753	The default value for max mud weight for gas kick load case should change according to the influx depth value.
775971	Changing mud weight in Casing Scheme doesn't automatically change the default values for mud weights in external pressure profile such as "Fluid Gradients with pore pressure" for both burst and Collapse load cases.
784533	License Failure Message - Update the version number in the title bar to 5000.1.0.0
786273	All Depth-related Plot Views - Vertical axis depth label does not change when toggling from MD mode to TVD mode.

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Defect No.	Description
787667	Difference in SF results observed if the well schematic or other plots are toggled from MD to TVD.
787915	Uncaught Java Exception when opening a Design, mentioning convertYTrueToGridNorth, followed by a crash.
788403	StressCheck checks out an EDM license when other EDT apps already have a license checked out.

### **Release 5000.1.0**

The following issues were either fixed or have workarounds for the 5000.1.0 release.

Defect No.	Description
720091	A second pipe catalog with same Properties as the API Casing/Tubing catalog does not appear as expected in the Import from Catalog dialog box.
750190	Need to have a global inventory (no editable by Engineer in the Business Unit except EPTG Engineers with the right access. This include pipe inventory or pipe catalog, as wells as grades and associated tables (material, deration).
754023	Cannot change grades when the first four symbols are the same, i.e. C-110_IMP cannot be changed to C-110.
754067	File Import (SCK file) does not respect EDM security
755499	Pressure test = Pressure test Axial Safety factor in 16.1.1.(2) does not match 2000. Max dogleg is not applied in calculations.
756244	The triaxial results still does not match the issue is at below TOC depth. Apparently 2000 is correct. In 2000 there is a discontinuity at 1948 in axial load for 20" surface casing
756355	A vertical well in StressCheck 2000 software does not apply the maximum dog leg that version 2003.16.1 applies. Once max dogleg is removed, SF matches between the StressCheck 2000 and 2003.16.1.1 software versions.
756651	Difference in Lowest axial safety factor reported between StressCheck software version 2000 and 2003.16.1
756663	After import SCK file it shows that "Shut in" is checked to be use in Collapse Calculation and "Evacuate" is checked for burst calculation
756984	The addition of an extra row in survey editor causes all min. safety factors to not match between builds
757903	Incorrect default temperature profile in 16.1 for lost return with mud drop scenario
758299	StressCheck 2000 software version vertical well is shown as a deviated well in version 2003.16.1. Once the wellpath definition is the same in both versions, the results match.

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Defect No.	Description
760856	Pipe with wall thickness other than 87.5% are imported with the wall thickness field blank
762289	EDM 2003.16.1.4 software Custom Loads Pressure Issue - Save as
764307	Copy and paste from Excel to the Material Table
764309	System Template export function failed
764887	WELLPLAN software User Defined WorkSpace VS StressCheck software User Defined Template
766440	Save As of the Design crashes the application.
766929	Imported special pipe from catalog is not honored in StressCheck software
768241	Datum Shifts - Slant Well Behavior - Design incorrectly opens at a new datum although a warning correctly tells the user that the Design can be opened at the original datum only.
770535	Licensing - EDT software Licensing does not take advantage of the functionality that will warn users that their license is set to expire in x days
775238	Differences in Min Safety Factors
780524	Inconsistency of Triaxial Graphs and results
781055	Connection table: Connection safety factor only reports the lowest safety factor in tension while the String summary table reports the absolute lowest safety factor (from tension and compression).
781893	Application does not refresh imported special connections in connection pick list. User has to refresh the views to make available recently imported special connection
781895	StressCheck software does not refresh results while changing tubular properties
783023	Save As is very slow in StressCheck software

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## **StressCheck Known Issues**

The following StressCheck known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13.1**

There are no additional StressCheck known issues for this release.

### **Release 5000.1.13**

There are no additional StressCheck known issues for this release.

### **Release 5000.1.12**

The following StressCheck known issues were reported for the 5000.1.12.0 release.

Defect No.	Description
914151	Non applicable special connections are allowed to casing design.
922753	Different values are reported for axial and tri-axial safety factor while switching MD/TVD.

### **Release 5000.1.11**

The following StressCheck known issues were reported for the 5000.1.11.0 release.

Defect No.	Description
882569	Suspect values for tool free passage length with large slack off and pick up values in initial conditions.
883310	Axial Loads w and wo/bending inconsistency
884083	Problems with Geological Column in Wallplots across EDT applications, multiply formation columns from more than one design showing in StressCheck Wallplot Geo Column.
907934	Corruption of StressCheck Casing scheme data when changes made in Design Casing Editor in Compass.
908993	The path to the file containing the MMS Report is no longer valid when there is not a C: drive available.

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### **Release 5000.1.10**

The following StressCheck known issue was reported for the 5000.1.10 release.

Defect No.	Description
875362	Tabular results of Min safety factor table (depth of interest) change slightly while revisiting views.
870333	Integration - StressCheck does not recognize Open Hole section created in Well Cost.

### **Release 5000.1.9**

The following is a StressCheck known issue for the 5000.1.9 release.

Defect No.	Description
855071	Minimum Safety Factors - In some cases, the minimum axial safety factors interpolated for inserted rows may not be the best representative minimum at that given depth.

### **Release 5000.1.8**

There were no additional StressCheck known issues for this release.

### **Release 5000.1.7**

The following are StressCheck known issues for the 5000.1.7 release.

Defect No.	Description
831086	StressCheck Collapse Load (full/partial evac) changes significantly with mud depth change.
834385	StressCheck Detailed report creation failure "Cropping".

### **Release 5000.1.6**

The following were the StressCheck known issues for the 5000.1.6 release.

Defect No.	Description
829500	Different results when the DLS Overrides and Wellpath Editor DLS are equal

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Defect No.	Description
831086	StressCheck Collapse Load (full/partial evac) changes significantly with mud depth change

### **Release 5000.1.5**

The following are StressCheck known issues for the 5000.1.5 release.

Defect No.	Description
802420	Casings, liners and tie-backs are re-sorted (in the wrong order) in the StressCheck application when surveys are changed / replaced in COMPASS software.
809961	Stresscheck Error - Currently selected Design Datum is different than the datum used to store data in version 2003.1.21.04
812133	The service load profile in the axial loads plot doesn't seem to be following the correct trends.
812134	User can modify tab information even if they are locked.
813596	StressCheck is reporting different results on the detailed and summary pages of specific data set
816537	StressCheck Design takes too long to save when doing a Save As.

### **Release 5000.1.2 through 5000.1.4**

There were no additional StressCheck known issues for these releases.

### **Release 5000.1.1**

The following are StressCheck known issues for the 5000.1.1 release (build 1937).

Defect No.	Description
730994	Design Limits Plot: Only one section of multi-section strings is printed.
730996	Von Mises Equivalent Stress Plot: Only one section of multi-section strings is printed.
741615	Convert Depth: Keyboard input of the decimal point is not accepted.
741620	Convert Units: The unit "ft" is displayed three times in the dialog box.
747744	Internationalization: Correct delimiter is not immediately displayed in the plot and spreadsheet views. Possible refresh issue.

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Defect No.	Description
748933	Casing and Tubing Scheme spreadsheet: Inputs into the Shoe Depth, TOC Depth, and MW at Shoe fields are not “accepted” until the user switches tabs.
751255	Ellipse graph tries to change graph scales. Right click for properties, the graph scale ranges are in wrong units (both X & Y axes are in “ft” instead of kip and psi).
753096	Copy casing assemblies or tubing assemblies from a source Design to a target “Opened Design” does not display the pasted assemblies unless the targeted Design is closed and reopened.
757716	Pressure test load calculation is incorrect when applying plug option.
769221	Well Schematic does not generate until the user deliberately re-selects it from the menu when running StressCheck software on Microsoft Vista.
773271	Differences in one of the depth in Collapse Load - Temperature Tab.
775752	Design Limits plot re-scales and changes the X and Y ranges.
775965	The default value for “Pore Pressure @ Lost Returns Depth” in “Lost Returns with Mud Drop” collapse load case does not refresh in certain scenarios when the lost returns depth is changed.
776902	The border size in the Well Schematic shows twice the size of the previous release in the CasingSeat and StressCheck applications.
778537	Print Preview of Wall Plot does not display XY plot correctly.
778928	When you freeze a line, then change the current string, the legend and plot still shows the line.
781646	Wall Plot Composer template does not update when changing current string.
783811	Citrix - Intermittent “Memory could not be read” error.

### Release 5000.1.0

The following were the StressCheck known issues for the 5000.1.0 release.

Defect No.	Description
730994	Design Limits Plot: Only one section of multi-section strings is printed.
730996	Von Mises Equivalent Stress Plot: Only one section of multi-section strings is printed.
741615	Convert Depth: Keyboard input of the decimal point is not accepted.
741620	Convert Units: The unit “ft” is displayed three times in the dialog box.

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Defect No.	Description
747744	Internationalization: Correct delimiter is not immediately displayed in the plot and spreadsheet views. Possible refresh issue.
748933	Casing and Tubing Scheme spreadsheet: Inputs into the Shoe Depth, TOC Depth, and MW at Shoe fields are not “accepted” until the user switches tabs.
751255	Ellipse graph tries to change graph scales. Right click for properties, the graph scale ranges are in wrong units (both X & Y axes are in “ft” instead of kip and psi).
753096	Copy casing assemblies or tubing assemblies from a source Design to a target “Opened Design” does not display the pasted assemblies unless the targeted Design is closed and reopened.
757716	Pressure test load calculation is incorrect when applying plug option.
762571	StressCheck software Permeable Zones issue where Burst design load line does not appear to be correct.
769221	Well Schematic does not generate until the user deliberately re-selects it from the menu when running StressCheck software on Microsoft Vista.
772411	Additional filters are required while exporting importing tubular properties/pipe and connections.
773271	Differences in one of the depth in Collapse Load - Temperature Tab.
775741	The default value for MW for the next hole section for DrillAhead Burst load case is incorrect.
775742	The default value for MW for the next hole section for DrillAhead Collapse load case is incorrect.
775743	MMS report field can be overwritten as indicated in the help, but when the report is printed the report is regenerated to give default values for certain fields.
775752	Design Limits plot re-scales and changes the X and Y ranges.
775753	The default value for max mud weight for gas kick load case should change according to the influx depth value.
775965	The default value for “Pore Pressure @ Lost Returns Depth” in “Lost Returns with Mud Drop” collapse load case does not refresh in certain scenarios when the lost returns depth is changed.
775971	Changing mud weight in Casing Scheme does not automatically change the default values for mud weights in external pressure profile such as “Fluid Gradients with Pore pressure” for burst and collapse load cases.
776902	The border size in the Well Schematic shows twice the size of the previous release in the CasingSeat and StressCheck applications.
778248	When entering too large a pipe OD, an error message for Gas Kick Profile is properly received. However, the error message is still received after deactivating the Gas Kick Profile option.
778359	Defaults design factors not recognized in Design Parameters.

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Defect No.	Description
778537	Print Preview of Wall Plot does not display XY plot correctly.
778928	When you freeze a line, then change the current string, the legend and plot still shows the line.
781646	Wall Plot Composer template does not update when changing current string.
783811	Citrix - Intermittent "Memory could not be read" error

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## WELLCAT™ Software

### [Enhancements](#)

### [Fixed Issues](#)

### [Known Issues](#)

The 5000.1.13.1 release adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent releases. Enhancements and bug fixes were made to the WELLCAT software for the 5000.1.13.1 release.

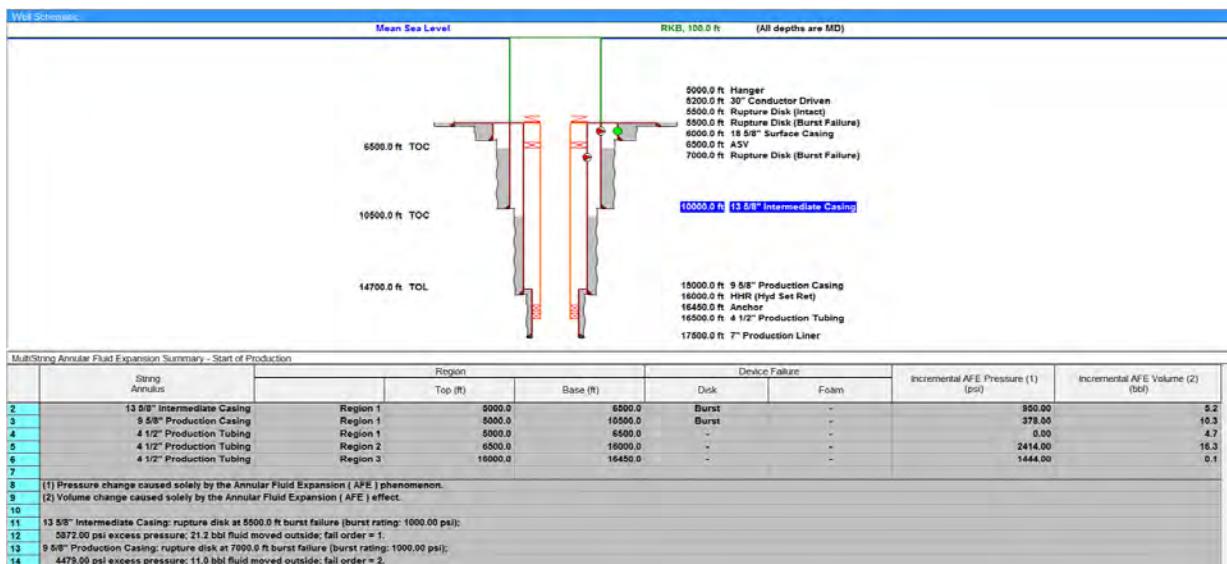
## WELLCAT Enhancements and New Functionality

The WELLCAT enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13.1

#### Rupture Disk

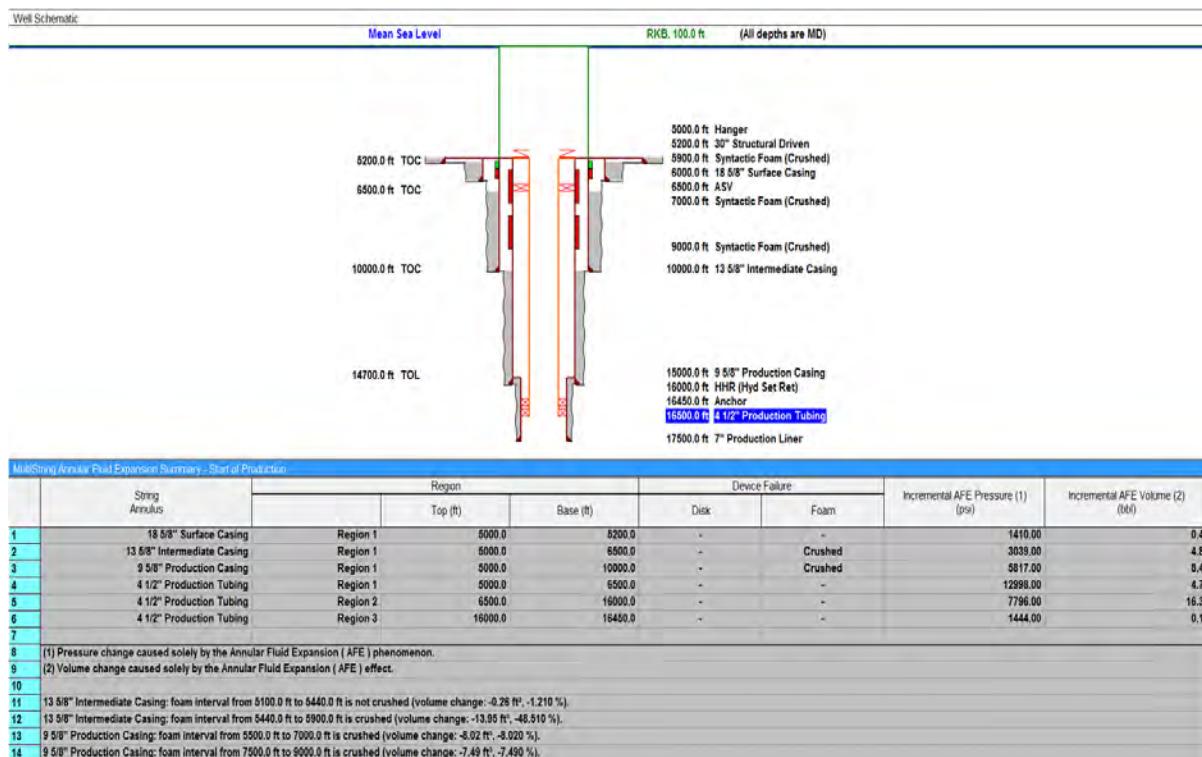
Casing rupture disk is a well-known AFE mitigation technique. It is used by operators as part of the well casing integrity design. It enables the failure of a casing system in a preferential way such that the disk collapses inwards (or bursts outwards) to avoid collapsing (or bursting) the casing system, ensuring well integrity.



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### Syntactic, Crushable Foam

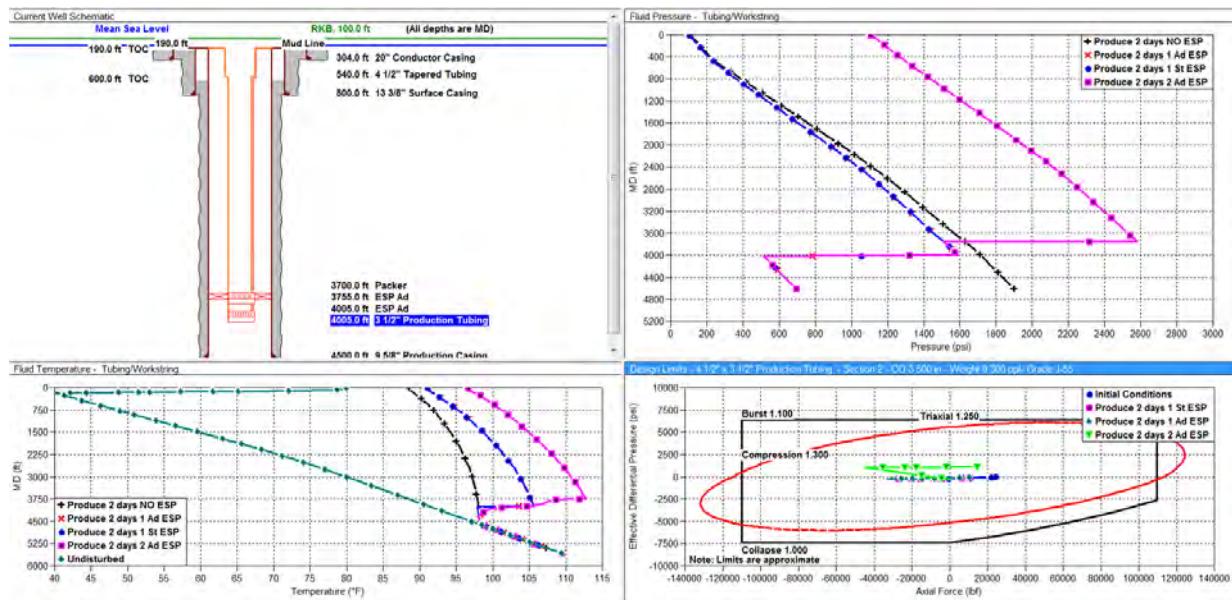
The syntactic foam contains small, hollow glass spheres filled with air (or nitrogen) at atmospheric pressure. In an annular fluid expansion scenario the incremental pressure added to the initial annulus hydrostatic fluid pressure column can exceed the foam crushing pressure. In such scenario, the hollow spheres collapse to help prevent further pressure increase due to annular fluid expansion. Syntactic foam is designed to crush at a specified pressure and temperature creating additional volume for fluid expansion.



### Electric Submersible Pump (ESP)

Extreme to ultra-deep HPHT reservoirs present the challenges of having low natural flow ability, the use of sub-mudline system such as electric submersible pumps (ESP) would help to increase production rates and also increase well recovery volumes. WELLCAT software includes Production Thermal flow simulation with ESP. Production thermal flow simulation with ESP can be specified based on basic or advance ESP definition. The thermal flow simulation results of wellbore temperature and pressure can be applied to tubing stress analysis as well as multistring trap annular pressure and wellhead movement analysis.

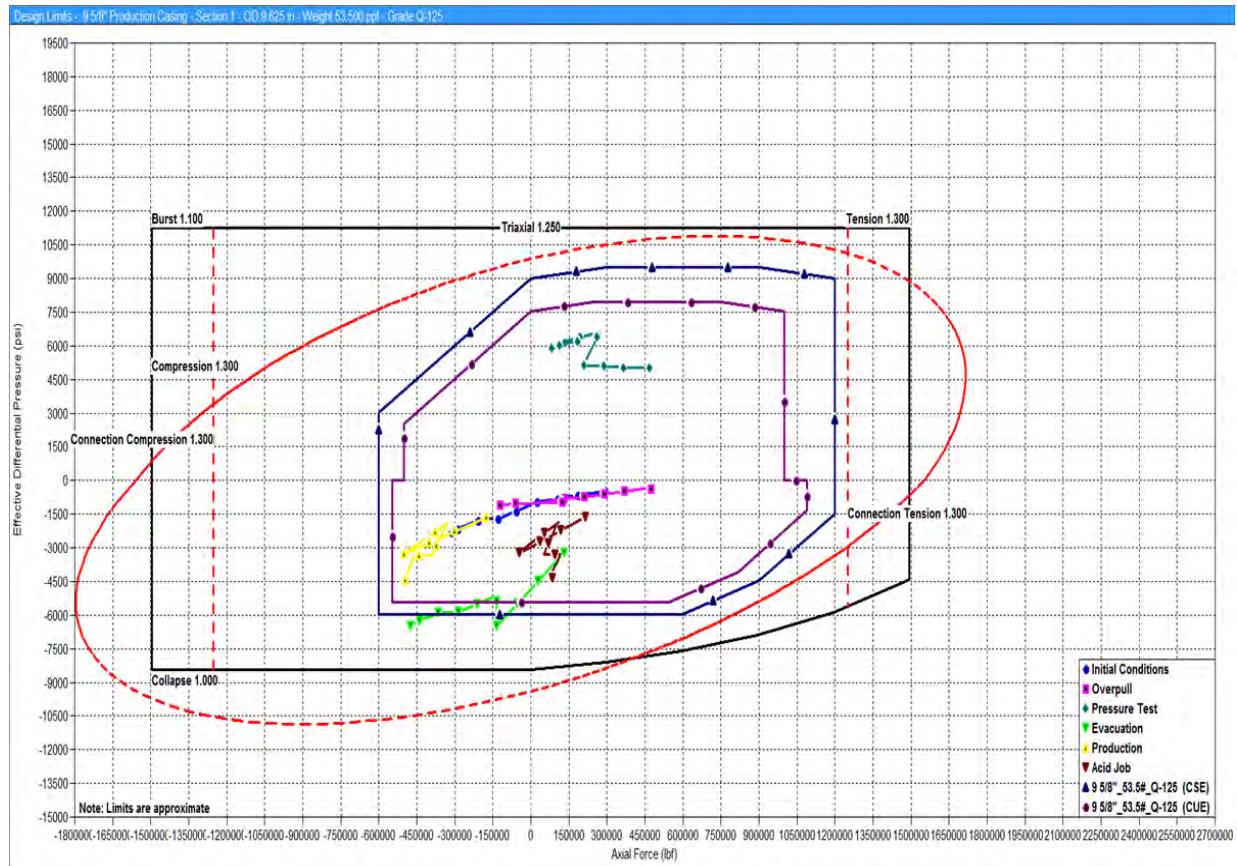
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### ISO Connection Envelope Design Factors

Burst and Collapse design factors can now be applied to connection strength envelope (CSE) rating data points to generate connection user envelope (CUE) in design limit plot.

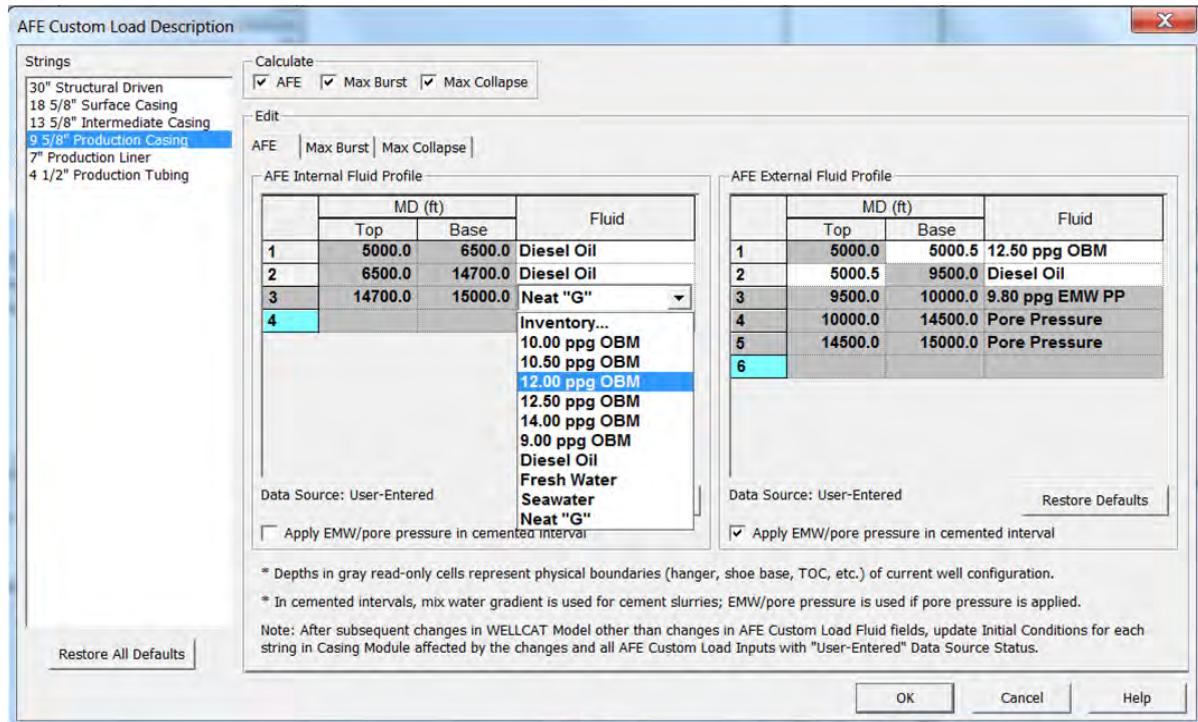
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### Flexibility of AFE Custom Loads Analysis

WELLCAT allows in multistring module custom load analysis, row insertion within existing top/base fluid/cement intervals and allow editing default fluid and mix water gradient in un-cemented and cemented intervals to apply instead other fluid gradients. EMW/pore pressure can be applied in cemented intervals.

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### Minimum Safety Factor Table per String Section per load

A new summary table of minimum safety factors per string section per load in WELLCAT Casing, Tubing and Multistring modules.

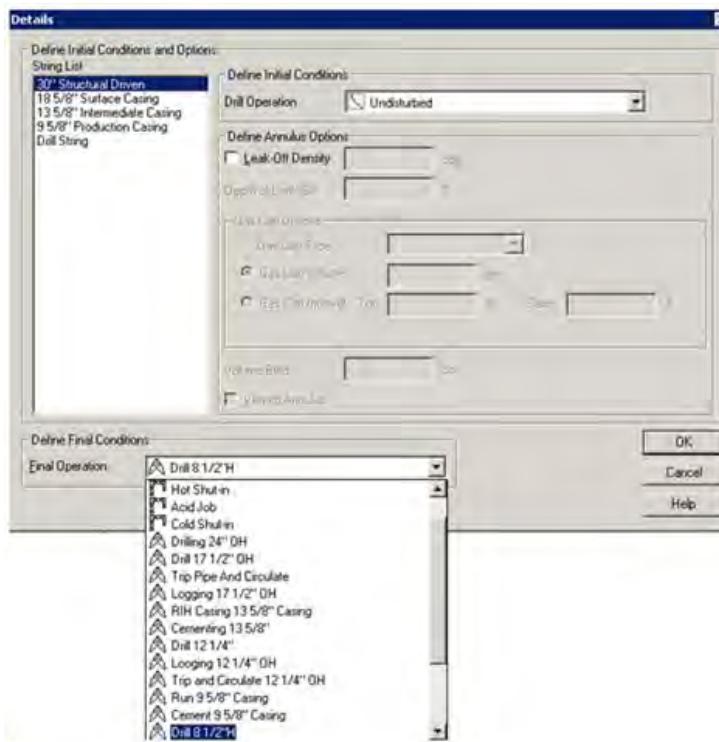
Load Minimum Safety Factors - Casing in 1 Min. x 4" Production Tubing									
String Section	MD Interval (ft)	Pipe OD/Weight/Grade	Connection Name/OD/Grade	Minimum Absolute Safety Factor					Axial
				Triaxial	Envelope	Burst	Collapse		
1	0.1-889.9	7", 29,000 pcf, N-80	<N/A>	2,422	N/A	2,343	100+	3,099	
2	9000.1-12799.9	4", 9,500 pcf, N-80	<N/A>	DN 1.116"	N/A	3,233	8,751	M 1.240"	
3									
4	Safety factor < Design factor								
5									
6	Burst and Axial Flags								
7	Default = Pipe Body, L = Connection Leak, B = Connection Burst, F = Connection Fracture, J = Connection Jump-out, Y = Connection Yield, C = Connection								
8									
9	Axial Flags								
10	Default = Tension, M = Compression								
11									
12	Triaxial Flags								
13	Default = Inner Wall and Positive Bending OR No Bending, D = Outer wall safety factor, N = Negative Bending								
14									
15	Envelope Flags								
16	EB = Envelope Burst, EC = Envelope Collapse, N/A = no ISO Connection								

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## Release 5000.1.13

### *Drilling AFE (Annular Fluid Expansion)*

The annular fluid expansion analysis in the MultiString module has been modified to support temperature and pressure of drilling operations as final conditions. All drill operation types are supported.



### *Support WCST Collapse Loads*

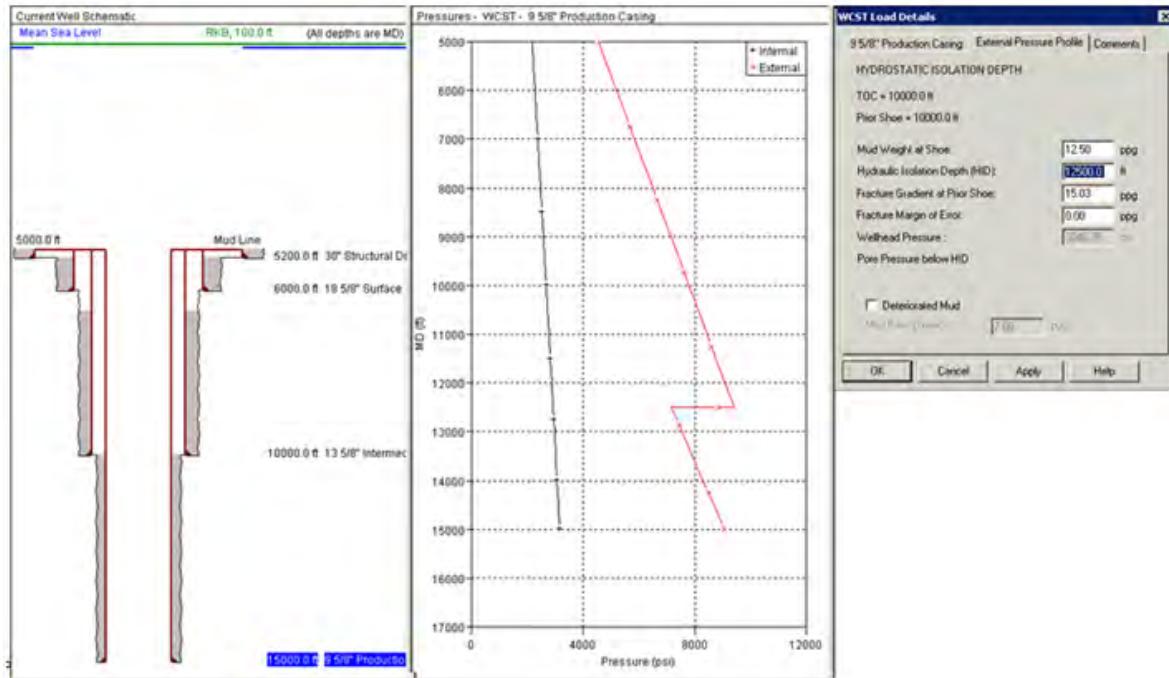
Version 5000.1.13.1 provides a new casing load case, *WCST Collapse*, which supports scenarios used in the BSEE WCST (Well Containment Screening Tool), L1L2 Rev. 1.18 instructions document. A new external pressure profile, *Hydrostatic Isolation Depth*, supports this new load. The new collapse load must be checked to obtain a permit to drill in Gulf of Mexico deepwater scenarios.

The new load consists of the following:

- **Internal Pressure:** Seawater gradient from sea level to the mudline plus minimum hydrocarbon gradient based on the standard fluid gradient criteria given in the WCST instructions.

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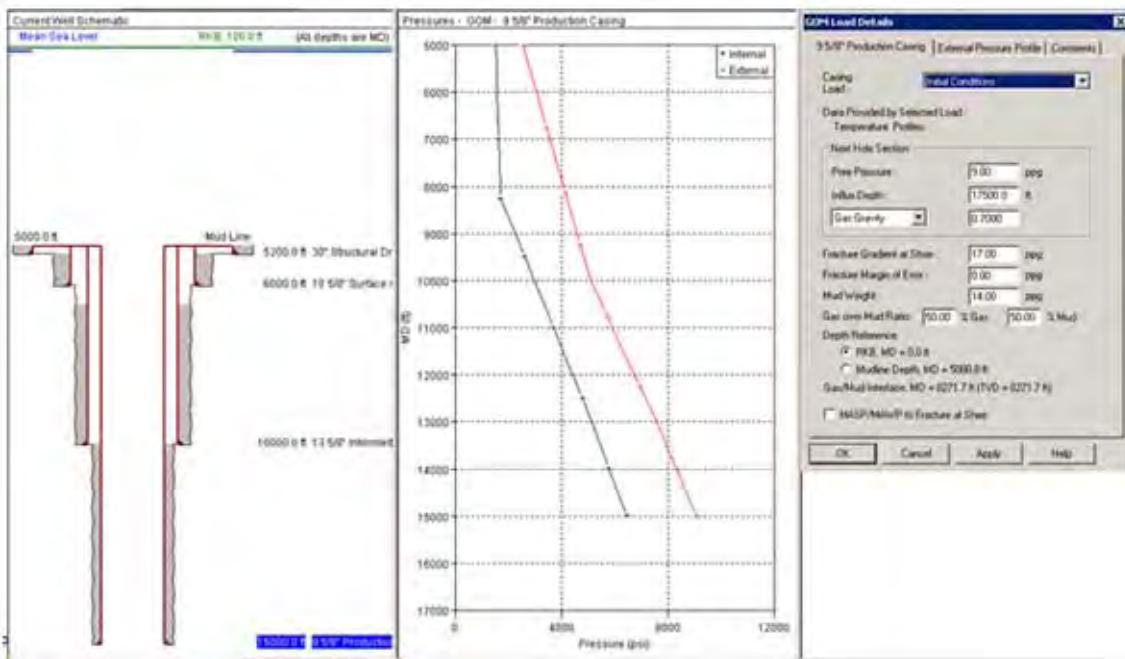
- **External Pressure:** Fracture gradient at previous casing shoe plus setting mud weight to hydraulic isolation depth (HID). Local pore pressure below depth of HID. HID is effectively the assumed top of good cement where hydraulic isolation is achieved in the annulus.



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### Gas Over Mud (MASP/MAWP) Internal Pressure Profile

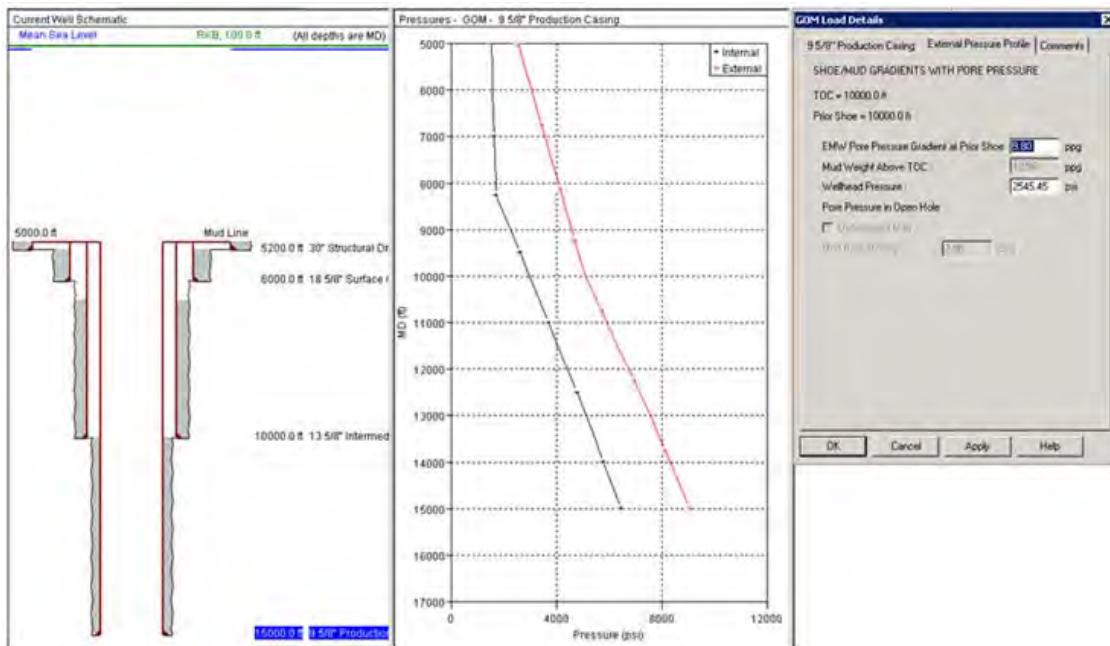
The Gas Over Mud load case illustrates the ratio of well control gas to drilling mud. This is an internal pressure profile that is enabled for all casing strings associated to a next open hole section.



### Shoe/Mud Gradients with Pore Pressure External Pressure Profile

The Shoe/Mud Gradients with Pore Pressure external pressure profile combines a mud weight pressure column if top of cement is at shallower than prior shoe setting depth, a pressure discontinuity with an equivalent mud weight pore pressure gradient at the prior shoe setting depth, and pore pressure in the open hole. This profile supports two scenarios:

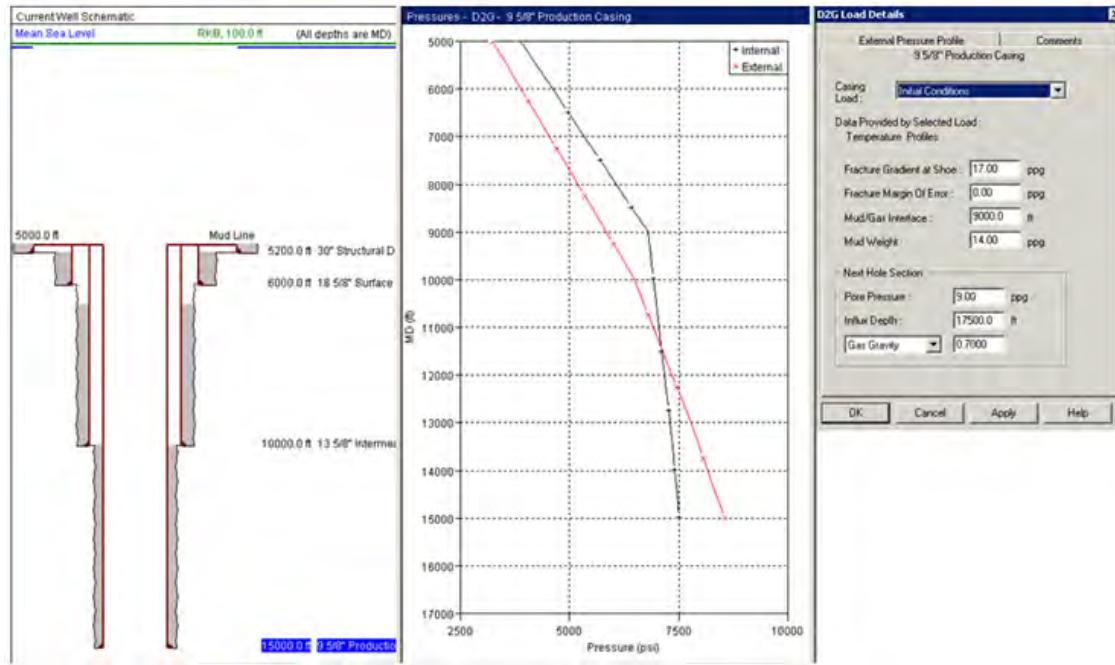
- Top of cement (TOC) below prior shoe depth
- TOC above prior shoe depth

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### *Displacement to Gas Mud/Gas Interface - EOS*

The Displacement to Gas load case now includes the mud/gas depth interface and models gas gravity by applying a modified Redlich-Kwong (RK) cubic equation of state (EOS).

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### Version Compatibility

WELLCAT supports the use of .WCD files for migrating well design data between software versions. WELLCAT version 5000.1.13 includes some important changes in the engine input and output data and includes some new load cases that were not part of previous releases. These changes mean that .WCD files created by previous versions of WELLCAT will be fully supported for import to version 5000.1.13, but those .WCD files created by version 5000.1.13 will not be supported for older WELLCAT versions. To open a new .WCD file in an older version of WELLCAT, remove any new loads before saving your .WCD file.

### Vallourec 2014 Connections Catalog

Catalogs used to populate the WELLCAT Casing and Tubing Spreadsheet and the Connection Spreadsheet now include the Vallourec Casing and Tubing catalogs and the new Vallourec Connections catalogs (2014 updates).

Ref. Number	Name	Manufacturer	Model	Nominal Diameter	Nominal Weight	Grade	OD [in]	ID [in]	Grade	Coupling Length	Outer dia [in]	Inner dia [in]	Total Weight (Coupling + Coupling)	Type	Seal Type	Tension Joint Strength	Compressive Joint Strength	Internal Yield Pressure	Maximum Bend Torque (lb/in)	Maximum Bend (°)	Conf. ID	Material Number	Locked
1. Vallourec VAM 20	VAM 20	Vallourec	VAM 20	5	P-110	67.250	4.254	4.110	0.0	18.0 TC	PM	560.0	560.0	0.75	200.0	100.0	100.0	100.0	42.00				
2. Vallourec VAM 21	VAM 21	Vallourec	VAM 21	5	P-110	67.250	4.254	4.110	0.0	18.0 TC	PM	560.0	560.0	0.75	400.0	200.0	200.0	200.0	42.00				
3. Vallourec VAM 25	VAM 25	Vallourec	VAM 25	5	P-110	67.250	4.254	4.110	0.0	18.0 TC	PM	560.0	560.0	0.75	400.0	200.0	200.0	200.0	42.00				
4. Vallourec VAM 25	VAM 25	Vallourec	VAM 25	6	P-110	67.260	4.254	4.110	0.0	18.0 TC	PM	650.0	650.0	0.76	350.0	175.0	175.0	175.0	42.00				
5. Vallourec VAM 21	VAM 21	Vallourec	VAM 21	5	R-95	68.386	4.126	4.086	0.0	21.40 TC	PM	595.1	595.1	0.70	1210.0	605.0	605.0	605.0	42.00				
6. Vallourec VAM 21	VAM 21	Vallourec	VAM 21	5	P-110	68.386	4.126	4.110	0.0	21.40 TC	PM	695.1	695.1	0.81	1210.0	620.0	620.0	620.0	42.00				
7. Vallourec VAM 21	VAM 21	Vallourec	VAM 21	5	L-95	68.390	4.126	4.086	0.0	21.40 TC	PM	595.1	595.1	0.81	1210.0	620.0	620.0	620.0	42.00				
8. Vallourec VAM 21	VAM 21	Vallourec	VAM 21	5	O-95	68.390	4.126	4.110	0.0	21.40 TC	PM	695.1	695.1	0.81	1210.0	620.0	620.0	620.0	42.00				
9. Vallourec VAM 25	VAM 25	Vallourec	VAM 25	6	O-95	69.096	4.096	4.056	0.0	22.30 TC	PM	640.0	640.0	0.85	1325.0	640.0	640.0	640.0	42.00				
10. Vallourec VAM 25	VAM 25	Vallourec	VAM 25	6	O-115	65.096	4.080	4.040	0.0	22.30 TC	PM	640.0	640.0	1.01	1325.0	640.0	640.0	640.0	42.00				
11. Vallourec VAM TOP Gaging Connectors	VAM TOP Gaging Connectors	Vallourec	VAM TOP Gaging Connectors	1/8/2014																			
12. Vallourec VAM TOP HC Connectors	VAM TOP HC Connectors	Vallourec	VAM TOP HC Connectors	1/8/2014																			
13. Vallourec VAM TOP HT Connectors	VAM TOP HT Connectors	Vallourec	VAM TOP HT Connectors	1/8/2014																			
14. Vallourec VAM TOP Tubing Connectors	VAM TOP Tubing Connectors	Vallourec	VAM TOP Tubing Connectors	1/8/2014																			

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## Release 5000.1.12

### *Annular Fluid Expansion and U-Tube Effect*

The WELLCAT MultiString module annular fluid expansion trap annular pressure calculations is enhanced with release 5000.1.12 to enable a well design engineer to specify, in addition to current ideal gas option, Nitrogen or other noble gases (Helium, Argon, Neon) presence in annuli, applying real gas equation of state formulation, the location of a gas volume in the annuli and the U-Tube pressure calculations of a gas volume (gasified spacers) from its initial annulus location to the hanger depth.

Results presentation when you view the MultiString Annular Fluid Expansion Summary includes regions' top and base depth columns, gas cap mass at in situ conditions, and pressure changes due to U-Tube.

MultiString Annular Fluid Expansion Summary						
	String Annulus	Region			Incremental AFE Pressure (1)	Incremental AFE Volume (2)
			Top (ft)	Base (ft)		
1	7" Production Tu	Region 1(3)(4)	5000.0	15000.0	4728.00	7.7
2						
3	<b>(1) Pressure change caused solely by the Annular Fluid Expansion ( AFE ) phenomenon.</b>					
4	<b>(2) Volume change caused solely by the Annular Fluid Expansion ( AFE ) effect.</b>					
5	<b>(3) 437.80 (psi) U-tube pressure change for Region 1 of 7" Production Tubing</b>					
6	<b>(4) 196.10 (lbm) gas cap mass for Region 1 of 7" Production Tubing</b>					

### *Updated Well Schematic*

Several enhancements were made to the well schematic implementation to more accurately visualize a well design (particularly when viewing tapered strings). Updates to the well schematic include:

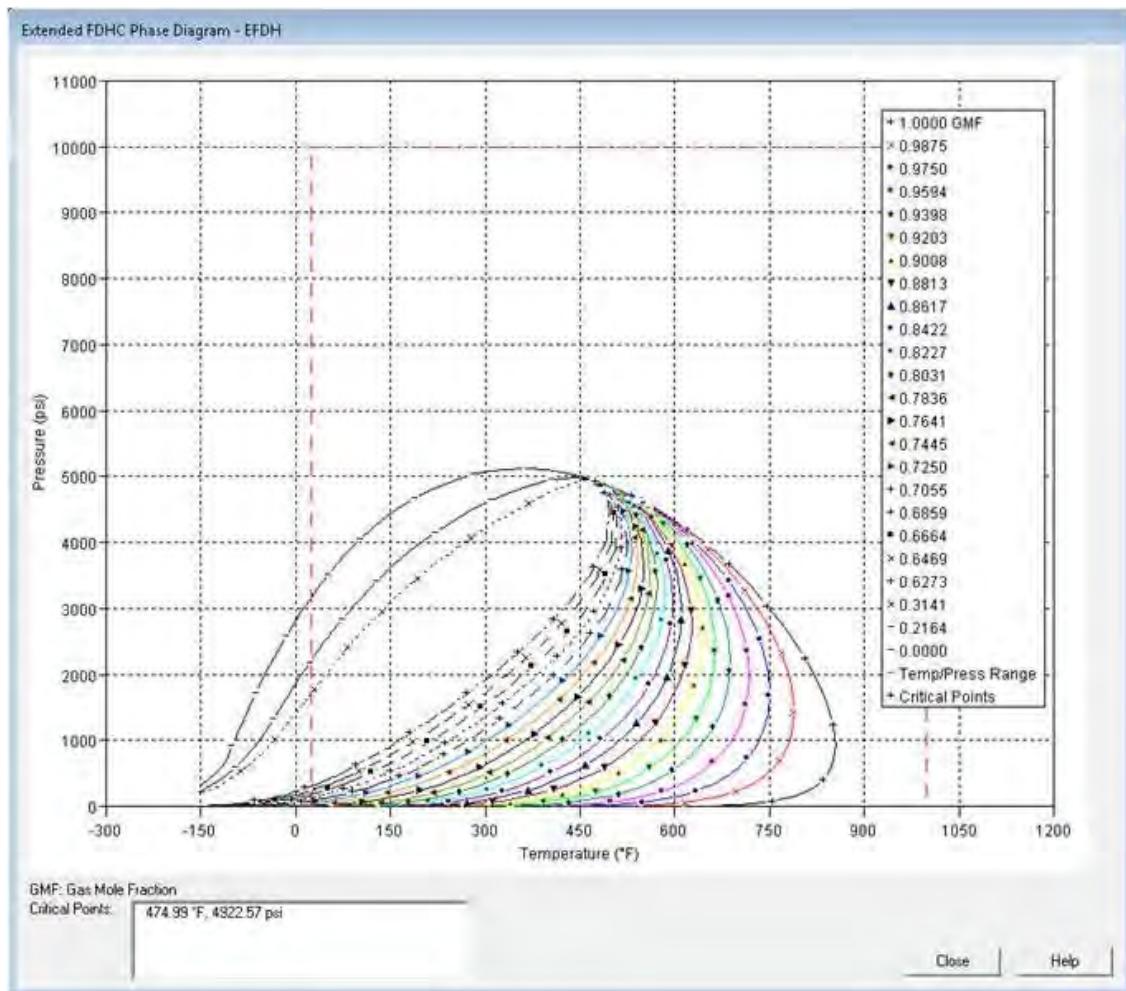
- Changes in legend labels, positioning and spacing
- Depths shown in MD or TVD

### *Updated Cement Model*

Enhancements were made to the cement model to support all viscosities with 6 FANN readings applied to the best fitting parameters of n' and K' of power law fluid rheology model calculations (power law fluid rheology model is used in WELLCAT for cement slurry). The n' and K' and the equivalent PV and YP (also calculated) are reported.

 Go To "What's In This Release?"**Release 5000.1.11*****Enhanced File-Defined Hydrocarbons in Fluids Inventory***

Hydrocarbon fluid thermodynamic properties file definitions used in the WELLCAT software have been extended. It includes temperature and pressure conditions hydrocarbon fluids thermodynamic properties for fluid liquid phase and vapor phase at standard conditions and non-standard conditions; also the properties of the fluid at different pressure and temperature conditions around the phase change boundary and the required data range to fit the expected well flowing and pressured conditions, phase envelope pressure and temperature pairs at different gas mole fractions, extending the capabilities of the WELLCAT simulations. User could import or export text files from a PVT simulator (e.g., PVT sim) or create a fluid by following the tabular format to specify fluid characteristics. See the Help for more information about using the File-Defined Hydrocarbons Tab or about how to structure fluid characteristics data following the Table-Driven Composition File Format for Enhanced FDHC Fluids.

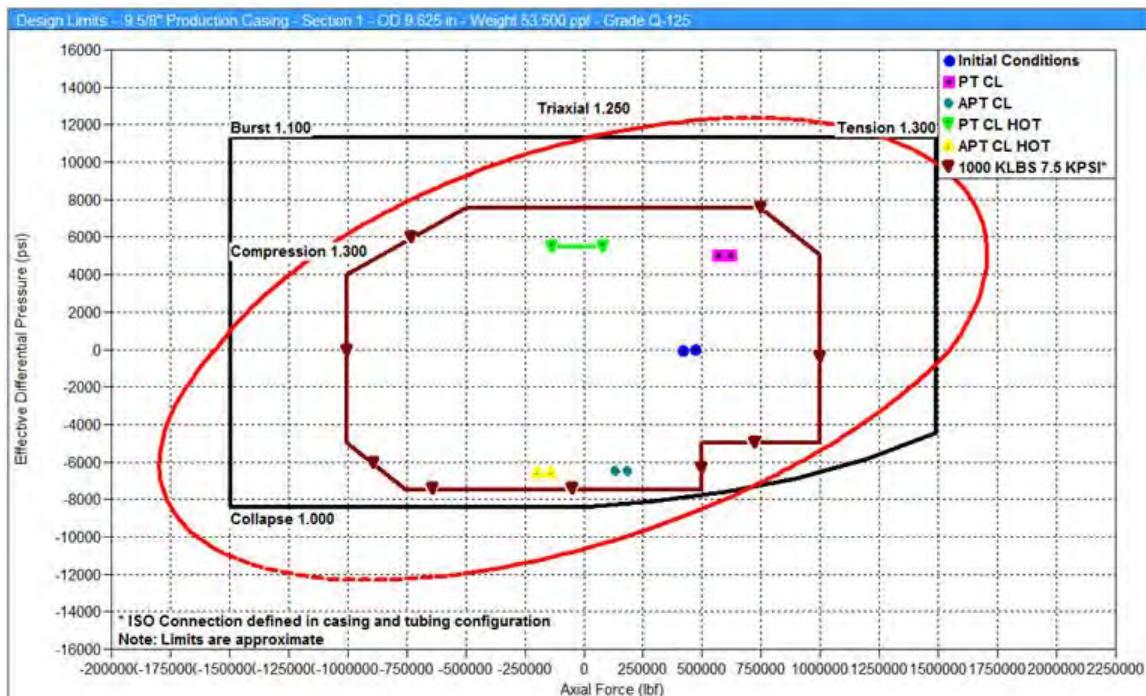
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### Temperature Deration of ISO Connection Envelope

WELLCAT software version 5000.1.11 uses a new approach to derating temperature data for ISO connectors. As of release 5000.1.11, the ISO connector data is derated by the ratio of temperature derated yield to nominal yield for positive pressure increment, and for compression with positive pressure. For tension and negative pressure, the data is derated by the ratio of average collapse pressure calculated for derated yield stress by the nominal average collapse pressure. For compression and negative pressure, the data is derated by the ratio of average collapse pressure at zero axial force calculated for derated yield stress by the nominal average collapse pressure at zero axial force.

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More information about the ISO Connection Rating Envelope and Temperature Deration is available in the WELLCAT Help.



### Other Changes in 5000.1.11

This release includes several minor enhancements, including:

- The maximum pipe weight is higher in this release than in previous versions
- Support for regional settings is enhanced to better support decimal delimiters
- Lower limit on the non-reacting polymer  $n$  value
- Supports any reference flow ID for non-reacting polymer fluids
- The maximum casing load force is higher in this release

### Release 5000.1.10

The maximum number of inputs for the following parameters have been increased to support complex WELLCAT workflow scenarios.

- number of fluids per design has been increased from 40 to 80
- number of drillstring components has been increased from 21 to 51

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- number of multi-string module undisturbed temperature data points has been increased from 40 to 150
- number of string sections with ISO connection has been increased from 5 to 30
- number of Synthetic-Composite fluids in a design has been increased from 4 to 10

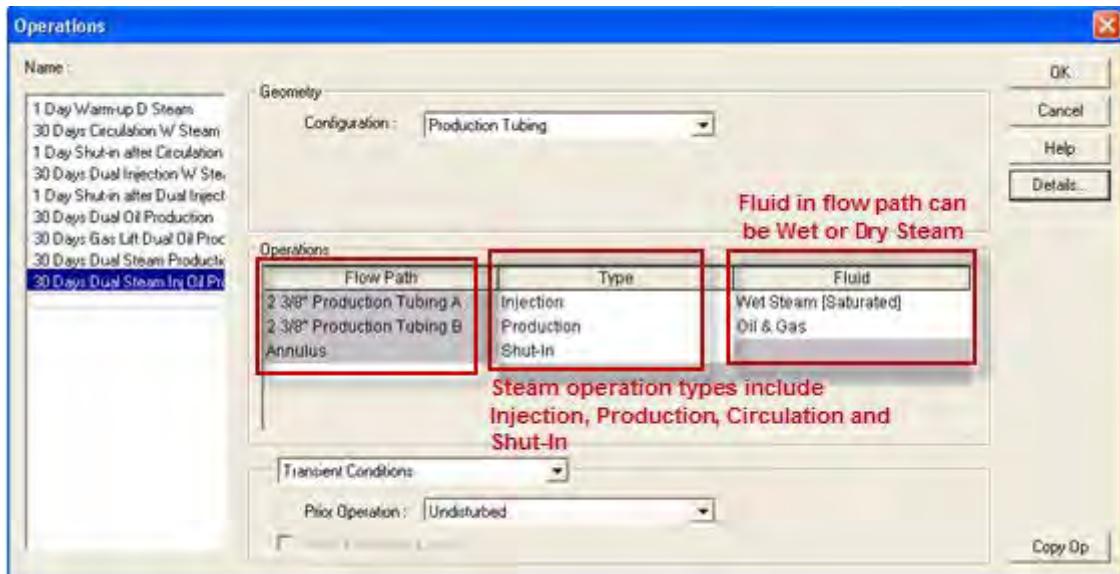
### **Release 5000.1.9**

#### ***Steam Circulation in Dual Tube Completions***

It is now possible to model complex steam operations in a dual tube completion configuration in Prod module. These features require a Steam license. Steam flows can be modeled for circulation, injection or production operations in completion configurations that include packers in varying numbers and positions.

- ***Steam Production:*** Dual tube configurations are supported for any combination of production and shut-in operations in either tubing or in the annulus.
- ***Steam Injection:*** Dual tube configurations are supported for any combination of steam injection and shut-in operations in either tubing or in the annulus.
- ***Steam Circulation:*** Dual tube configurations are supported for any combination of circulation, return and shut-in operations in either tubing or in the annulus.
- ***Combined Operation:*** Dual tube configurations are supported for combined operations where steam is injected through the long production tube and oil is produced through either the short production tube or the annulus (the following Operations dialog box shows a combined steam injection and oil production operation being defined).

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### Modifications For Steam Circulation

The circulation of steam/hot water is commonly used as part of the steam assisted gravity drainage (SAGD) process. This feature requires a Steam license. In order to model this process in the WELLCAT thermal simulator, code was written to do the following:

- Modify pressure, temperature and quality calculations to provide a more general ability to circulate steam.
- A new controlling program was written to detect and model steam circulation in a dual completion configuration from Tubing A to Tubing B or in the reverse direction.
- For the case where Tubing A is of a different length than Tubing B, flow in the annulus containing the two tubes is executed so that there is a flow path between the two tubings.
- Thermal calculations were modified to identify where fluid flows between tubing or between tubing and annulus. For these cases, there is convected heat crossing from one flow stream to another, and this heat transfer must be included in the overall calculations.
- Restrictions were placed on pressure and temperature input to the internal correlations for water-based mud and brines, so that no anomalous results would be generated by extrapolating these correlations beyond their range of applicability. Examination of gas models and oil-based muds showed no problems with extrapolation.

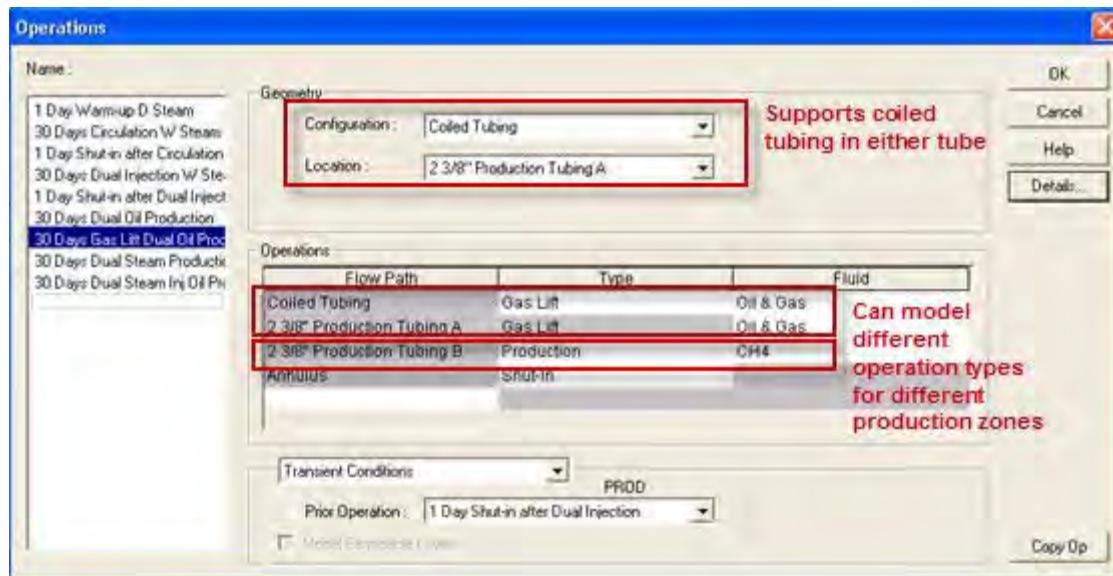
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More information about steam operations in dual completions is in the following Help topics:

- Dual Tube Completions
- Workflow: Dual Completion Steam Circulation
- Dual Tube Configurations, Operations and Flow Paths
- Steam Details Tab
- Steam Injection Model

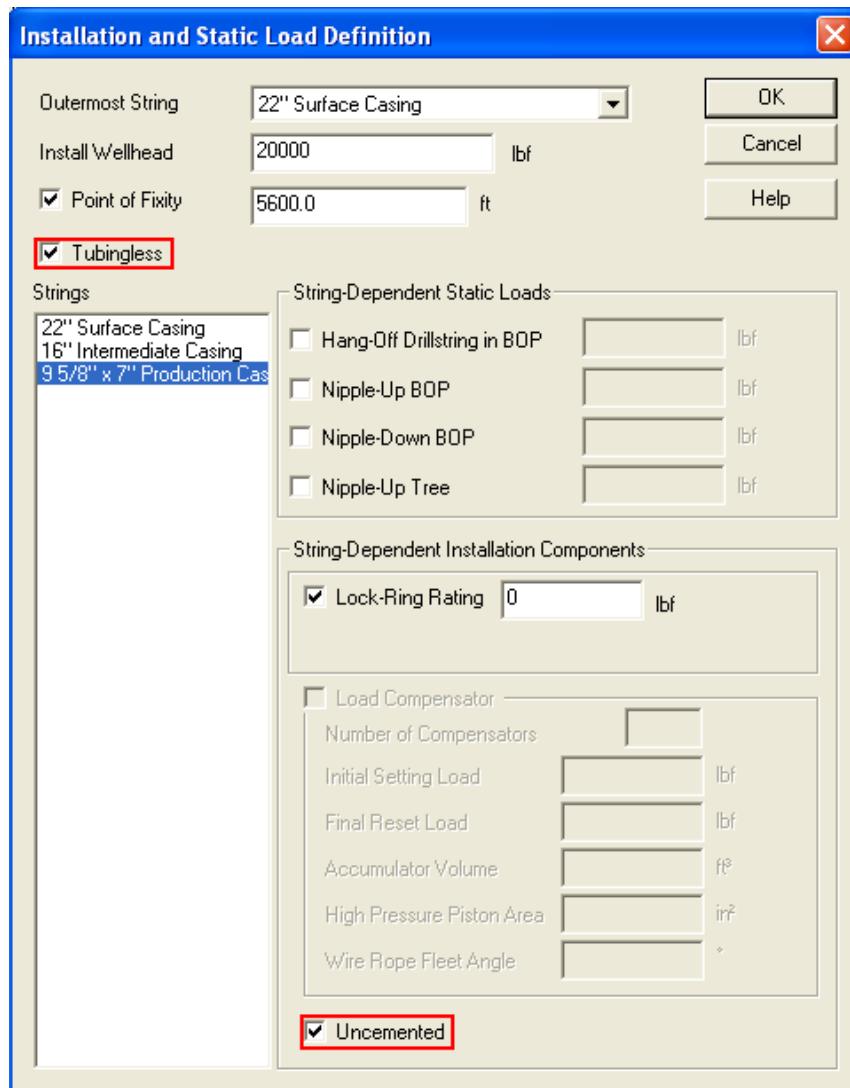
### *Oil Production Operations in Dual Tube Completions*

WELLCAT software can now be used to simulate oil production operations in dual tube completions in Prod module, including those wells that use coiled tubing for gas lift in either the long or short production tube. This feature requires a Steam license.



### *MultiString AFE and WHM Analysis for Tubingless Wells*

WELLCAT software now has the ability to model multistring annular fluid expansion (AFE) and wellhead movement (WHM) for production operations occurring through the casing. This can be used to simulate a "tubingless" well that has not yet been completed with production tubing.

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### *Uncemented Production Casing Wellhead Movement Liftoff Analysis in Tubingless Wells*

WELLCAT software can now perform a wellhead movement progressive failure analysis to identify liftoff potential when a production operation is done through an uncemented production casing in a tubingless configuration. Potential liftoff situations are reported using the menu command Results > Summaries > Multistring Wellhead Movement > Forces. This feature is available only with a Deep Water license.

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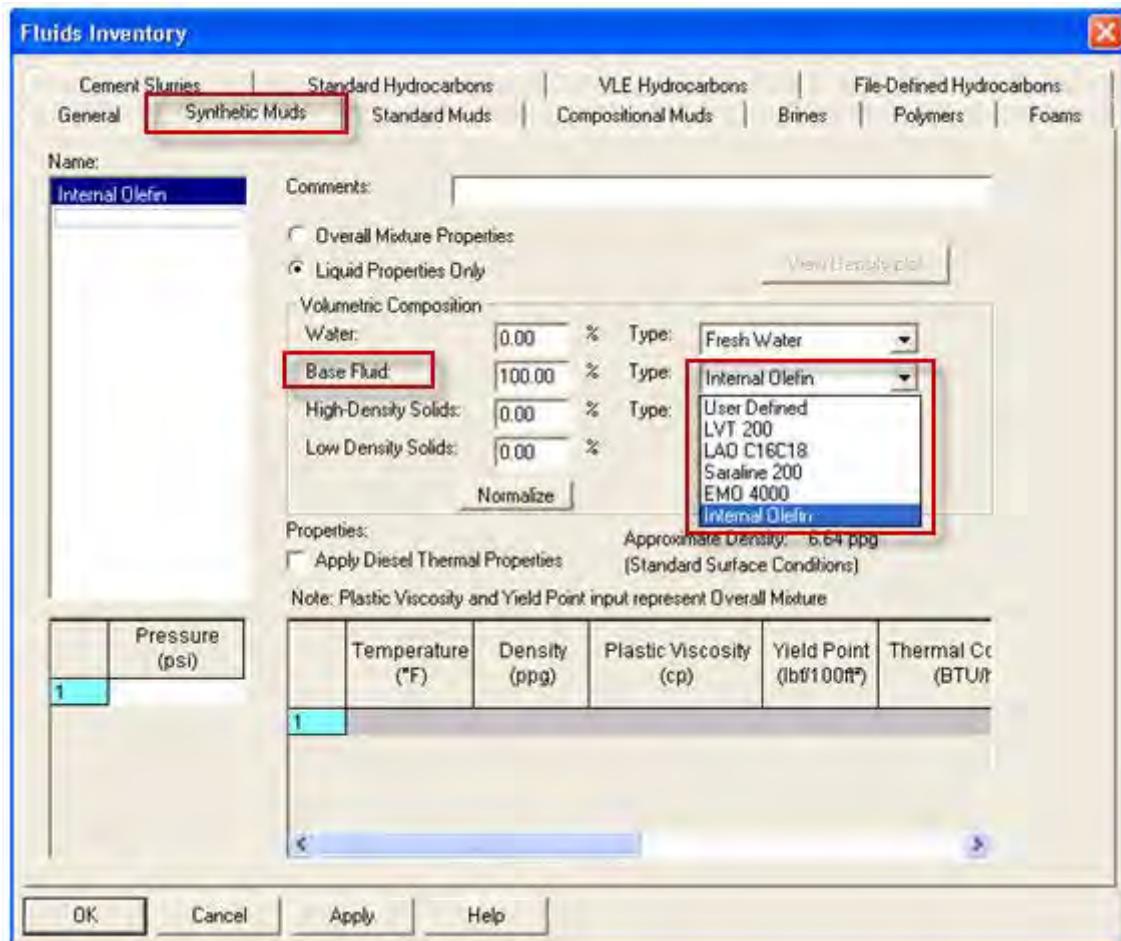
	Load	Axial Load (lbf)					
		30" Conductor Drive	20" Surface Casing	13 3/8" Intermediate	9 5/8" Protective Cas	7" Production Casing	3 1/2" Production Tu
1	Primary Cementing - 20in Surface Casing	-22873	19844	NA	NA	NA	NA
2	Install Wellhead - 20in Surface Casing	-24523	19494	NA	NA	NA	NA
3	Primary Cementing - 13 3/8in Intermediate Casing	-429135	-42419	466526	NA	NA	NA
4	Nipple-Up BOP - 13 3/8in Intermediate Casing	-471854	-49070	465884	NA	NA	NA
5	Drill 12 1/4" Hole - 13 3/8in Intermediate Casing	-266402	-51388	202781	NA	NA	NA
6	Logging 12 1/4" Hole - 13 3/8in Intermediate Casing	-288136	-48354	281461	NA	NA	NA
7	Condition 12 1/4" Hole - 13 3/8in Intermediate Casing	-263144	-51142	259256	NA	NA	NA
8	Run 9 5/8" Casing - 13 3/8in Intermediate Casing	-198193	-47751	190916	NA	NA	NA
9	Cement 9 5/8" Casing - 13 3/8in Intermediate Casing	-270051	-51064	266006	NA	NA	NA
10	Primary Cementing - 9 5/8in Protective Casing	-813450	-129441	319202	568680	NA	NA
11	Drill 8 1/2" Hole - 9 5/8in Protective Casing	-761558	-124919	295788	535661	NA	NA
12	Logging 8 1/2" Hole - 9 5/8in Protective Casing	-848716	-126706	344688	575705	NA	NA
13	Condition 8 1/2" Hole - 9 5/8in Protective Casing	-836858	-126825	339214	570439	NA	NA
14	Cement 7" Casing - 9 5/8in Protective Casing	-811127	-125075	323526	557648	NA	NA
15	Run 7" Casing - 9 5/8in Protective Casing	-894793	-113271	274247	478789	NA	NA
16	Primary Cementing - 7in Production Casing	-1198472	-180359	381604	579932	392257	NA
17	13 3/8" Intermediate Casing Unsealing from 20" Surface C	3333570	1908055	-1020217	-362682	56229	NA
18	Tubingless Production - 7in Production Casing	450693	1108113	-11005	88417	56229	NA

### *Internal Olefin-Based Synthetic Muds*

Synthetic drilling muds are increasingly common in deepwater drilling applications, where drilling mud may be subjected to periods of cold temperatures in deep subsea environments and periods of hot temperatures in deep wellbores. Synthetic muds are preferred for these conditions because they are less sensitive to temperature and pressure variations than water-based or oil-based muds, because they better maintain their rheological properties and because they have lower toxicity than oil-based muds.

Internal olefin based drilling mud is commonly used for deepwater wells in the Gulf of Mexico region, and WELLCAT software now includes internal olefin as a defined base fluid for synthetic muds in drilling operations. Defining synthetic muds (including those based on internal olefin) is done using the Synthetic Muds tab on the Fluids Inventory dialog box.

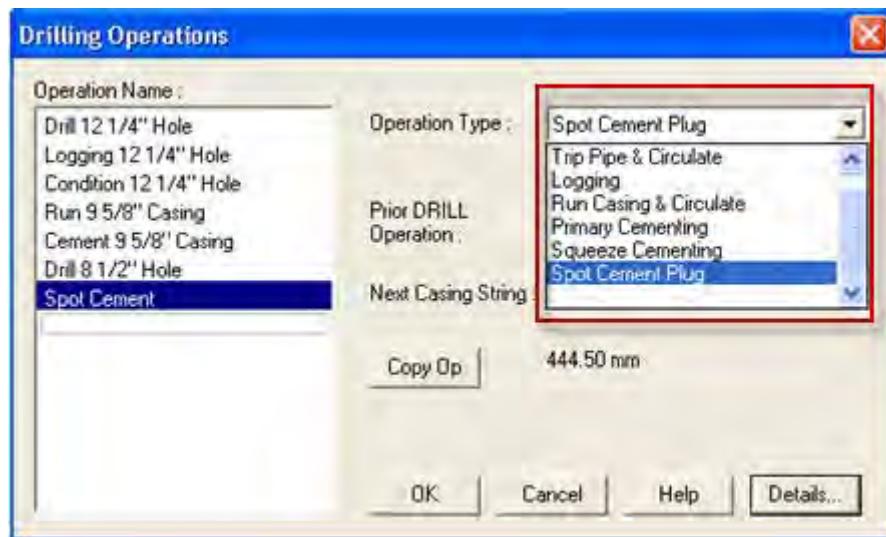
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### Spot Cement Plug in Open Hole

WELLCAT software's ability to generate detailed temperature results for spotting cement plugs has been enhanced in the current release. Significant changes in the cementing features include:

- Spot plugs can now be modeled in open holes while using the Drill module. This allows results to be generated for cementing operations that might occur as part of the well abandonment process.

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### *Length Change Bar Chart*

The Length Change Bar Chart has been enhanced to provide a tabular spreadsheet view of the length change data in Casing, Tube and MultiString modules. You can switch views using the Switch command. Changes have also been made to the Data Selection dialog box, which will behave somewhat differently depending on whether you are viewing results for single or multiple loads:

- For single loads, length changes are reported for all uncemented intervals. At least one length change type must be chosen, or if all length change types are unselected then Buckling, Ballooning, Thermal and Total will be selected by default.
- For multiple loads, a drop-down menu is used to select an interval and radio buttons are used to select length change types. At least one length change type should be selected. Length change types are modeled individually for multiple loads rather than together.

Results and terminology are consistent between Length Change Bar Chart results and Movement Summaries.

Length change reports are enhanced for Casing, Tube, and MultiString modules to provide the tabular view.

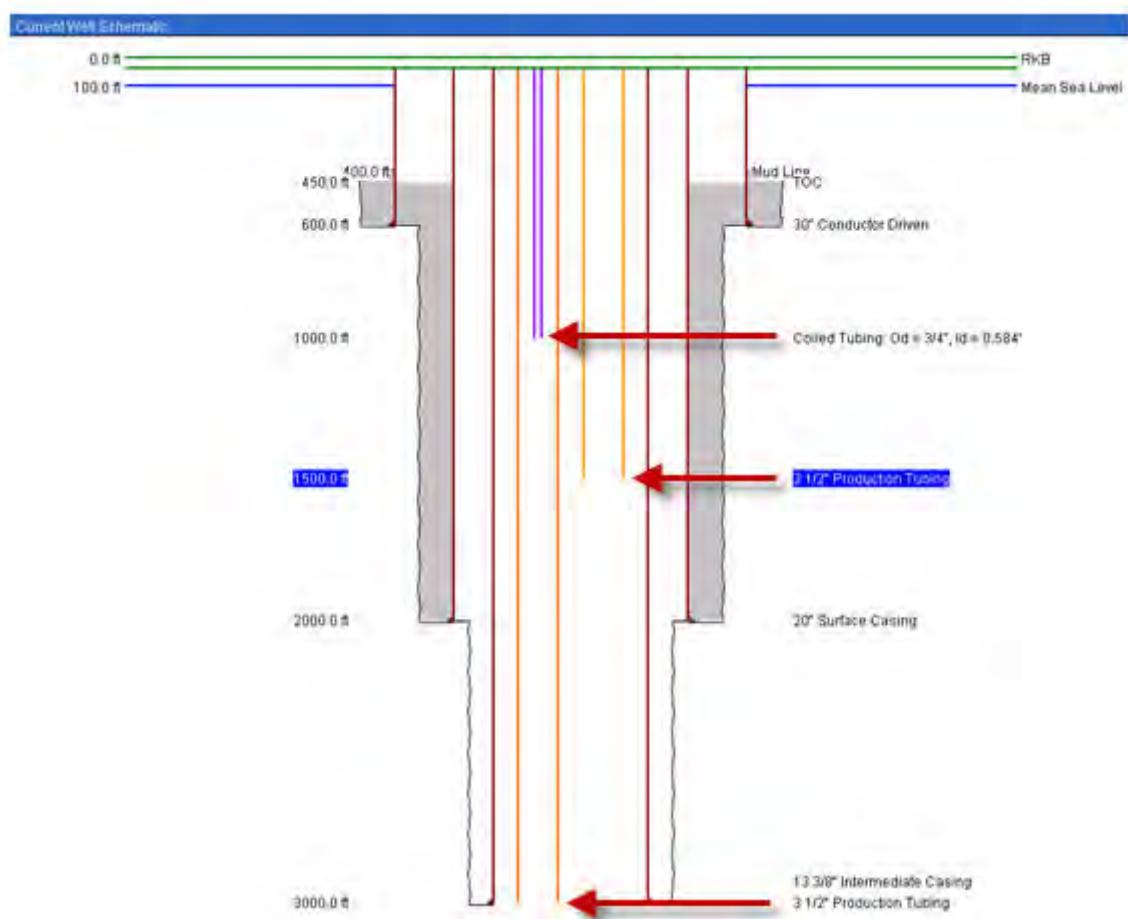
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### Well Schematics

General and Current Well Schematics have been updated to better illustrate design elements. Changes include:

- Current Well Schematic is now available in Prod module.
- Different colors are used for Tubing A (long tube) and Tubing B (short tube) in a dual tube configuration.

Coil tubing is shown in purple. For single tube completion, coil tubing is always shown inside the production tubing and for dual tubing it could be in either production tubing (Tubing A or Tubing B).



### MultiString Wellhead Movement Displacement Summary

Enhancements have been made to improve the MultiString Wellhead Movement Displacement Summary (available in the MultiString module). Changes include:

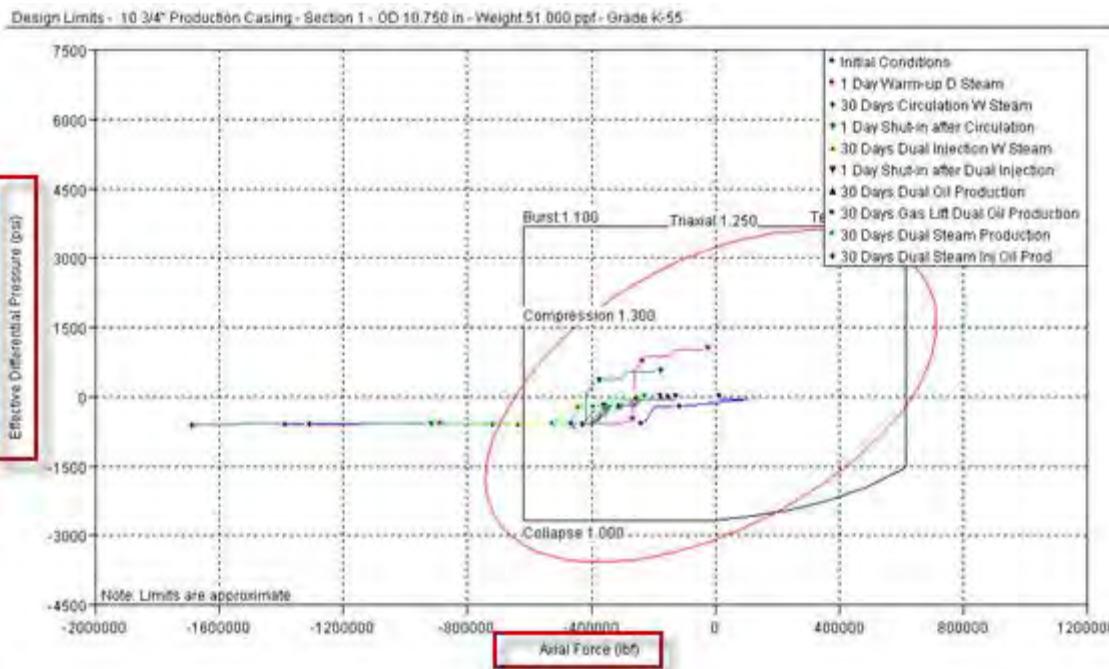
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- For TLP wells, the wellhead movement displacement is now reported for both surface wellhead and mudline wellhead.

### Design Limits Plot

Axis labels have been changed in the Design Limits Plot to more clearly communicate the meaning of graphed data. The Design Limits Plot is available in Casing, Tube and MultiString modules. The label changes are:

- The x-axis is now labeled "Axial Force". Prior versions were labeled "Effective Tension".
- The y-axis is now labeled "Effective Differential Pressure". Prior versions were labeled "Effective Internal Pressure".



### Reports

Changes have been made to input and output reports to support new functionality, especially Prod module input and output reports to support dual completions, steam operations in dual configurations.

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### Other Features

The 5000.1.9.0 release also fixes several issues that were reported in previous versions, and it includes a number of miscellaneous, minor updates to enhance existing features. These miscellaneous updates include:

- Adding the ability to switch between plot and tabular views in the Undisturbed Temperature Plot (all modules).
- Changes in certain labels in WELLCAT software to show heat capacity and thermal conductivity as specific heat capacity with the unit BTU/lbm °F and thermal conductivity with the unit BTU/hft °F, respectively. This change is reflected throughout the application.

### Release 5000.1.8

There were no enhancements to WELLCAT for this release.

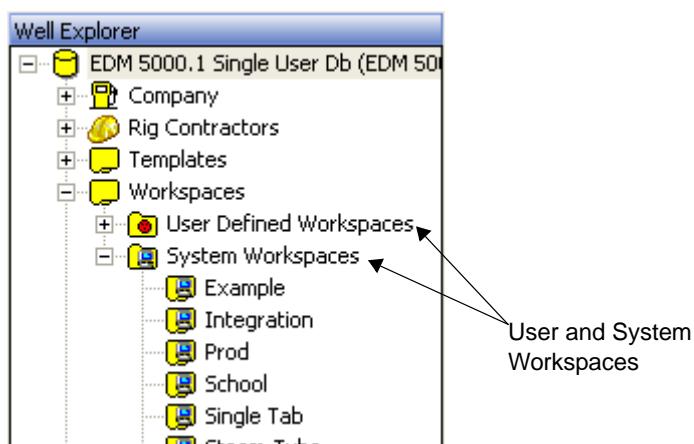
### Release 5000.1.7

There were no enhancements to WELLCAT for this release.

### Release 5000.1.6

#### Workspaces

Workspaces—User and System workspace functionality previously available only in WELLPLAN has been added to WELLCAT, StressCheck, and CasingSeat. A workspace is a layout that defines how you want tabs, panes, arrangement of plots within panes, etc. to appear in the software application.



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Unlike templates, workspaces do not include data, but only the display configurations that control the look and feel of the interface.

System Workspaces are read-only, and are shipped with the EDM database. You may apply them, but not alter them. Additional System workspaces can be imported using the EDM Administration Utility. When you import System workspaces, the existing System workspaces are retained.

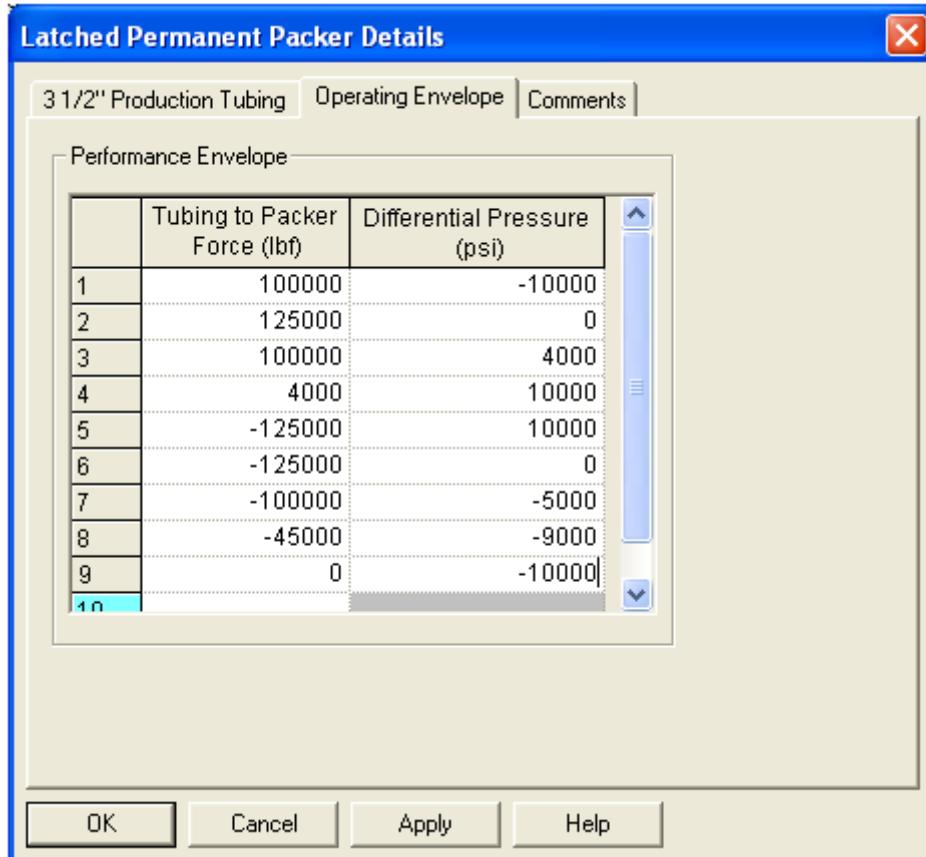
User Workspaces can be created, changed, or deleted at any time. Importing user workspaces is an add/replace function; that is, if the name already exists on the target, the imported workspace will overwrite it.

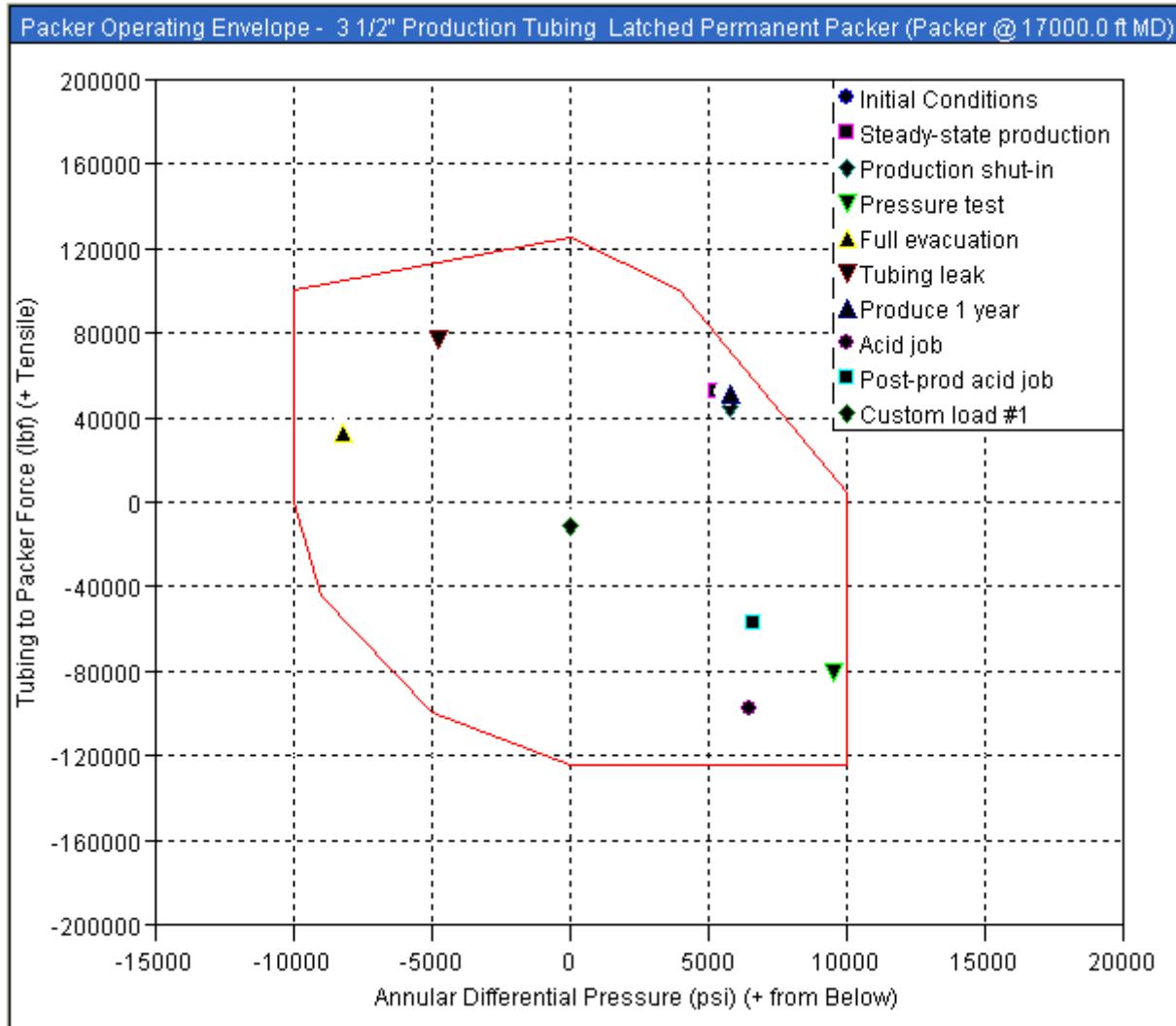
#### *Packer Envelope*

It is now possible to define, apply and save a packer operating envelope using the WELLCAT™ Tube module. The packer operating envelope is defined using the Operating Envelope tab on the Packer Details dialog box. The packer envelope can be viewed using the Packer Operating Envelope plot. Access this plot using Results > Multiple Loads > Packer Operating Envelope.

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Every packer has an operating envelope based on vendor specifications. Packers are rated in terms of annular pressure differential across the packer, and load transfer from the tubing to the packer. In well completion configurations, packers are exposed to temperature and pressure loading conditions. These loading conditions may fall outside of the vendor specified packer operating envelope.



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**Figure 1:** Packer Operating Envelope Example (Packer Details dialog box)

#### *Minimum Safety Factor Table*

The Minimum Safety Factors table displays minimum safety factors as a function of depth for all sections of the currently selected string. For any depth displayed, the burst, collapse, axial, and triaxial safety factors shown represent the minimum

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safety factor for all load cases. To access this table, use Results > Summaries > Minimum Safety Factor. This functionality is available in the Casing, Tube, and MultiString modules.

	String Section	MD (ft)	Pipe (OD/Weight/Grade)	Connection (Name/ OD/ Grade)	Minimum Absolute Safety Factor			
					Triaxial	Burst	Collapse	Axial
24	1	14000.0			1.773 L4	2.199 L3	1.724 L4	4.121 L6
25	1	14125.0			1.770 L4	2.197 L3	1.712 L4	4.183 L6
26	1	14382.5			1.762 L4	2.194 L3	1.691 L4	4.307 L6
27	1	14500.0			1.758 L4	2.192 L3	1.679 L4	4.382 L6
28	1	14699.9			1.751 L4	2.189 L3	1.662 L4	4.496 L6
29	1	14700.1			1.751 L4	2.189 L3	1.662 L4	4.496 L6
30	1	14720.0			1.751 L4	2.189 L3	1.660 L4	4.508 L6
31	1	14750.0			1.750 L4	2.188 L3	1.658 L4	4.528 L6
32	1	14999.9			1.742 L4	2.185 L3	1.637 L4	4.680 L6
33	1	15000.1			1.774 L4	2.185 L3	1.637 L4	5.114 L6
34	1	15500.0			1.759 L4	2.179 L3	1.605 L4	5.428 L6
35	1	15999.9			1.744 L4	2.174 L3	1.574 L4	5.786 L6
36	1	16000.1			D 2.756 L6	100+ L1	6.920 L3	2.984 L4
37	1	16449.9			D 2.826 L6	100+ L1	6.836 L3	3.077 L4
38	1	16450.1			D 4.635 L3	100+ L1	6.575 L3	8.989 L3
39	1	16499.7			D 4.657 L3	100+ L1	6.569 L3	9.085 L3
40	1	16499.9			D 7.407 L2	100+ L1	9.679 L7	12.661 L2
41								
42	L1 = Initial Conditions							
43	L2 = Overpull							
44	L3 = Pressure Test							
45	L4 = Evacuation (Cold)							
46	L6 = Tubing Leak (Cold)							
47	L7 = Production							
48								
49	Burst and Axial Flags							
50	Default = Pipe Body, L = Connection Leak, B = Connection Burst, F = Connection Fracture, J = Connection Jump-out, Y = Connection Yield, C = Connection							
51								
52	Axial Flags							
53	Default = Tension, M = Compression							
54								
55	Triaxial Flags							
56	Default = Inner Wall and Positive Bending OR No Bending, D = Outer wall safety factor, N = Negative Bending, C = ISO Connection							

Figure 2: Minimum Safety Factor Table Example

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### Cementing

To meet the requirements of today's cementing operations, the WELLCAT software can now model more complex cement job descriptions that include multiple spacers and displacement fluids, multiple slurries and rates, as well as elapse shut in time, and heat of hydration rates per slurry.

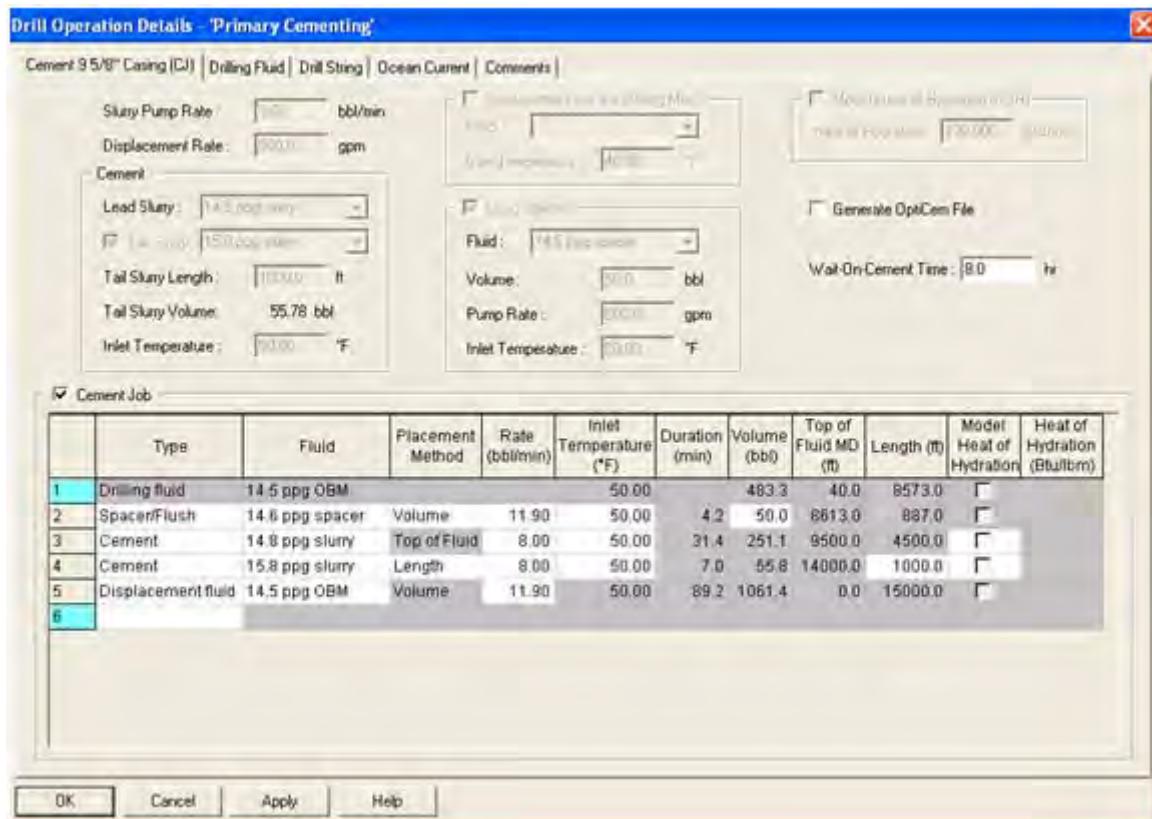


Figure 3: Primary Cementing tab for Complex Cement jobs

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### Steam Circulation

It is now possible to circulate steam (wet or dry) while analyzing production tubing or workstring operations using the Prod module. Both forward and reverse circulation can be modeled. All appropriate single, multiple, and summary circulation results will display results for the steam circulation. A separate license feature (WELLCAT\_STEAM) is required to access this functionality.

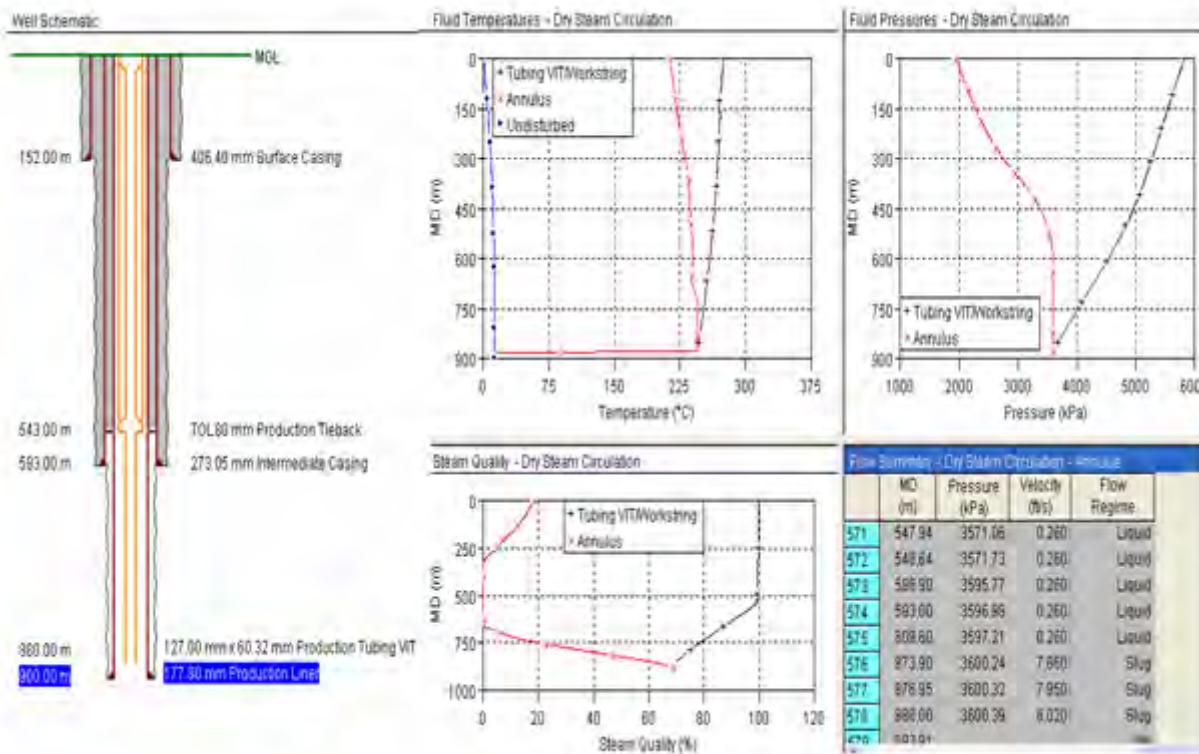


Figure 4: Steam Circulation Results Example

### Release 5000.1.5

In this release, extended support to handle densities, pressures and temperatures from Prod to Casing Custom Loads in Tubing Less Scenarios was added to WELLCAT.

This enhancement supports sharing densities, pressures and temperatures between Prod simulations and Casing Custom Loads for Tubing less monobore and non monobore configurations.

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### **Release 5000.1.4**

There were no enhancements to WELLCAT for this release.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

There were no enhancements to WELLCAT for this release.

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. It also includes enhancements and bug fixes from the 2003.21.1.0 release (a limited release).

#### *Enhanced Tubular Properties Import and Export*

To simplify the process of copying tubular grades and related properties between the EDM database and WELLCAT inventories, a *wizard* has been developed. The *wizard* employs a logical set of rules when importing and exporting grades, pipes, and connections to preserve the integrity between tubular properties inventories and EDM tubular properties and to prevent mismatches.

Specifically, the logic checks for the existence of the Tubular Properties Name, Grade, Material, and Temperature Deration (when exporting Grades from inventories to EDM Tubular Properties, or importing from EDM Tubular Properties to the inventories). If the Name, Grade, Material, and/or Temperature Deration exist, the logic prevents creation of duplicates. If the Name, Grade, Material, and/or Temperature Deration do not exist, the Tubular Properties are created. If the Tubular Properties Name exists, but the Grade, Material, and/or Temperature Deration detailed properties do not match, the Import/Export Wizard opens. Refer to the online help for more information.

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Additionally, WELLCAT software examines other material properties when checking grades (Young's Modulus, UTS, Poisson's Ratio). If there is a mismatch between EDM Tubular Properties and the Design's Tubular Properties Inventory, the WELLCAT software import/export operation may not occur. For example, if two or more grades are exported that use the same material, but the material properties of Young's Modulus, UTS, and/or Poisson's Ratio mismatch, the import/export operation is skipped. For additional information, refer to *Exporting and Importing Grade, Pipe, and Pipe With Connections Between WELLCAT and EDM* in the WELLCAT online help.

For a flowchart of the import and export procedure, refer to "Import/Export Logic for Grades" on page [415](#).

*Enhanced Integration Between StressCheck and WELLCAT Software in the following areas:*

All software included in the Engineer's Desktop Drilling Applications share data stored in the EDM Database. In addition to this shared data, the integration and data sharing between the WELLCAT and StressCheck software has been enhanced in the following areas. For additional details, please refer to the *StressCheck/WELLCAT* section in the online help Table of Contents.

- **Fluids:** The sharing of fluid density is bi-directional between the WELLCAT and StressCheck software. Therefore, a change to fluid density made by either software will be visible in the other software. When a Design created by the StressCheck software is opened using the WELLCAT software, default fluid names and rheological properties are assigned based on the fluid type (mud or cement). (Because the StressCheck software does not support rheological properties or fluid names, this data cannot be shared between the applications.)
- **Cementing and Landing Data:** The following data is shared bi-directionally between WELLCAT and StressCheck software.
  - Mix water density
  - Lead slurry density
  - Tail slurry density
  - Tail slurry length
  - Displacement fluid density
  - Applied surface pressure
  - Float failed check box indicator
  - Pickup force
  - Slackoff force
  - Initial conditions temperature profile data

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- **Design Parameters:** All design parameters are shared bi-directionally between WELLCAT and StressCheck software. The only Design Parameter Analysis Option shared between WELLCAT and StressCheck software is the *Temperature Derivation* option.
- **Loads:** The following is a brief summary of load sharing between the StressCheck and WELLCAT software. For more information, refer to the *Load Integration Between WELLCAT and StressCheck*, or the *Integrated Load Data* topics in the online help.

Sharing of load data is “one-way” only from the StressCheck software to the WELLCAT software. If a Design is created using WELLCAT software, none of the loads created using WELLCAT software are available to StressCheck software.

If a Design is created using StressCheck software, several burst, collapse, and axial loads for casing and tubing created by StressCheck software are shared with WELLCAT software. However, any subsequent changes made to the shared loads by either application will not be reflected in the other application.

The following loads are shared from StressCheck to the WELLCAT software:

***Burst Loads:***

- Displacement to Gas (Casing, Liner)
- Gas Kick Profile (Casing, Liner)
- Lost Returns with Water (Casing, Liner)
- Surface Protection (BOP) (Casing)
- Pressure Test (Casing, Liner, Tubing)

***Collapse Loads:***

- Full/Partial Evacuation (Casing, Liner, Tubing)
- Lost Returns with Mud Drop (Casing, Liner)
- Annular Pressure Test (Tubing)

***Axial Loads:***

- Overpull Force (Casing, Liner, Tubing)
- Running in Hole (Casing, Liner, Tubing)
- Green Cement Pressure Test (Casing, Liner)

***External Pressure Profiles:***

- Mud and Cement Mix Water

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- Permeable Zones
  - Minimum Formation Pore Pressure
  - Above/Below Prior Shoe
  - Pore Pressure with Seawater Gradient
  - Fluid Gradients with Pore Pressure (Although this profile is common to both WELLCAT and StressCheck software, the calculation methodology differs.)
  - Mud and Cement Slurry
  - Mud and Cement Mix-Water
- **Packers:** The sharing of packer data is “one-way” only - from StressCheck software to WELLCAT software, but only the first time you open the design using WELLCAT software. When using StressCheck software, packers are defined by default for tubing strings. This packer will be available to the WELLCAT software the first time a design created using StressCheck software is opened using WELLCAT software. If WELLCAT software was used to enter or edit a packer, that packer information is not available in StressCheck software.
  - **Pipes, and Connections:** Tubular applications (StressCheck and WELLCAT) do not share Pipe/Connection Inventories or Tubular Properties. In order to work on the same Design with both tubular applications, always synchronize inventories using the export to catalog feature. Designs that contain pipes and connections, or partially defined pipe and connection properties with no common tubular properties, that are opened by another tubular application but do not exist in the Design's inventories and EDM database, exhibit certain conditions. Refer to *Sharing Pipes and Connections Across Tubular Applications* in the online help for more information.
  - **“Save As” Complex WELLCAT Well Configurations:** To protect WELLCAT complex Well Configuration designs that include complex string type configurations, VIT (Vacuum Insulated Tubing), Dual Completions, Scab Liner, Tieback to Tieback, Tieback to Casing, Tiebacks on TLP Well Configurations, LIP (Liner Isolation Packer), and ISO Connections, StressCheck software user is limited to “Save As” these Designs. However, the user is allowed to perform modifications and “Save As” these Designs to be valid in StressCheck.

### *DeepWater and Steam License Check Out*

License check-out for DeepWater and Steam functionality was modified. If an available license exists, it will be checked out when the license is required to perform specific functionality. In the past, a license was automatically checked out when the WELLCAT software was opened.

 Go To "What's In This Release?"***Improved, Default, Minimum, and Maximum Values Implemented for Casing Loads***

Improved default values, as well as minimum and maximum input data ranges, were implemented for several data fields associated with four casing loads (Displacement to Gas, Gas Kick, Lost Returns with Water and Lost Return With Mud Drop) available in the Casing module.

When WCD files generated using previous versions of WELLCAT software are opened using WELLCAT software version 5000.1.1:

- User entered values for these loads input in the previous version will be honored.
- New default, minimum, and maximum values will replace the previous defaults used in prior releases.
- Results may change after you recalculate using the new defaults.

**Engineering Enhancements Rolled into 5000.1.1 From the 2003.21.1.0 Release*****VIT Tubing***

It is now possible to define VIT tubing in the new VIT Tubing Pipe Inventory and then use the tubing in the wellbore configuration by selecting it on the Casing and Tubing Configuration Spreadsheet. To model VIT tubing in previous versions of WELLCAT, it was necessary to create a composite string with an OD equivalent to the outside diameter of the VIT tubing, ID equivalent to the inside diameter of the tubing, and weight representative of the overall VIT tubing (outer and inner pipes, plus insulation).

With this release, the definition of VIT has been streamlined. Using the VIT Tubing Pipe Inventory, the proper geometry, weight, and grade for both the inner and outer pipes, as well as the location of the connection in the VIT can be specified. In addition, the overall thermal properties (k-value) can be specified for both tubing and connection(s).

For information on VIT tubing, including analysis assumptions, calculations, and references, please refer to VIT Tubing topic in the online help.

**Notes:**

- VIT can be used as part of a dual tubing configuration for stress analysis in the Tube module.
- VIT Tubing Pipe Inventory - Use the VIT Tubing Inventory spreadsheet to define the available VIT tubing. The VIT tubing is created using the standard pipe and grade inventories. All VIT tubing defined in this spreadsheet can be used as

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part of the tubing defined in the well configuration by selecting it on the Casing and Tubing Configuration Spreadsheet. For more information, refer to the VIT Tubing Pipe Inventory topic in the online help.

- Well Schematic - VIT tubing can be displayed on the Well Schematic. To display the VIT Tubing, click the VIT box on the Well Schematic Properties dialog box.

### *Multiple Hanger Depths*

To improve thermal modeling of subsea well configurations, up to 20 hanger depths can be modeled. Once the proper temperatures have been determined, thermal and flow analysis results are presented in tabular form in reference to each string hanger depth. Further analysis, such as Annular Fluid Expansion Wellhead Movement can be performed. Be aware that multiple hanger depths can be specified for TLP wells, however this will result in the loss of some TLP analysis options because TLP analysis expects one common hanger depth.

### *Casing With Stabilization (Centralizer)*

Buckling represents a string movement resulting from a combination of mechanical forces and pressure induced forces. Because centralizers placed along the string impact the string movement, the position of the string in the wellbore, and therefore the contact points between the string and the wellbore, their placement also impact buckling.

Centralizers impact the analysis in the following ways:

- The weight of the centralizer has been included in the axial force calculations and the contact force calculations.
- The effect of the “springy-ness” of bowed centralizers has been included to increase the contact force in stress calculations, as well as for tubing movement calculations.
- A minimum radial clearance is determined for centralized tubing. This radial clearance is used for buckling calculations for stabilized pipe, including buckling length change and contact force.
- Friction forces may be different for centralizers compared to bare pipe. The user can input a scaling factor (for rigid centralizers only) to modify the nominal friction value for the stabilized pipe intervals.

Centralizers can be manually entered into the Centralizer dialog box, or they can be imported from the Centralizer Catalog. Use the Centralizers dialog box to specify the location of the centralizers. Using the Centralizers dialog box, you can

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define the interval containing centralizers by specifying the start and end distance from the casing shoe depth, and then specify the number of centralizers per joint. It is not necessary to specify each centralizer separately.

#### *Using Prod Operations for Casing Custom Loads*

Production operations can cause loads to the casings. It is now possible to select a Prod load to map temperatures and density/pressure profiles for a Custom Casing Load.

If You Select a Prod Operation:

- The annular fluid content for the casing being analyzed (current string) is based on entries in the Casing and Tubing Configuration Spreadsheet and Annulus Contents Spreadsheet, including any gas intervals, or un-cemented intervals.
  - Cemented intervals will be assumed to be set cement, and the mix-water density will be used.
  - The Annulus Fluid density will be used in un-cemented intervals.
- The internal fluid content for the casing being analyzed is based on:
  - The annular fluid content for the casing inside the casing being analyzed.
  - Cemented intervals will be assumed to be set cement, and the mix-water density will be used.
  - If there is tubing inside the casing being analyzed, the internal contents are based on the Prod load selected.

#### *Hanger Lift Off In Wellhead Movement Analysis*

WELLCAT Wellhead Movement Analysis has been enhanced to account for lock-rings, lift-off analysis, point of fixity, and load compensators. Use the Installation and Static Load Definition dialog box to specify the parameters associated with these items.

#### *Point of Fixity*

This is the depth below which the selected outermost string has zero displacement, and is in full contact with the formation or cement. By default, the point of fixity is assumed to be at the mudline for drive pipe. For other internal strings selected to be the Outermost string, the point of fixity is assumed to be the top-of-cement as indicated on the Casing and Tubing Configuration Spreadsheet.

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Using this option to change the point of fixity, you can quickly evaluate the effect that altering the point of fixity has on wellhead movement load and displacement analysis without recalculating the thermal loads.

Note: If you change the point of fixity, the thermal loads will still reference the original point of fixity (mudline for drive pipe, or TOC for internal strings).

If you have checked the Soil-Interaction Model box on the Calculate Multax dialog box, the point of fixity is not applicable.

#### *Lift-Off*

This option performs a progressive failure analysis. In this analysis, slips with negative contact force between strings are assumed to come apart. When lock-rings are present, a negative value for contact force + lock ring rating is used as the failure criterion (See Lock-Ring Rating). The program finds the worst case negative failure criterion and recalculates the wellbore loads assuming no contact at that point. The process continues until there are no failure points remaining.

For a comprehensive analysis, specify a lock-ring rating for each string as part of the wellhead.

If the Lock-Ring Rating box on the Installation and Static Load Definition dialog box is not checked, this comparison is still performed to report conditions in which the contact forces exceed the lock-ring rating. However, progressive failure analysis will not be done unless the Lift-Off box is checked.

#### *Lock-Ring Rating*

Lock-rings are intended to help keep a slip assembly together. A lock-ring allows negative contact forces within a slip, up to the lock-ring rating limit. Thus, in the progressive failure analysis (see Lift-Off), the contact force + lock-ring rating is the criterion for failure, rather than simply the contact force. Default values for lock-ring rating are zero.

The rating corresponds to the highlighted string in the Strings list on this dialog box. The lock-ring is applied between the selected string, and the next outer string. This field is only enabled when the outer-most string is not selected (highlighted) in the Strings list.

#### *Inner String Cementing*

WELLCAT has been enhanced to allow for cementing operations where a small diameter drillpipe or stringer set-up is used to convey cementing fluids within a large diameter casing. Inner string cementing allows for faster pumping times, and

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potentially smaller pumping displacement volumes down the inner string when compared to pumping down a large diameter casing. Inner string cementing functionality within WELLCAT is intended to predict the temperatures, pressures, and densities of flowing cement during an inner string cementing job of casing and tiebacks. This functionality is not intended to be used to model running casing, or to model inner string cementing for liners or scab liners. Refer to the Inner String Cementing help topic in the online help for more information.

#### *ISO Service Load Safety Factor*

Safety factors are now calculated for ISO connections based on the input load data. ISO connections can be imported directly into the String Sections. If the connection is selected, it is applied to the stress calculations. ISO safety factors are reported when the ISO safety factors are less than the corresponding pipe body triaxial safety factor.

Load envelopes for the ISO connection selected in the String Sections are automatically displayed in the Design Limits plot. Other envelopes can also be displayed on the Design Limits Plot for comparison. See the Design Limits Plot, or ISO Service Load Test Data Dialog help topics in the online help for more information.

#### *Multiple Packer Setting Sequences*

In addition to traditionally setting packers from the deepest to shallowest depth, packers can now be set in any order. Refer to the Packers Dialog help topic for more information.

#### *Hydrostatically Set Packers*

Hydrostatically set packers can now be used in WELLCAT. A hydrostatic set packer uses available well hydrostatic pressure to set it in place. This type of packer is deployed on casing or tubing using regular completion techniques. Once the packer has reached the intended setting depth, a pre-determined tubing or annulus surface pressure is applied to increase the hydrostatic pressure at the packer. As the hydrostatic pressure approaches the setting pressure of the packer, the setting will begin. This process is performed in an un-perforated or isolated liner without any well intervention or tubing plugging devices. Refer to the Packers Dialog help topic for more information.

#### *Synthetic Based Fluids*

Synthetic fluids can now be easily input using the WELLCAT user interface. Refer to the Synthetic Muds Tab help topic for more information.

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Three main definition modes are supported, including overall fluids, user-defined, or default fluid property description. Thermal, solid contents, and rheological properties specific to the fluids can be specified depending on the fluid definition mode selected. Diesel thermal properties can be used instead of fluid thermal properties if these are not available.

The analysis returns the polynomial equation and coefficients which are used by the MultiString AFE analysis.

### **Tips for EDM WELLCAT Users**

Now that WELLCAT is on EDM, you can take advantage of the integration between WELLCAT, and the other Engineer's Desktop (EDT) Drilling Applications based on the EDM platform. EDM is the platform for fully integrated well engineering and data analysis. EDM provides one-time data entry, a system to promote best practices, and an environment for managing and accessing operational knowledge and lessons learned.

#### *Well Explorer*

Current users of other EDT applications will notice the Well Explorer is now part of the WELLCAT user interface. The Well Explorer is used to browse, open, copy, delete, and manage the main data items in the database hierarchy, including Companies, Projects, Sites, Wells, Wellbores, Wells, Designs, Cases, Virtual Folders, Contractors, Catalogs, and Templates. Please refer to Working with Well Explorer for more information.

#### *Creating and Saving a New Design*

1. First of all, you must have a template saved to the database. Perform the following steps to save a template to the database.
  - a. Use **File > Template > Open From File**. Navigate to the location of the template file you want to import, select the file, and click **Open**. Example templates are provided with the software.
  - b. Use **File > Template > Save** to save the template to the database as a User Defined Template.
  - c. Use **File > Close** to close the template.

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2. Create a design. You can use **File > New > Instant Design** or you can create on step-by-step from company to design using **File > New > Company**, then **File > New > Project**, etc.
3. Select the module (Drill, Prod, etc.) you want to use, input data, and to calculate and analyze results as you did in the past with a WCD file. If you are creating a TLP, refer to the Creating a TLP section in this help topic.
4. Now, save the Design. You can use **File > Save > Save to Database** to save the design to the database, or use **File > Save > Save to File** to save to a WCD file. Note that the design must be open in order to save it to a WCD file.

#### *Importing a WCT Template, and Saving it to the EDM Database*

1. Open the *WCT* template file using **File > Template > Open From File**.
2. Select the template using the **Import Template File** dialog box that displays.
3. Save the template as a System template using **Template > Save As System Template**, or as a User-Defined template using **Template > Save As**.
4. The templates will be available for use after they are saved to the database.

#### *Exporting and Saving Designs as WCD Files*

You can export a design as a WCD file if the design is open. If the design is closed, you can export as an xml file, but not as a WCD file. Use **File > Export > WCD File** to export the design as a WCD file. You can also use **File > Save > Save to File** to save as a WCD file. To export as an xml file, right-click the design in the Well Explorer, and select Export.

#### *Working with WCD Files*

You can open a WCD file using **File > Open > Open From File** or **File > Import > WCD File**. Both of these options function in the same way. When you open the WCD file, you can use the WELLCAT modules, and tools to perform your analysis as you have done in the past without saving to the database. Upon completion of your analysis, you can save as a WCD file (external to the database), or to the database. To save to a WCD file, use **File > Save > Save to File**. To save to the database, use **File > Save > Save to Database**.

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### *Creating a TLP*

To create a TLP design, perform the following steps.

1. Initially, create the design as a platform with the appropriate information for water depth, wellhead depth, and air gap.
2. Use the Wellbore > General dialog box and change the Location field to be TLP/Hybrid.
3. Notice that the Wellbore > Offshore dialog box has changed to allow input for a TLP.

### *WELLCAT File Structure*

Now that WELLCAT is on EDM, the data file locations are different from the file locations in previous versions. Please note the following changes

Previous File or Folder Location	WELLCAT 2003.21.1 File and Folder Locations
Client Folder and Files	With the exception of example WCD and template files, all files previously located in the Client folder are now located in <i>Documents and Settings\Your User ID\Local Settings\Application Data\Landmark\WELLCAT</i> .
Server Folder and Files	This folder and files are now located in the <i>WELLCAT\Server</i> folder in the folder where you installed EDT. For default installations, this is <i>Landmark\EDT_xxx\WELLCAT\Server</i> where <i>xxx</i> is the version number of the EDT install.
Example Files	These files are by default stored in the <i>WELLCAT\Example Files</i> folder in the folder where you installed EDT. For default installations, this is <i>Landmark\EDT_xxx\WELLCAT\Example Files</i> where <i>xxx</i> is the version number of the EDT install.
Template Files	These files are by default stored in the <i>WELLCAT\Templates</i> folder in the folder where you installed EDT. For default installations, this is <i>Landmark\EDT_xxx\WELLCAT\Templates</i> where <i>xxx</i> is the version number of the EDT install.  Now that WELLCAT is on EDT, templates must be stored in the database before they can be used to create new designs. Refer to the section titled <b>Creating and Saving a New Design</b> in these Release Notes, or to Using WELLCAT Templates in the online help for more information.

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Previous File or Folder Location	WELLCAT 2003.21.1 File and Folder Locations
Report.rpt Library.lib	<p>Default copies of these files that are not used are placed in the <i>WELLCAT\User Defaults</i> folder in the folder where you installed EDT. For default installations, this is <i>Landmark\EDT_xxx\WELLCAT\User Defaults</i> where <i>xxx</i> is the version number of the EDT install.</p> <p>The files that are used are located in <i>Documents and Settings\Your User ID\Local Settings\Application Data\Landmark\WELLCAT</i>.</p>

### *Changing Data File Locations*

Now that WELLCAT is on EDM, the data file locations are different from the file locations in previous versions. Use File > Data File Locations to point to the data file locations you want to use. This option is only available when you first start WELLCAT, before any files or designs have been opened.

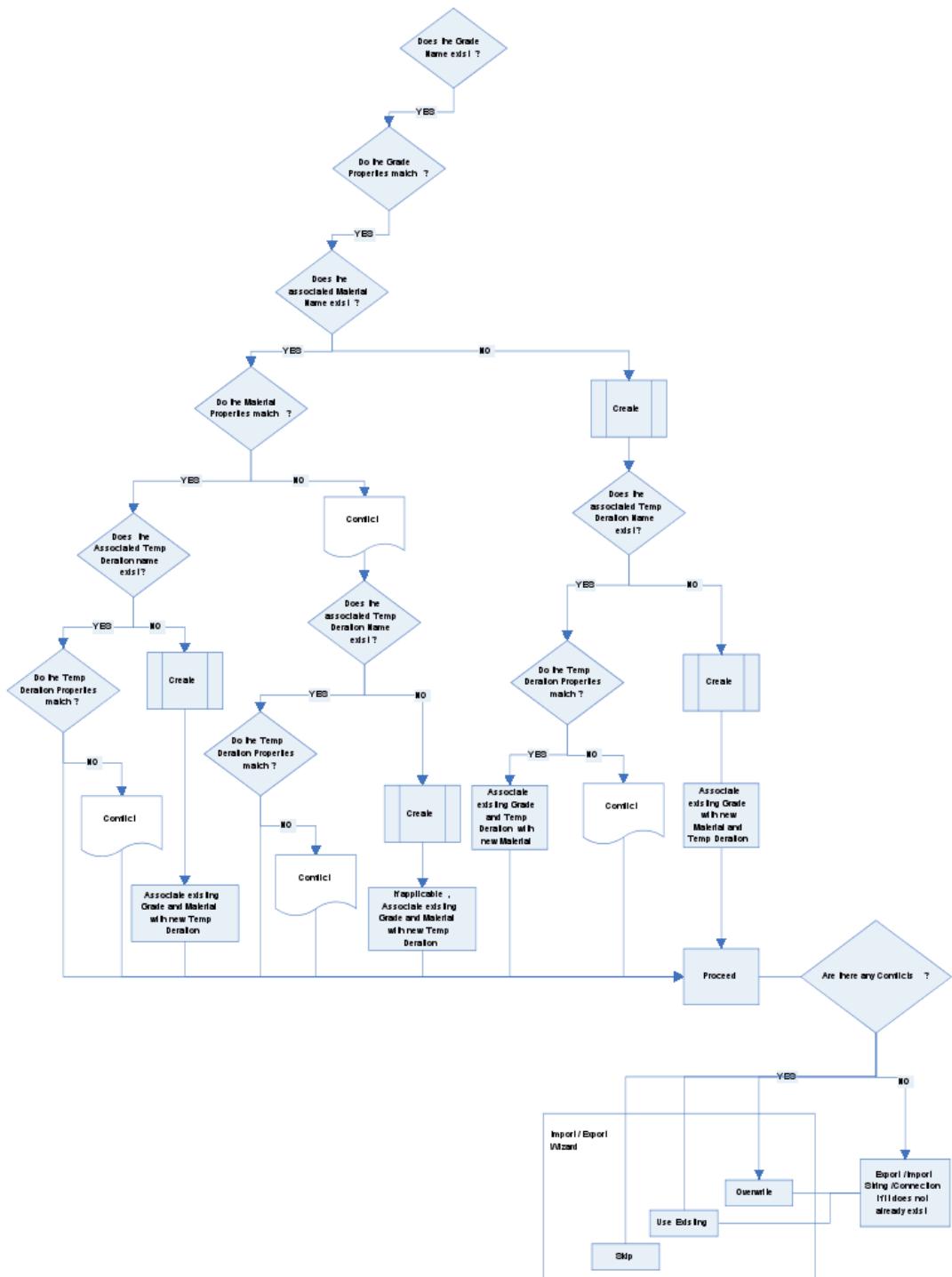
### *Unit Systems*

WELLCAT now uses the EDT Unit System. As a result, stress default units have been changed from ksi to psi.

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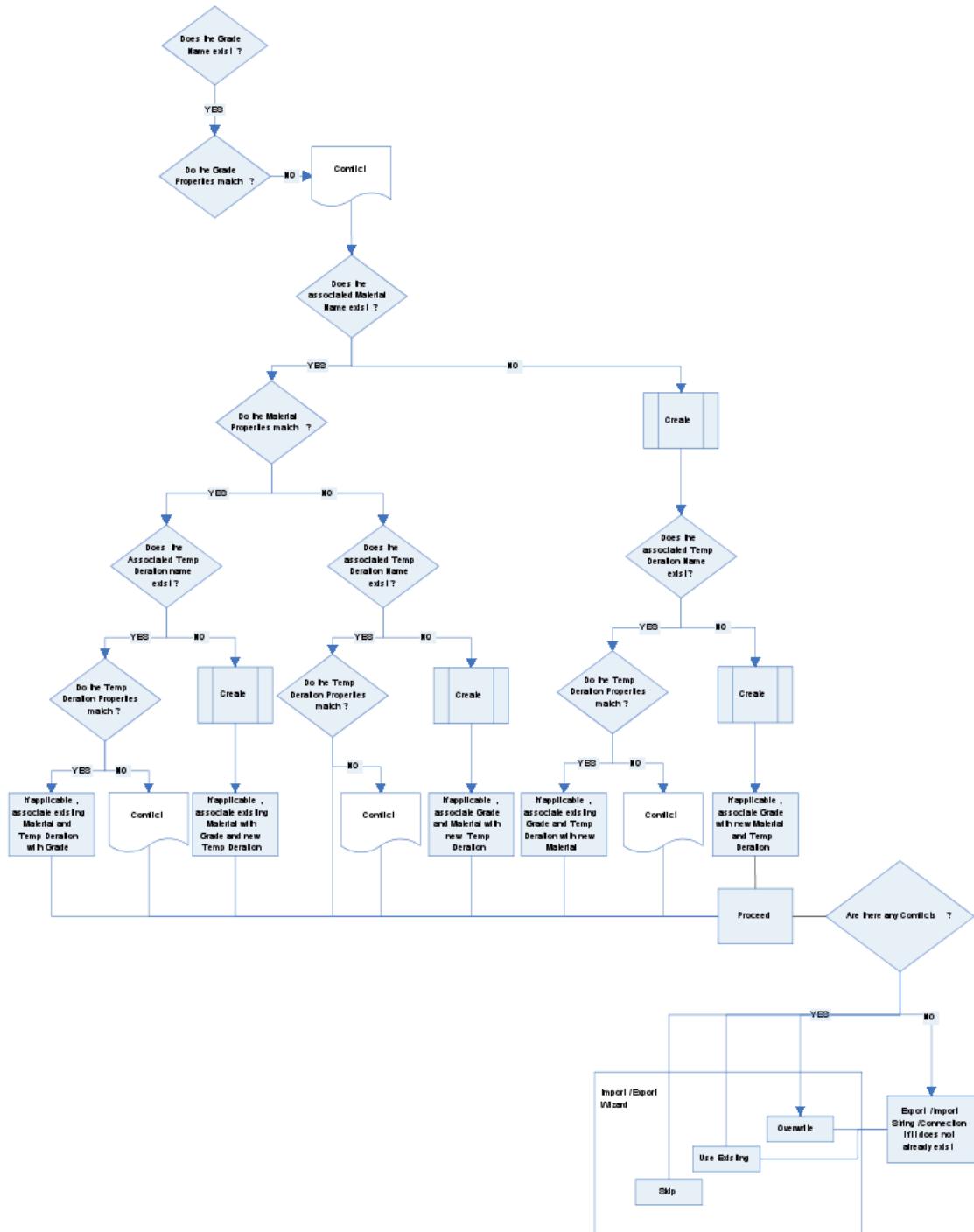
### Importing and Exporting Grades Flowcharts

The following shows a case where the Grade Name exists and Grade Properties match.



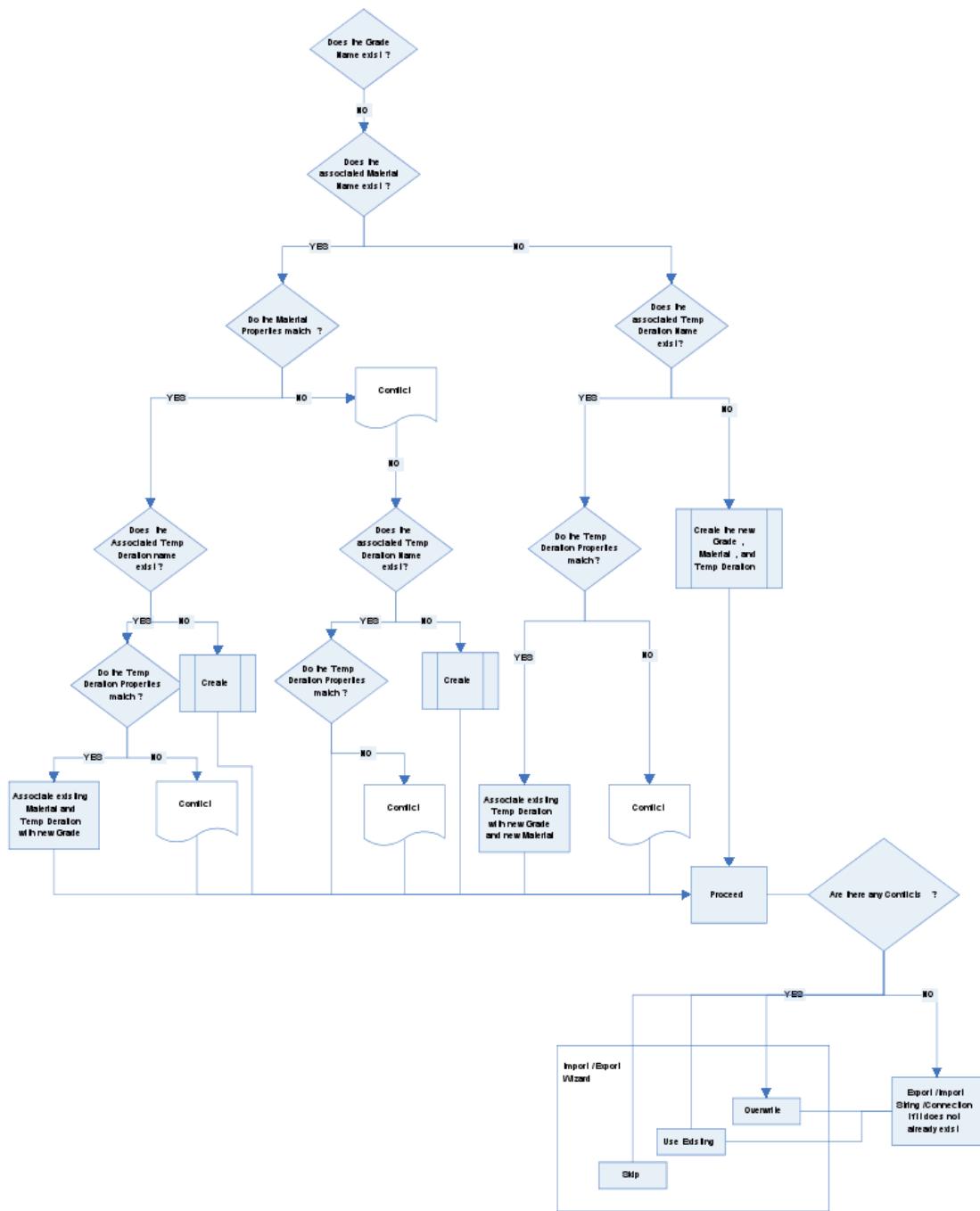
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The following shows a case where the Grade Name exists but the Grade Properties do not match.



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The following shows a case where the Grade Name does not exist.



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## WELLCAT Fixed Issues

The WELLCAT issues fixed for 5000.1.0 through 5000.1.13.1 are described below. Also described are the issues that were fixed in the 2003.21.1.0 limited release.

### Release 5000.1.13.1

The following issues are fixed for the 5000.1.13.1 release of WELLCAT software.

Defect No.	Description
632093	GUI needs to check if insulation will fit inside the annular gap outside a pipe
839240	Circulating a lighter mud with heavier mud results in less than zero pressures inside the tubing
902452	First row hanger row in custom load is delete-able, however user input pressure data is not honored in calculations
906691	Tube - Improper changes to Custom Loads when changing other data
920486	Wellcat Error when calculating Tube loads
923670	Incorrect report of Forces when applying packer setting sequence option other than default
933717	Displacing packer 1 cm Annulus pressure change 1000 psi
934906	DL Plot for IC, overpull, and RIH
935752	Internal pressure in Gas Kick not limiting volume at shoe.
938012	Insulation defined for scab liner does not apply to prod calculations
939728	Delete Liner without Liner packer and save this crash application.
940013	Pasting values into WellCat wellpath editor produces error message
942240	Allowable centralizer OD is ok for casings but not for Tiebacks
942943	Unexpected high pressures in MultiString output
943120	Need flexibility updating uncemented gap top and base depth
944501	Error while Calculations in Casing Module (WS tube engine has stopped working)
944923	Drill Module Calculation Produces re-start file error
946562	Incorrect pressure calculation in Casing-Liner cases for Gas Over Mud load.
946563	Incorrect pressure result for casing-liner cases when MASP to Fracture at Shoe is checked.
946564	Unexpected external pressure Collapse HID load result in a weak formation scenario.

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Defect No.	Description
946565	Can't input wellhead pressure if TOC or HID depth is deeper than prior shoe depth in WCST Collapse load
946566	Incorrect Displacement to gas load result in casing-liner cases
946600	SCAB LINER card has wrong fluid ID for Drill module.
946839	Gas Kick Load; different results is obtained when there is a change in BHA
946857	VIT pipe does not include bending in axial load calculations
949387	Prod Link temperature profile incorrect in Scab Liner load case.
949639	Residual differential pressure in Tube Code (overpull and Run in hole)
950173	Enable Current schematic option in Tube Module
951235	Add more VIT temperature data
951256	Bogus Annulus pressure - Custom load scenario
951618	Incorrect external pressure across un-cemented gap.
951704	Incorrect casing AFE custom load internal pressure+ trap annular pressure below scab liner interval

### Release 5000.1.13

The following issues are fixed for the 5000.1.13.0 release of WELLCAT software.

Defect No.	Description
884995	Support BOEMRE NEW COLLAPSE LOAD
890915	Support Drilling operations Annular Fluid Expansion Analysis
915837	Two 'Coiled Tubing' Radio-buttons on 'Data Selection' window.
916737	Support in "displace to gas" load in Casing module-mud/gas interface depth - and R-K EOS gas modeling.
919059	Application stop calculations when using Capstan effect for large number of survey points (>1000)
929073	Time step control issue while simulating permafrost thawing
930166	Tube load calculations top in a specific survey data set
931737	WELLCAT does not apply Critical Dimension should the string type is special (documentation issue)
932795	Support gas over mud internal pressure profile and MASP/MAWP

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Defect No.	Description
935719	Real gas model in Gas Cap and UTUBE calculation apply incorrect EOS for gas type selected
935981	Incorrect well schematic with un-cemented gaps

### **Release 5000.1.12**

The following issues were fixed for the 5000.1.12.0 release of WELLCAT software.

Defect No.	Description
870847	Selecting tapered string wellbore diagram view option set all depths off
903002	WHM w/Liftoff - Inconsistent results scenario
907671	CASING - point load - review use of hard coded units used for point loads in UI
913300	Incorrect graphical pressure profile due to lack of granularity of calculation data points around packer.
914714	Incorrect display of selected load length change results using data selection option
915270	Unrealistic large gas cap volumes can be input in baseline calculations
915271	Incorrect number of annulus regions in a specific TLP well configuration.
915272	Incorrect number of annulus regions in a specific production tieback scenario
915273	Incorrect default gas cap volumes in certain tieback configurations.
916739	Need documentation clarification in reference to EOS used in Gas Kick load
918556	Bogus results in limited movement allowed expansion joint analysis.
918624	ISO_SLE a connection is displayed twice in the design limit plot.
919115	Custom Scale settings are not honored by the design limit plot
919294	Apply absolute pressure instead of gauge pressure in gas cap mass calculations.
919655	AFE calculations stop due to design exceeds maximum number of fluids allowed
924350	Inconsistent display of flags in Length Change Summary and Movement Summary views

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## **Release 5000.1.11**

The following issues were fixed for the 5000.1.11.0 release of WELLCAT software.

Defect No.	Description
635499	Incorrect units of pressure in input table for File-Defined Hydrocarbons
704671	Increase max allowable weight for large pipe sizes for deep gas wells.
794833	Temperature vs Time plot (Circulation Depth results do not appear)
837395	Packer Schematic Display Tubing instead of Packer Cross Sectional Areas only in tapered configuration
837812	MultiString WHM - No displacement reported while applying point of fixity - design specific issue
844091	Analyzing PBR movement - Pick up/Slack off documentation update.
858553	If Tube module containing VIT pipe is calculated without any load then initial conditions do not report temperatures for Tubing VIT (inner)
867269	Forces calculated from the wellhead movement analysis are incorrect in certain tubingless cases.
867639	Wellhead movement calculation failed in a subsea scenario
869888	Enhance regional setting (WELLCAT).
872329	Support partial injection scenarios when hydrocarbons are present in wellbore.
873691	Minimum Safety Factors table does not display all minimum safety factors
874156	WELLCAT does not save inserted string section.
876786	Data entry in drill string tab causes shifting
880324	Calculation truncation caused by incorrect internal data input format.
881859	Missing units label in tabular representation of Tube module Length bar chart
882535	Incorrect Data input units applied to tieback PBR downward movement.
882558	Timeout calculation error due to internal data array size.
882587	TUBE - Packer - Axial load input change after packer set, applying F4 Key.
882806	TUBE - Expansion Joint results do not change while changing PBR bore.
882843	WELLCAT performance while accessing VIT results.
882894	Loads created in casing module disappear when design is saved and re-opened.
882896	Coping and opening a design causes link in load cases to mismatch.
884698	WSTUBE engine stop calculating after updating liner hanger depth.
884701	Unrealistic connection safety factor in VIT scenario

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Defect No.	Description
884792	Collapse SF's change when viewing all loads instead of only the two critical ones
884928	Increase max number of packer in a design to 40
885175	Provide documentation details when synthetic fluid thermal properties are applied to calculations.
887091	WELLCAT Java Error when trying to "Save" a Connection Name on a component that is too long for the column in the database (Documentation guidelines solution)
887553	Documentation about the GOR with VLE fluid.
887554	Documentation about Reference Diameter in the Polymer fluid --nonreactiing fluid.
888099	Lock-ring lift off failure not reported in UI. (Documentation solution)
888123	Copied load shows different Absolute Safety Factor values from the original custom load in the spreadsheet ( grid).
888253	Lower n' minimum value limit for polymers fluid.
888645	Sync Density profile checkbox unchecks after filling in data.
889250	Support the cement spot plug over different casing section or/and open hole.
890433	Tube initial cond' temperature profile alters when model is reopened after save
890891	Selected data source is not honored after design is close and reopened
891773	Wellbore_temperatures card format causes UI to crash. (incorrect input data format)
892016	Support any reference flow ID for polymer fluid friction loss calculation.
892918	In Win 7 and 5000.1.9 or higher WELLCAT version user has the option to print (or from print preview) to a Windows xps file from any of the screenplots in WELLCAT. This seems to work for all plots except the Design Limits / Von Moises plots
894285	VIT Tubing - Total connector axial force. Incorrect connection safety factor calculation.
894431	Fluid temperature results for a riserless drilling operation with and without mud pits don't seem to match up.
896506	Concurrent write enable users are allowed while logging in Citrix environment
896885	Support PVT sim EFDH new data format - interface
896921	Incorrect buoyancy force during float failed scenario
897479	Incorrect packer force equation description in documentation
899053	Incorrect report plot header for Tubing Sections
899241	Incomplete list of References in WELLCAT documentation
899468	Incorrect composition mud index applied to calculations

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Defect No.	Description
902526	Missing to display connection safety factor in tabular view of multiple loads safety factors.
904005	Increase maximum axial force limit value for casing load
904080	Incorrect triaxial critical dimension value applied to VIT pipe
904452	Missing to define plug depth for pressure test load scenario
906464	Incorrect wellpath data in WELLCAT when using Well Reference Point (COMPASS)
906687	Units inconsistency in the GUI
906698	Split pane disappears while selecting loads from results pick list field
907919	Incorrect hole size applied to calculations in annular fluid expansion analysis
908519	Calculation of Safety Factors when an ISO (CUE) connection is used in the string. - WELLCAT does not include any temperature de-rating for the ISO connection.
911663	Unrecognized input ISO CDRATE in multistring custom loads

### **Release 5000.1.10**

The following issues were fixed for the 5000.1.10 release of WELLCAT software.

Defect No.	Description
154704	Increase number of fluids limit in a design to 80
617582	Status Bar text is missing for Inventory > Formation/Soil Properties
767345	Support SI/API Bit nozzles size units for drill operations
769438	User gets an error when modeling a reactive gel with coiled tubing.
834371	Unexpected save as behavior
856591	Drill op. refused to calculate while is properly linked to previous op in riser /work string scenario.
857297	Complex Cement Job - Spacer fails to show up in the Flow Summary
857700	Uncertainty using Non-Reactive polymers in WellCat
860550	No HCT file generated for certain configurations
861242	An axial force change in packer setting workflow results in step 22 is not seen at ASV depth
865174	The temperature of spot plug cementing operation at the beginning time is abnormal.

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Defect No.	Description
866861	Results from applying 100% IO Base fluid to Multax calculations does not match with input file edit user defined coefficient calculations results
866865	Questionable AFE results when applying composite fluid to AFE analysis
867258	WellCat ignores pick-up or slack-off forces greater than 1.1 million lbf while setting casings.
867982	Limited number of GNFLUIDS supported
868363	ISO Safety factors are not correct for a number of load cases in the collapse quadrants of the envelope.
870235	VIT strange peaks on Wellbore Temperatures plot
870251	WellCat - CTRL+C keys do not copy Plots. Edit/Copy does though
870400	Problems with copy/paste WellCat plots into Word 2007
870802	Increase number of components that can be entered in Drill Operation Details > Drill String tab from 21 to 51.
871618	Due to precision HCT file not writing temperatures for last 20 ft of the liner in a specific data set.
871725	Multi-string calculations failed because number of additional undisturbed temperature points exceeds max allowed.
871824	Riser Present gets unselected on re-selecting Type in Prod Operations
872062	A bogus string section is inserted in string section table while executing ISO connections workflow
872537	WTP engine crashes in TUBE module when Casing sections are too many.
873023	WELLCAT_STEAM doesn't launch disregard a license is available.
873803	WELLCAT CASING module engine failed to calculate due to # of ISO connection string sections defined.
873944	WELLCAT crash when TUBE module is selected while displaying casing module DLP and Casing and tubing configuration does not include a tubing string
874456	Incorrect Casing burst remaining wall thickness/max wear results in specific pipe critical dimension input scenario
874773	Document: Minimum safety factor table is a composite table of minimum safety factor reported for all design loads defined

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## **Release 5000.1.9**

The following WELLCAT issues were fixed or have a workaround for the 5000.1.9 release.

Defect No.	Description
166538	Wrong Tubing Load is called up in Displacement Study. This is an indexing issue.
705217	Error calculating displacement study in the Tube module.
767602	Centralizer - unit frequency and per-joint frequency should be shown as integers in the GUI.
834174	Unexpected behavior of Tube Displacement calculations.
834355	Modeling reverse circulation after a fracture operation delivers an error.
834578	Incorrect External Pressure Profile in Dual Completion custom load.
834580	Missing results in Dual Tubing scenario Multiple Loads, Packer loads table.
834822	Packer setting sequence causing incorrect external pressure in Annular Press test.
834835	Packer setting sequence causing incorrect external pressure for a Pressure Test load.
834991	Inconsistency around naming and unit labeling of thermal conductivity and specific heat capacity.
835979	Application crash while entering a connection and using the F4 function.
836002	MultiString Input Data report not displaying and printing in a specific data set.
836202	Invalid Drill String spreadsheet output data. The sum of the drill string segment length is not equal to the total length.
836291	Reporting Issues: Data in reports is missing and there are some typos.
836640	Casing module - CRASH in the GUI when calculating.
837131	Drilling - WELLCAT - Well Schematic - view properties issues.
837135	Drilling - WELLCAT - Well Schematic - scrolling after zoom.
837534	Model Heat Hydration - Squeeze Job - Heat of Hydration fixed range.
838219	Error in the Packer Envelope workflow in the online Help.
839212	WELLCAT crashes when trying to create a general fluid using a particular workflow.
839217	Allow ISO connection OD and weight input fields to be free numeric input format instead of current drop down pick list. Also, bogus ISO Axial rating graphic representation and tabular information.
840024	For Expansion Joint/Packer configuration when executing from memory, EJ diameter incorrectly replaces packer diameter in the input file.

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Defect No.	Description
840887	WELLCAT computes incorrect Internal Pressure profiles in certain cases for custom loads when a plug is present.
840893	Cannot specify desired pressures properly for injection down annulus operations in Prod module.
841092	Enhance Tube module to support Switch Length Bar Chart plot to spreadsheet option.
843123	Incorrect Axial force displayed in Design Limit Plot for Running in the Hole scenarios.
843581	Incorrect steam model indicated in user interface for steam circulation operation.
843936	Initial condition data for casings not honored when a file is saved and reopened from the database.
843950	Incorrect data selection is shown in the results view for Multiple Loads > Length Change Bar chart plot in Casing and Tube module.
844225	Incorrect Molecular Weight of C2.
845078	Incorrect pressure profile applied to Green bump.
845381	Custom loads don't get correct WH pressure for production casing when using Fill option.
845383	Cannot select a connection from the Special Connections inventory.
846079	Spot cement Interface temperature tracking start at bottomhole slurry temperature while linked to a prior event.
846911	Pressure Profile not taking into account subsea nature of well, i.e., hanger at seabed.
846935	In Flow Summary for Gas Lift operation, the annulus velocity at valve depth is reported as zero in the data set.
846936	Invalid argument on calculating gas kick load in a particular data set.
847445	Minor cleanup in system templates and workspaces needed.
847565	Incorrect axial loads while modifying external pressure or density.
848245	Well Explorer - Design copied and pasted under the different wellbore but with same well properties sometimes causes unlinking of PROD linked loads in the copied design.
848738	Depth values and units of measurement not in sync in Initial Conditions input table.
849986	Program generates a Java error and terminates while saving a file to database because of an invalid number.
850445	Performance - Display of Burst SF plot locks WELLCAT for about 1 minute.
851372	Error while displaying WELLCAT design name.

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Defect No.	Description
853163	Casing - Gas Kick load calculation wrongfully affected by directional data.
853511	'Save As' slow performance in the 5000 release. Can take over 25 minutes while using the Save As functionality.
853748	2-3 second delay when clicking on data in the Casing and Tubing Configuration wizard.
853883	Multax calculation failed: "Too many pipe sections in a string."
854497	Help button does not work in File > Open > Open From Database dialog box.
854948	Delete a well takes a long time, apparently due to audit history-associated data.
855131	Incorrect API Burst SF's are calculated for VIT tubing.
855563	Save performance bottleneck is caused when there is a lot of data for certain views.
856249	Plot properties Scaling values do not match with displayed values in plot view and input Grid Steps are not preserved.
857376	Tube engine failed to calculate due to number of valid temperature deration data pairs.
857439	Lead cement slurry density defaults to Neat "G", when using the Unit Converter to specify the Density.
858483	Inner pipe weight not taken into account in VIT pipe overall weight.
858905	Expected discontinuity not seen below shallow sealed packer in 2 packer set up for tubing leak load in the data set.
859493	Changing ASV open/close setting does not dirty Tube results.
859737	Exception when saving file to database with 60+ chars in General Description field.
859797	Problems displaying Permeable Layers Temperature results.
859845	Mapping problem for INSULATION card.
860109	Multistring failed to calculate in a two packers completion scenario.
860168	Multiple Length Change Bar Chart in Grid View has indexing issue due to presence of RIH load.
860171	An unexpected temperature shift at a particular depth is seen in a specific dataset (scab liner).

### **Release 5000.1.8**

There were no WELLCAT issues fixed for this release.

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## **Release 5000.1.7**

The following WELLCAT issues were fixed or have a workaround for the 5000.1.7 release.

Defect No.	Description
145721	Report says no bit data, while the Drilling operation had a bit defined.
775695	Incorrect calculation of Dogleg values in Casing and Load Summary if the current string is inside more than one string.
802747	CASING card mapped incorrectly in configurations associated with liner strings.
830573	DEX import survey > 90 degrees creates problems in PROD and TUBE calculations.
832356	Change of precision between versions causes incorrect pressures in AFE tubing external pressures.
832659	Misspelling in Tube Movement Summary header.
832662	Water Saturation Plot scaling not correct for inlet conditions point in SI units.
832665	Drill input report incorrectly shows Yes for inner string when it is not used in cementing operation.
832746	Volume cell highlighted in operation input details when spacer ahead in volume placement method is fully pumped out for a fully cemented pipe in new cement job table.
832760	Initial Conditions parameters are not properly initialized on opening StressCheck Design (refresh issue).
833341	Tubing initial conditions temperature data is not shared properly between StressCheck and WELLCA.
833398	StressCheck file, when imported directly in WELLCA, is not updating the initial conditions temperature data for TUBE properly.
833679	Update Help description of Pressure Test Load in CASING and TUBE modules.
833685	Synthetic-based mud shows correct unit but incorrect value.
834087	Incorrect handling of regional computer setting (Norwegian) causes bogus message.
834162	MULTISTRING Initial Conditions loads do not approximate/match CASING module Initial Conditions loads.
834626	Incorrect force sign convention in Packer Envelope and Loads in EDM 5000.

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## **Release 5000.1.6**

The following WELLCAT issues were fixed or have a workaround for the 5000.1.6 release.

Defect No.	Description
149075	Missing formation temperature output displayed in GUI in Drilling Operations
614758	The maximum allowable pressure input value in custom loads needs to be greater than 30,000 psi
799727	Coiled Tubing Inventory - ID is no longer calculated after entering OD and Wall Thickness
799816	Changing PROD Fluid Pressures plot thru output wizard in presence of Heat Conduction Properties in paned view causes abnormal termination
799827	Coiled Tubing Inventory - Information in memory is no longer refreshed after a new record is added
805268	Current Well Schematic DRILL module does not show the correct picture for some drill operations
813666	Incorrect annulus pressure assumed by TUBE when plug is set below packer depth but prior to EOT
817726	Tube Custom Loads - ESP Pumped, External Pressure Profile below packer incorrect
818320	WELLCAT crashes when selecting a tubing string from Selection toolbar
820988	Safety Factor summary table displays wrong Bust Safety Factor when available connection has lower safety factor
821595	Annular contents - a crash can occur if Casing and Tubing Configuration data is not present
821602	Centralizers - a crash can occur if Casing and Tubing Configuration data is not present
822060	Questionable MULTISTRING Progress failure analysis results
823101	WELLCAT 5000.1.5: performance issue VLE Hydrocarbon
823199	UPGRADE: Unit converter to be available in all fields of WELLCAT.
823845	Burst Safety Factor in MSF/ Safety Factor Summary results differ from Multiple Loads > Burst Safety Factor
824967	Cannot enter Save then use trajectory in WELLCAT
825281	Differences in final temperature of the VIT tubing (VIT) from TUBE results
825282	Discrepancies of axial load plots/tabular with/without bending
825283	Questionable zero pump pressure in an inner string subsea cementing job operation

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Defect No.	Description
825286	Presence of plug ignored in a specific scenario
825288	Incorrect annulus fluid in a gas lift scenario
825290	Centralizer applied seems to not have an effect on axial load/buckling results on a specific multi-section scenario
826025	The packer Latching Force differs in the TUBE Results tables
827823	AFE calculations failed due to exceeding maximum number of compositional fluid allowed
829113	Performance problem saving WELLCAT release 2003 file into EDM 5000 database
829228	Questionable Heat of Hydration released trend when same slurry is used both as lead and tail
829879	Need to change the reporting depths in certain load cases (Gas Kick) in CASING module to improve the usability of a consolidated MSF table
829924	Incorrect Casing temperature Profile in Initial Conditions when using the Fill button.
830032	WELLCAT PROD: VLE Hydrocarbon: phase envelope problem
830136	TUBE displacement calculation not working
830139	Inventories: Synthetic Muds: Legend Temperature issue
830331	WHM load history referencing to conductor drive pipe instead of conductor driven for legacy files
830413	In SI units cannot reselect OD of API connections in string sections of casing and tubing configuration

### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of WELLCAT software.

Defect No.	Description
755697	Review Wellhead Movement calculations methodology when a full thermal history of drilling operations is included in Multistring Wellhead Movement calculations.
773956	Common Well Explorer: WELLPLAN Design/Cases created from WELLCAT Designs do not display "String OD and string type name" for running cases in the Common Well Explorer.
798148	Irregular axial load with depth reported for Running in Hole load.
807523	Pressure increment logic for production operations not working properly.
813152	Invalid argument caused by incorrect auto-generated wellpath stations.
813155	Zero external pressure after applying default custom load option.

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Defect No.	Description
813300	VLE puts secondary correlation label where production rates label should be in Details.
813414	AFE custom loads dialog box show wrong external fluid below packer.
813415	Frac screen out load does not take annulus pressure input.
814670	Import pipe editor displays zero on burst and collapse fields of standard pipe records when it should display as grayed out.
814679	Lack of synchronization of pipe and annulus tabs within Custom load main dialog box options and fill pipe annulus associated tabs.
814805	WELLCAT General dialog box has incorrect well total depth for a file created in COMPASS thereby not allowing a user to work with the Design in Prod or Drill module.
814824	WELLCAT crashes while trying to view certain kinds of reports.
815052	5000.1.2.2 WSTUBE closes with many load cases.
815526	Diagnostics options Help button and F1 key displays the edit input file topic instead of the displayed option.
816269	Missing time reference on reported HCT files.
816270	Depth precision discrepancies if old WCD files are modified in WELLCAT 5000 prior to reset units system.
816272	Slackoff defined for continuous string appears to be ignored in Multistring Wellhead Movement Analysis.
816387	WELLCAT crashes when applying switch Plot/ Spreadsheet button in Prod mode.
816524	PROD calculation process stopped due to adding unnecessary number of depths of interest.
816663	Tubing Less_Custom Loads casing Prod link workflows fail to map densities, pressure and temperatures.
816667	Invalid tubing leak load option allowed in tubing less scenario causes zero internal pressure profile.
817217	Multistring locks up while executing calculations due to flaw in configuration logic.
817332	Duplicated Cement slurry fluids are auto-generated 2003.0.4 WCD files are imported.
817624	Incorrect outer VIT pipe temperature profile reported.
817820	Incorrect data was displayed for Lead Slurry in Cementing and Landing dialog box
819010	Incorrect synthetic fluid density calculations for mix fluids.
819174	Incorrect Axial load applied in a suspension mud system

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## **Release 5000.1.4**

The following WELLCAT issues were fixed or have a workaround for the 5000.1.4 release.

Defect No.	Description
787853	Selecting F1a second time brings up the wrong Help topic.
792669	Improve Gas Kick load case details
793037	For Gas Kick, Displacement to Gas, and any other load (Lost Return: With Water/Mud Drop), the old values should be honored.
802964	Pipe weight in string section is removed on switching to default SI viewing unit system.
803985	Packer resets on saving WCD file to database.
806922	Copy to EXCEL (Shell) for safety factor views w/ flags in spreadsheet option ON copies flags in each column of EXCEL spreadsheet.
810088	WELLCAT crashes when entering synthetic mud data to Inventory.
810155	Gel injection control input error during calculation.
810156	Missing connection data when opening a design created in WELLCAT 2003_0_4 in the WELLCAT 5000 version.
810401	Incorrect conversion value applied to water density (synthetic).
810425	Verify K' unit input change in the WELLCAT 5000 release.
810427	Inconsistency on Packer reported results (Packer Schematic and Packer Summary) vs other reports.
810452	Pressing F1, without a design open fetches the wrong Help topic.
810454	Significant performance issues when opening a file across the WAN.
810708	Need to update the following help documents: Application of Temperature Derivation, Temperature Derivation, Tubing to Packer Force, and AFE Gas Cap Volume Annular reference.
810780	Can't open StressCheck files directly in WELLCAT 5000.1.2.
811240	The right side of the dialog box (Load History) does not update automatically to SI units.
811321	Load (RIH) position in Load list dialog box affects results in CASING module.
811608	Incorrect flag reported in displacement study calculations.
811713	Entering a VLE from scratch is causing a crash when the user specifies heavy components.

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### **Release 5000.1.3**

There were no WELLCAT issues fixed for this release.

### **Release 5000.1.2**

The following WELLCAT issues were fixed or have a workaround for the 5000.1.2 release.

Defect No.	Description
797983	Wall-thickness Geometry dialog box sheet, which would not populate the material when a Wall-thickness is chosen.
797981	Importing catalog data does not enable the save button.

### **Release 5000.1.1**

The following WELLCAT issues were fixed or have a workaround for the 5000.1.1 release.

Defect No.	Description
172852	Inventory window divides into several headers when using the mouse to scroll upwards.
615717	Steady-state solution differs appreciably from long term transient solution for circulation.
618639	Performance issue for Production operation including VLE.
622138	Subsea wells are not correctly handled when the wellhead is above the mudline.
622736	Wellhead movement pressure calculations are initiated at zero depth reference for outer-most string.
626003	Displacement to Gas load - When the current casing is followed by a liner and then by another hole section below that liner, the Influx Depth cannot be set to a depth within the second hole section situated below the liner base.
626007	Displacement to Gas load - Incorrect Pore Pressure default
626312	Displacement to Gas load - Incorrect Fracture at Shoe default
634474	When using the Tube module, the Movement Summary is incorrect for Overpull load case.
702189	Adding a new line to the Formation Properties spreadsheet produces a crash.
703462	Gas Kick load - When using scab liners, the maximum allowable Influx Depth value is incorrect.

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Defect No.	Description
703685	Fluids Inventory - The presence of the PVT Table Properties data is confusing because it is not used in WELLCAT.
704137	Casing Design Limit plot is not displayed in the report print preview when pagination set to one item and sorted by loads.
714938	When the hanger depth of strings are below the mudline during drilling calculations, a negative cross-section error occurs.
715047	Tubing Leak load case linked to Undisturbed maps to incorrect temperature.
716193	When more than one report document (besides the packer diagram) is added to the report, the packer diagram is not displayed in the report unless it is on the first page.
719557	When using the Tube module, zero pressure values are incorrectly reported in internal/external pressure column when duplicate surveys exist.
719932	Incorrect Axial Load is displayed below packer depth in Packer Load Summary table and Packer Schematic "Tubing To Packer View".
720509	Report N/A, rather than zero, for packer forces in Overpull load cases in the Multiple Packer Loads view.
721211	Implement hanger lift off and axial load redistribution analysis. Refer to the <i>Engineering Enhancements</i> section of these Release Notes for more information.
721268	Implement stress analysis for VIT configurations.
721383	WELLCAT abnormally terminates during calculations when there are more than 20 tubing loads defined.
721384	When there are duplicate names in the Fluids drop-down list and the duplicate names were deleted, an invalid argument was encountered when displaying details for a properly defined shut-in load case.
721385	Incorrect internal pressures for some shut-in load cases.
721496	The Prod module should output the perforation depth for annular flow path in addition to the tubing flow path.
721523	Incorrect Critical Burst rating values are reported in the Rating Summary table
721549	Drill calculations exceed time warning and halt while displaying progress bar.
721555	When a slackoff force is applied after the first stage of cement, but prior to the second cement stage, the effect this force has on string buckling during the second stage cementing is ignored.
721579	Incorrect fluid distribution in a shut-in annulus following hydrocarbon production.
722092	Full Gas displacement load scenario selecting incorrect EMW and reference depth values for pore pressure and fracture gradient.
722127	Multax AFE custom loads for liners, in certain configurations, has incorrect final temperatures.

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Defect No.	Description
722128	For Casing Custom Loads, the Prod temperature results cannot be shared using the Fill Temp option.
722132	When a void at the bottom of the tieback is simulated by using the Uncemented Gap option in Cementing And Landing dialog box of the Casing module, there are incorrect results for axial loads.
722134	For Lost Returns Casing loads, the pore pressure input changes when tabbing out of the Loss Zone field.
722138	Copy load functionality for Running in Hole load case does not copy the average running speed.
722296	The Casing Module fails to while performing stress analysis calculations for some TLP/hybrid type configurations.
722297	Incorrect input temperature mapping for AFE custom loads leads to incorrect results for stress analysis.
722405	MultiString does not recognize available PROD results and requires results to be recalculated.
722408	Calculation of Multistring results are not completed when the string includes VIT pipe with many tubing string sections.
722484	Multistring module was using temperatures for the wrong casing from the Prod results.
728795	Incorrect results when well is killed after production of HC/shut-in. Refer to the section titled <i>Modeling Kill Operations Following an HC/Shut-In Scenario</i> following this list of <i>Fixed Problems</i> .
728805	Incorrect buckling length reported when using the Tube module.
729269	Incorrect axial load distribution in when the expansion joint is set close to the packer.
730802	The Mudline suspension landing data when applied from surface to subsea wellhead is not handled correctly.
730802	The mudline suspension landing data when applied from surface to subsea wellhead is not mapped correctly.
731176	WELLCAT locks up when trying to access AFE Custom Loads.
732248	Capstan effect is not calculated correctly when there are many survey points.
733012	The In-House Connection Test Data envelope is not appearing on the Design Limits Plot.
733854	Multistring cannot analyze continuous strings suspended at the mudline and the surface.
736122	Coiled tubing input volume data is not retained after input.
736144	Multistring calculations failed while defining AFE custom loads.

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Defect No.	Description
736611	Pressure mapping is incorrect while applying Capstan effects.
737895	Gas kick pressure profile requires additional interpolation point.
738379	When document history is turned off using Windows configurations, WELLCAT abnormally terminates when the File menu item is selected.
742779	Calculations with Seal Movement allowed, but with nogo present and movement equal to zero, differs from calculations with no movement allowed.
745794	Incorrect Axial Load result below packer.
747574	Differences observed in results when compared to past releases due to modifications to wellhead movement calculations.
748657	Error occurs, and execution halts when running displacement study calculations using the Tube module.
749038	Slow execution time using Steam module.
749926	Casing card error in coiled tubing operations.
755901	When using the Design Limit plot, multiple plot views are generated by scrolling the mouse wheel.
756549	Status Bar is missing SAM, Datum Elevation, Unit System, and User icons.
757776	WELLCAT is not able to check out more than 3 licenses simultaneously using redundant license servers.
758140	When using the Tube module, inaccurate results are displayed for annular pressure for packer loads on the Results Summary.
763527	Expansion Joint stress analysis as the same axial load distribution when compared to packer only scenario.
766919	AFE Custom Load Report format and mapping should be done according to the new AFE custom load interface format.
766931	Incorrect temperature versus time results while circulating the same equivalent amount of time as drilling days specified with multiple tripping operations.
767655	Incorrect calculation of general fluid properties.
768073	Riser can no longer gel if there is flow in the annulus. This fix may result in different predicted temperatures when compared to previous software release where riser gel was on by default.
769713	Inaccurate discontinuity (TOC) in axial load plot
769731	Axial results differ depending on how the string is split into sections.
770119	Incorrect temperature profile for custom loads linked to Drill operations.
770667	For specific workflows, inaccurate contact forces reported for Wellhead Movement.
783356	External Pressure spikes back to zero at the top of cement.

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Defect No.	Description
788817	Incorrect default fracture gradient in a casing liner configuration for a Displacement To Gas scenario.
792453	Difference in temperature in the vicinity of mudline.

#### *Reported MultiString Wellhead Axial Loads*

Prior to this release, (1161) WELLCAT Wellhead Movement Axial Forces have been calculated assuming Float failed scenario during Primary cement (landing scenario). Also the application assumes the Datum elevation as the water surface level. Also should the Cementing and Landing dialog box is not checked while building a wellhead movement analysis, the application would assume a default displacement density for Primary cementing calculations (Landing scenario) in wellhead movement calculations.

This release, has removed all these assumptions, now it honors the float status as defined in the cementing and landing dialog box in casing module. I also honor the mean sea level depth and the displacement fluid as defined in the cementing and landing dialog box with not need for the user to check the dialog box.

#### *Well Inclinations Greater than 90 Degrees*

WELLCAT can analyze well paths with inclinations less than 90°. Some EDT drilling applications analyze well paths over 90°. If you are using WELLCAT to analyze a well path greater than 90° created with another EDM application, a copy of the well path will be reduced to 89.9° for analysis within WELLCAT. The actual well path will not be altered. If you perform additional analysis with an EDT application that does analyze well paths greater than 90°, the original well path will be used.

#### *Modeling Kill Operations Following an HC/Shut-In Scenario*

When modeling a kill operation following an HC/shut-in scenario, WELLCAT replaces the wellbore fluid (hydrocarbon column with GOR = 0 below the kill fluid) with the injected fluid when calculations are initiated. This approach can lead to inaccurate analysis if the injection time is short, or injection volume is small. To minimize inaccuracies, it is recommended the injected volume be several times the wellbore volume.

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### Hanger Depths

WELLCAT now honors and performs appropriate calculations of hanger depths for offshore, subsea, and TLP wells, which were not honored by earlier versions. All earlier versions extended mid-sea hangers either to the water level or to the mudline. Because of this calculation change current results can be different from results produced by earlier versions of WELLCAT depending on hanger locations and input data. This difference is expected to be noticeable near the hanger top and decrease with the depth.

### Release 2003.21.1.0 (Limited Release)

The following WELLCAT issues were fixed or have a workaround for the 2003.21.1.0 limited release.

Defect No.	Description
172852	Inventory window divides into several headers when using the mouse to scroll upwards.
622138	Subsea wells are not correctly handled when the wellhead is above the mudline.
634474	When using the Tube module, the Movement Summary is incorrect for Overpull load case.
719557	When using the Tube module, zero pressure values are incorrectly reported in internal/external pressure column when duplicate surveys exist.
719932	Incorrect Axial Load is displayed below packer depth in Packer Load Summary table and Packer Schematic "Tubing To Packer View".
720509	Report N/A, rather than zero, for packer forces in Overpull load cases in the Multiple Packer Loads view.
721211	Implement hanger lift off and axial load redistribution analysis. Refer to the <i>Engineering Enhancements</i> section of these Release Notes for more information.
721268	Implement stress analysis for VIT configurations.
722296	The Casing Module fails to while performing stress analysis calculations for some TLP/hybrid type configurations.
722297	Incorrect input temperature mapping for AFE custom loads leads to incorrect results for stress analysis.
721383	WELLCAT abnormally terminates during calculations when there are more than 20 tubing loads defined.
721384	When there are duplicate names in the Fluids drop-down list and the duplicate names were deleted, an invalid argument was encountered when displaying details for a properly defined shut-in load case.
721385	Incorrect internal pressures for some shut-in load cases.

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Defect No.	Description
721496	The Prod module should output the perforation depth for annular flow path in addition to the tubing flow path.
721549	Drill calculations exceed time warning and halt while displaying progress bar.
722127	Multax AFE custom loads for liners, in certain configurations, has incorrect final temperatures.
722128	For Casing Custom Loads, the Prod temperature results cannot be shared using the Fill Temp option.
722132	When a void at the bottom of the tieback is simulated by using the Uncemented Gap option in Cementing And Landing dialog box of the Casing module, there are incorrect results for axial loads.
722134	For Lost Returns Casing loads, the pore pressure input changes when tabbing out of the Loss Zone field.
722405	MultiString does not recognize available PROD results and requires results to be recalculated.
722408	Calculation of Multistring results are not completed when the string includes VIT pipe with many tubing string sections.
722484	Multistring module was using temperatures for the wrong casing from the Prod results.
728795	Incorrect results when well is killed after production of HC/shut-in. Refer to the section titled <i>Modeling Kill Operations Following an HC/Shut-In Scenario</i> following this list of <i>Fixed Problems</i> .
728805	Incorrect buckling length reported when using the Tube module.
729269	Incorrect axial load distribution in when the expansion joint is set close to the packer.
730802	The mudline suspension landing data when applied from surface to subsea wellhead is not mapped correctly.
732248	Capstan effect is not calculated correctly when there are many survey points.
733854	Multistring cannot analyze continuous strings suspended at the mudline and the surface.
736144	Multistring calculations failed while defining AFE custom loads.
736611	Pressure mapping is incorrect while applying Capstan effects.
738379	When document history is turned off using Windows configurations, WELLCAT abnormally terminates when the File menu item is selected.
747574	Differences observed in results when compared to past releases due to modifications to wellhead movement calculations.
749926	Casing card error in coiled tubing operations.

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Defect No.	Description
755901	When using the Design Limit plot, multiple plot views are generated by scrolling the mouse wheel.
757776	WELLCAT is not able to check out more than 3 licenses simultaneously using redundant license servers.
758140	When using the Tube module, inaccurate results are displayed for annular pressure for packer loads on the Results Summary.
763527	Expansion Joint stress analysis as the same axial load distribution when compared to packer only scenario.
768073	Riser can no longer gel if there is flow in the annulus. This fix may result in different predicted temperatures when compared to previous software release where riser gel was on by default.
769713	Inaccurate discontinuity (TOC) in axial load plot
770119	Incorrect temperature profile for custom loads linked to Drill operations.
770667	For specific workflows, inaccurate contact forces reported for Wellhead Movement.

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## **WELLCAT Known Issues**

The following WELLCAT known issues for releases 5000.1.0 through 5000.1.13.1 are described below. Also described are known issues for the 2003.21.1.0 limited release.

### **Release 5000.1.13.1**

The following WELLCAT known issues are reported for the 5000.1.13.1 release.

Defect No.	Description
941068	Bogus axial force results in specific casing and tubing string section configuration and plug depth
947779	Incorrect results for "Hooke's Law" and "Balloon" in the Length Change Summary for Dual Tubing.
950351	Wrong initial conditions pressure balance in a specific packer scenario
950918	Questionable Production casing AFE Internal Pressure Profile
951404	Increasing Coefficient of Friction change drastically Axial Load.
951541	Bogus Trap annular pressure reported in a tail pipe scenario.

### **Release 5000.1.13**

The following WELLCAT known issues are reported for the 5000.1.13.0 release.

Defect No.	Description
933717	Displacing packer 1 centimeter Annulus pressure change 1000 psi
935752	Internal pressure in Gas Kick not limiting volume at shoe
938012	Insulation defined for scab liner does not apply to prod calculations
938122	Incorrect external profile for fully cemented liner
939728	Delete Liner without Liner packer and save this crash application

### **Release 5000.1.12**

The following WELLCAT known issues were reported for the 5000.1.12.0 release.

Defect No.	Description
916149	Temperature spikes in VIT + connection configurations

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Defect No.	Description
920320	Error comes up when calculating Circulate diesel Prod operation
920509	Incorrect temperature profile in a specific well configuration with scab liner
921687	Higher temperatures than expected in a specific outer tieback TLP configuration
923670	Incorrect report of Forces when applying packer setting sequence option other than default

### **Release 5000.1.11**

The following WELLCAT known issues were reported for the 5000.1.11.0 release.

Defect No.	Description
845757	Incorrect Axial force with bending
888776	Incorrect differential pressure values across the packer
903002	WHM w/Liftoff - Inconsistent results scenario
903090	WHM - iTemp used inconsistently when Surface Casing is outermost pipe
903234	Primary Cementing incorrectly linked directly to Drill Operation, ignoring the Initial Condition set from Casing
904783	Review radial heat applied to fluid present in annuli
904786	Questionable heat transfer effect for high yield fluid
906691	Tube - Improper changes to Custom Loads when changing other data
907671	CASING - point load - review use of hard coded units for point loads in UI
908342	Connection name too large for column. (Oracle)
910419	Inconsistent results modeling casing string sections

### **Release 5000.1.10**

The following WELLCAT known issues were reported for the 5000.1.10 release.

Defect No.	Description
858968	The points above and below this depth are well above the allowed design safety factors for the same set of VIT string being simulated.
867272	WHM results are not correct in certain tubing less cases.
870847	The wellbore diagram looks wrong selecting Tapered String view option

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Defect No.	Description
874156	WELLCAT does not save inserted string section.
858553	If Tube module containing VIT pipe is calculated without any load then initial conditions do not report temperatures for Tubing VIT (inner).

### **Release 5000.1.9**

The following were the WELLCAT known issues for the 5000.1.9 release.

Defect No.	Description
834371	When working with files, unexpected Save As behavior.
837395	Packer Schematic Display Tubing instead of Packer Cross Sectional Areas only in tapered configuration.
844247	Wellbore temperature summary for Spot Plug Cement operation shows incorrect column labels.
852316	WELLCAT hangs when you have two linked loads defined in Casing module that have a cyclic temperature dependency.
856248	Radial and Hoop Anisotropy user input values cause WELLCAT to crash when trying to access the Design Limits plot in the Multistring module.
856591	Drill operation used to calculate when properly linked to previous operation.
856729	Invalid Tubing OD Plus Insulation Thickness in Dual Tubing configuration is not validated by WELLCAT.
857297	Complex Cement Job - Spacer fails to show up in the Flow Summary.
857369	Bogus well configuration causes undefined results.
858038	WHM forces is not ignoring pick up force applied to a fully cemented liner scenario.
858553	If Tube module containing VIT pipe is calculated without any load then initial conditions do not report temperatures for Tubing VIT (inner).

### **Release 5000.1.8**

There were no additional WELLCAT known issues for this release.

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### **Release 5000.1.7**

The following were the WELLCAT known issues for the 5000.1.7 release.

Defect No.	Description
834174	Unexpected behavior of TUBE displacement calculations.
834355	Modeling reverse circulation after a fracture operation delivers an error.
834578	Incorrect External Pressure Profile in dual completion custom load.
834580	Missing results in dual tubing scenario Multiple loads, Packer Loads table.
834822	Packer setting sequence causing incorrect external pressure in Annular Press Test.
834835	Packer setting sequence causing incorrect external pressure for a Pressure Test Load.

### **Release 5000.1.6**

The following is a WELLCAT known issue for the 5000.1.6 release.

Defect No.	Description
830573	DEX import of a survey > 90 deg creates problems

### **Release 5000.1.5**

The following are WELLCAT known issues for the 5000.1.5 release.

Defect No.	Description
813666	Incorrect annulus pressure assumed by TUBE when plug is set below packer depth
815866	Incorrect annular temperature in a PROD only OIL operation at a specific OIL API.

### **Release 5000.1.4**

There were no additional WELLCAT known issues for this release.

### **Release 5000.1.3**

There were no additional WELLCAT known issues for this release.

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## **Release 5000.1.2**

There were no additional WELLCAT known issues for this release.

## **Release 5000.1.1**

The following are WELLCAT known issues for the 5000.1.1 release.

Defect No.	Description
180610	Scab liner ignored for tubing stress analysis.
619895	Casing Load Summary fails to report data at Plug Depth from Pressure Test case.
628970	Production and injection wellhead loads use the undisturbed temperature profile rather than the corresponding PROD temperatures.
701665	Buckling restriction is not correctly applied when multiple string section outside diameter sizes exist.
705217	An error occurs when calculating the displacement study in TUBE if the Running in Hole load is included.
755697	Review Wellhead Movement calculations methodology when a full thermal history of drilling operations is included in Multistring Wellhead Movement calculations.
756471	Insert and Delete keys do not work on the Well Explorer nodes.
756786	Incorrect float collar depth when operation is copied.
756870	The Apply button does not work in Custom loads Fill dialog box for any option (internal or external).
760285	Tubing cross section areas in packer schematic incorrect if cross-over present.
760628	Undo does not work in Centralizer spreadsheet after deleting rows from the spreadsheet or after changing a value in any field.
761603	By default, no unit system is indicated as selected by default after new install.
762475	Display may flicker when tabbing between fields on the Casing and Tubing Configuration spreadsheet.
762489	The ISO envelope is un-selected when switching between string sections.
763475	The Max DLS for MD-TVD type input in legacy files is set to NULL or blank when importing into WELLCAT EDM. It is not possible to edit or delete these rows after import.
764618	Change history is not updated to reflect changes made in WELLCAT.
767287	Refresh issue when exporting ISO connection to ISO library. User may have to re-open the ISO library to see the exported connection.

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Defect No.	Description
767344	Drill and Prod operations results are lost when user selects Casing/Tube connections in String Section table.
767345	In SI units, the Nozzle Size on the Drilling Operations > Drill String tab is shown as 1/32 in.
767789	File > Import > Transfer File is disabled when re-opening WELLCAT after closing when the Well Explorer is closed.
768178	Typing in prior operation drop-down in Drill Operations can cause WELLCAT software to abnormally terminate.
770070	When using the Casing or Tube modules, and a new casing or tubing load is added, it should display in the Design Limits Plot after results are calculated.
773956	WELLPLAN Cases created from WELLCAT casing designs do not display the string name in the Well Explorer Associated Data Viewer for running scenarios.
775646	VIT tubing details (OD, ID, Weight, Grade, and all other properties) should be added to the EDM database.
788070	When changing input values in AFE analysis, user needs to recalculate to update plots.
793403	Slight difference in calculated Packer to Casing Force results (during initial conditions) caused by rounding error of differential pressure in some specific data sets.

### **Release 2003.21.1.0 (Limited Release)**

The following are WELLCAT known issues for the 2003.21.1.0 limited release.

Defect No.	Description
761318	Help > About WELLCAT does not display licenses in use.
761603	By default, no unit system is indicated as selected by default after new install.
761910	Import edm.xml file does not display a progress bar.
760681	Although the spreadsheet are now displayed in reports, the fonts and grid need to be adjusted.
756870	The Apply button does not work in Custom loads Fill dialog box for any option (internal or external).
764171	A scroll bar pops up unnecessarily displayed in the middle of the screen when switching designs using tubing assembly.
764618	Change history is not updated to reflect changes made in WELLCAT.
767789	File > Import > Transfer File is disabled when re-opening WELLCAT after closing when the Well Explorer is closed.

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Defect No.	Description
756549	The Status Bar does not display SAM, Datum Elevation, Unit System, and User icons.
769845	WELLCAT should not be able to edit locked designs.
770339	Copied design on same wellbore creates a second partially defined tubing row.
763475	The Max DLS for MD-TVD type input in legacy files is set to NULL or blank when importing into WELLCAT EDM. It is not possible to edit or delete these rows after import.
768770	WELLCAT abnormally terminates when opening designs copied from a dated planned design.
762871	Undo (Ctrl-Z) fails to remove a record pasted into the last row in the Pore Pressure spreadsheet.
756471	Insert and Delete keys do not work on the Well Explorer nodes.
765324	When the well total depth in WELLCAT is deeper than the wellpath depth specified in COMPASS, WELLCAT abnormally terminates when calculating results.
769168	WCD files with file names containing more than 56 characters cannot be saved to the EDM database after importing. Workaround: Before importing the WCD file, rename it using a name containing less than 56 characters.
756511	The VLE Phase Diagram displays a message indicating the calculation failed when the compositions are not normalized.
761745	Tables do not preserve their size when the data is changed.
767277	When using Citrix, ISO libraries cannot be imported even if the extension is changed manually to the correct (*.lib) extension. Workaround: Place library files that you want to import in a shared local folder. Contact Landmark Customer Support for more information if necessary.
768610	Drill String Grade Properties fail to be created in EDM when exporting HWDP or Drill Pipe items to an EDM catalog.
768178	Typing in prior operation drop-down in Drill Operations can cause WELLCAT to abnormally terminate.
771190	When exporting Inventories to Catalogs, an incorrect message is displayed that indicates data was exported. However, duplicates are skipped.

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## Well Cost Software

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are several enhancements and bug fixes in the Well Cost software for the 5000.1.13.1 release.

### Well Cost Enhancements and New Functionality

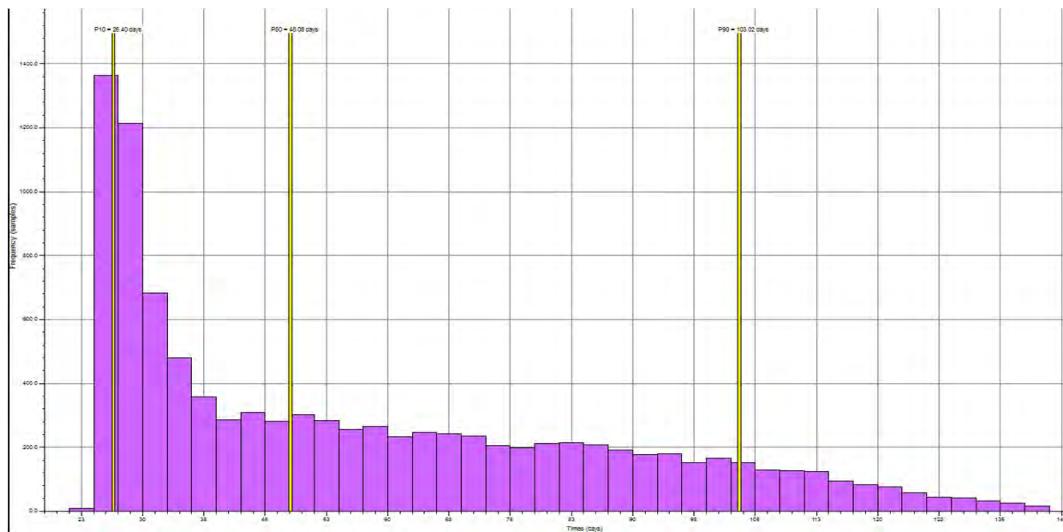
The Well Cost enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### Release 5000.1.13.1

Well Cost software enhancements for 5000.1.13.1 include the following:

##### *Distribution Plot with P-values*

The Time and Cost histograms have been decreased to smaller bucket size so that the overall shape of the distribution is better represented. Now P-values are also shown on the plots.

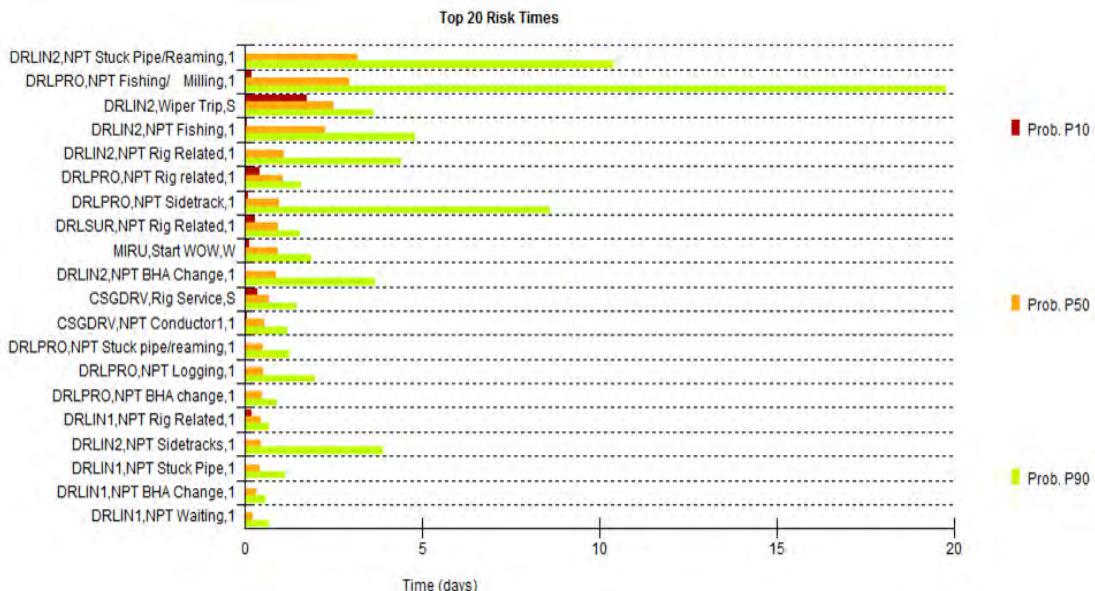


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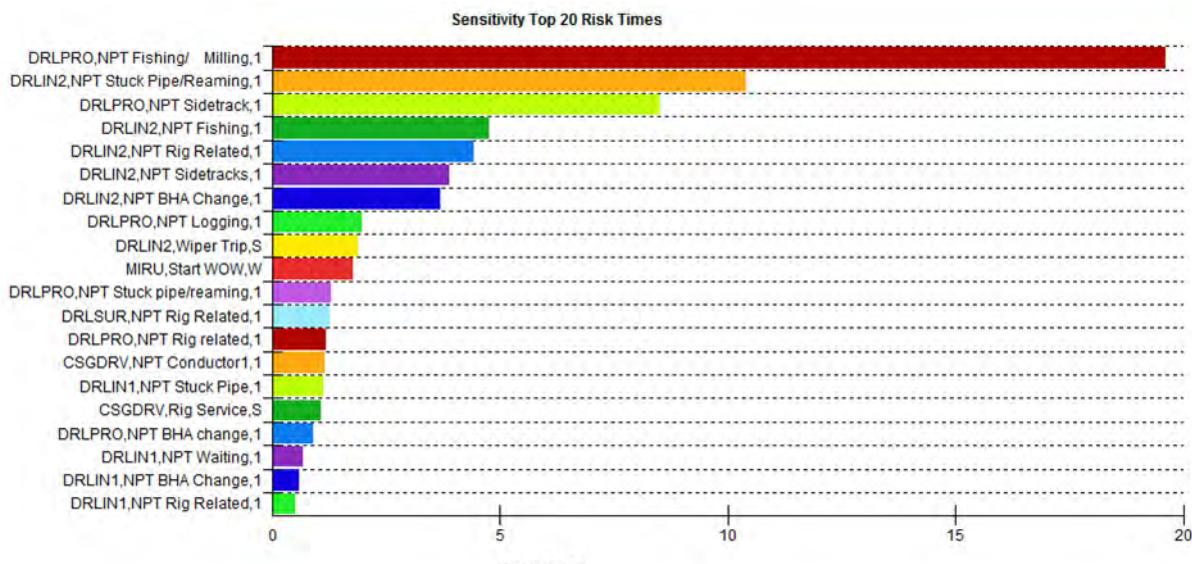
### Tornado Plot

When analyzing at the activity level, there are two new histograms available to show you the activities that have the highest contribution for the design:

- Top 20 Time
- Top 20 Costs



When viewing one of these plots, you can also select Sensitivity using the right-mouse button. Selecting this option will change the plot to show the risks that have the largest difference between P90 and P10.



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### **Release 5000.1.13**

Well Cost software enhancements for 5000.1.13.0 include the following:

#### *Average Frequency of Activities*

The average frequency of an activity can now be found in the Phases and Activity panel. When you select the Phase in the panel, the corresponding activities are displayed in the bottom pane. If the frequency of the activity varied during the simulation, the average number of times the activity was executed will appear in brackets in the Comment column. This is useful when you need to determine the average number of trips in a hole section. For example, in the panel below, you can see that the Rig Repair and BHA Other activities occurred at an average frequency of 0.86 and 0.14 respectively (shown in the Comment column), indicating that they were not executed in every iteration of the simulation.

	Activity		Rate (ft/hr)	Depth (ft)		Deterministic Time		Prob. P50 Time		Comment
	Code	Subcode		From	To	Hrs	Cum Days	Hrs	Cum Days	
1	BHA	BHA Pick up		1,500.89	1,500.89	2.00	0.08	3.52	0.15	P/I BHA
2	Tripping	Tripping Clean Up	1,500.0	1,500.89	1,500.89	1.00	0.12	0.98	0.19	Trip out BHA
3	Drilling	Drill Mud Motor		1,500.89	1,500.89	0.00	0.12	0.00	0.19	Drill 16"
4	Tripping	Tripping Clean Up	1,500.0	1,500.89	1,500.89	1.00	0.17	2.59	0.30	Trip out BHA
5	Rig Repair	Rig Repair		0.00	0.00	0.00	0.17	21.52	1.19	NPT Rig Related (0.86)
6	BHA	BHA Other		0.00	0.00	0.00	0.17	2.37	1.29	NPT BHA Change (0.14)

### **Release 5000.1.12**

There were no enhancements to Well Cost for this release.

### **Release 5000.1.11**

Well Cost software enhancements for 5000.1.11.0 include the following:

- Historical data (offset wells) can now be analyzed at the Activity level.
- Historical data can be retrieved by either name or Universal Well Identifier (UWI).
- AFE Report modified to breakdown the cost by event.
- Added the Schematic to the Well Cost Detail report.
- Tracking and comparison of actual vs. planned data.
- Support for vendor and contracts in the cost catalogs.
- Monte Carlo Output report includes a best fit distribution for output time cost.
- Monte Carlo Output report shows data and the corresponding plots on different tabs.

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- Activity detail can now be shown on plots where appropriate
- A cost item can now be limited to any combination of six individual phases or ranges of phases.
- The risk consequence can now be specified as a percentage of a series of elapsed activities.
- Added an option to have plots ignore decreases in TD to accommodate things like pilot hole, laterals, tubings (completions) which can cause the TD to step backwards.
- Added support for transit speed, e.g. m/hr, as a trip rate to accommodate rig transit activities.
- Added support for direct import of historical (Offset Well) data in the format of days, depth, and hole size.
- Added new fields to the General pane:
  - Remarks: enter general comments about the design
  - Is Deviated: check if the well is not purely vertical (documentation only, Well Cost does not interpret this value)
  - Estimated Days: read-only field which is filled in by the simulator with the estimated duration of the project
  - Date Estimated: enter the date the estimate was completed.

### **Release 5000.1.10**

Well Cost software enhancements for 5000.1.10 include the following:

- Improved comparisons between Designs. Users may open two Designs at the same time and compare Time vs Depth vs Cost line graphs.
- Phases and Activities may be copied and pasted between Designs.
- Improved database query functions. Once a database is identified, the query panel of the Wizard is open for use.
- Ability to use Phase Spanning for cost codes has been improved to handle entire sequence by new entry schema.
- Configuration spreadsheets no longer have Save as Default or Copy All features.
- Central Wizard panel has been removed and replaced with a floating tool bar. This improves the interface by allowing more screen space for input panels and eases movement in the workflow.
- Activity data entry activated by check boxes.
- Combined Drilling, Completion and Abandonment events into a single analysis.

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- Improvements in the format of the cost spreadsheet.
- Improvements to the detailed reports.
- Various internal and customer reported issues.

### **Release 5000.1.9**

Well Cost software enhancements for 5000.1.9 include the following:

- Improvements to the Phase and Activity Tree controls via drag and drop plus right-click copy/paste functions.
- The Activity pane now allows an entry for length override in the Time Configuration section. In instances where the cascaded depths are not correct, the user can enter a length that is not part of the casing sequence.
- Improvements to Activity Configuration Spreadsheet now reflect the unit data shown in the Activity Tree controls.
- Includes a multiple well sequencer for batch and completion activities. The feature is called the Design Sequence, and is accessible in a spreadsheet format.
- The Query Wizard now allows the user to make a query outside the standard database.
- Queries can now be made on cost and time estimates, the user can limit selected wells in the query, and a more simple query builder for offset well analysis stored within EDM has been added.
- Renaming of Probabilistic input screens to Phases and Activities has been done, as has the renaming of Probabilistic input screens to Offset Well Phases.
- There have been enhancements to ensure P1 data can be migrated into the EDM database. These changes are backwards-compatible with the 5000.1.6 version of Well Cost software. This change includes Risk Level 1, Level 2 and Risk Level 3, and no longer supports the category Risk Planned.
- Well Cost now supports a range of risk costs.

### **Release 5000.1.8**

There were no enhancements to Well Cost for this release.

### **Release 5000.1.7**

There were no enhancements to Well Cost for this release.

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## **Release 5000.1.6**

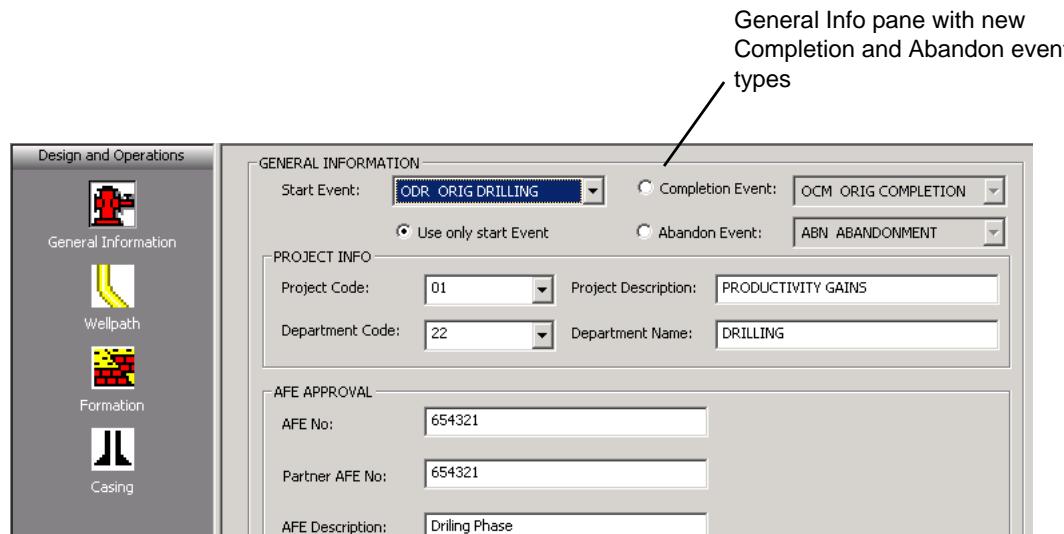
Well Cost software version 5000.1.6 is a major update that:

- improves configuration and further streamlines existing workflows,
- builds on the strength of the program's integration with OpenWells and COMPASS software, and
- greatly enhances the analytical components with advanced Probabilistic functionality.

This release fixes critical issues, listed in the Well Cost software section of the Engineer's Desktop Software Version 5000.1.6.0 Release Notes, and contains the following new functionality:

### *Production and Dry Hole Time and Cost*

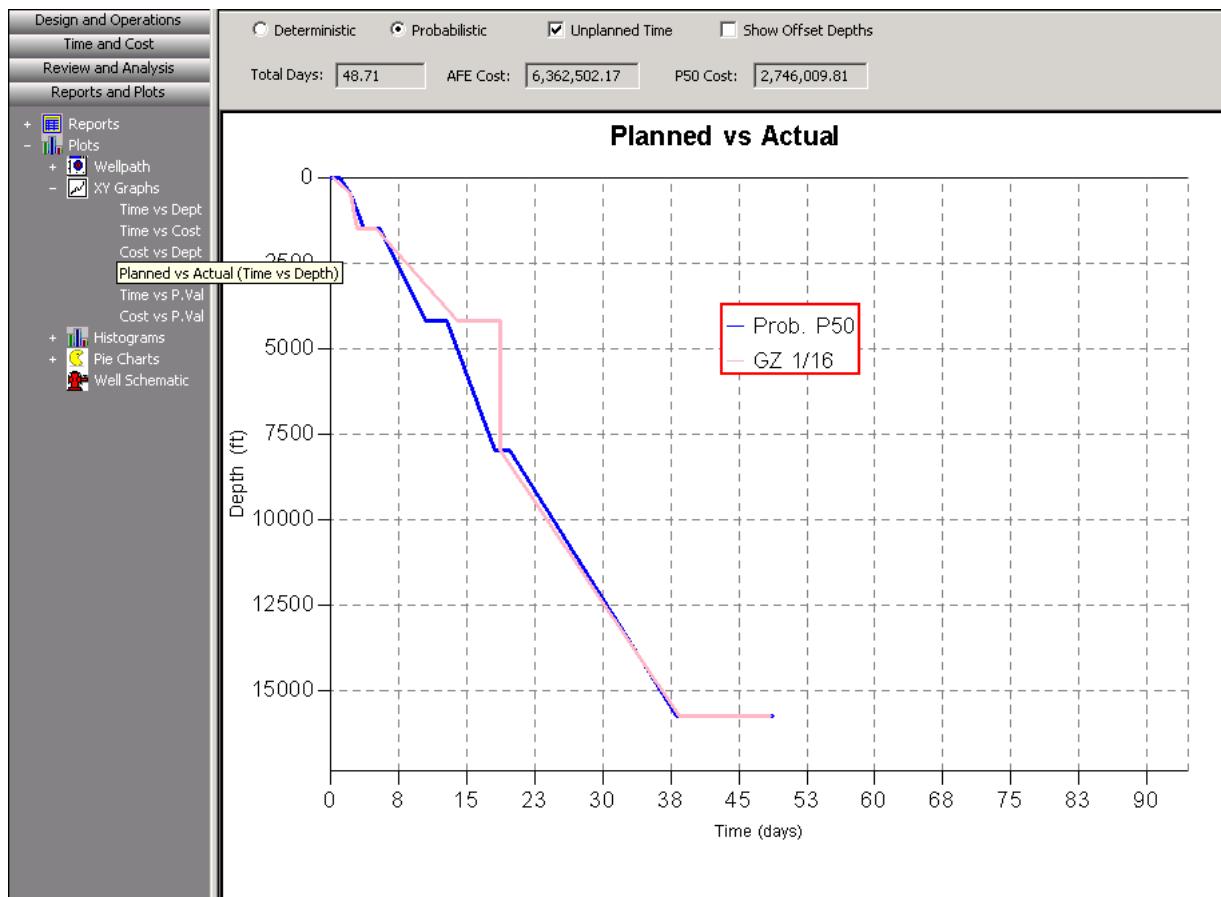
The production and dry hole costs are now included in the time and cost analysis with the addition of Completions and Abandonment Events. The new Event types can now be added to the active Design in the General Info pane.



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### Active Well Status Monitoring

This new feature provides the ability to monitor an active well using the Offset Well Selector in conjunction with the Planned vs Actual (Time vs Depth) plot's Hide Line feature.



In this example, the offset well's P50 line is shown with the active well, "GZ 1/16".

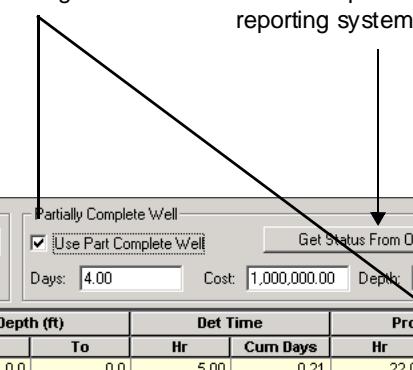
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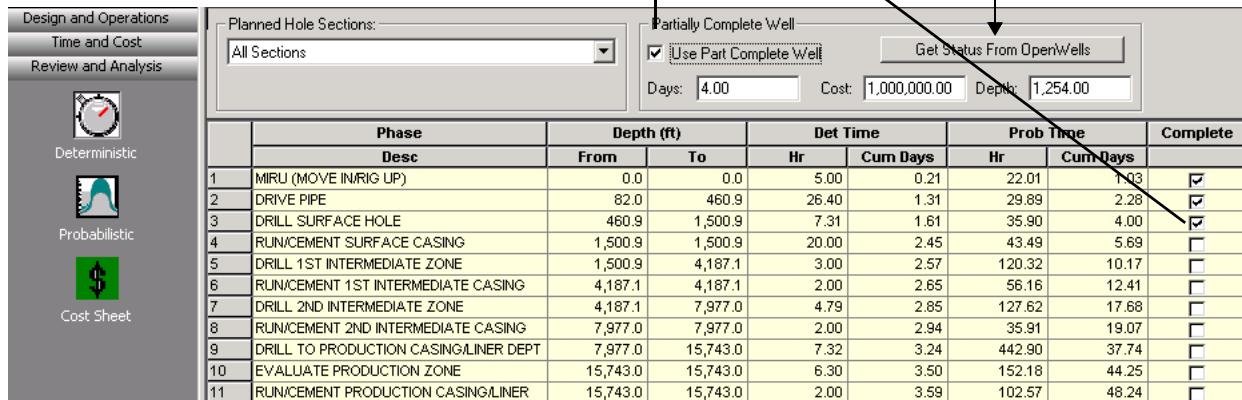
### Partially Complete Well (Look Ahead)

A new section in the Deterministic pane allows you to configure the Design as partially complete either manually, or automatically by synchronizing time with OpenWells daily reporting. This feature is integral with Active Well Status Monitoring and is used to evaluate future time and cost options after phases are complete.

Partially Complete Well option checked with the well completed up through drilling the surface hole.

Partial well status is updated from the OpenWells Operations reporting system.





The screenshot shows the 'Design and Operations' interface. On the left, there are three tabs: 'Deterministic' (selected), 'Probabilistic', and 'Cost Sheet'. The main area displays a 'Planned Hole Sections' dropdown set to 'All Sections' and a 'Partially Complete Well' panel. The panel includes a checked checkbox for 'Use Part Complete Well', a button to 'Get Status From OpenWells', and input fields for 'Days: 4.00', 'Cost: 1,000,000.00', and 'Depth: 1,254.00'. Below this is a detailed table of drilling operations:

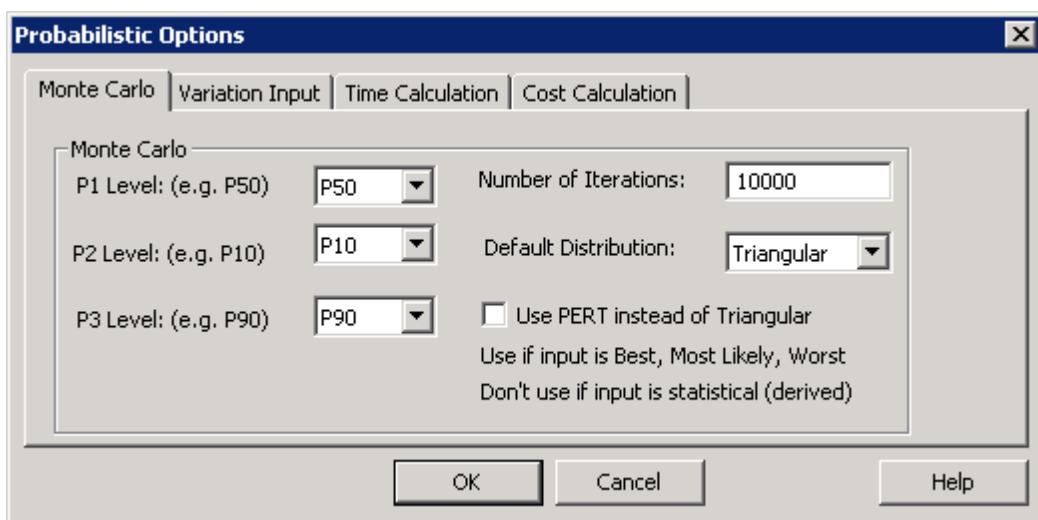
Phase	Depth (ft)		Det Time		Prob Time		Complete
	Desc	From	To	Hr	Cum Days	Hr	
1 MIRU (MOVE IN/RIG UP)		0.0	0.0	5.00	0.21	22.01	1.03 <input checked="" type="checkbox"/>
2 DRIVE PIPE		82.0	460.9	26.40	1.31	29.89	2.28 <input checked="" type="checkbox"/>
3 DRILL SURFACE HOLE		460.9	1,500.9	7.31	1.61	35.90	4.00 <input checked="" type="checkbox"/>
4 RUNCEMENT SURFACE CASING	1,500.9	1,500.9	20.00	2.45	43.49	5.69 <input type="checkbox"/>	
5 DRILL 1ST INTERMEDIATE ZONE	1,500.9	4,187.1	3.00	2.57	120.32	10.17 <input type="checkbox"/>	
6 RUNCEMENT 1ST INTERMEDIATE CASING	4,187.1	4,187.1	2.00	2.65	56.16	12.41 <input type="checkbox"/>	
7 DRILL 2ND INTERMEDIATE ZONE	4,187.1	7,977.0	4.79	2.85	127.62	17.68 <input type="checkbox"/>	
8 RUNCEMENT 2ND INTERMEDIATE CASING	7,977.0	7,977.0	2.00	2.94	35.91	19.07 <input type="checkbox"/>	
9 DRILL TO PRODUCTION CASING/LINER DEPT	7,977.0	15,743.0	7.32	3.24	442.90	37.74 <input type="checkbox"/>	
10 EVALUATE PRODUCTION ZONE	15,743.0	15,743.0	6.30	3.50	152.18	44.25 <input type="checkbox"/>	
11 RUNCEMENT PRODUCTION CASING/LINER	15,743.0	15,743.0	2.00	3.59	102.57	48.24 <input type="checkbox"/>	

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### Configuration Improvements

This release includes an enhanced Probabilistic analysis workflow that is made possible through the new Probabilistic Options dialog box. This multi-tabbed dialog box allows you to run simulations with a simpler configuration at the Phase level, or a more detailed analysis at the Activity level.

Probabilistic Options dialog box - default  
Monte Carlo tab.



One of the first things you should do to familiarize yourself with this release is to learn about the options available in this dialog box.

The dialog box also provides options that configure the Well Cost application to run Probabilistic simulations, which includes the flexibility to model several types of input variations such as:

- Phase level analysis only - This option is good for simple analysis on the phase level and can take input from offset wells without too much user intervention.
- Activity level analysis - This option allows you to perform a more detailed analysis for each operation. Activity analysis allows complex operations to be defined like risk events (probable), scheduled activities and multiple threads (one of a risk event happens and alternate if it goes well).
- Correlations available to insert variable for:
  - Time: This option influences the correlation effect on times (phase or activities) with the same well construction. Normally a value of 60% will model the P10/P90 spread realistically.
  - Multiple Wells: This multiple well correlation operates between wells on top of the single well time correlation. Normally a lower value like 30% is

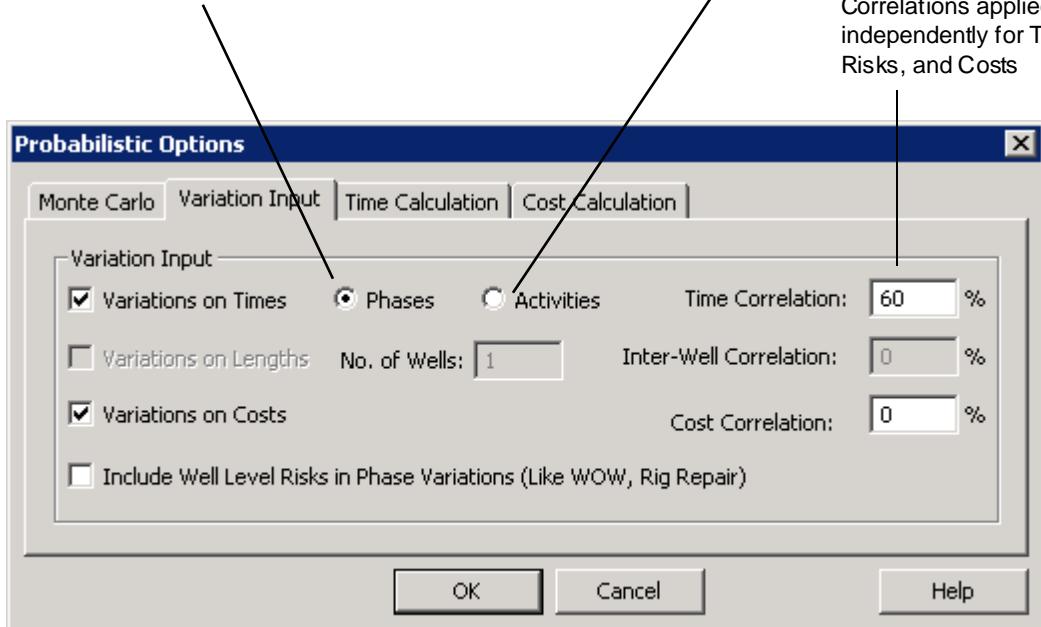
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- adequate because multi-well correlation is at a lower value than correlation in the same (single) well.
- Cost - Costs may be correlated if there is an association between the costs like rising market rates, inflation or exchange rate dependency (local prices).
  - Risks: Global risk expressed as:
    - probability per well, like Waiting on Weather or Rig Repair in Phase variations, or
    - per day probability, for events like tight hole, pack-off fishing, and sidetrack, which you might experience with formation-related NPT.

Probabilistic Options dialog box - Variation Input tab. The current setup is for Phases, which provides a quick estimate for projects with less detail.

For more detail, the Activities level would be chosen.

Correlations applied independently for Time, Risks, and Costs



In addition to the new options found on the Probabilistic Options dialog box, Well Cost users will notice some familiar options available on the dialog box that exist in the previous release.

Landmark includes a default configuration with parameters and settings reasonable for most simple well costing exercises.

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### Streamlined Interface

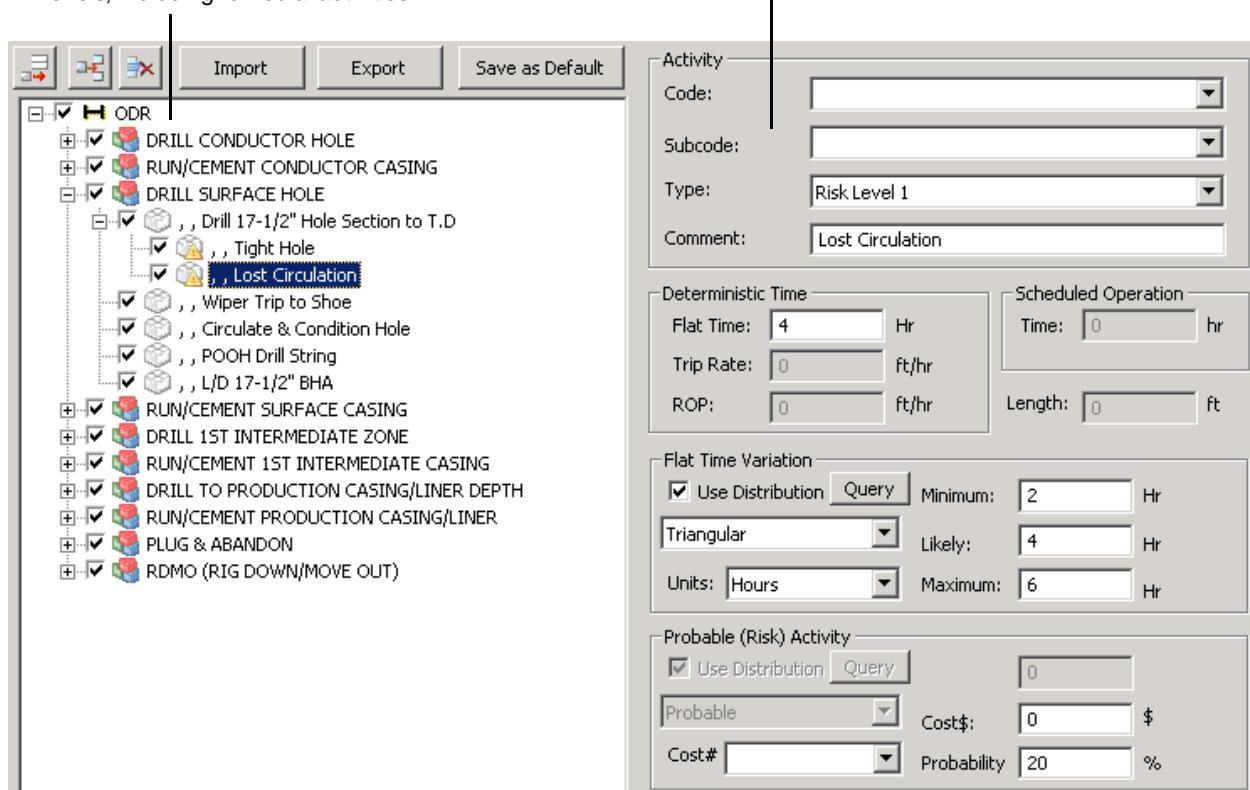
Several changes related to Well Cost workflows were made to the interface for the purpose of improving the overall user experience.

- New Panel Views and Spreadsheet - this version of the Well Cost application integrates phase/activity and cost information in panels that display while working in a new tree control hierarchy.

Tree control hierarchy for Phases and Activities.

The tree allows input of probable risk events by percent probability to two levels, including remedial activities

Each tree node has a corresponding panel for data entry.



- Most input occurs in the Time Configuration and Cost Configuration tree panels. Some exceptions exist, such as configuration of partially

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complete wells in the Deterministic pane, or modification of offset well information in the Probabilistic pane.

Ability to choose offset wells from EDM database or add custom user wells

The screenshot shows a software interface for managing offset well data. At the top left is a dropdown menu labeled 'Offset Well Selector' with two options: 'EDM' and 'User'. Below this are two buttons: 'Show Use Columns' and 'Sample Statistics'. The main area contains two tables. The first table has columns for Phase (e.g., DRILL CONDUCTOR HOLE, RUN/CEMENT CONDUCTOR CASING), Depth From, Depth To (ft), and various time metrics (Min, ML, Max, Avg, P50, P10, P90) in hours. The second table has columns for Phase, Depth From, Depth To (ft), and time metrics (Min, Max, Avg, P50 Time (h), P10 Time (h), P90 Time (h)) in hours. Both tables contain 15 rows of data. The 'KDS' columns in both tables are highlighted in yellow, indicating they are the focus of the 'Editable fields for offset well data' mentioned in the text above.

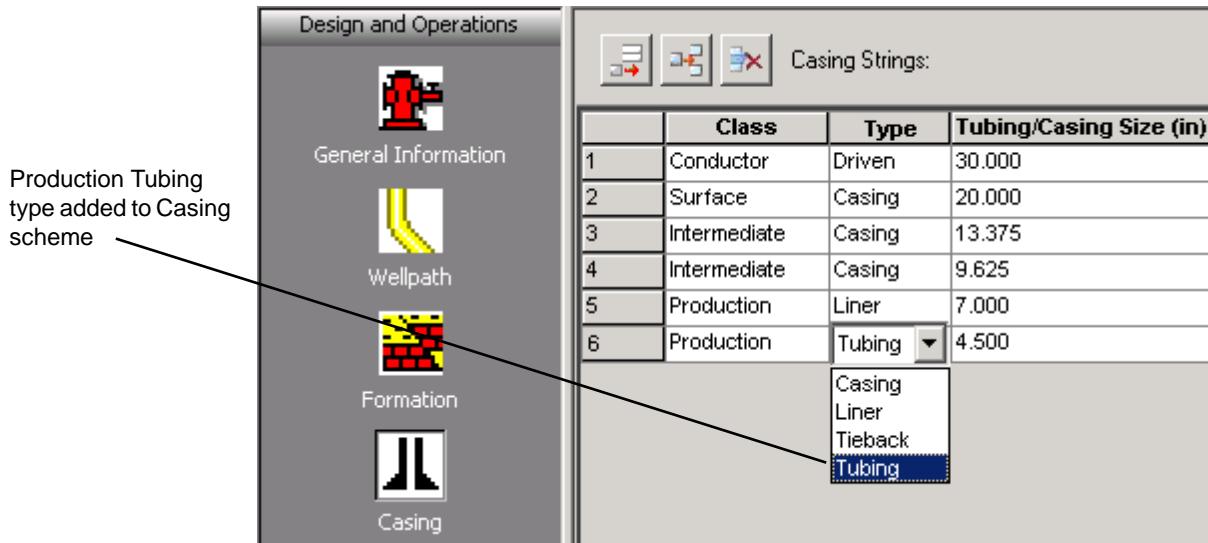
	Phase	Depth From	Depth To (ft)	Min	ML	Max	KDS-06	KDS-08	KDS-07	KDS-03	KDS-02	KDS-04	KDN-01	KDN-10
				Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs	Hrs
1	DRILL CONDUCTOR HOLE			17.2	20.7	23.4								
2		Unplanned Time		5.2	11.0	13.5								
3	RUN/CEMENT CONDUCTOR CASING			27.3	31.1	35.6								
4		Unplanned Time		9.5	15.8	37.3								
5	DRILL SURFACE HOLE			28.6	33.0	38.2	109.0	73.5		37.5	32.0	46.5	37.0	59.0
6		Unplanned Time		5.1	9.0	25.7	5.0	1.5		0.0	0.0	1.5	0.0	1.5
7	RUN/CEMENT SURFACE CASING			16.8	19.6	22.8		8.0		26.5	33.0	19.0	47.5	50.0
8		Unplanned Time		9.1	10.8	21.0		0.0		0.0	1.0	5.0	25.0	0.0
9	DRILL 1ST INTERMEDIATE ZONE			163.3	212.2	256.8		54.5	82.0	75.0	65.0	152.0	66.0	107.5
10		Unplanned Time		10.7	49.0	113.5		9.5	0.0	0.0	0.0	16.0	0.0	173.0
11	RUN/CEMENT 1ST INTERMEDIATE CASING			53.7	60.0	66.4	34.5	27.0	31.5	44.5	48.0	24.0	24.5	51.5
12		Unplanned Time		5.9	24.9	72.7	10.0	0.0	0.0	0.0	7.5	0.0	0.0	62.0
13	DRILL TO PRODUCTION CASING/LINER DEPTH			137.2	197.3	268.9	397.0	405.5	439.5	203.0	199.0	72.0	308.0	226.5
14		Unplanned Time		24.5	63.0	242.4	39.0	23.5	262.0	28.5	83.0	144.0	0.0	237.5
15	RUN/CEMENT PRODUCTION CASING/LINER			21.6	24.5	27.7	57.0	63.5	247.5	79.0	92.5		58.5	72.5

	Phase	Depth From	Depth To (ft)	MIN	MAX	Avg	P50 Time (h)	P10 Time (h)	P90 Time (h)
1	DRILL CONDU	0.0	150.0	17.17	23.40	20.44	21.41	18.18	25.04
2	Unplanned Ti			5.17	13.51	9.88	11.55	5.34	18.51
3	RUN/CEMENT	150.0	150.0	27.27	35.57	31.31	32.65	28.14	36.58
4	Unplanned Ti			9.47	37.32	20.85	16.93	9.97	38.47
5	DRILL SURFA	150.0	500.0	28.64	143.00	57.99	21.89	18.77	25.85
6	Unplanned Ti			0.00	25.72	4.61	12.83	7.40	21.09
7	RUN/CEMENT	500.0	500.0	8.00	50.00	30.79	35.72	30.87	41.13
8	Unplanned Ti			0.00	25.00	6.77	9.50	5.73	21.94
9	DRILL 1ST IN	500.0	3,390.0	54.50	256.82	115.61	226.71	174.40	275.36
10	Unplanned Ti			0.00	173.00	31.03	45.30	11.03	119.79
11	RUN/CEMENT	3,390.0	3,390.0	24.00	66.45	41.66	63.42	56.22	70.85
12	Unplanned Ti			0.00	72.71	14.55	26.93	5.37	67.72
13	DRILL TO PR	3,390.0	7,149.1	72.00	439.50	263.96	239.13	156.70	327.18
14	Unplanned Ti			0.00	262.00	93.46	66.20	27.95	239.02
15	RUN/CEMENT	7,149.1	7,149.1	21.56	247.50	71.73	25.75	22.68	29.11
16	Unplanned Ti			0.00	64.50	14.52	21.56	17.06	26.75
17	PLUG & ABA	7,149.1	7,149.1	39.22	52.28	45.80	45.92	39.93	51.56
18	Unplanned Ti			3.76	6.72	5.27	7.63	4.23	7.96
19	RDMO (RIG D)	7,149.1	7,149.1	40.15	55.14	47.86	48.10	40.10	55.59
20	Unplanned Ti			1.11	2.60	1.83	2.37	1.52	5.18

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- Added Tieback and Tubing production string section types to the Casing pane.



- Well Cost Wizard - the Well Cost Wizard was redesigned to support a more intuitive workflow-driven experience that incorporates tree controls and simple input panels, which removes the former method of data entry in complex spreadsheets.

Wizard changes include:

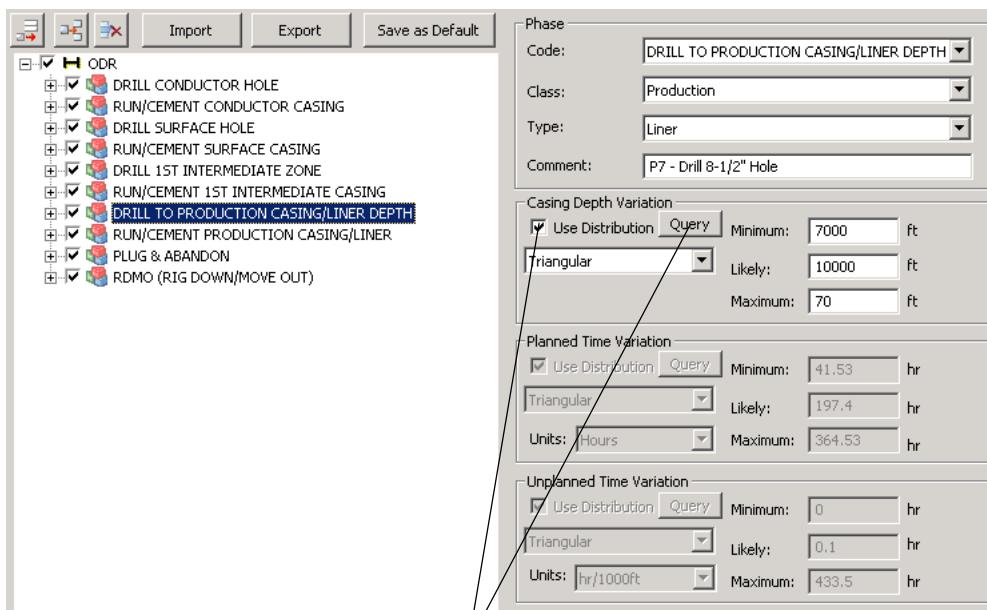
- Time input is now completely driven through the new Time Configuration panel. Previous versions of Well Cost software allowed input in the Deterministic and Probabilistic pane spreadsheets, which are now available primarily for review and analysis.
- Cost input is now completely driven through the new Cost Configuration panel. Previous versions of Well Cost software allowed input in the Cost pane spreadsheet, which is now available primarily for review and analysis.

#### *Variations on Time, Cost, and Casing Depths*

Well Cost software can be configured to use Phases or Activities to compute probabilistic outcome. This release adds options to use variations on Time (activities with risks), Cost, and Casing Depths.

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The screen below shows the Time Configuration tree's Phase panel. Notice the new Casing Depth Variation option.

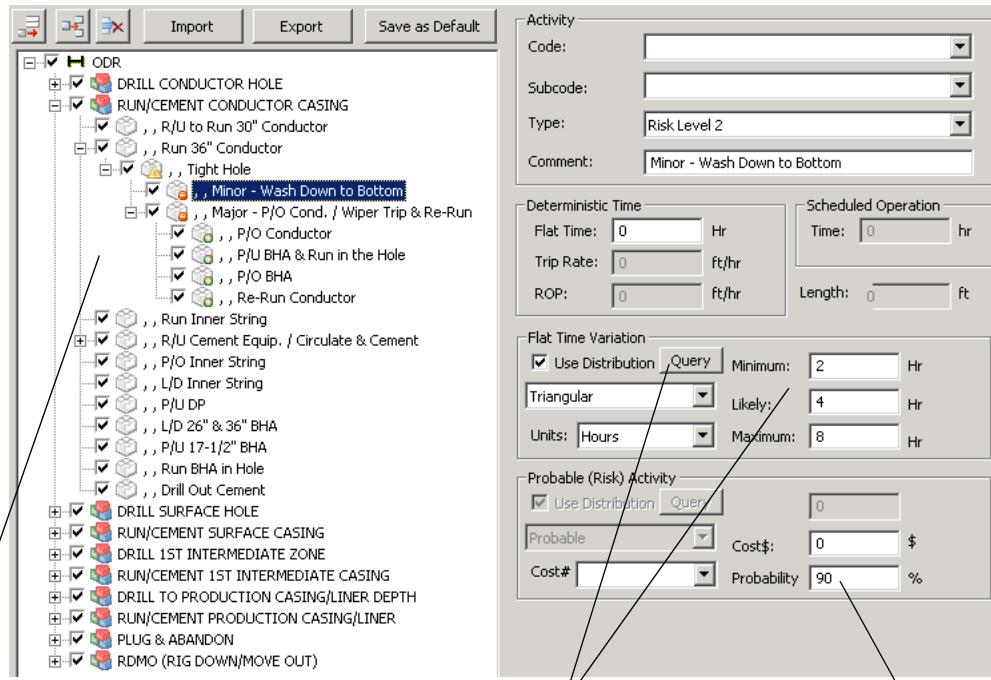


Variation on depth used.

Note the Query wizard option  
available to use depths from  
offset well data

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The screen below shows the Time Configuration tree's Activity panel. Notice the variation on time is used with a specified distribution. In this example, a variation on Flat Time is available.



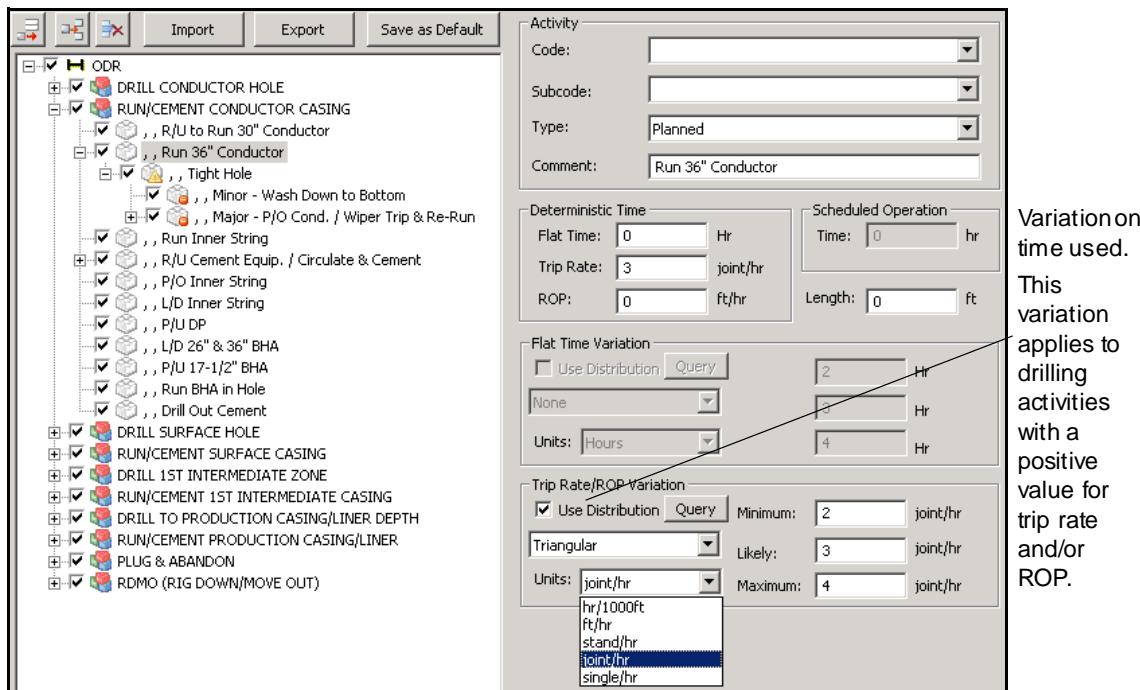
Time based activities, both planned and risk types, are now represented in a tree.

Variation on time used.  
Note the Query wizard option available to use times from offset well data

Ability to add probability to risk.  
In this case, there is a 90% probability that this risk activity will occur

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Distribution on drilling progress rate is also available, when Trip Rate and/or ROP is greater than zero.



Likewise, costs are presented in the Cost Configuration tree's Cost panel. Notice the variation on cost is used with a specified distribution. Multiple distribution types are available, such as Uniform, Triangular, Weibull, Normal, Lognormal, PERT, and Discrete.

### Menu and Toolbar Changes

Some changes were made to the Well Cost menu and toolbar. The changes reflect the redesign of the application to incorporate more powerful probabilistic analysis options, and the improvement towards a more workflow-driven interface.

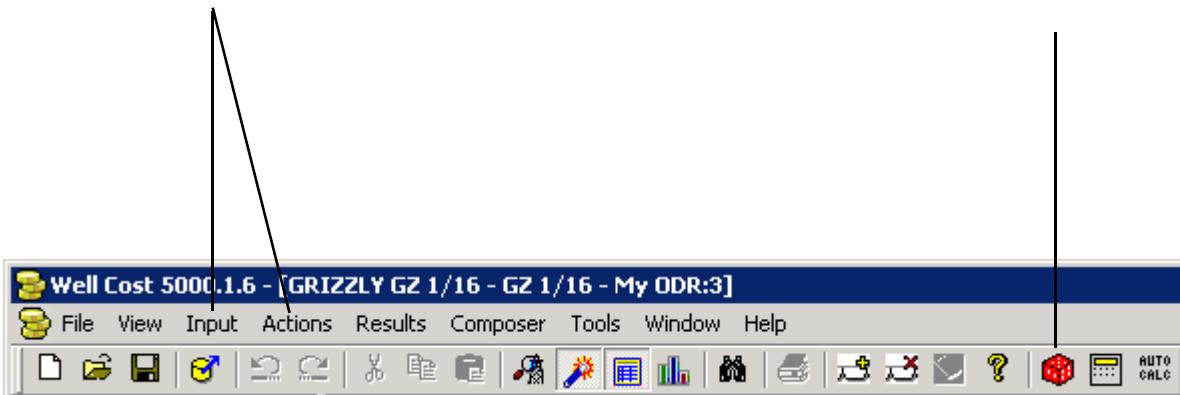
- Removed the Edit menu. The cut, copy, and paste functions that were found in the Edit menu are still available in the Composer menu.
- Renamed the Planning and AFE menu to [Input](#), and added the following new commands:
  - Probabilistic Options: The main options for the Monte Carlo simulation are controlled through the Probabilistic Options dialog box.
  - Time Configuration: The Time Configuration pane contains a tree that represents the activities and risks sorted by Rig Events. The pane is split vertically, with the tree on the left and a panel on the right. The content

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viewed in the panel area depends on the selected item in the tree. For example, if you select an activity in the tree, then the panel displays all activity related data Well Cost software uses to perform calculations.

- Cost Configuration - The Cost Configuration pane contains a tree that represents the costs sorted by cost categories. The default configuration contains Intangible and Tangible categories, which you can modify via the EDM Administrator Utility's Picklist Editor. The pane is split vertically, with the tree on the left and a panel on the right. The content viewed in the panel area depends on the selected item in the tree. For example, if you select a cost item in the tree, then the panel displays all data Well Cost software uses related to the selected item.
- Renamed the Time and Cost Configuration command in the Input menu to Config Spreadsheets.
- Added a new Well Cost toolbar button (  ) that runs the Monte Carlo simulation.

New menus: Input and Actions

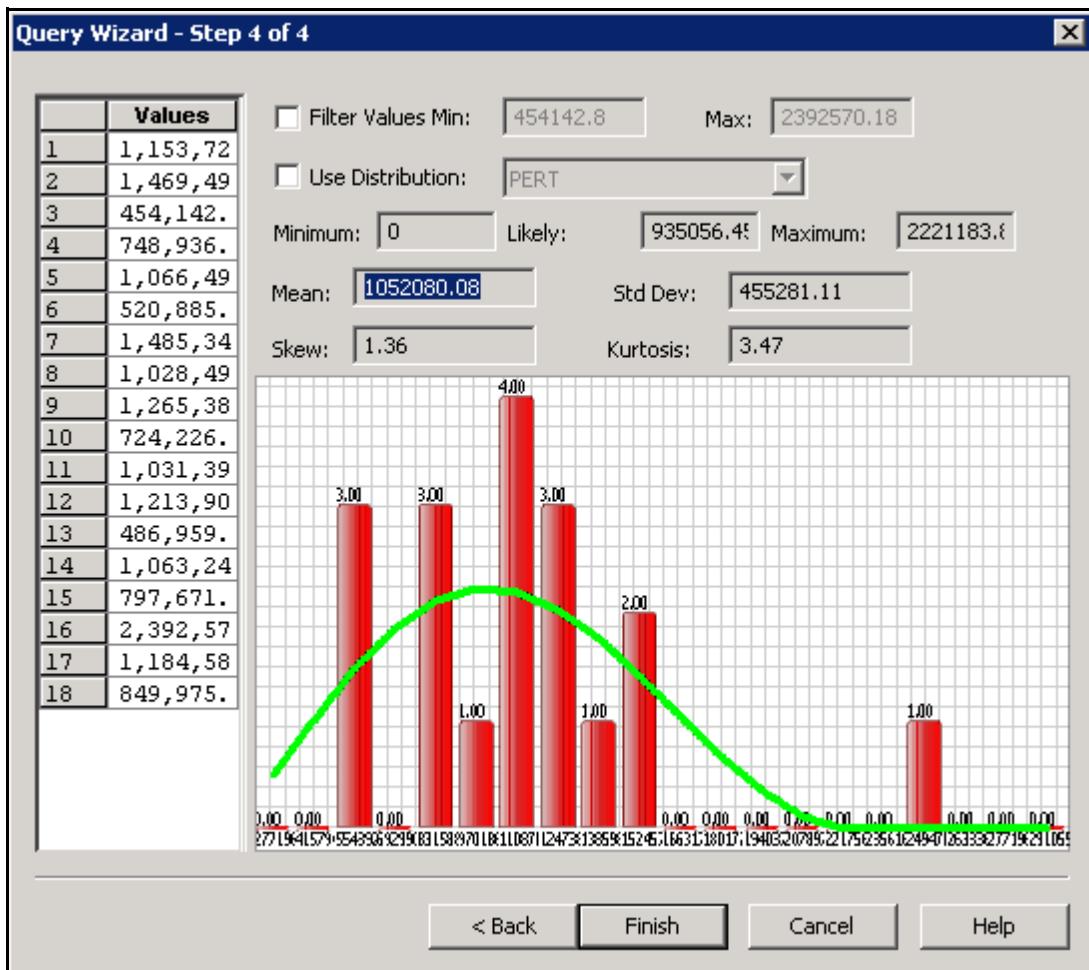


New button: Run Monte Carlo

### Query Tool

This release adds a Query Wizard used to analyze offset well data, which can come from other databases, or tabular files such as a Microsoft® Excel spreadsheet. The Query Wizard allows you to perform statistical analysis of costs, casing depths, activity times, and NPT frequencies for the purpose of using the distribution parameters, such as Minimum/Likely/Maximum, as the basis for variations on time or cost.

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Some users will recognize the general layout of the Well Cost Query Wizard, which is similar to the layout found in COMPASS software. The main difference is the last screen, shown above, which includes a roll-up of the data returned by the query. In this screen you can filter the data and apply various distributions to perform a more in-depth analysis before accepting the values for the variation.

### Open Query System

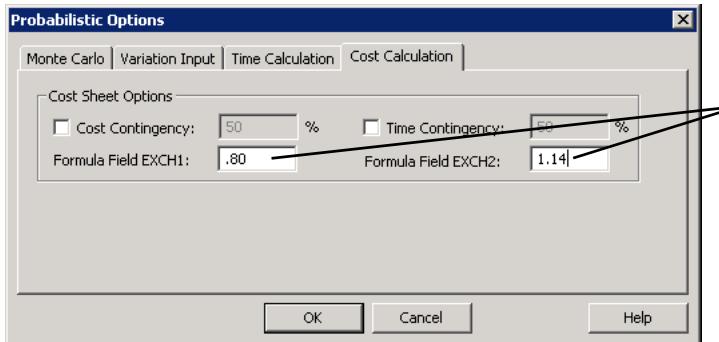
Well Cost software also extends keywords that can be used to request Offset well Cost and Time data.

### Cost Item Multiplier

Two new features are now available that allow you to compute cost items with either a:

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- Global multiplier: to apply a rate for currency exchange in the Probabilistic Options dialog boxes, or
- Cost specific multiplier: to apply a formula to a single cost item in the Cost Configuration pane's Cost Item panel, or the Cost Sheet.



Global multipliers in the Probabilistic Options dialog box's Cost Calculation tab.

Intangible			
3000	3000		
A	Drill Bits	User Entered	
B	Fluids - Drill	4,000.00 Day	
C	Logging	200,000.00 Fixed	
D	Casing	Casing	83,928
E	Services - C	1,000.00 Day	0.5
F	Cement	100.00 Single	(hsize^2-csize)
G	Tubing	100,000.00 Lump Sum	49,951
G	casing anon	200.00 Day	362
H	Tubing Runn	5,000.00 Single	
J	Another slic	100.00 Day	181
	<b>Fixed Total (\$)</b>	<b>0.00</b>	<b>Total (\$)</b> 135,329.06

Global multiplier or custom formula specified in the Cost panel

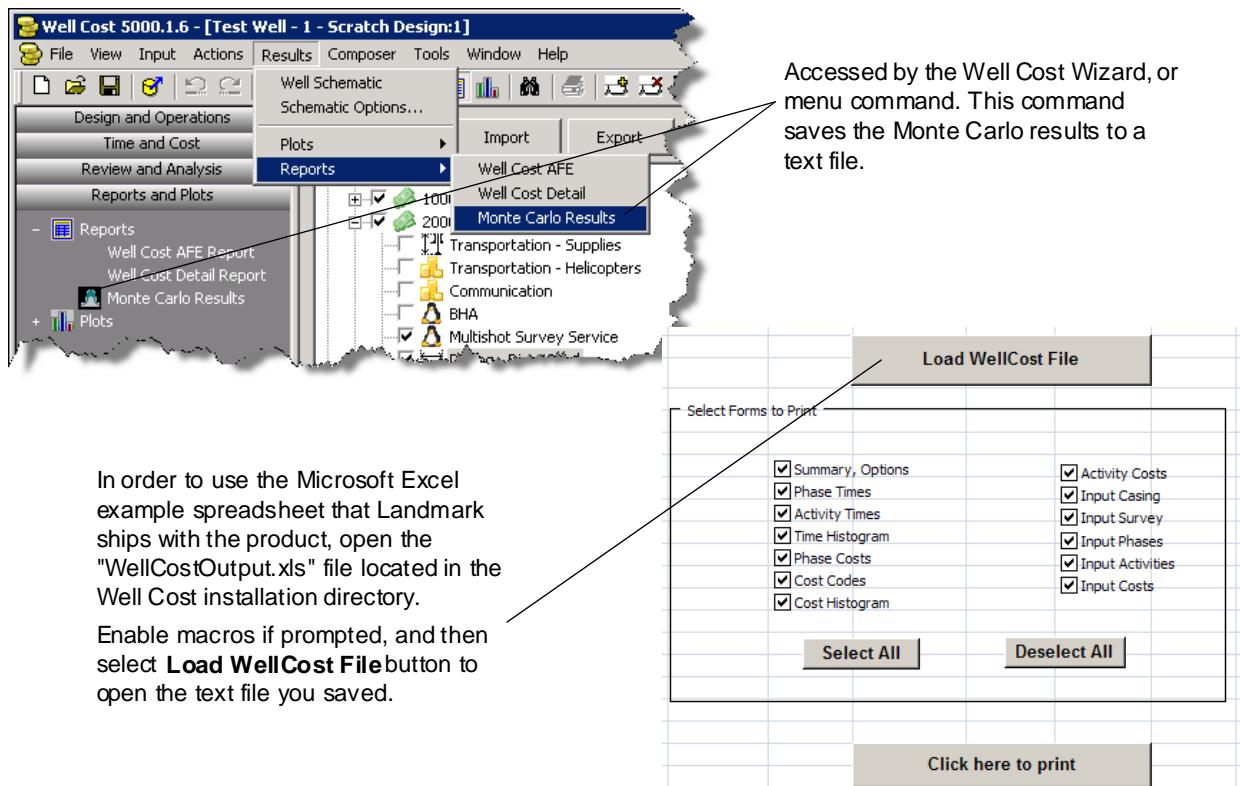
Subcode:	Subcode:
Description:	Custom Cost Item
Type:	Fixed
Comment:	
Cost	
Unit Cost:	00000 \$
Formula:	EXCH1
<input type="checkbox"/> Limit to Phases:	

Global multiplier or custom formula specified in the Cost sheet

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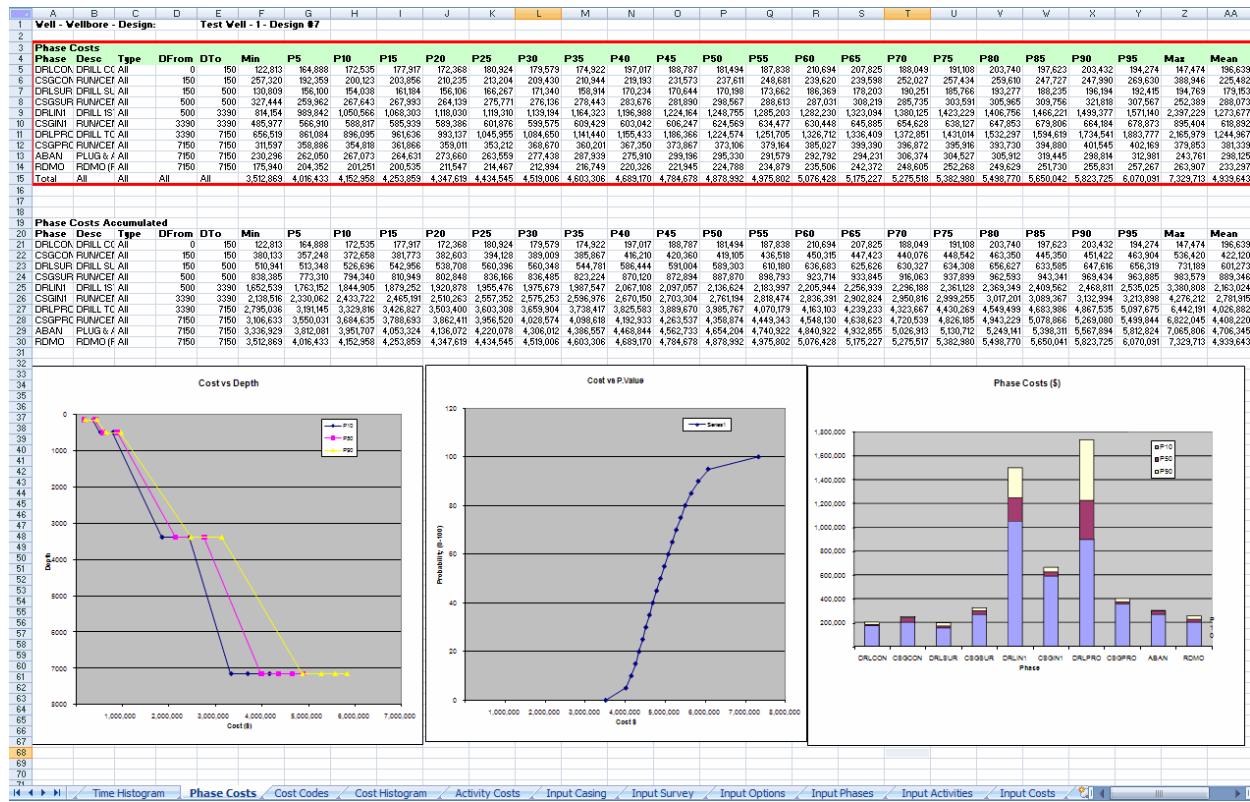
## Monte Carlo Results

The full results of the Monte Carlo simulation output is too large for all possible graphs or reports to contain, but can be reported to a text file. In order to generate Monte Carlo Results, the Monte Carlo simulation must be run at least once in a Design. The text file output can then be pasted-loaded into Excel as tab separated text.



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Notice that with the data loaded, all the tabs are now populated. In this example, the Phase Cost data and the corresponding charts display.

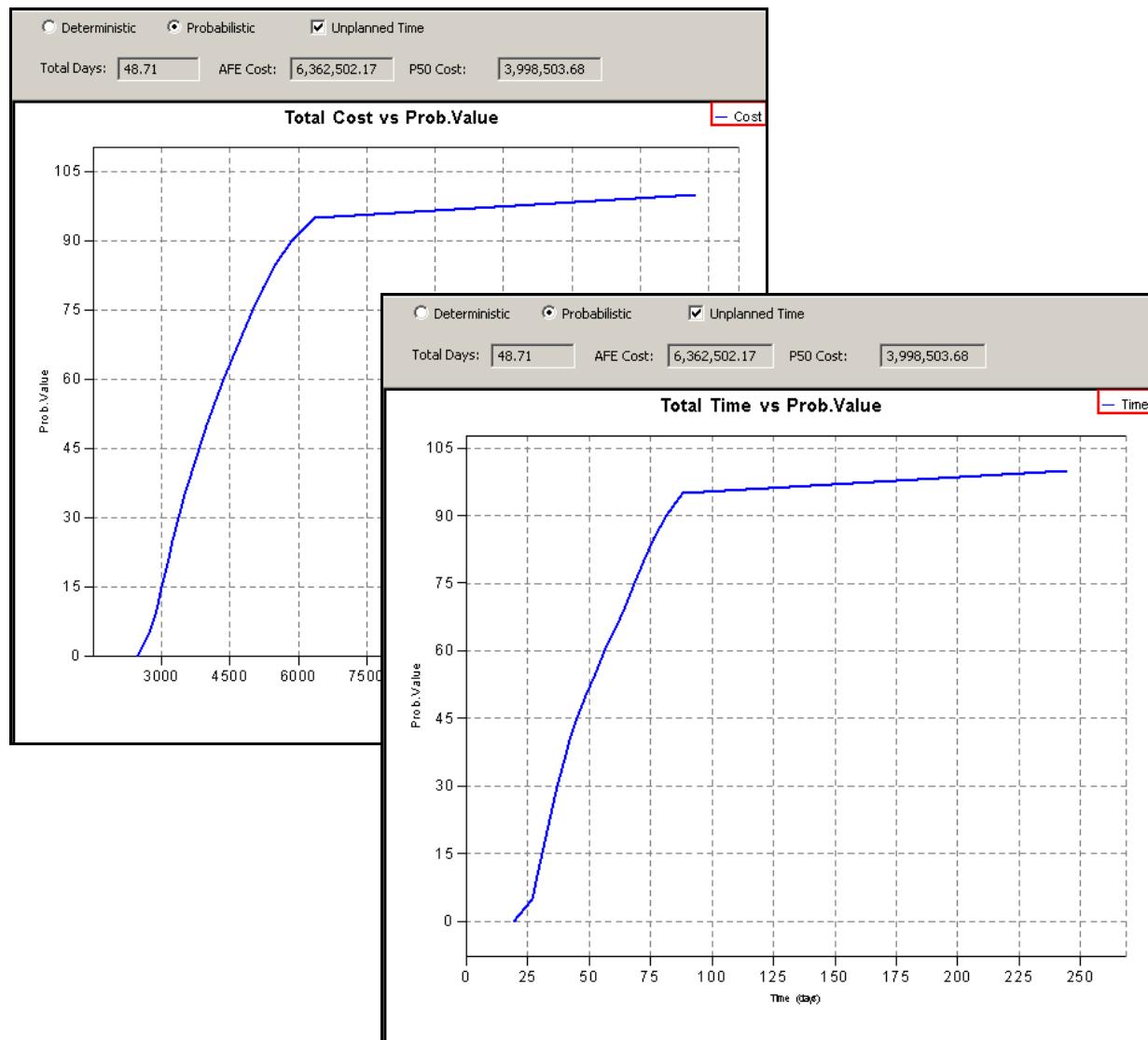


## Plots and Charts

With this release, additional plots and charts were added to the existing ones.

### Well Cost Plots

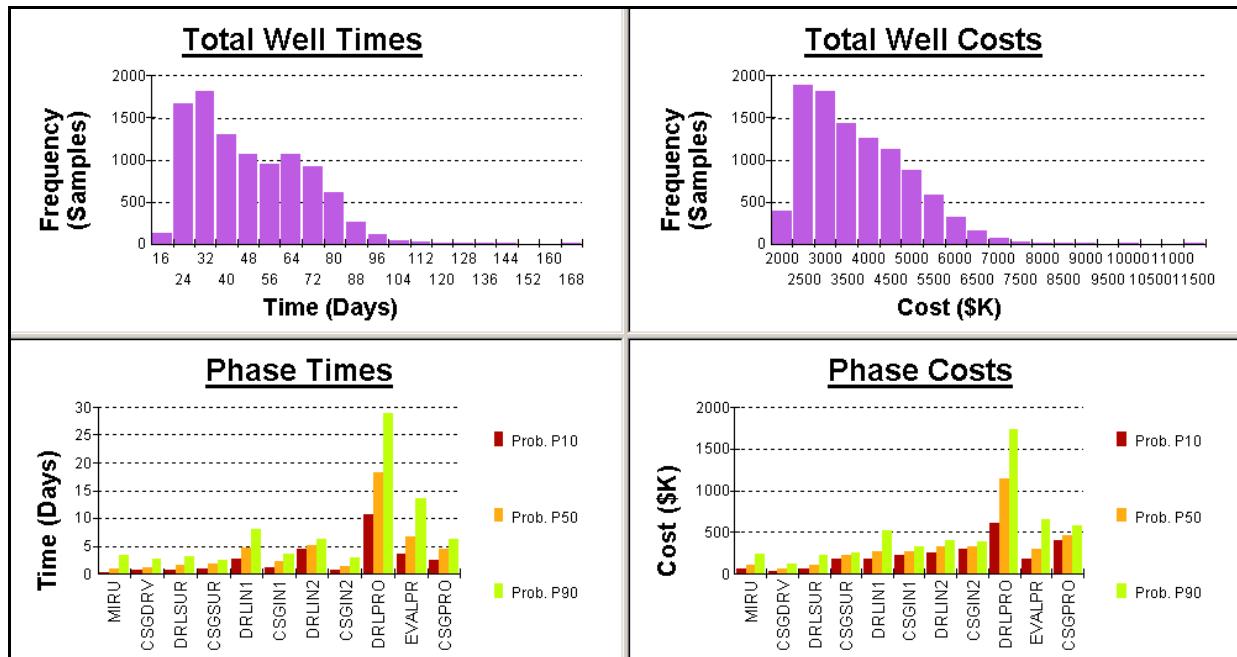
Wellpath	XY Graphs
Wellpath Section	Time vs Depth
Wellpath Plan	Time vs Cost
	Cost vs Depth
	Planned vs Actual (Time vs Depth)
	Time vs P. Value ( <b>New!</b> )
	Cost vs P. Value ( <b>New!</b> )

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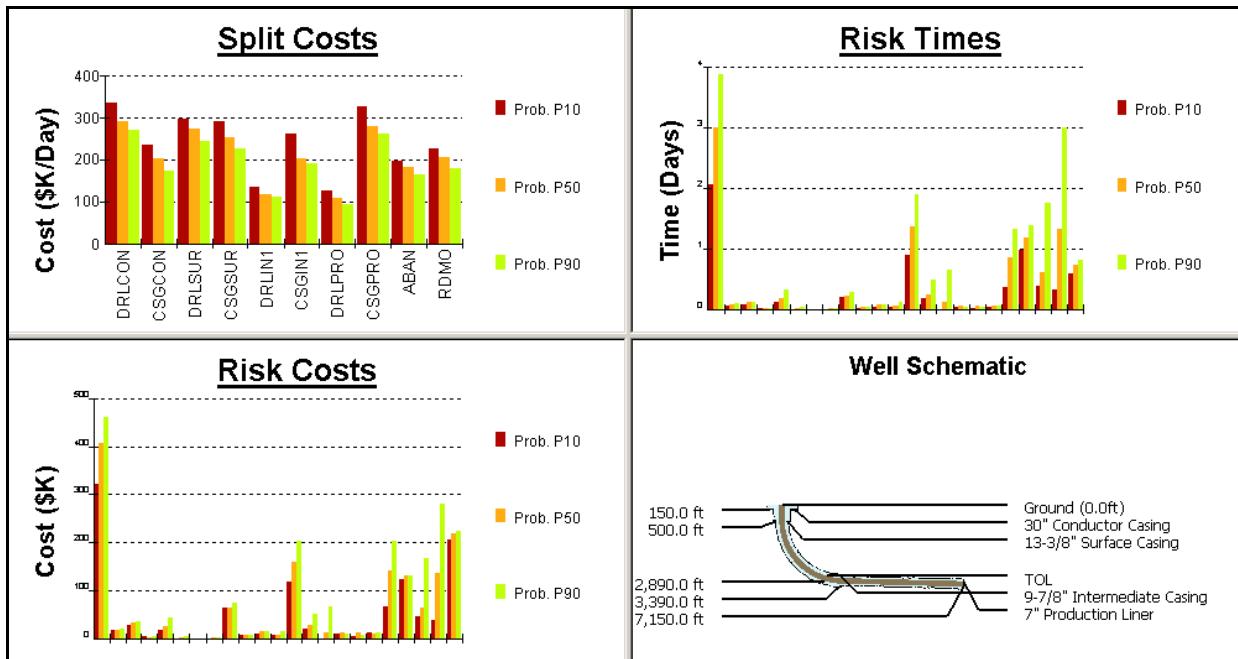
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### Well Cost Charts and Histograms

Pie Charts	Histograms
Deterministic Phase Time Pie Chart	Well Time Histogram ( <b>New!</b> )
Probabilistic Phase Time Pie Chart	Well Cost Histogram ( <b>New!</b> )
Probabilistic Intangible Costs Pie Chart	Single Phase Histogram
Probabilistic Tangible Costs Pie Chart	Offset Well Times
	Phase Time Histogram ( <b>New!</b> )
	Phase Cost Histogram ( <b>New!</b> )
	Split Cost Histogram ( <b>New!</b> )
	Risk Time Histogram ( <b>New!</b> )
	Risk Cost Histogram ( <b>New!</b> )



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### Online Help

An update to the Help includes a significant refactoring of the previous help system, including the following new topics:

- New approach to a Well Cost Workflow
  - How to configure Well Cost software, found in the new Workflow Configuration topic
  - Replacement of the previous workflows with a new Example Workflow
- List of all Well Cost specific tables found in the EDM database
- List of formulas and constants available to alter the Cost Sheet and Probabilistic cost calculations

### Release 5000.1.5

- Includes a new Report Manager version, which will reduce memory consumption, increase report generation speed, and contains various other improvements.

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### **Release 5000.1.4**

There were no enhancements to Well Cost for this release.

### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

There were no enhancements to Well Cost for this release.

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the Well Cost software.

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT software suite for the first time in this release. Well Cost enhancements include the following:

#### *Integration Enhancements*

- Well Cost is now included with the Engineer's Desktop suite of Drilling applications, starting with this release.

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- Well Cost can now construct a sequential Operations Program, and transfer Well Planning information to OpenWells.

On the Deterministic pane, click the **Transfer To Well Planning** button to transfer planning data to OpenWells.

	Phase Desc	Depth (ft)		Det Time		Prob Time	
		From	To	Hr	Cum Days	Hr	Cum Days
1	MIRU (MOVE IN/RIG UP)	0.0	0.0	5.00	0.21	83.39	3.47
2	DRIVE PIPE	82.0	460.0	25.76	1.28	24.24	4.48
3	DRILL SURFACE HOLE	460.0	1,500.0	17.66	2.02	66.35	7.25

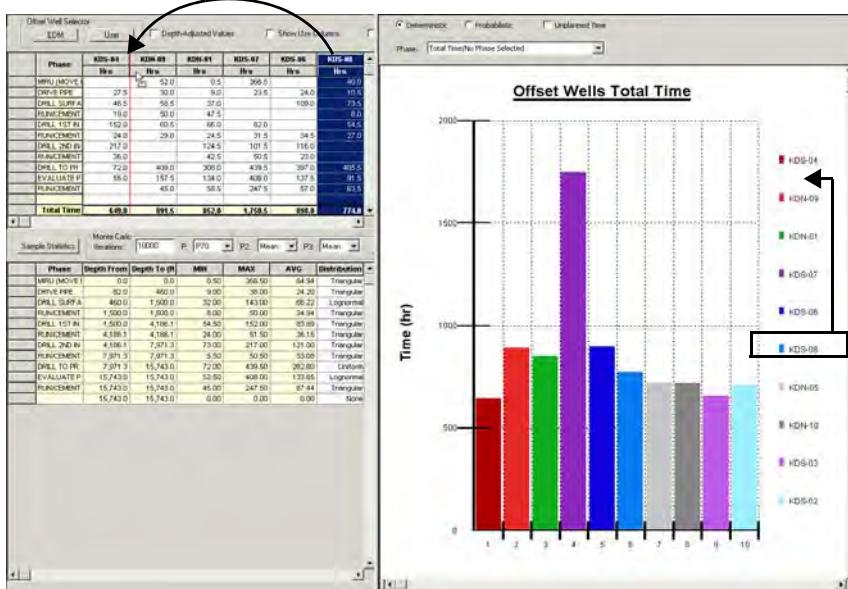
Figure 1: Transfer to Well Planning

#### Probabilistic Workflow Improvements

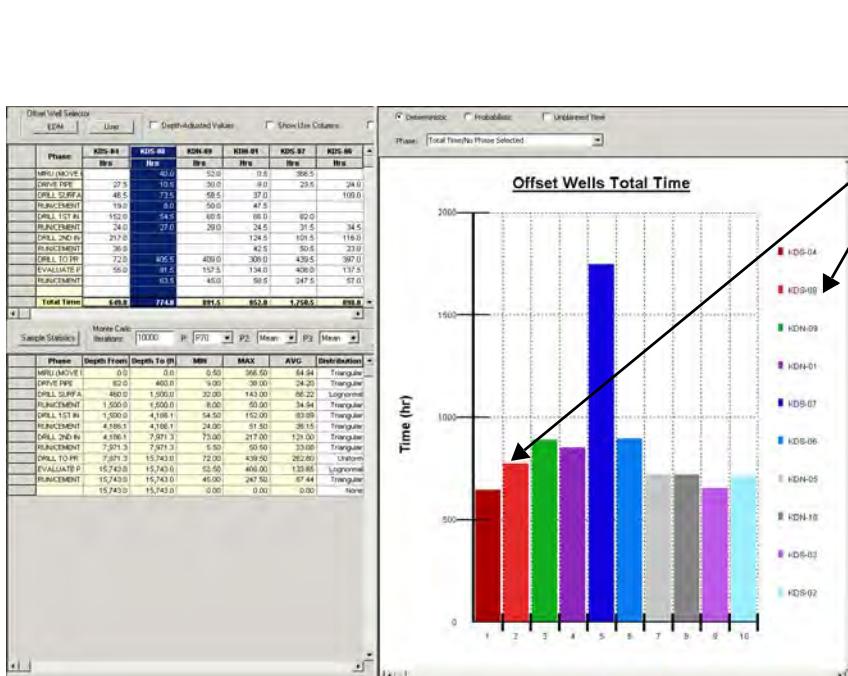
- Offset wells can now be reordered chronologically in the Probabilistic pane, with changes reflected in the Offset Well Times plot.

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Select a row to move, then drag and drop to the desired location.



Reordering the well will also reorder the Legend



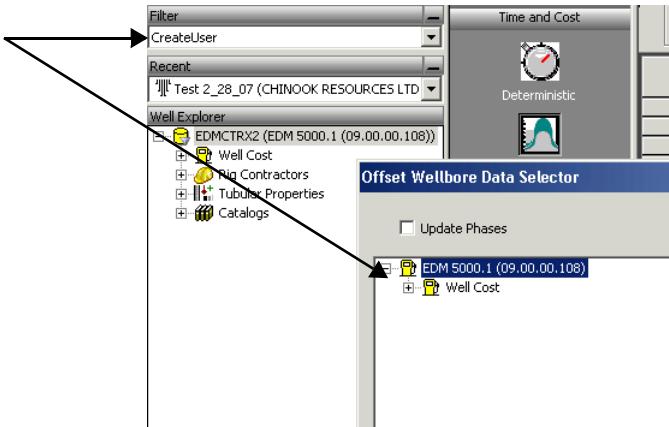
Notice the Well is now newly ordered in the Plot and Legend.

Figure 2: Reorder Offset Wells

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- Well Explorer Filtering applied to data tree in the Offset Wellbore Data Selector dialog box.

If a Filter is applied to the Well Explorer, it is also seen in the Offset Wellbore Data Selector.

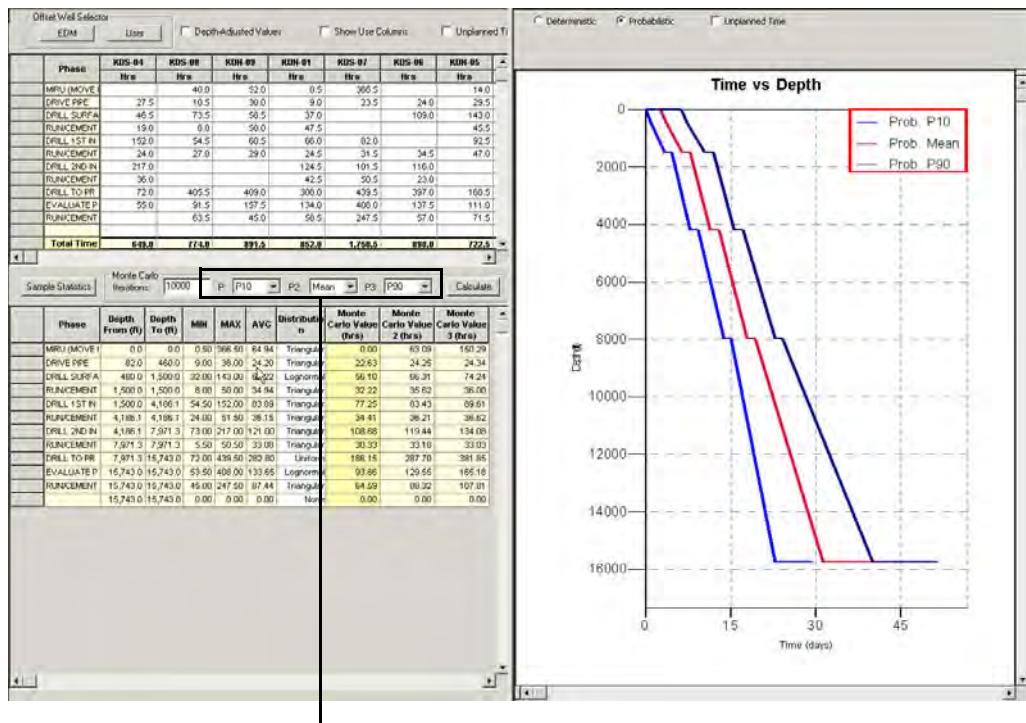


**Figure 3:** Well Explorer Filtering Applied to Offset Wellbore Selector dialog box

- Added picklists to the Probabilistic pane that allow you to apply three different P values, and display as many as three probabilistic time lines (without doing a freeze line) on the Time vs. Depth plot.

From these picklists, select either the arithmetic Mean, or a host of probability estimates from P5 to P95 (increasing in 5 percentage point increments). The three P values are applied to the Monte Carlo calculation. For example, if you select a P90 probability estimate then there is a 90 percent chance that actual results are greater than the P90 estimate. Therefore, P50 would be the median and P10 would indicate a 10 percent likelihood that the actual results are greater than the P10 estimate.

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Three P values on Probabilistic spreadsheet.

Each P value is represented with a line on the Time vs. Depth plot

**Figure 4:** Additional P Values on Probabilistic Spreadsheet and in Plot Results

The calculated results using the three P values display in the “Monte Carlo Value” columns in the lower Probabilistic spreadsheet. For example, P2 calculated results are seen in the “Monte Carlo Value 2” column fields. Also, the three P values are represented with an individual line for each value on the Time vs. Depth plot. Freeze line functionality is still available, but this feature allows you to quickly see the result differences when three distinct P values are applied to the data.

#### Note

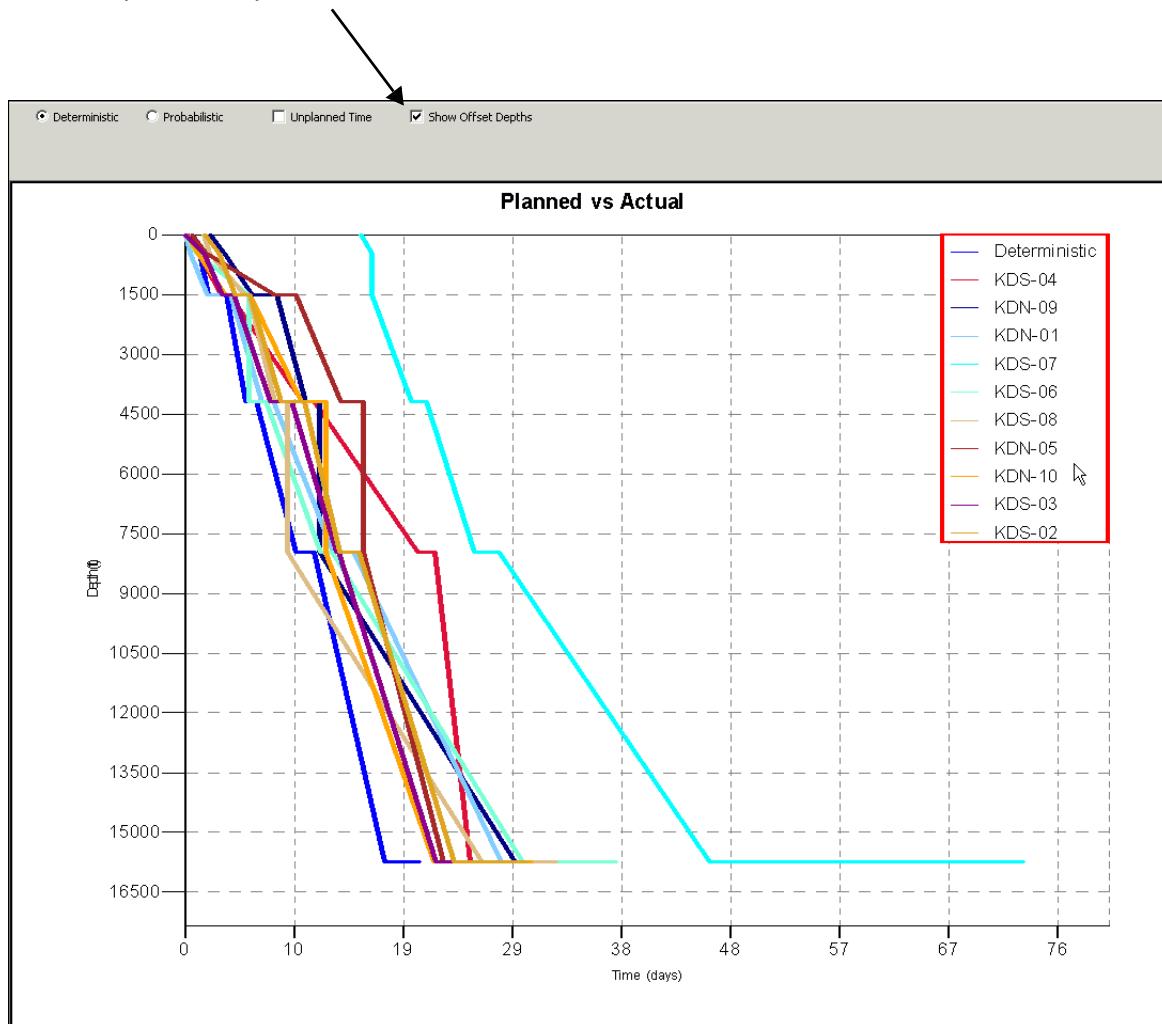
Only the first P value is used to calculate results in the Time vs. Cost plot, and is differentiated in the spreadsheet with a darker background color than the other Monte Carlo column fields.

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## Plots

- For the Planned vs. Actual (Time vs. Depth) plot, the Offset wells are now representative of the actual depths, not cut off at the same depth for all.

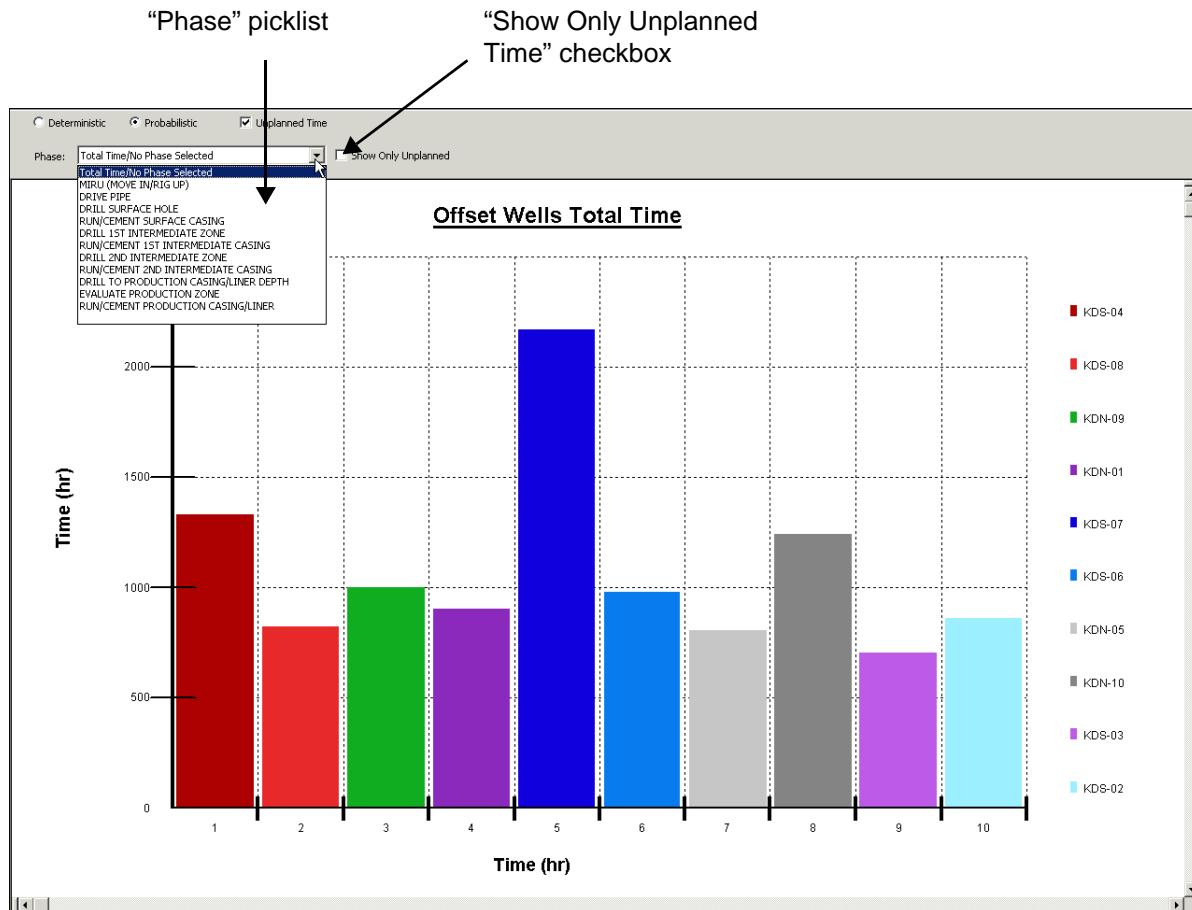
Activate the “Show Offset Depths” checkbox to include offset depths in the plot.



**Figure 5:** Show Offset Well Depths on Planned vs. Actual Plot

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- Added Offset Well Times plot, which includes plot controls that allow you to display unplanned time and individual phase time for histograms directly from the plot.



**Figure 6:** Individual Phases, Unplanned Time in Offset Wells Total Time Plot

### Toolbar Buttons

The following new buttons were added to the Well Cost toolbar.

- Auto Calculate** - added the Auto Calculate toolbar button ( ), which acts as an on/off toggle to either allow data updates display dynamically in plots when toggled on, or to improve performance when toggled off.
- Calculate** - added the Calculate toolbar button ( ) to allow a manual save of changes in memory to the Design.

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### SI Units

Implemented support for SI units.

### Regional Settings

Implemented support for regional settings to support Internationalization functions based on the Windows Regional Settings locale. When the Windows Regional Settings is set to a non-English language, translations stored by Well Cost allow the application to display in the specified language. Well Cost includes internationalized text translations in the following languages:

- English
- Spanish
- Portuguese
- Chinese
- Russian

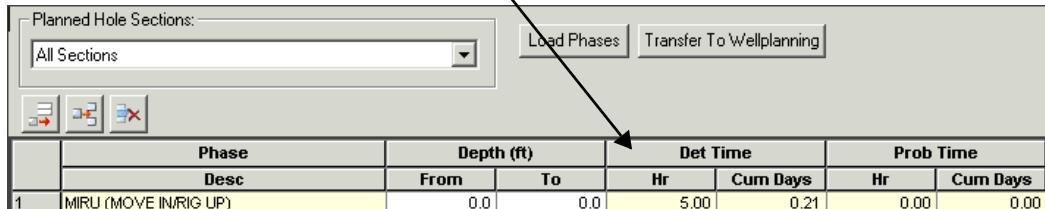
Additional languages can be added as required.

### Spreadsheet Improvements

The following spreadsheet enhancements were made in this release.

- Deterministic time is now differentiated for clarity in the Deterministic spreadsheet.

Deterministic Time differentiated from Probabilistic Time in Deterministic spreadsheet.



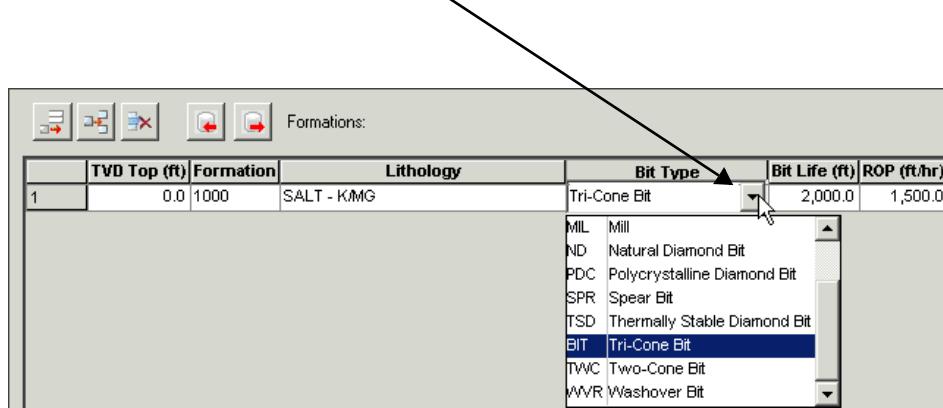
	Phase	Depth (ft)		Det Time		Prob Time	
		Desc	From	To	Hr	Cum Days	Hr
1	MIRU (MOVE IN/RIG UP)		0.0	0.0	5.00	0.21	0.00

Figure 7: Deterministic Time in Deterministic Spreadsheet

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- Bit types are now linked to EDM and displayed as a picklist in the Formation spreadsheet.

Bit Type picklist in the Formation spreadsheet.

**Figure 8: Bit Type Picklist in Formation Spreadsheet***EDT 5000.1 Software Common Well Explorer Enhancements*Click [here](#) to view a description of the EDT 5000.1.0 Well Explorer enhancements.

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## Well Cost Fixed Issues

The Well Cost issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### Release 5000.1.13.1

The following Well Cost issues have been fixed for the 5000.1.13.1 release.

Defect No.	Description
951122	Editing casing information can cause the casings to be displayed out of sequence or be orphaned.
951815	Distribution output values (such as P5 / P95 and Min / Max) should be the same for purely deterministic estimates but have been seen to differ when the number of simulation iterations is large.
951838	When the schematic options are changed, the well schematic does not automatically update. To update the schematic, another plot has to be opened first and then re-opening the schematic causes the new options to be applied.
951839	Formations cannot be deleted in the Formations pane.

### Release 5000.1.13

The following Well Cost issues have been fixed for the 5000.1.13.0 release.

Defect No.	Description
934025	Pressing the Get Actual Data from Reports button can yield an error on Oracle.
934026	The cursor changes frequently from the hour glass back to the pointer icon even when no operations are ongoing.
934027	The drop box for the Activity Code can present data off the screen making it hard to select items.
936226	All Well Risks defined as % are accounted for in last phase rather than being distributed to all phases.
936245	AFE Generation opens WellCostResults.xls when it should open WellCostAFE.xls.

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## **Release 5000.1.12**

The following Well Cost issues have been fixed for the 5000.1.12.0 release.

Defect No.	Description
912646	When checking the Use Distribution box for ROP Variation, the ROP Variation label changes to Trip Rate Variation.
915943	The Run Sample Statistics button on the Offset Wells pane is always disabled when analysis is done at the Activity level.
918969	When fitting a Normal distribution to historical data, the calculated parameters sometimes resulted in an invalid distribution.
919225	Pressing the Export to SQL button on WC Power Tools would cause the application to crash.
923271	Save throws error messages for a design created using a template if the Date Estimated field was not used on the design from which the template was created.

## **Release 5000.1.11**

The following Well Cost issues have been fixed for the 5000.1.11.0 release.

Defect No.	Description
717518	Spreadsheets: Should be able to do Multi rows selection for copy/paste and delete
738021	Need a provision for user to be able to apply certain costs to selective phases
739106	Need import/export functionality in probabilistic spreadsheet
741445	Show the current plot with a check box instead of not showing it on right click
743730	Need a way to remove well(s) that are populated in probabilistic via EDM
744675	Provide Estimated Days in General settings
771207	F7 click on Time and Cost Configuration dialog crashes the app (app disappears from screen)
869967	Help   Contact menu options do not launch expected HTML documentation
877428	Prob. Time Cum. Days column values in the Phases and Activities spreadsheet do not include Unplanned time hours.
877904	Activity Configuration Grid - if the activity code is dependent on the phase, the column is blank
877905	Importing an activity sequence (wca file), causes the activities to lose order.
877906	In Cost tree control, the code for a node item does not appear in the edit field
877908	Time vs Depth chart, starts at zero, instead of the 1st casing/phase start depth

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Defect No.	Description
877910	Fields in wc_deterministic_activity are not filled in for probabilistic values
877994	Well Cost terminates on use of 'File   Close' menu if multiple designs are open and maximized within the application window
878095	Activities that are added as 'Flat Time' & 'Scheduled Start' items are only being accounted for once and are not being repeated based on the 'Scheduled Operation' time value
882133	Expected Phases not displayed in Phase & Activities spreadsheet when Planned Hole Sections 'No Casing' option selected.
882408	After re-opening a design the cost values differ than those after simulation
882412	Can enter data when the Cost Type is empty
882423	Activities change on reopen
882426	No Cumulative button on the Risk Time graph
882431	Display issues Cost Sheet
882468	Multiple Well Risks per day not calculated correctly
882471	Simulator has a limited number of activities
882472	Casing sections, casing size & hole size data entry difficult when diameter units are " (inches)
882473	Spreadsheet - auto height adjustment annoying
882475	Well Cost does not permit more than 1 risk activity with the same code/subcode
882477	Cost \$ Label at top of cost spreadsheet does not update when unit system is changed
882480	Activity ROP/Rate db queries not configured correctly
882494	Selecting Flat Time can crash Well Cost
882495	Confusing labels in Offset Wellbore Data Selector
882505	AFE Report Shows empty content on citrix/oracle
882767	Phases marked 'Complete' are hidden for a 'Part Complete Well' analysis after design is saved.
882768	Use of 'Part Complete Well' option can lead to loss of phase variation data
883141	Lump sum cost which spans phases gives wrong result in probabilistic simulation
883271	Well path data does not use local settings
883619	Offset well phase time queries do not distinguish wellbores on the same well.
883834	Close shuts all open designs rather than just the selected one
883902	Hard for customer to know how to modify formation data

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Defect No.	Description
884324	View Panel not always visible
884896	Crash on Reloading
884898	On opening a design, the General Information button is not depressed
886431	Casing is required for phases with no downhole requirement
886701	Need new Defaults for Distribution Query Feature
887218	Lump Sum costs calculated incorrectly for multi-well scenarios
888554	Warn user when max number of phases, activities, or costs is exceeded
892572	Pre Well and Post Well Casing types do not fill in the Class or Type
893346	Cannot specify NPT Codes from WC Power Tools
893365	Hard to edit data in WC Power Tools
897921	Phase comment longer than 40 chars gives Java error & loses data
897922	Copying phases+activities to another design changes risk probability values
897924	Day Cost limited by phase, when phase is out of scope it calculates costs for all phases
899281	Add Phase and Costs by Description instead of Code
899292	Need Replicate Capability for Activities
903916	Monte Carlo Output Report shows "default" data if TEMP folder does not exist
903918	Unit System Changes are not applied to stand, joint, and single lengths
904091	ROP and Trip Rates of 0 causes result in large time estimates
905987	Multiple Risk Wells do not calculate properly
906774	Well Cost Reports do not support logos
908338	Risk End requires Code/Subcode Pair
908350	Sort the Offset Well Selector by name
908479	Min and Max Values are incorrect in the Monte Carlo Output Report

### **Release 5000.1.10**

There were no Well Cost issues fixed for this release.

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### **Release 5000.1.9**

The following Well Cost issues have been fixed for the 5000.1.9 release.

Defect No.	Description
785055	If wellpath is copied with target design open, the cost codes disappear.
838648	Entering hours for a Deterministic analysis generates "Cell G2: ERROR: non-numeric operand" error dialog box.
839402	Output report 'Well Cost AFE Report' missing expected cost breakdown data.
855978	Offset well selector dialog box hangs with a large EDM data set.

### **Release 5000.1.8**

There were no Well Cost issues fixed for this release.

### **Release 5000.1.7**

The following Well Cost issue has been fixed for the 5000.1.7 release.

Defect No.	Description
832667	Rounding and precision problems with cost and time entries in Cost and Cost Tree dialog boxes.
832669	In the Query wizard, if some input values are zero, then the model comes up with probable distribution. But, the wizard does not have this in the menu.
832822	Under specific conditions, attempting to launch multiple copies of Well Cost can cause the application to terminate.
832984	Unit Lengths in Time Calculation Probabilistic Options do not fully support unit conversion.
833052	Selection of a number of XY Graph options in Wall Plot Composer leads to termination of Well Cost.
833053	Three of the XY Graphs options do not add/display a plot in Wall Plot Composer.

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### **Release 5000.1.6**

The following Well Cost issue has been fixed for the 5000.1.6 release.

Defect No.	Description
831035	User Configuration files and Monte Carlo Results maintained in common directory location on Citrix environment.
832632	Activity data lost on data import due to incorrect Well Cost table meta data.

### **Release 5000.1.5**

There were no Well Cost issues fixed for the 5000.1.5 release.

### **Release 5000.1.1 through 5000.1.4**

There were no Well Cost issues fixed for these releases.

### **Release 5000.1.0**

The following Well Cost issues have been fixed for the 5000.1.0 release.

Defect No.	Description
733966	Add a picklist for Bit Type in formation spreadsheet.
739003	Add a column that displays the row number in Deterministic tabs.
740226	All spreadsheets in Well Cost should have numbers in first column like other applications.
741839	Wall Plot tab does not save with a Design.
742610	Duplicate depths populated in formation on import.
743339	Display Deterministic/P10/P90 values on the TVD charts as standard, rather than having to run the Monte Carlo 3 times & freeze lines.
744649	Reload for Casing updates not consistent with other EDT applications. User must close and reopen Design to see Casing data copied from another application.
744696	Add picklists for entering cost codes and sub cost codes in cost spreadsheet.
745046	EDM or User selected wells in offset selector are not preserved.
746824	Need the ability to sort or arrange offset Wells.
747705	Tabs do not resize for long names.

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Defect No.	Description
747993	Performance issue with opening, copying, saving and creating a Design.
748274	Need a title for well schematic.
750319	Metric entry displayed as feet in Mixed API view.
751877	Flickering issue in Citrix environment for certain Well Cost pages.
752577	Phases Load save warning should be handled from within the dialog box.
753143	Time for Deterministic should mention Deterministic for clarity in Deterministic spreadsheet.
754198	Adding "no" User wells removes EDM wells.
756969	Cost spreadsheet has issue with regional settings where comma and decimal are flipped.
767554	Deterministic filter does not work.
767560	Plots should update live with data entry, not after save.
767562	Need way to deselect offset Wells in the Probabilistic cost section.
767567	Transfer AFE to OpenWells creates two Events. Should populate the Event Est. AFE Date and Est. Cost.
767569	Create AFE does not populate cumulative costs (DM_AFE.cumulative_costs).
767576	Implement an auto calculate button similar to Data Analyzer and WELLPLAN.
767577	Associated data well path stations are invalid.
767791	Freeze line does not work on the plots. Need to show P10, P50, and P90 lines on the plot.
767793	Planned vs. Actual plot for offset Wells needs to represent the actual depths, and not cut off at the same depth for all.
767796	Add a Well Cost start token to the EDM Administration Utility.
767844	Regional and Language Options now recognize comma as a decimal separator for Russian regional settings in Well Cost.
768201	Auto Phase loading not working.
768233	The name of the offset Well should use the Well names, not the Wellbore names.
768321	Unable to delete User created offset Wells.
768324	Well Cost can now construct a sequential Operations Program, similar to the same operation in Landmark's DrillModel application. The Operations Program that Well Cost creates feeds directly into the Operations Program in the OpenWells Well Planning form.
770307	Now able to save plot settings for Offset Well Times, and Single Phase Histogram.

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Defect No.	Description
770921	Transfer AFE to Event's Choose Event dialog box appears only once, and Cancel button no longer crashes Well Cost.
771337	Well Plots reflect unit conversions when Units are changed.
771416	Tubing/Casing Size are now disabled if open hole is selected.
771565	Users can now enter values in the Monte Carlo iteration field completely before attempting to validate the data entry.
772348	Well Cost now supports Norwegian locale in the Well Path Editor.
772349	Fixed the problem of casing section picklists containing a “.” instead of “,” in Non - English locale in order to allow selection of these types of values.
772363	Corrected cost discrepancies in Deterministic Intangible Pie Chart.
773457	Line colors can now be changed in plots.
776863	Well and Wellbore names now display correctly in the Offset Well dialog box.
777192	Unit system in reports now match the active unit system.
777193	Deterministic cost table is no longer truncated in the report.
778038	Well Cost Detailed Report now includes the TVD Top field populated from data in the Formations tab.

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## **Well Cost Known Issues**

The following Well Cost known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13.1**

There are no additional Well Cost known defects for the 5000.1.13.1 release.

### **Release 5000.1.13**

There are no additional Well Cost known defects for the 5000.1.13.0 release.

### **Release 5000.1.12**

The following is a Well Cost known defect for the 5000.1.12.0 release.

Defect No.	Description
717514	Copy/Paste shifts data by two columns in the Offset Wells pane.
767546	Plot properties are not saved with the design.
911265	If the Well Schematic is being displayed, any changes to the design are not reflected unless another plot is selected first before re-opening the schematic.
916485	If the EDM Administrator is used to import a configuration, then the event picklist linkages are deleted. WC Power Tools must then be used to manually recreate the settings.
918385	Percent (%) consequence calculates incorrectly if a risk well is included

### **Release 5000.1.11**

The following is a Well Cost known defect for the 5000.1.11.0 release.

Defect No.	Description
912439	Sometimes the Well Cost application generates the WellCost AFE Report and does not remember the current result, even after running Monte Carlo, but will update as soon as the design is closed and reopened. It may take as many as three times opening and closing the design before the report updates correctly.

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Defect No.	Description
913872	<p>The AFE Report generated through Results -&gt; AFE Report does not sync up with the current information in the Well Cost design.</p> <p><b>Workaround</b> Close and re-open Well Cost, open the design, and then regenerate the report. After doing this the information in the report will match that in the design.</p>

### **Release 5000.1.10**

There were no additional Well Cost known issues for this release.

### **Release 5000.1.9**

The following are Well Cost known issues for the 5000.1.9 release.

Defect No.	Description
771208	Plots - Schematic options should be independent of each other.
775842	Updating a depth in COMPASS wellpath adds an extra station in Well Cost.
777764	Copy/Paste of Design shows the costs for only Casing Type correctly in pasted design; other Types are blank, and hence the Total Costs are incorrect.
778019	Probabilistic values persist when offset wells are removed.
779783	In a specific scenario, opening Design causes Pie Plots to be blank (delete plots is also in picture).
818042	The exported Well Cost Detail Report in Excel type contains wrong format.
855630	The 'Risk End' activity does not restrict 'Risk Well' time on a Probabilistic Phase analysis.
855633	Use of 'Risk End' activity disables deterministic phase time input.

### **Release 5000.1.8**

There were no additional Well Cost known issues for this release.

### **Release 5000.1.7**

There were no additional Well Cost known issues for this release.

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### **Release 5000.1.6**

The following are Well Cost known issues for the 5000.1.6 release.

Defect No.	Description
832066	When accessing Well Cost help by using the shortcut Help > Release Notes, there is an error opening the help document if your system is running Acrobat 8.

### **Release 5000.1.1 through 5000.1.5**

There were no additional Well Cost known issues for these releases.

### **Release 5000.1.0**

The following are Well Cost known issues for the 5000.1.0 release.

Defect No.	Description
770173	Need to improve the performance to load the Offset Well Data Selector.
770993	Well Cost should handle <Invalid> Grade Names and not throw exceptions while opening a Design.
771207	F7 click Time and Cost Configuration dialog box crashes the Well Cost application.
774491	Custom Rows added after disabling everything in Costs tab is not shown at all.
776851	Plot legends do not resize with plot window.
780156	Negligible Total Estimate value difference between Cost Spreadsheet, Well Cost Detailed Report, and Well Cost AFE Report (\$0.20 difference with \$4.18 million estimate)

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## **WELLPLAN™ Software**

[Enhancements](#)[Fixed Issues](#)[Known Issues](#)

The 5000.1.13.1 release adds new and drops some existing [supported platforms](#), plus adds enhancements, fixes, and known issues from the 5000.1.0 and subsequent EDT releases. There are no changes in the WELLPLAN software for the 5000.1.13.1 release.

### **WELLPLAN Enhancements and New Functionality**

The WELLPLAN enhancements and new functionality for releases 5000.1.0 through 5000.1.13.1 are described below.

#### **Release 5000.1.13**

There are no enhancements to WELLPLAN for this release.

#### **Release 5000.1.12**

There were no enhancements to WELLPLAN for this release.

#### **Release 5000.1.11**

There were no enhancements to WELLPLAN software for this release. Many improvements related to WELLPLAN software have been addressed in the DecisionSpace® Well Engineering application. For information on DecisionSpace Well Engineering, visit the Landmark website: <http://www.halliburton.com/landmark>.

#### **Release 5000.1.10**

There were no enhancements to WELLPLAN for this release.

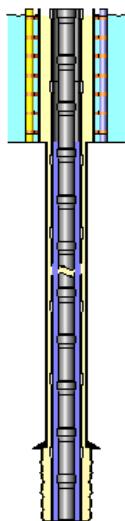
#### **Release 5000.1.9**

A new Riserless/Inner String Analysis mode has been added in this release. For riserless and/or inner string configurations, use this analysis mode to predict the total hook load (inner and outer strings), and stresses acting along the outer string while

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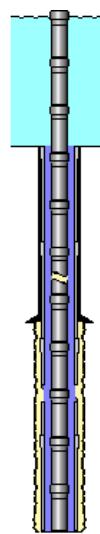
tripping in or out of the wellbore. This analysis mode uses the soft string model. Like the Drag Chart analysis mode, the calculations are performed over a range of depths. A buckling limit factor can be used to adjust the constants when calculating buckling limit. Fluid columns can be specified individually for the string, inner annulus, and outer annulus. Standoff devices can be added to the outer string. A new report and wallplot template have been added to this new mode.

The following six scenarios are supported. The first four scenarios are offshore (subsea or platform), and the last two scenarios are onshore.



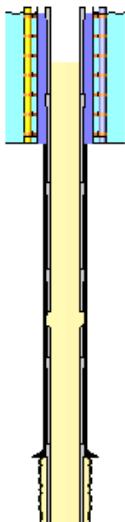
### Scenario 1

**Location:** Offshore  
**Riser:** Yes  
**Outer String:** Yes  
**Inner String:** Yes  
**Top of First Casing:** (Riser)  
**Top of Outer String:** Surface  
**Top of Inner String:** Surface



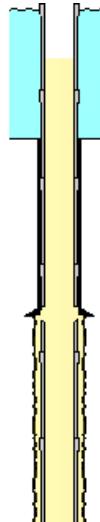
### Scenario 2

**Location:** Offshore  
**Riser:** No  
**Outer String:** Yes  
**Inner String:** Yes  
**Top of First Casing:** Wellhead  
**Top of Outer String:** Wellhead  
**Top of Inner String:** Surface



### Scenario 3

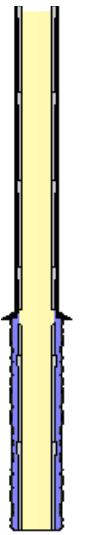
**Location:** Offshore  
**Riser:** Yes  
**Outer String:** Yes  
**Inner String:** No  
**Top of First Casing:** (Riser)  
**Top of Outer String:** Surface  
**Top of Inner String:** N/A



### Scenario 4

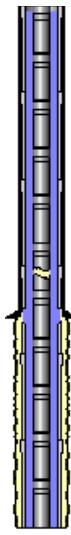
**Location:** Offshore  
**Riser:** No  
**Outer String:** Yes  
**Inner String:** No  
**Top of First Casing:** Wellhead  
**Top of Outer String:** Surface  
**Top of Inner String:** N/A

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### Scenario 5

**Location:** Onshore  
**Riser:** N/A  
**Outer String:** Yes  
**Inner String:** No  
**Top of First Casing:** Surface  
**Top of Outer String:** Surface  
**Top of Inner String:** Surface



### Scenario 6

**Location:** Onshore  
**Riser:** N/A  
**Outer String:** Yes  
**Inner String:** Yes  
**Top of First Casing:** Surface  
**Top of Outer String:** Surface  
**Top of Inner String:** Surface

### Release 5000.1.6 through 5000.1.8

There were no enhancements to WELLPLAN for this release.

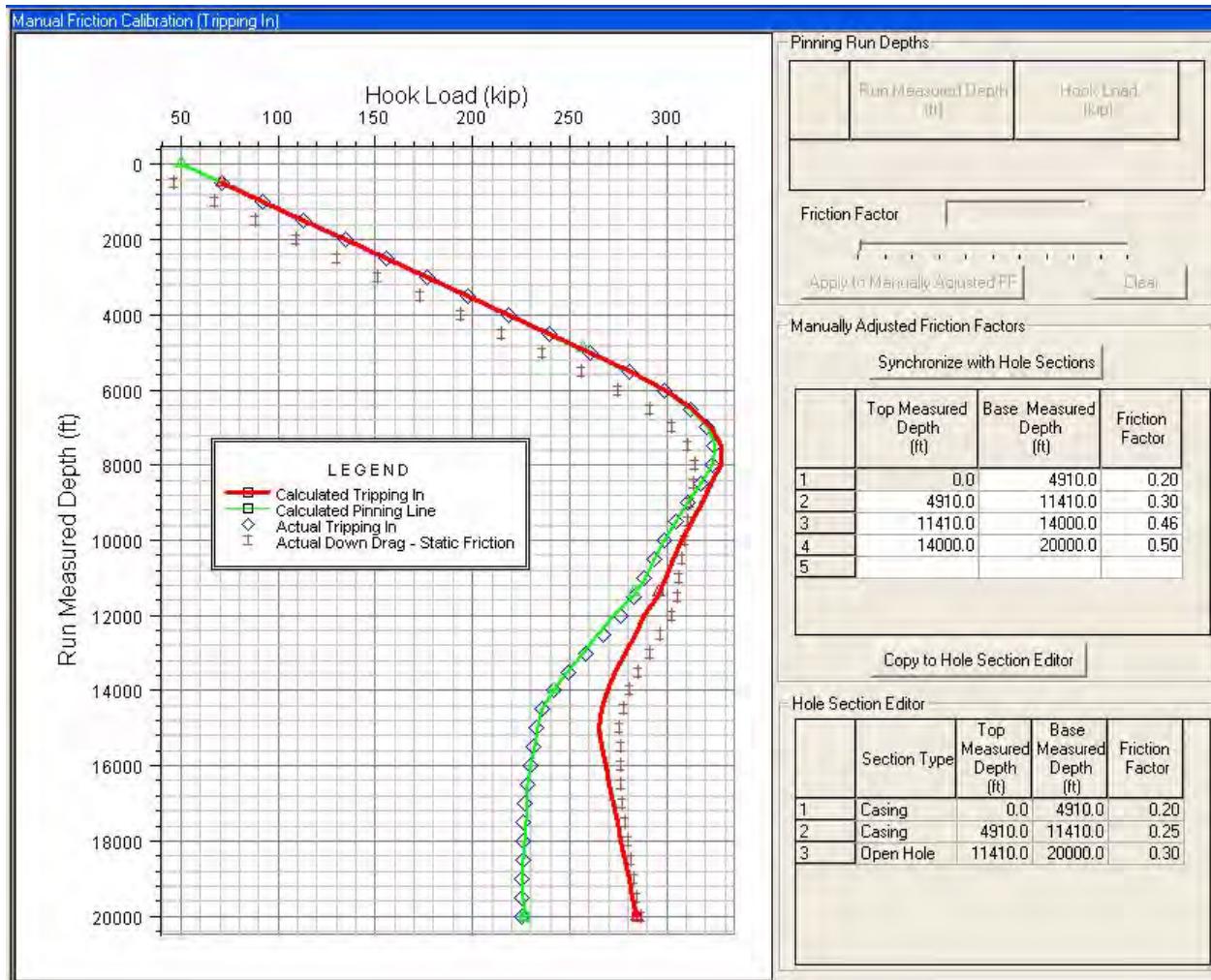
### Release 5000.1.5

- More flexibility in calculating friction factors is now possible using the new Manual Friction Calibration/Hook Load Chart. Using this chart, you can:
  - Calibrate friction factors for multiple cased and open hole sections
  - Calculate a weighted average of calibrated friction factors
  - Create new sections corresponding to user defined intervals with individual calibrated friction factors
  - Automatically update the Hole Section Editor using the calibrated friction factors. A weighted average of the calibrated friction factors can be applied to existing hole sections, or new sections using calibrated friction factors can be added.
- Includes a new Report Manager version, which will reduce memory consumption, increase report generation speed, and contains various other improvements.
- Friction Factor upper limit has been increased to 5.

The following is a screenshot of the new Manual Friction Calibration/Hook Load Chart. The Calculated Tripping In curve (red) is the calculated load line using the friction factors specified on the Hole Section Editor. The Calculated Pinning Line (green) is the

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load line using the calibrated friction factors displayed in the Manually Adjusted Friction Factors section of the view. The calibrated friction factors can be manually updated at any time. When updating the Hole Section Editor, the weighted average of calibrated friction factors can be applied to existing hole sections. Alternatively, new sections with calibrated friction factors can be added to the Hole Section Editor.



#### **Release 5000.1.4**

There were no enhancements to WELLPLAN for this release.

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### **Release 5000.1.3**

- New platforms are supported.

### **Release 5000.1.2**

There were no enhancements to WELLPLAN for this release.

### **Release 5000.1.1**

WELLCAT was added to the EDT suite of applications for the first time in the 5000.1.1 release. Also, some Common Well Explorer enhancements were made. (See [EDT™ Software](#) for details). This update release improves the import/export and sharing of Grades, Pipes/Connections between StressCheck and WELLCAT, improves the integration between StressCheck and WELLCAT, and repairs critical defects affecting key StressCheck and WELLCAT application functions. There were no additional enhancements for the WELLPLAN software.

### **Release 5000.1.0**

The 5000.1.0 release of Engineer's Desktop supports the Microsoft Vista operating system, has new LAM (FLEXnet Publisher) licensing and contains some critical bug fixes. Well Cost was added to the EDT suite of applications for the first time in this release. For the WELLPLAN application, the following enhancements were made:

#### **Cementing**

- OptiCem™ software enhancements:
  - Update version to 6.1.4
  - Enhance Animation when mud cake is present
  - Recommend back pressure if float equipment fails
  - Mud Erodibility calculations enhanced when compressible or synthetic fluids are present in the wellbore

#### **Torque/Drag**

- WELLPLAN TDA includes a stretch calculation in its Summary Loads table which shows stretch solely due to mechanical forces (weight/drag). WELLPLAN stretch calculations have been enhanced to include stretch due to thermal expansion of materials in order to predict more realistic stretch. This will yield a true calculation of the difference between drillers depth and wireline depth (compensated).

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- Options for entering Friction Factors in Torque Drag have been simplified. If data from a previous version utilized *User-Defined* or *Calibrated* coefficients of friction, these coefficients will automatically be input into the Hole Section Editor.
- Geothermal Gradient dialog box was added.

## Hydraulics

- Mud Pits added to Hydraulics Circulating System. This functionality provides the option to calculate the flowing fluid temperature from the mud pit to the drillstring at the surface using the mud tank geometry and environmental conditions such as wind speed, ambient temperature.
- Maximum Pump Power, Maximum Allowable Pump Rate, and Standpipe Pressure were added to applicable Hydraulics modes for reference.
- Minimum flowrate to clean hole added to Pressure Loss plot as a line of interest for quick reference.

## Surge

- Optimize trip speed option was removed from Surge/Swab Operations Data. It is now possible to use the Optimized Trip Schedule to view results for entire open hole.
- Surge/Swab Optimized Trip Schedule plot is enhanced to show Maximum and Minimum Trip Speeds.
- All the Transient Response Plots are grouped together.
- Plots are enhanced to allow usage of MD/TVD, and EMW/PSI toggles, and legends now display trip speeds.

## Well Control

- Well Control: Kill Sheet quick view results are enhanced to show the Kill Mud Weight Details, with and without Trip Margin.
- Well Control Plots are enhanced to show the Casing Burst and BOP Pressure Ratings.

## Stuck Pipe

- Stuckpipe calculations were enhanced to show the Jar positioning.

## BHA

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- Overgauge field was removed from BHA modules. Use Volume Excess in the Hole Section Editor to define the amount of washout.

## Real Time

- Real time hydraulics calculations were enhanced to support Mud Temperature Effects and Back Pressure.
- Real Time Plots were enhanced to configure the actual scatter data.

## Reports

- All reports have been organized to display tables in logical order and are sequentially numbered.
- All reports were updated to accommodate new changes, address outstanding defects, and improve format.

## General Engineering

- Convert Depth/EMW is updated with Maximum Pore Pressure and Minimum Fracture Pressure for engineering analysis.
- PSI/EMW and MD/TVD toggles support across all of the engineering plots and tables (within the application, Wall Plots).
- Right-click copy to clipboard support for all the grid data.
- Geothermal Gradient Plot added to Geothermal Gradient dialog box.
- WELLPLAN software status messages are Case-specific and color-coded to denote Errors, Warnings, and Information.
- Bit Specifications dialog box is enhanced with Bi-Center bit parameters.
- Simplified the design of the Hole Section Editor.
  - The number of hole section types was simplified to Riser, Casing, and Open Hole. If a Case created with an earlier version is opened using the 5000.1 version, any non-supported components will be treated as casings.
  - Excess % is now used to represent an overgauge hole.
  - A number of columns can be hidden by checking the Additional Columns box on the Hole Section Editor.
- Maximum Allowable Pump Rate added to Circulating System.
- Enhanced the design of the Fluid Editor by presenting a Simplified Fluid Editor for Solid Mechanics modules, and an Advanced Fluid Editor for Fluid Mechanics modules.
- A 'Close All' option was added to the File Menu, allowing the user to close several open Cases at the same time.

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- Disable icons for modules that are not licensed.
- Now supports negative string components in the String Editor.
- Various engineering bug fixes were done.

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## **WELLPLAN Fixed Issues**

The WELLPLAN issues fixed for 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13**

There are no WELLPLAN issues fixed for this release.

### **Release 5000.1.12**

There were no WELLPLAN issues fixed for this release.

### **Release 5000.1.11**

The following issues were fixed for the 5000.1.11 release of WELLPLAN software.

Defect No.	Description
899820	Update Help > About and Splash Screen. Refresh these for 5000.1.11
904943	Security failure message when trying to open a different or same module in a different case to the first case opened
905989	Instant Case Crash "LgcDwsWP.HydHitJetTFA.1"
906617	Catalog Editor wont run unless tda.dll is moved from the wellplan\bin folder to the common files folder

### **Release 5000.1.10**

The following issues were fixed for the 5000.1.10 release of WELLPLAN software.

Defect No.	Description
832334	Max surge pressure at TD is different from 2003.16.1.25 in the dataset.
855662	Unable to generate a drag chart when running a liner on drillpipe. Normal analysis also locks up.
855895	The calculated results in T&D module from the Top-Down analysis are not being seen.
859886	Th unit is wrong for the HB model.
862895	Differences in Hydraulics output (ECD values) between R2003 and R5000.

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Defect No.	Description
871044	Transient response plot differences between R2003.16 and R5000.1.9 when using standoff devices.

### **Release 5000.1.9**

The following fixes from the 2003.16.1.27 WELLPLAN patch have been ported to the 5000.1.9 release.

Defect No.	Description
806411	Hydraulics - ECD shows a spike when underreamer is used.
814202	Torque and Drag -Discrepancy in the results when Viscous drag option is used in Top Down analysis.
824225	Torque and Drag -In top down analysis the "Bending stress" becomes very high when the pipe speed changes from 8ft/min to 9.
827053	Stuck Pipe Module- Wrong validation prevents calculating Yield values.
829644	Hydraulics - When the string depth is reduced the ECD and Volume percent plots change drastically.
830391	Hydraulics - In the pump rate fixed quick look ECD at shoe has been added.
830582	Torque and Drag - Distance from TD & Frequency for the stand-off-devices were properly accounted.
830979	Report - Units not visible in report header. Hydraulics, pressure: Pump Rate Fixed, Pressure/ECD.
831785	Torque and Drag - Tension point chart X axis-label does not update when selecting the tension depth option.
833735, 855846	Torque and Drag - Measured Depth changed to Distance along String for all Normal Analysis plots.
835503	Stuck Pipe Module- Wrong validation prevents calculating Yield values in the Yield Plot.
836243	Torque and Drag - Application hangs when running long section to be modelled coupled with multiple friction factor.
839179	Catalog Editor - Cannot resize catalog selection dialog box.
839337	Report - Hydraulics Report error in EMW unit and rounding off.
839584	Report - Torque and Drag Report units are not showing up on the output tables.
840477	General - Application crashes on exiting a case after flipping plots to Grid mode on a very specific workflow.
841164	Torque and Drag - Vertical axis plots have been updated with consistant labels
841311	General - In certain cases security Failure accessing module without rights error.

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Defect No.	Description
844373	Well Control - Low frequency crash with animation and a plot.
844395	Well Control - The bottomhole pressure fix after circulating the kick.
844567, 844572, 844000, 852518	Help - GHB, Tooljoint and Non-Newtonina updated.
844572	Help - Tool Joint Pressure losses verbiage incorrect.
844706	Help - Help on Surge with regard to related topics is missing Non-Newtonian Fluid.
848784	General - Two close messages (for CASE data types) for every open message.
849056	Hydraulics - ECD fix when including Cuttings.
850415	OptiCem - Animation crash.
855840	Stuck Pipe Module - Backoff Analysis wrong label - Rotary Table Torque.
855841	Hydraulics - ECD chart does not display for shallow depth when temperature option is selected.
855842	Hydraulics - String ECD line removed from the ECD chart.
855843	Opticem - Pore and Fracture lines removed from the Final Density plot.
855845	Torque and Drag - Casing shown without proper data causes high buckling limit
855849	Hydraulics - Saving and opening the case with the holecleaning results in view changes the results.
847603	Clone of 808251. Hole Cleaning - inconsistent results. On the Hole Cleaning Module (Minimum Flow Rate vs RPM, and Minimum Flow Rate vs ROP analysis) WELLPLAN seems to become inconsistent at times, providing incorrect results that can be very far away from the expected ones.
847604	Clone of 826828. Top Down Analysis - it seems to over predict after certain load at surface (data set specific), up to 180 kips results match in this case

The following defects were also fixed in the 5000.1.9 release.

Defect No.	Description
844395	WELLPLAN Well Control "feature" calculation issue for Plot - Pressure at Depth.

### **Release 5000.1.8**

There were no WELLPLAN issues fixed for this release.

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### **Release 5000.1.7**

The following issues were fixed for the 5000.1.7 release of WELLPLAN software.

Defect No.	Description
833765	Difference in load results for a "Tripping In" operation
833954	Differences in "Calculated Tripping In Hook Load (kip)" values in Manual Friction Calibration plot and its data

### **Release 5000.1.6**

The following issues were fixed for the 5000.1.6 release of WELLPLAN software.

Defect No.	Description
816981	WELLPLAN Kill Sheet report results does not match with calc. values
816983	Depth interval to check in KT mode is confusing as it is not depth
816984	Final density plot should not have lines for frac and pore as they wrongly represent in the plot
828318	Hole Cleaning operations results change for the same input data
828946	Remove String ECD line from the ECD chart plot
828947	STU-Backoff Analysis, "Rotary Table Torque" wrong label
828949	Only ECD chart does not display and all other hydraulics results are okay
829295	Directory path truncated when viewing single or multiple slurries
829653	Removed the "top/bottom" stabilizer sections from the Advanced Mud Motor details dialog box
830602	WELLPLAN Toolbars changing position and order at random.

### **Release 5000.1.5**

The following issues were fixed for the 5000.1.5 release of WELLPLAN software.

Defect No.	Description
782260	TDA centralizer placement calculation uses the 1/1 freq and joint making the TDA calculation override the spacing from centralizer placement.
791337	Clicking OK after entering DB Credentials to local SQL Server 2005 causes WELLPLAN to crash in jnilib.dll.
793361	Pore pressure in the Pore Pressure Editor exceeded the limit of 1200 rows.

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Defect No.	Description
799855	Application crashes when selecting a Custom Bit catalog.
799859	Bit Nozzles: Application crashes when you click the Copy to String button.
800822	Operational plot generates errors when using a port collar in the string.
805884	WELLPLAN crashes when trying to open a catalog that contains data including double quotes in a character field.
808661	Hydraulics Module, Security Failure accessing module without rights.
812990	Incorrect hole section defined in dual tubing design configuration.
812993	WELLPLAN ignores the presence of VIT pipe in the well configuration, which is OK; however, pipes other than VIT shown to have problems defining the correct open hole section length.
813617	Help button does not work on Picklist Editor.
815096	OpenWells-WELLPLAN integration: CD_HOLE_SECT.cof not coming from OpenWells in WELLPLAN - create case from Daily Operations Daily Entry Form.
816587	In both R5000 and 2003.16.1, WELLPLAN report data within tables is not aligned correctly within the boxes.

#### **Release 5000.1.1 through 5000.1.4**

There were no WELLPLAN issues fixed for these releases.

#### **Release 5000.1.0**

The following WELLPLAN issues were fixed or have workarounds for the 5000.1.0 release.

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## General Fixed Issues

Defect No.	Description
726666	WELLPLAN Schematic does not show correct depths with custom unit set.
728769	The Status Message Toolbar can become grayed out when selecting a Swab Surge (Steady State) Wall Plot Composer data box without entering any input data. To re-activate the Status Message Toolbar, close and re-open the WELLPLAN application.
743759	The String Editor will now set the top component(s) length to zero if the string depth is less than the hole section depth.
747532	The toggle MD and EMW toolbars buttons will remove all frozen lines from a plot. (A curve is “frozen” by right-clicking on the curve and selecting Freeze Line.)
749011	When creating a design and case from OpenWells software, it is not possible to select pore pressure or fracture gradient data.
751479	It is possible to create multiple fluids with the same name.
751851	Custom base fluid name and compressibility data is not imported with the fluid library (*.lib.xml).
752214	Convergence angle/location should be exposed in the Well Explorer for engineering applications
752443	When a Case is created, the first row (0 for MD, Inc, and Azi) of the wellpath should not be editable.
752437	In a Citrix environment, an incorrect parameter error is thrown, and the operation is aborted when importing a Caliper log from the local drive.
753796	Remove Tau0 from yield point description.
764205	Default file name of Library export file is not intuitive to users.
768007	Software crashes when using under reamer and checking diverter through component percentage different than 75%.
772371	Crash when importing a workstring from a library after importing using DEX™ software.
772539	The Well Explorer displays Russian characters as question marks.
773975	Bit TFA does not change when Jet nozzle row is deleted.
779899	Tab name is not correct when tab order is changed.
782311	Custom labels and descriptions entered using Russian characters in the Data Dictionary are displayed as question marks.

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### Torque Drag Fixed Issues

Defect No.	Description
757751	For Tripping In operation (Using SOD's) drag chart torque does not match with that of Normal analysis for Rigid Centralizers.
773646	Torque Drag Analysis Tortuosity Magnitude now allows 10 rows.
774165	WELLPLAN software will only take into account buoyancy effects when the first survey point is defined at MSL as MD=0
774345	Abnormal program termination when focus is on the STF column in TDA Load Summary and then the F2 key is clicked.
775739	The tension limit line in the effective tension plot in T&D module has a limit of 2000 kips.
777588	Bucking lines are not displayed on the Effective Tension plots.
781701	Torque results for Drag Chart analysis using standoff devices may change slightly as a result of modified calculation.

### Hydraulics Fixed Issues

Defect No.	Description
732200	MD Calculation Interval was increased to 500 rows/ intervals.
773542	In the Hydraulics module, the ECD and circulating pressure calculations were not performed correctly when an undereamer was in the string.
780488	For some data sets, the Transport Analysis Data dialog box is validating against the wrong fields.

### Well Control Fixed Issues

Defect No.	Description
772593	Kick calculation model showing wrong depth for pore pressure and fracture lines of interest.
778074	Well Control Influx Volume results may change because volume interval calculation increments are now based on barrels.

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### *Surge Fixed Issues*

Defect No.	Description
730213	Stand frequency scaling improved in trip schedule when there is no variance over trip schedule.
731477	When using the Surge Module, there is an abnormal software termination if one of the moving pipe depths is close to the additional Depth of Interest.
744572	SrgGraphUI error is thrown on activating Surge module or report the very first time on a new database. Workaround: Close and re-open the case.
753423	When using the Surge module, if the Depth of Interest equals the Shoe Depth, the Depth of Interest will be increased five (5) feet and calculations will proceed. A warning message will also be displayed in the Status Messages area.
768337	Swab/Surge results are not calculated when an undereamer is included in the string.
772322	Inaccurate results when viewing plots using EMW when the units class for pressure is changed to psig.
782255	Accuracy improved for Optimized Trip Speed using oil based muds.

### *OptiCem Software Fixed Issues*

Defect No.	Description
748745	In OptiCem software, the Quality Surface plot is missing data for some data sets.
748754	Displaying an animation plot on top of another animation plot that has been fully played may take a significant amount of time.
749373	If you no longer have the centralizer that was used when the centralizer data was transferred to the standoff devices (for Torque Drag Analysis), a warning is displayed.
784003	For some data sets using synthetic mud, the circulating pressure is over-predicted on the Circulating Pressure and Density plot when using the erodibility option.

### *Stuck Pipe Fixed Issues*

Defect No.	Description
769620	Display the Stuck position (below or above the jar centerline) as quick view in the analysis results.

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### Real Time Fixed Issues

Defect No.	Description
750232	Mnemonics defined are not transferred via xml files for the Real Time cases.
778578	Real Time ECD at TD and the standpipe pressure results do not match the results from the Hydraulics module.
782345	The calculated ECD at TD using the Real Time Module does not match the ECD calculated using the Hydraulics Module (Pump Rate Fixed).

### Reports Fixed Issues

Defect No.	Description
730691	On rare occasions, data may not display on a report launched for a non-active module. Workaround: Activate module, trigger calculations, and then relaunch reports relevant to the module.
730942	Foam flag added to fluid rheology data block in report for Generalized Herschel-Bulkley fluids to indicate when fluid is foamed.
739399	Random abnormal terminations when launching the reports the first time resolved.
740616	Occasionally, it takes a long while to launch the Pressure losses report the very first time. Workaround: Launching the report second time does not take as long.

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## **WELLPLAN Known Issues**

The following WELLPLAN known issues for releases 5000.1.0 through 5000.1.13.1 are described below.

### **Release 5000.1.13**

There are no additional WELLPLAN known issues for this release.

### **Release 5000.1.12**

There were no additional WELLPLAN known issues for this release.

### **Release 5000.1.11**

Defect No.	Description
896358	Drill String graph doesn't update.
900539	Catalog Editor fails while typing make in Mud Pumps
901447	Torque Point Plot when POI is @ bit for the Rotate On Bottom operation shows the torque at bit of the Backreaming operation
908914	Hydraulics > Steady State Surge and Swab > ECD vs. Trip Time is being affected by the temperature and cuttings, even though they are not included in the Parameters (operations data) interface.
910524	Data and graph in mode Hydraulics-Operational display incorrectly when having opened any plot in mode Hydraulics-Parametric before

### **Release 5000.1.10**

Defect No.	Description
874152	Entering load values that physically do not make sense in the Top-Down Analysis dialog might display erroneous (NaN) results or halt the application. (I.E., entering a surface load that is significantly less than the buoyed weight of the work-string while modeling Trip Out load.)
878463	Windows Authentication on EDM SQL Server database fails on ODBC configured as SQL Server Authentication. See workaround on page <a href="#">28</a> .

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## **Release 5000.1.9**

Defect No.	Description
815588	Pinned run depth doesn't converge on calibrating with actual TDA RT data if there is no wellpath available in the pinned depth range.
829079	Hydraulics Analysis (System) Workspace > Hydraulic Analysis.
831787	Nozzle data in the String Editor description does not get updated when changed, causing confusion.
832334	Max surge pressure at TD are different from that of the baselines from 16.1.25 for BP data sets.
844374	Influx menu drop-down grays out for Kick while drilling - refresh issue.
853962	Pump Rate Fixed ECD Report Section 3, Bugs.
854567	WELLPLAN freezes on applying friction factor greater than 0.3.
855334	Application crashes when selecting bit from catalog.
855453	Discrepancies between the table and graph results.
855662	Unable to generate a Drag chart when running a liner on drillpipe. Normal analysis also locks up.
855738	SP#959-WellPlan-Do Critical Buckling Force calcs take into consideration the use of centralizers in R5000.1.9.
855895	The calculated results in T&D module from the Top-Down analysis are not being seen.
856103	Unable to get a drag chart; ADO error trying to view the Tension Point chart.
856553	XML containing riserless/innerstring data gives error upon import.
857368	Error message is not clear when using riserless/inner string mode with unsupported configuration.
857431	WELLPLAN crash when creating a Case from OpenWells.
857444	When user opens a user-defined workspace, the Hole Section Editor and String Editor appear blank.
857810	The schematic shows fluid depths incorrectly.
857812	If you delete Mud Motor from Critical Speed Module, results disappear and error message appears.
859397	Riserless schematic does not match up with wellpath survey.
860009	Online Help for the Limit plot should be removed.
860049	Wizard option unusable for any module after certain operation.
861144	Well Control Safe Drilling Depth plot results not matching 5000.1.5.4 for swabbing kick class.

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Defect No.	Description
839584	The output results tables like TDA Summary and Hole Cleaning operations table do not show the units, or the units get clustered.
840477	Application crashes when exiting a case after flipping plots to grid mode (error only occurs for this specific workflow only).

**Release 5000.1.7**

There were no additional WELLPLAN known issues for this release.

**Release 5000.1.6**

Defect No.	Description
830796	User will run into an import failed error message while importing historical XML files (from 2003.16.1.14 and later) due to a real-time depth interval field. The import is working properly; user needs to refresh the Well Explorer and continue working with the Case.

**Release 5000.1.1 through 5000.1.5**

There were no additional WELLPLAN known issues for these releases.

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## **Release 5000.1.0**

The following are WELLPLAN known issues for the 5000.1.0 release.

### *General Known issues*

Defect No.	Description
769678	VAM catalogs are not up to date with vendor's list.
776472	Duplicates in Casing/Tubing catalog (Halliburton Redbook Casing) due to Body ID not being added to list of catalog.
778580	Hole Sections incorrectly populated in WELLPLAN software with Create Cases from Casing Design feature when BHA length is designed greater than Casing length in PROFILE.
780699	Wall Plots tabs can only be deleted from the bottom of the list in Tab Manager.
782086	The kick off depth is not refreshed correctly in wellbore properties unless WELLPLAN software is closed and reopened.
783590	Radio buttons on the Mud Pits dialog box are occasionally disabled when user does not tab out of last focused field.

### *Torque Drag Known issues*

Defect No.	Description
782260	Torque Drag centralizer placement calculation uses the 1/1 frequency per joint making the Torque Drag calculation override the spacing from centralizer placement.

### *Hydraulics Known Issues*

Defect No.	Description
782603	Hydraulics ECD vs Depth and SPP vs Depth in Drag Chart results do not match when changing the base type from Synthetic to water and back to Synthetic.
785348 & 785350	Occasionally the Pressure Loss plot (if present in active view) changes to a plot without grids or crashes when rheology model is changed from Bingham Plastic to Herschel Bulkley or Generalized Herschel Bulkley model and only 2 Fann data points are defined. Workaround: Define three (3) Fann data readings, which are needed for Herschel Bulkley and Generalized Herschel Bulkley Rheology models, before changing the rheology model.

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### Well Control Known Issues

Defect No.	Description
730584	Map pore pressure data from kick analysis report to a new row in kick case created from OpenWells® software in WELLPLAN software.
782613	Mud Pits are shown in Well Control module, even though they are not used in this module.

### Surge Known Issues

Defect No.	Description
781978	Reciprocation Mode calculation is not based on the acceleration and deceleration fields.
783985	Occasionally a com object error occurs the first time Surge results are calculated.

### OptiCem Known issues

Defect No.	Description
775970	Importing and saving some OptiCem (OTC) file via CITRIX ICA interface causes abnormal software termination.

### Reports Known Issues

Defect No.	Description
780657	MD/TVD and EMW/PSI toggle buttons will not have any effect on the tables in the reports.
782256	Occasionally reports may take long time to generate. This usually happens on larger reports.
782470	WELLPLAN reports exported to Microsoft Word are now 40% larger in size than in the previous releases.

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# International Trade Compliance

This application is manufactured or designed using U.S. origin technology and is therefore subject to the export control laws of the United States. Any use or further disposition of such items is subject to U.S. law. Exports from the United States and any re-export thereafter may require a formal export license authorization from the government. If there are doubts about the requirements of the applicable law, it is recommended that the buyer obtain qualified legal advice. These items cannot be used in the design, production, use, or storage of chemical, biological, or nuclear weapons, or missiles of any kind.

The ECCN's provided in Release Notes represent Landmark Graphics' opinion of the correct classification for the product today (based on the original software and/or original hardware). Classifications are subject to change. If you have any questions or need assistance please contact us at [FHOUEXP@halliburton.com](mailto:FHOUEXP@halliburton.com)

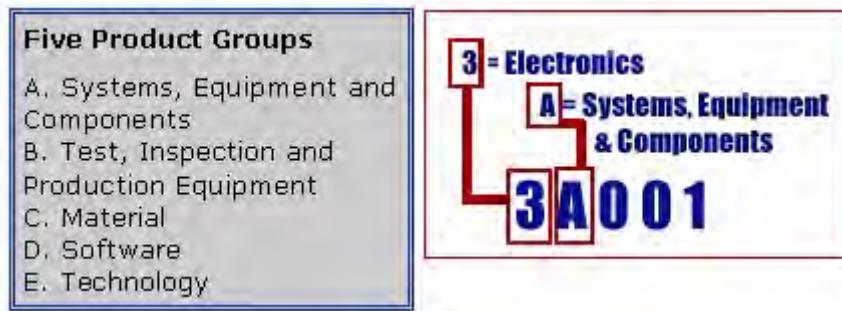
Under the U.S. Export Administration Regulations (EAR), the U.S. Government assigns your organization or client, as exporter/importer of record, responsibility for determining the correct authorization for the item at the time of export/import. Restrictions may apply to shipments based on the products, the customer, or the country of destination, and an export license may be required by the Department of Commerce prior to shipment. The U.S. Bureau of Industry and Security provides a web site to assist you with determining the need for a license and with information regarding where to obtain help.

The URL is: <http://www.bis.doc.gov>

## ***Definitions***

CCATS (Commodity Classification Automated Tracking System) - the tracking number assigned by the U.S. Bureau of Industry and Security (BIS) to products formally reviewed and classified by the government. The CCATS provides information concerning export/re-export authorizations, available exceptions, and conditions.

ECCN - Export Control Classification Number - The ECCN is an alpha-numeric code, e.g., 3A001, that describes a particular item or type of item, and shows the controls placed on that item. The CCL (Commerce Control List) is divided into ten broad categories, and each category is further subdivided into five product groups. The CCL is available on the [EAR Website](#).

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The ECCN number, License Type, and the CCATS Numbers for this product are included in the table below. Also included is the date the table was last updated.

Product/Component/R5000	ECCN Number	License	CCATS Number	Last Date Updated
Engineer's Data Model (EDM)	5D002	ENC	G060075	3/29/2010
Engineer's Data Model Software Development Kit (EDM SDK)	5D002	ENC	G060075	3/29/2010

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# Contacting Landmark Customer Support

Landmark Customer Support operates Technical Assistance Centers (TACs) in Malaysia, the United Kingdom, and the United States. Customer Support provides technical assistance on Landmark software applications. The website for Landmark is:

[Landmark \(<http://www.landmarksoftware.com>\)](http://www.landmarksoftware.com)

Requests for support can be made by:

- [Landmark Customer Support Portal](#)

See [Submitting a Request for Technical Assistance](#) below.

- Email

[support@landmarksoftware.com](mailto:support@landmarksoftware.com)

- Telephone

See [Technical Assistance Centers](#) below.

## ***Submitting a Request for Technical Assistance***

To submit a request for technical assistance:

1. Open [Landmark Customer Support Portal \(<http://www.landmarksoftware.com/Pages/Support.aspx>\)](#) in a browser.
2. Hover the mouse cursor over the **Sign In To Landmark Portals** area on the right of the webpage. Text boxes for your registered email account and password appear.
3. Log in. The Sign In To Landmark Portals area is renamed to Landmark Portals.
4. In the Landmark Portals area, select **Customer Support Portal**. The Support Portal Home page appears in the browser.
5. In the Case & Defect Information area on the right, select **Create A New Case**. The Add Case page appears in the browser.
6. Fill in the requested information.

Provide:

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- Details about your technical concern, including any error messages.
  - Workflow steps where the problem occurred.
  - Attachments of screen shots that capture the problem.
7. Click **Submit**.

A support analyst in the nearest Technical Assistance Center will respond to your request.

## **Technical Assistance Centers**

The hours of operation are:

8:00 a.m. - 5:00 p.m., local time

Monday-Friday, excluding holidays

The phone numbers for the Technical Assistance Centers are:

- **Asia Pacific, Malaysia**  
+61-8-9481-4488  
Toll Free +1-800-803-687 (Malaysia)
- **Europe, Africa, Middle East, Eurasia, United Kingdom**  
+44-1372-868686
- **Latin America, USA**  
+1-713-839-3405 (Spanish, Portuguese, English)
- **North America, USA**  
+1-713-839-2200 (Houston, TX, USA)  
Toll Free +1-877-435-7542

For more information about contacting Customer Support, see:

<http://www.landmarksoftware.com/Pages/ContactSupport.aspx>

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3D Drill View, 3D Drill View KM, 3D Surveillance, 3DFS, 3DView, Active Field Surveillance, Active Reservoir Surveillance, Adaptive Mesh Refining, ADC, Advanced Data Transfer, Analysis Model Layering, ARIES, ARIES DecisionSuite, Asset Data Mining, Asset Decision Solutions, Asset Development Center, Asset Development Centre, Asset Journal, Asset Performance, AssetConnect, AssetConnect Enterprise, AssetConnect Enterprise Express, AssetConnect Expert, AssetDirector, AssetJournal, AssetLink, AssetLink Advisor, AssetLink Director, AssetLink Observer, AssetObserver, AssetObserver Advisor, AssetOptimizer, AssetPlanner, AssetPredictor, AssetSolver, AssetSolver Online, AssetView, AssetView 2D, AssetView 3D, Barrier Assurance Monitoring, BLITZPAK, CartoSnap, CasingLife, CasingSeat, CDS Connect, CGMage Builder, Channel Trim, COMPASS, Contract Generation, Corporate Data Archiver, Corporate Data Store, Data Analyzer, DataManager, DataServer, DataStar, DataVera, DBPlot, Decision Management System, DecisionSpace, DecisionSpace 3D Drill View, DecisionSpace 3D Drill View KM, DecisionSpace AssetLink, DecisionSpace AssetPlanner, DecisionSpace AssetSolver, DecisionSpace Atomic Meshing, DecisionSpace Base Module, DecisionSpace Data Quality, DecisionSpace Desktop, DecisionSpace Dropsite, DecisionSpace Geosciences, DecisionSpace GIS Module, DecisionSpace GRC Module, DecisionSpace Nexus, DecisionSpace Reservoir, DecisionSuite, Deeper Knowledge, Broader Understanding., Depth Team, Depth Team Explorer, Depth Team Express, Depth Team Extreme, Depth Team Interpreter, DepthTeam, DepthTeam Explorer, DepthTeam Express, DepthTeam Extreme, DepthTeam Interpreter, Desktop Navigator, DESKTOP-PVT, DESKTOP-VIP, DEX, DIMS, Discovery, Discovery 3D, Discovery Asset, Discovery FrameBuilder, Discovery PowerStation, Discovery Suite, DMS, Drillability Suite, Drilling Desktop, DrillModel, DrillNET, Drill-to-the-Earth-Model, Drillworks, Drillworks ConnectML, Drillworks Predict, DSS, Dynamic Frameworks to Fill, Dynamic Reservoir Management, Dynamic Surveillance System, EDM, EDM AutoSync, EDT, eLandmark, Engineer's Data Model, Engineer's Desktop, Engineer's Link, ENGINEERING NOTES, eNotes, ESP, Event Similarity Prediction, ezFault, ezModel, ezSurface, ezTracker, ezTracker2D, ezValidator, FastTrack, Field Scenario Planner, FieldPlan, For Production, FrameBuilder, Frameworks to Fill, FZAP!, GeoAtlas, GeoDataLoad, GeoGraphix, GeoGraphix Exploration System, Geologic Interpretation Component, Geometric Kernel, GeoProbe, GeoProbe GF DataServer, GeoSmith, GES, GES97, GesFull, GESXplorer, GMAtplus, GMI Imager, Grid3D, GRIDGENR, H. Clean, Handheld Field Operator, HHFO, High Science Simplified, Horizon Generation, I<sup>2</sup> Enterprise, iDIMS, iEnergy, Infrastructure, iNotes, Iso Core, IsoMap, iWellFile, KnowledgeSource, Landmark (*as service*), Landmark (*as software*), Landmark Decision Center, LandNetX, Landscape, Large Model, Lattix, LeaseMap, Limits, LithoTect, LogEdit, LogM, LogPrep, MagicDesk, Make Great Decisions, MathPack, MDS Connect, MicroTopology, MIMIC, MIMIC+, Model Builder, NETool, Nexus (*as service*), Nexus (*as software*), Nexus View, Object MP, OneCall, OpenBooks, OpenJournal, OpenLink, OpenSGM, OpenVision, OpenWells, OpenWire, OpenWire Client, OpenWire Server, OpenWorks, OpenWorks Development Kit, OpenWorks Production, OpenWorks Well File, Operations Management Suite, PAL, Parallel-VIP, Parametric Modeling, Permedia, Petris WINDS Enterprise, PetrisWINDS, PetroBank, PetroBank Explorer, PetroBank Master Data Store, PetroWorks, PetroWorks Asset, PetroWorks Pro, PetroWorks ULTRA, PLOT EXPRESS, PlotView, Point Gridding Plus, Pointing Dispatcher, PostStack, PostStack ESP, PostStack Family, Power Interpretation, PowerCalculator, PowerExplorer, PowerExplorer Connect, PowerGrid, PowerHub, PowerModel, PowerView, PrecisionTarget, Presgraf, PressWorks, PRIZM, Production, Production Asset Manager, PROFILE, Project Administrator, ProMAGIC Connect, ProMAGIC Server, ProMAX, ProMAX 2D, ProMax 3D, ProMAX 3DPSDM, ProMAX 4D, ProMAX Family, ProMAX MVA, ProMAX VSP, pSTAx, Query Builder, Quick, Quick+, QUICKDIF, Quickwell, Quickwell+, Quiklog, QUIKRAY, QUIKSHOT, QUIKVSP, RAVE, RAYMAP, RAYMAP+, Real Freedom, Real Time Asset Management Center, Real Time Decision Center, Real Time Operations Center, Real Time Production Surveillance, Real Time Surveillance, Real-time View, Recall, Reference Data Manager, Reservoir, Reservoir Framework Builder, RESev, ResMap, Resolve, RTOC, SCAN, SeisCube, SeisMap, SeisMapX, Seismic Data Check, SeisModel, SeisSpace, SeisVision, SeisWell, SeisWorks, SeisWorks PowerCalculator, SeisWorks PowerJournal, SeisWorks PowerSection, SeisWorks PowerView, SeisWorks2D, SeisWorks3D, SeisXchange, Semblance Computation and Analysis, Sierra Family, SigmaView, SimConnect, SimConvert, SimDataStudio, SimResults, SimResults+, SimResults+3D, SIVA+, SLAM, Smart Change, Smart Deploy, Smart Flow, Smart Skills, Smart Start, Smart Sustain, Smart Transform, Smart Vision, SmartFlow, smartSECTION, smartSTRAT, Spatializer, SpecDecomp, StrataMap, StrataModel, StratAmp, StrataSim, StratWorks, StratWorks 3D, StreamCalc, StressCheck, STRUCT, Structure Cube, Surf & Connect, SurfNet, SynTool, System Start for Servers, SystemStart, SystemStart for Clients, SystemStart for Servers, SystemStart for Storage, Tanks & Tubes, TDQ, Team Workspace, TERAS, T-Grid, The Engineer's DeskTop, Total Drilling Performance, TOW/cs, TOW/cs Revenue Interface, TracPlanner, TracPlanner Xpress, Trend Form Gridding, Trimmed Grid, Tubular Basic, Turbo Synthetics, Unconventional Essentials, VESPA, VESPA+, VIP, VIP-COMP, VIP-CORE, VIPDataStudio, VIP-DUAL, VIP-ENCORE, VIP-EXECUTIVE, VIP-Local Grid Refinement, VIP-THERM, vSpace, vSpace Blueprint, vSpace Onsite, WavX, Web Editor, Well H. 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