SafeWells
Expro’s well integrity solution

www.exprogroup.com
SafeWells is a **well integrity data management** solution developed by Expro to provide a clear overview of operators’ well integrity status.

SafeWells has been 7 years in design and used by more than 10 global operators.
What is SafeWells?

SafeWells is a software solution specifically developed by Expro as an effective well integrity data management system. It monitors and reports on well integrity performance and has been successfully deployed by major operators globally.

SafeWells provides a view of current well integrity status and problems, and allows for tracking of remedial actions as issues arise. Operators can therefore plan their well intervention program safe in the knowledge that they are compliant with their policies, while being able to demonstrate their effectiveness at monitoring and tracking their wells’ status.

SafeWells is fully configurable to allow multiple parts to be added or removed from the tree/well. An intuitive traffic light system is used to give an instant visual overview of the system status and quickly highlights potential problem areas. Any number of activities such as well integrity tests, valve replacements, annulus top-up or echo tests can be added to the system and scheduled according to company procedures. Trend reports can be generated for any numerical data.
Customised to your needs

SafeWells enables operators to improve safety and maximise well availability by providing visibility of integrity issues across their well stock.

Data input can be configured to use clients’ existing reporting and documentation structures, to ensure a rapid and effective implementation of the system.

The SafeWells main screen by default shows the current well integrity status for the selected well. Components that put the integrity of the well at risk are clearly shown. Historic maintenance activities that have been performed on the well are available for review.

Well construction

SafeWells is primarily designed to manage the integrity of wells from the reservoir to the production choke – and all the barriers and safety critical elements in between.

Visualisation is a key aspect of the SafeWells system and wells can be ‘built’ in the system which is a replica of the equipment in the field as shown (right).

Electronic forms

SafeWells can be configured to record any activity that is performed on the well such as well integrity tests, annulus blowdowns and top ups, interventions and valve replacements.

The system implemented by the operator allows the recreation of existing paper based forms to exactly recreate the look and feel that maintenance crews are used to. User friendly e-forms ensure smooth transition from paper systems to electronic systems.

The forms can also be configured to automatically send e-mail notifications to designated personnel if values recorded are outwith company procedures. For example, if the pressure build-up on the subsurface safety valve is greater than acceptable API values, then an automatic e-mail will be sent immediately to the appropriate people.
Customised to your needs

Reporting
SafeWells reports have been specifically generated to support the demonstration of policy compliance to management and legislative authorities. The example below shows the types of tests that should be routinely performed on the well and how effectively these have been performed.

### Risk Status Summary

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td>Shut In Well. Carry out Formal Technical Review within seven days to determine mitigating actions. Also to be advised of well status.</td>
</tr>
<tr>
<td>High Concern</td>
<td>Within two weeks perform a formal and documented risk assessment and seek dispensation from Wells Manager. Senior management to take an active and participatory role to ensure it is safe to continue operating. Repairs to be performed within 2 months.</td>
</tr>
<tr>
<td>Medium Concern</td>
<td>Perform a formal and documented risk assessment within one month to ensure it is safe to continue operating. Increase inspections and testing frequency. Repair when opportunity exists but within 3 months.</td>
</tr>
<tr>
<td>No Concern</td>
<td></td>
</tr>
</tbody>
</table>

### Component Test Compliance Summary

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Components Tested</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function Test</td>
<td>584</td>
<td>81%</td>
</tr>
<tr>
<td>Integrity Test</td>
<td>697</td>
<td>43%</td>
</tr>
<tr>
<td>SSSV Leak Test (Gas)</td>
<td>35</td>
<td>54%</td>
</tr>
<tr>
<td>SSSV Test (Liquid)</td>
<td>20</td>
<td>70%</td>
</tr>
</tbody>
</table>

**Legend:**
- **Non Compliant:** Component Failed last test or has no test data
- **Compliant:** Component Tested OK, next test imminent
- **Compliant Mitigated:** Component mitigated

Production data
Most companies normally have a data acquisition system continuously monitoring annulus and tubing pressure. SafeWells can monitor annulus pressure over a specified time period – showing limits and sending notifications to personnel if trigger values are reached or exceeded.
Pressures and well integrity related activities are on the same chart, allowing the engineer to determine if an operation on the well has had an impact on the annulus pressure. This type of view also provides an easy way to identify possible communication issues.
Customised to your needs

Electronic well file
SafeWells allows the upload of well-related documents such as end-of-well reports, handover documents, certifications, chart recorder outputs, drawings, surveys etc. These can be added to the system to provide a central library of well-related information.

Management of change
Further to recording well integrity issues, SafeWells has been developed to provide support relating to management of change. This includes both risk assessments of the well to determine the severity of any problems, and the ability to track dispensations.

Expro provides a complete solution
The key differentiator to our competitors is that Expro provides the complete well integrity service. We add additional value to customers’ operations by providing any necessary well services/well integrity support. This includes our cased hole services such as downhole cameras, caliper surveys, MPLT, etc.
The benefits of SafeWells

As an industry, we have a duty of care to ensure that we are safely operating our wells. Well integrity is not solely an issue of well availability. A combination of corporate social responsibility and developments in government legislation are driving renewed focus on the topic of well integrity.

From the wellhead to the sandface, poor condition of wells has potential HSE consequences, as some operators have discovered. Thus, ensuring the integrity of critical barriers in a well is of utmost importance.

Benefits of SafeWells:
- Integrity compliance
- Visible corporate & social responsibility
- Demonstrable safety performance
- Flexible configuration
- Expro specialist well integrity support
- Enhanced data management
- Comprehensive reporting

Commercial benefits:
- Engineering cost reductions: Typically it takes an engineer up to a month to prepare the documentation required for the mechanical integrity report which is reviewed annually by HSE in accordance with the design and construction regulations. SafeWells can easily generate this report
- Audit cost reductions: Auditors can review well integrity records by logging in to the software remotely. This provides a direct cost saving to customers as they do not have to spend so much time with the auditor on site. (100 wells = $50,000 saving)
- Operators insurance premiums reduced (100 wells = $150,000 p/a saving)

Management benefits:
- Visibility of well integrity status across entire business
- Improved HSE performance
- Competitive improvement reporting
- Globally accessible
- Improved management of change process
- Demonstration to regulatory body, shareholders and investors that wells are managed
- Raised profile as an operator

Operational benefits:
- Identification and justification of improved integrity test processes, reducing time spent by crew at the well site.
- Output reports provide crews with forewarning of existing problems prior to start of operations. The report below, for example, is printed weekly and included as part of the emergency response process.
The benefits of SafeWells

SafeWells allows the customer to store pertinent information (equipment status, maintenance records, test procedures, service schedules and reports, intervention records, traceability documentation, etc) about their production string, annuli, wellhead and xmas tree. The customer defines acceptance criteria for each barrier (or can use built-in API standards) and based on test results, servicing compliance, etc, each barrier is subsequently rated with an integrity ranking. Management dashboards then consolidate the integrity of the wells to provide a report outlining the overall integrity status of the asset. This will include overdue service reports, critical well status lists and alarm settings. One of the unique features of SafeWells is the ability of the client to customise their own database, test reports and input screens, to align the system with their policies and procedures.

Our customers chose SafeWells because it:

■ Provides an efficient well integrity management system where one is currently lacking
■ Enhances and improves the effectiveness of their existing spreadsheet tracking system
■ Demonstrates to regulatory bodies, shareholders and investors that they have a system to manage the integrity of their wells. Interestingly, a number of clients have done this successfully to aid negotiations with regulatory bodies
■ Reduces insurance premiums. Many of our clients in the UK sector have presented SafeWells to their insurers and successfully negotiated large discounts on their policies accordingly. Interestingly in one specific example, the insurance savings covered the cost of implementing SafeWells in the first place
■ Raises their profile as an operator that has a genuine concern for the environment and the safety of their personnel and assets
■ Helps them sleep at night

Who should be using SafeWells?

SafeWells is a product which can be used by anyone that owns a well and wants to monitor the integrity of that well. It makes no difference whether this is surface or subsea, onshore or offshore, producer or injector, flowing or shut-in, producing or abandoned. SafeWells should be used by all operators.
SafeWells customer commendations

… Well done ALL. The ideas from us all have/are/continue to be translated into great visualisation changes with a terrific impact. This clearly demonstrates that we have a truly flexible package that goes from strength to strength. – Tullow

…SafeWells is a powerful tracking and assessment tool.
– Marathon

Be part of the solution

SafeWells users are welcome at our annual product development forum. This provides an excellent opportunity to discuss well integrity among our SafeWells customers ensuring that the software is developed in line with industry and legislative requirements.

Support number  +44 (0) 1224 214750
Support@safewells.com

SPE Papers


SPE 123201 “A Systematic Approach to Well Integrity Management”, Alex Annandale, Marathon Oil UK; Simon Copping, Expro, 2009.
Providing a complete service

SafeWells can be used to record data and results that are provided from Expro’s complete range of well integrity services.

**Camera services**
Expro’s range of downhole camera systems offers operators a cost-effective way to see downhole problems rather than inferring them or just plain guessing. Downhole video is a proven technology and more than 5,000 downhole video surveys have been run in a wide range of oil and gas well conditions. Video applications have evolved to provide a cost-effective diagnostic and preventative tool that can be run for a multitude of applications.

**Electronic calipers**
Expro’s range of electronic multi-finger caliper tools accurately measure the internal diameter of the casing or tubing strings using up to 40 independent fingers.
Whether used as part of a scheduled casing integrity monitoring program or for a one-off problem investigation, an accurate 3D picture of the downhole conditions can be quickly established at the well site using Expro’s Multi-finger Image Processing Software (MIPS). Appropriate remedial action can then be quickly implemented, ensuring that any compromised production time is minimised.

**Wellhead maintenance**
The Expro Wellhead Maintenance service forms a key part of Expro’s well integrity capability for assets in the newer HP/HT developments through to the mature brownfield environment.
Range of services include:
- Xmas tree valve greasing and valve pressure testing
- Annuli valve greasing and valve pressure testing
- Annulus integrity monitoring, including annulus top-up and pressure testing
- Hanger seal/pack-off testing
- Gate valve and actuator repairs
- Echo meter liquid level detection (optional)
- SCSSSV inflow test and function test (optional)

Our crews use SafeWells to record results of the maintenance work, and to alert our customers immediately should any problems arise.

**Integrity engineers**
Our team of experienced engineers provide a range of well integrity services including:
- Well integrity training
- Well integrity policy and procedure writing
- Maximum allowable surface pressure (MAASP) calculations
- Independent well examination services
Expro’s mission is **well flow management**. We provide services and products that **measure, improve, control** and **process** flow from high-value oil and gas wells, from exploration and appraisal through to mature field production optimisation and enhancement.

With a specific focus on **offshore, deepwater** and other **technically challenging environments**, we provide a range of mission critical services across **three key areas:**

- Well Test & Appraisal Services
- Subsea, Completion & Intervention Services
- Production Services

Our vision is to be the **market leader** in well flow management, using the industry’s best people, to deliver the highest standards of **safety, quality** and **personalised customer service**.

Expro’s **40+ years** of experience and innovation empowers the company to offer **tailor-made solutions** for customers across the energy sector. With 4,500 employees in over 50 countries, Expro offers a **truly global service solution**.
For more information contact:
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Or visit www.exprogroup.com/contact