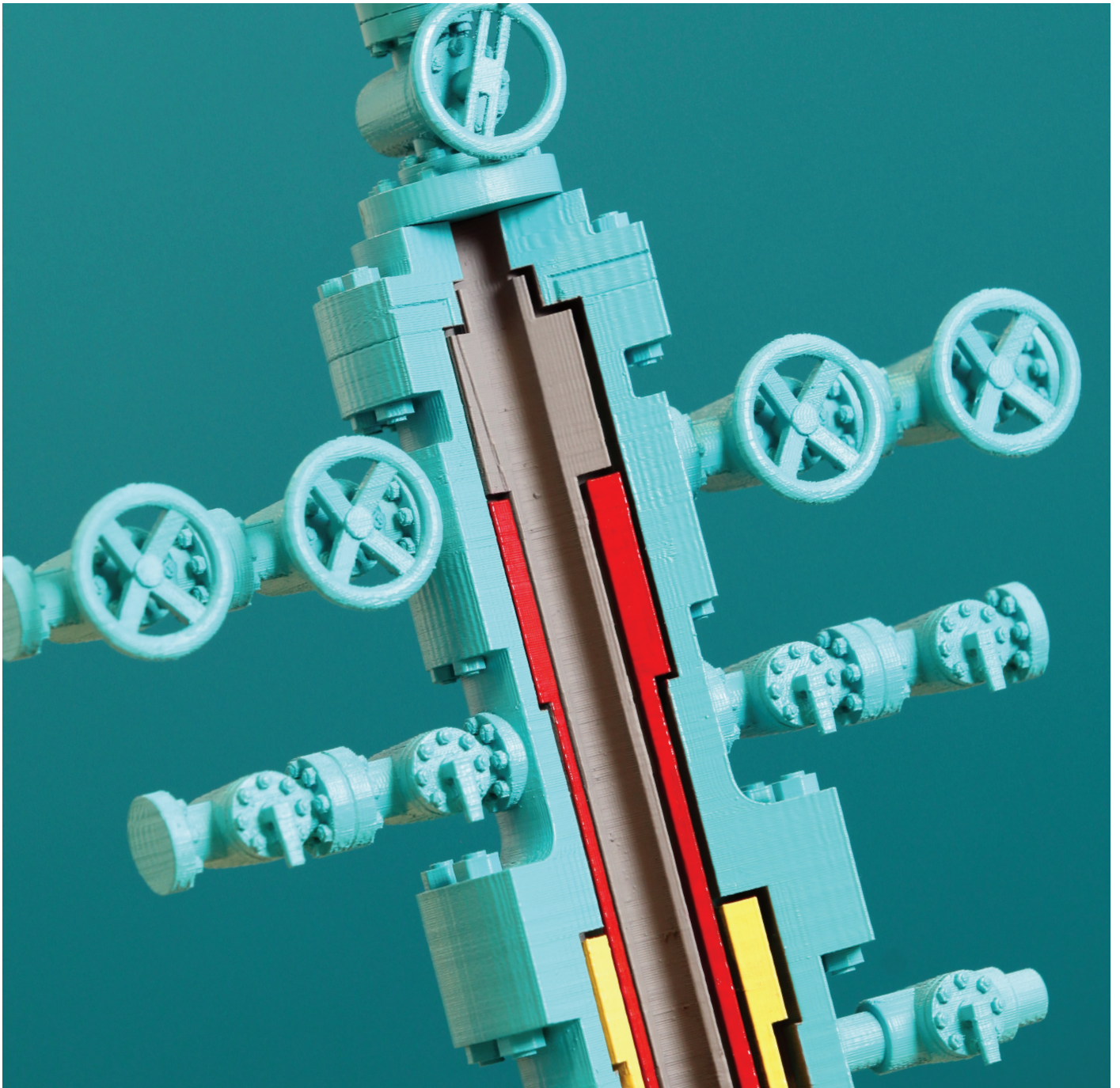


SafeWells®

**Custom built, ISO compliant total
well integrity management software**



Leveraging software systems to support well integrity



Well integrity refers to maintaining full control of fluids within a well at all times, in order to prevent unintended fluid movement or loss of containment to the environment. In addition, it refers to preventing movement between formations with discrete pressure sources that are penetrated by the wellbore, by employing and maintain one or more well barrier.

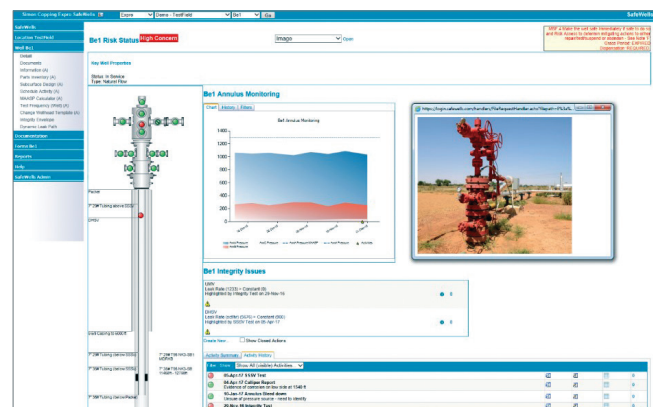
**ISO 16530
Well Integrity Lifecycle
Governance**

The SafeWells® data management software has been developed by Expro to provide a clear overview of operators' well integrity status. It is the only out-of-the-box solution that can be readily configured to suit any legislative requirement, including ISO 16530-2.

Well integrity management is essential to safeguard production, reduce the risks associated with field operations and ensure sound environmental stewardship. This can be achieved through collating, analysing and sharing valuable well integrity related information and ensuring compliance to company and industry requirements.

The SafeWells® system gives an intuitive overview of wells and quickly highlights potential challenges by providing:

- A customisable view of well integrity status and problems, facilitating proactive remedial action
- A planned well intervention programme, compliant with both regulations and company policies
- Effective monitoring and tracking of well status – fundamental in improving safety and maximising well availability across well stock



Expro has maintained an ongoing focus on developing software in alignment with industry standards. Developed for over ten years, the core SafeWells® product has always provided strong functionality to align with the following chapter headings from ISO 16530-2:

- Well integrity and policy strategy
- Resources, roles, responsibilities
- Risk assessment procedure
- Well component performance standards
- Well operating limits
- Well monitoring and surveillance
- Well handover
- Well maintenance
- Well integrity failure management
- Management of change

Expro also provides a range of newly developed system modules.

The source module has been developed to allow integration with the many data sources including spreadsheets utilising one simple framework.

In addition to this, the MAASP (maximum allowable annulus surface pressure) calculator has been developed to provide an auditable process for accurately determining MAASP, in line with ‘annulus management’ requirements of ISO 16530. Our calculator is based on the formulae provided in the ISO standard, and also on the lookup tables in API 53C. It provides a consistent, repeatable, and auditable process for accurately determining MAASP.

Ensuring operators are compliant with ‘well barrier’ ISO compliance requirements is achieved through the Barriers module, which has been introduced to visualise the primary/secondary envelopes. The concept of ‘leak paths’ is also being introduced and aligns with the standard.

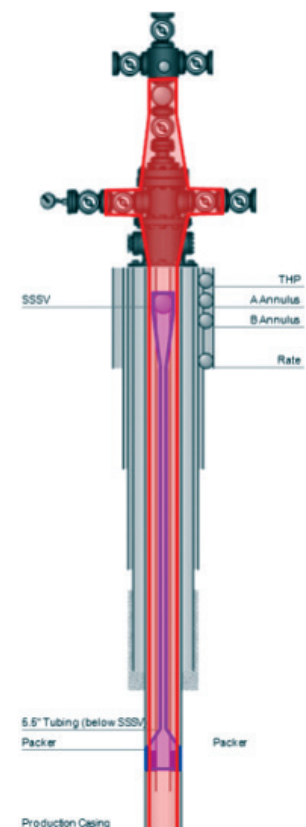
A range of SafeWells® reports have also been developed to deliver the reporting requirements specified in ISO 16530:

- Well barriers
- Well integrity and reporting
- Compliance audit
- Well maintenance
- Risk management
- Failure management
- Management of change
- Well handover
- Well component performance standards
- Operating limits
- Annular pressure management
- Monitoring and surveillance



The preservation, maintenance, inspection and testing of well barrier envelopes are key aspects of the management of well integrity throughout the operational phase of the well.

ISO 16530-2



Features and benefits

Storing pertinent information (equipment status, maintenance records, test procedures, service schedules and reports, intervention records, traceability documentation, etc) about the production string, annuli, wellhead and xmas tree can all be done in the system, or linked to a pre-existing repository.

One of the unique features of the SafeWells® system is the ability of the client to configure their own activity entry screens to align with their policies and procedures.

- Visibility of integrity compliance (both regulatory and company policy) to internal stakeholders, as well as regulatory bodies, shareholders and investors
- Automated calculation of MAASP to either regulatory or company calculations
- Identification and justification of improved integrity test processes, reducing time spent by a crew onsite
- Forewarning of existing problems prior to commencing operations
- Enhanced data management and comprehensive reporting with flexible configuration
- Improved and demonstrable health, safety and environmental performance
- Engineering cost reductions in the preparation of mechanical integrity reports required by HSE
- Audit efficiency through remote access by the auditors
- Reduced insurance premiums

Customer collaboration

Expro's SafeWells® software has been developed in open collaboration with over 20 operators to provide an industry recognised well integrity management solution. Users are welcome at our annual product development forums. These forums provide an excellent opportunity to discuss well integrity among other system users, providing ongoing feedback and dialogue.

1. Eligibility

Every customer is eligible to participate



2. Prioritising

Barriers / MAASP / Reports / Workflow

What are the priorities?

3. Collaboration

Feature development team established



4. Scope

Contractual agreement and scope of work prepared by the development team



5. Development

Feature developed with regular feedback sessions and testing with the development team



6. Success

Collaboration + enhancements = improved well integrity



Safer, smarter well integrity solutions

Expro provides a comprehensive well integrity service, adding value to your operations, delivering the complete package of well intervention solutions across the lifecycle of your wells. Data and reports can be recorded by the SafeWells® architecture:

Well integrity engineering services

Expro's well integrity engineers provide a range of services focused on improving operators' well integrity process. This includes policy reviews, audits and recommendations to full scale well integrity management policy development.

As one of the industry leaders in well integrity management, Expro provides bespoke training courses delivered by our experienced global trainers. The courses have been developed to help personnel understand the importance of good well integrity practices and the potential consequences of non-compliance.

The course can be modified to suit specific requirements and can be delivered either at Expro's training facilities in Aberdeen, or anywhere in the world as required.

Electronic calipers

With a range of electronic multi-finger caliper tools, Expro can 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.

Camera services

Expro's range of downhole camera systems offers operators a cost-effective way to see downhole problems and reduce guesswork.

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.

Wellhead maintenance

The range of services within Expro's wellhead maintenance service 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
- Echometer liquid level detection (optional)
- SCSSSV inflow test and function test (optional)

Crews use the SafeWells® system to record results of the maintenance work, to immediately alert any issues.

Safer, smarter well integrity solutions



The management of well integrity is a combination of technical, operational and organisational processes to ensure a well's integrity during the operating life cycle...

ISO 16530-2

Expro is committed to delivering safer and smarter well integrity solutions through our combination of:

- **Subsurface engineers**
- **Well integrity products and services**
- **SafeWells® software**

We believe that that these capabilities help to ensure that the technical, operational and organisational processes detailed in ISO 16530-2 are achieved.

Technical

Expro's subsurface engineers

- Well operating limits
- Well component performance standards

Operational

Expro's products and services

- Well maintenance
- Annular pressure management
- Well monitoring and surveillance
- Well barriers

Processes

Expro's SafeWells® software

- Well integrity failure management
- Risk assessment process
- Management of change
- Well handover
- Well records and well integrity reporting
- Performance monitoring of WIMS system/compliance



EXPRO

For more information please contact:
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or visit
www.exprogroup.com/safewells



To download our range of
brochures please visit
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